

**TINTINA RESOURCES, INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
Second Quarter 2017**

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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)*.

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APPENDICES

- Appendix A: Meteorological Data
- Appendix B: Performance Audit Reports
- Appendix C: Calibration Report
- Appendix D: Evaporation and Precipitation Summary

1.0 INTRODUCTION

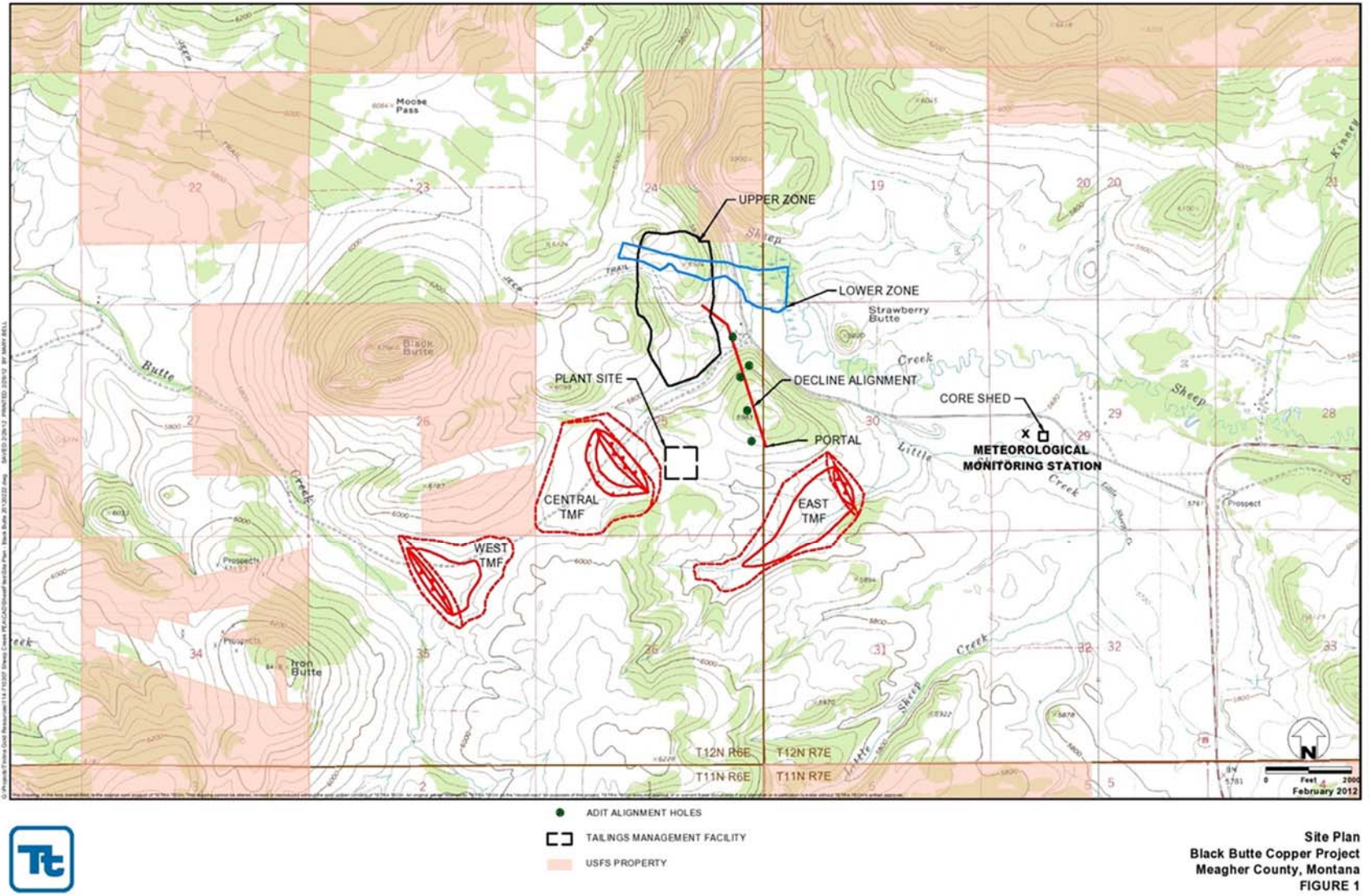
Tintina Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately characterize 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 location of the monitoring site.

This report presents the data collected during the second quarter (April through June) of 2017. 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.

Figure 1. Monitoring Site Location



2.0 MONITORING SYSTEM OPERATIONS

The installation of the monitoring meteorological system equipment took place in April 2012, soon after the equipment was received from the manufacturers. The installation and calibration of the equipment required about two weeks to complete. All meteorological sensors were in full operation and producing valid data by April 30, 2012.

Steve Heck of Bison conducted performance audits of the meteorological system on June 8, 2017, and made any necessary calibration adjustments to the meteorological system following the audits. The Bison report of the audits is presented in Appendix B.

Manual measurements of evaporation and precipitation were generally recorded by Tintina's on-site personnel two to three times per week. Operation of the evaporation pan for 2017 was initiated on May 12, when subfreezing temperatures became infrequent.

3.0 CALIBRATION DATA

As discussed in Section 4.0, the system's as-found condition was audited June 8, 2017. No calibration adjustments were made to the system other than replacement of the temperature sensors' aspirator fans, as shown in Appendix C.

4.0 PERFORMANCE AUDIT DATA

Steve Heck of Bison conducted performance audits of the meteorological system on June 8, 2017, and made no calibration adjustment beyond replacing the temperature sensors' aspirator fans. The Bison report of the audits is presented in Appendix B.

5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the second quarter of 2017 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 second quarter the net percentage data recovery was 100.0 percent for all parameters at the site.

Table 1. Monthly Data Completeness

April 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	720	100.0	0	100.0
Wind Direction	720	720	100.0	0	100.0
Standard Deviation	720	720	100.0	0	100.0
Temperature 9 Meters	720	720	100.0	0	100.0
Temperature 2 Meters	720	720	100.0	0	100.0
Temperature Delta T	720	720	100.0	0	100.0
Solar Radiation	720	720	100.0	0	100.0
Barometric Pressure	720	720	100.0	0	100.0
Relative Humidity	720	720	100.0	0	100.0
Precipitation	720	720	100.0	0	100.0
Total	7,200	7,200	100.0	0	100.0

Table 1. Monthly Data Completeness (Continued)

May 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
Temperature 9 Meters	744	744	100.0	0	100.0
Temperature 2 Meters	744	744	100.0	0	100.0
Temperature Delta T	744	744	100.0	0	100.0
Solar Radiation	744	744	100.0	0	100.0
Barometric Pressure	744	744	100.0	0	100.0
Relative Humidity	744	744	100.0	0	100.0
Precipitation	744	744	100.0	0	100.0
Total	7,440	7,440	100.0	0	100.0

Table 1. Monthly Data Completeness (Continued)

June 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	715	99.3	5	100.0
Wind Direction	720	715	99.3	5	100.0
Standard Deviation	720	715	99.3	5	100.0
Temperature 9 Meters	720	715	99.3	5	100.0
Temperature 2 Meters	720	715	99.3	5	100.0
Temperature Delta T	720	715	99.3	5	100.0
Solar Radiation	720	715	99.3	5	100.0
Barometric Pressure	720	715	99.3	5	100.0
Relative Humidity	720	715	99.3	5	100.0
Precipitation	720	715	99.3	5	100.0
Total	7,200	7,150	99.3	50	100.0

Table 2. Quarterly Data Completeness

Second Quarter 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,184	2,179	99.8	5	100.0
Wind Direction	2,184	2,179	99.8	5	100.0
Standard Deviation	2,184	2,179	99.8	5	100.0
Temperature 9 Meters	2,184	2,179	99.8	5	100.0
Temperature 2 Meters	2,184	2,179	99.8	5	100.0
Temperature Delta T	2,184	2,179	99.8	5	100.0
Solar Radiation	2,184	2,179	99.8	5	100.0
Barometric Pressure	2,184	2,179	99.8	5	100.0
Relative Humidity	2,184	2,179	99.8	5	100.0
Precipitation	2,184	2,179	99.8	5	100.0
Total	21,840	21,790	99.8	50	100.0

6.0 MONITORING DATA

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

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

A separate compilation of data collected from the evaporation pan and manual rain gauge is presented in Appendix D. For comparison purposes, the precipitation amounts reported by the automatic rain gauge over the same time periods are provided. Overall, the precipitation amounts obtained from the manual gauge were comparable to those reported by the automated rain gauge.

Table 3. Missing Data Codes

Mnemonic Code	Description	Equivalent EPA Null Value Reason Code
Sc	Scheduled but not collected	9972
Ti	Sample time out of limits	9973
Fi	Filter damage	9976
Op	Voided by operator	9978
ND	Machine malfunction	9980
Wx	Bad weather	9981
Co	Collection error	9983
Lb	Lab error	9984
QA	Poor quality assurance results	9985
Pwr	Power failure	9988
Wi	Wildlife damage	9989
AZ	Automatic zero/span check	9991
ZS	Manual zero/span check	9986
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

April 2017																		
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	0.3	0.6	0.7	1.0	0.3	1.3	1.8	1.8	0.7	0.1	0.4	0.1	0.1	0.4	0.3	0.6	10.4
	1.1 - 2.0	0.6	0.1	0.8	0.7	1.8	2.9	4.0	2.6	0.6	0.6	0.3	0.4	1.3	1.8	1.1	0.1	19.7
	2.1 - 3.0	0.4	0.1	0.0	1.4	1.7	1.7	2.1	1.1	0.4	0.6	0.4	1.3	1.7	2.2	1.0	0.4	16.4
	3.1 - 4.0	0.6	0.0	0.1	0.4	1.0	0.3	1.0	1.1	0.6	0.8	1.0	1.1	1.5	2.6	0.7	0.1	12.9
	4.1 - 5.0	0.1	0.1	0.0	0.0	0.3	0.1	1.0	1.1	0.1	0.3	0.7	2.1	2.8	2.8	1.1	0.0	12.6
	5.1 - 6.0	0.0	0.1	0.0	0.0	0.0	0.1	0.6	0.6	0.6	0.7	0.3	1.4	3.5	2.2	0.6	0.4	11.0
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.1	0.4	0.3	0.3	2.1	1.7	1.0	0.1	7.5
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.0	0.8	1.7	0.8	0.7	0.0	4.9
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.3	0.0	0.4	1.0	0.4	0.0	0.0	2.6
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.8	0.0	0.0	0.0	1.3
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.4
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																	0.0	
Total	1.9	1.1	1.7	3.5	5.0	6.4	11.0	9.2	4.6	4.3	3.5	8.2	16.5	15.0	6.4	1.8	100.0	
Average Speed	2.4	2.2	1.3	2.0	2.3	1.8	2.5	2.9	4.3	4.8	3.8	4.8	5.3	4.2	4.3	2.9	3.7	

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

May 2017																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	0.5	1.7	0.4	1.1	1.2	1.5	1.6	0.8	0.4	0.0	0.1	0.0	0.3	0.1	0.8	0.8	11.4
	1.1 - 2.0	0.7	1.1	1.3	2.2	4.6	6.2	3.6	0.8	0.7	0.5	0.5	0.3	0.4	0.4	0.4	0.4	24.1
	2.1 - 3.0	0.4	0.3	0.9	2.6	4.7	1.9	0.7	0.5	0.3	0.5	0.5	0.9	1.7	2.3	0.7	0.8	19.8
	3.1 - 4.0	0.7	0.1	0.1	1.7	1.2	0.7	0.4	0.7	0.5	0.8	0.1	0.9	2.8	2.8	1.1	0.9	15.7
	4.1 - 5.0	0.7	0.0	0.1	0.3	0.8	0.4	0.3	1.2	0.3	0.3	0.1	0.7	1.2	2.4	1.6	0.7	11.0
	5.1 - 6.0	0.4	0.4	0.3	0.1	0.7	0.0	0.0	0.7	0.4	0.3	0.3	1.1	1.3	1.5	1.1	0.0	8.5
	6.1 - 7.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.8	0.1	0.1	0.4	0.0	0.7	1.1	0.8	0.1	4.8
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.0	0.5	0.4	0.4	0.1	2.0
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.4
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4
	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	0.4	0.0	0.0	0.0	0.4
	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	3.4	3.9	3.2	7.9	13.2	10.6	7.0	6.2	3.0	2.7	2.3	3.9	10.8	11.0	7.0	4.0	100.0	
Average Speed	3.0	2.0	2.2	2.4	2.4	1.8	1.9	4.2	3.5	3.8	3.9	3.9	5.5	4.2	4.2	3.2	3.3	

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

June 2017																		
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	0.4	0.3	0.4	0.7	0.3	0.4	0.4	0.0	0.0	0.1	0.4	0.0	0.4	0.1	0.7	5.3
	1.1 - 2.0	0.8	1.5	1.3	3.5	2.9	4.9	2.8	2.1	0.6	0.8	0.6	0.4	0.6	1.3	0.3	1.3	25.6
	2.1 - 3.0	0.3	0.3	0.1	0.4	3.4	2.8	1.1	0.8	0.6	0.4	0.3	0.7	1.8	1.8	0.8	0.3	15.9
	3.1 - 4.0	0.3	0.3	0.3	1.3	1.4	0.8	1.0	1.1	0.1	0.1	0.7	0.6	3.9	0.7	0.6	0.3	13.4
	4.1 - 5.0	0.4	0.0	0.1	0.1	1.0	0.1	0.4	0.8	0.8	0.4	0.6	1.3	3.9	3.2	1.1	0.1	14.5
	5.1 - 6.0	0.4	0.3	0.1	0.0	0.3	0.1	0.3	0.7	0.4	0.6	0.4	0.7	2.7	2.4	0.7	0.3	10.3
	6.1 - 7.0	0.1	0.1	0.0	0.0	0.0	0.0	0.6	0.6	0.1	0.4	0.1	0.7	3.4	0.7	0.6	0.3	7.7
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.0	0.0	0.0	0.1	1.4	0.4	0.4	0.0	3.4
	8.1 - 9.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.7	0.6	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	0.3	1.0	0.3	0.0	0.0	1.5
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.6
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																	0.0	
Total	2.9	3.1	2.2	5.7	9.7	9.2	7.0	7.1	2.7	2.8	2.8	5.3	19.9	11.7	4.6	3.2	100.0	
Average Speed	2.9	2.5	2.2	2.1	2.5	2.2	3.0	3.6	3.6	3.8	3.6	4.5	5.3	4.4	4.4	2.6	3.7	

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

Second Quarter 2017																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	0.5	0.9	0.5	0.8	0.7	1.0	1.3	1.0	0.4	0.0	0.2	0.2	0.1	0.3	0.4	0.7	9.1
	1.1 - 2.0	0.7	0.9	1.1	2.1	3.1	4.7	3.5	1.8	0.6	0.6	0.5	0.4	0.7	1.1	0.6	0.6	23.1
	2.1 - 3.0	0.4	0.2	0.4	1.5	3.3	2.1	1.3	0.8	0.4	0.5	0.4	1.0	1.7	2.1	0.8	0.5	17.4
	3.1 - 4.0	0.5	0.1	0.2	1.1	1.2	0.6	0.8	1.0	0.4	0.6	0.6	0.9	2.8	2.1	0.8	0.5	14.0
	4.1 - 5.0	0.4	0.0	0.1	0.1	0.7	0.2	0.6	1.1	0.4	0.3	0.5	1.3	2.6	2.8	1.3	0.3	12.7
	5.1 - 6.0	0.3	0.3	0.1	0.0	0.3	0.1	0.3	0.6	0.5	0.5	0.3	1.1	2.5	2.0	0.8	0.2	9.9
	6.1 - 7.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.6	0.5	0.3	0.3	0.3	2.0	1.1	0.8	0.2	6.7
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.0	0.3	1.2	0.6	0.5	0.0	3.4
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.2	0.6	0.3	0.0	0.0	1.6
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.6	0.1	0.0	0.0	1.1
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.5
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	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	0.1	0.0	0.0	0.0	0.1
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	2.8	2.7	2.4	5.7	9.3	8.8	8.3	7.5	3.4	3.3	2.8	5.8	15.6	12.6	6.0	3.0	100.0	
Average Speed	2.8	2.2	2.0	2.2	2.4	2.0	2.5	3.5	3.9	4.2	3.7	4.5	5.4	4.3	4.3	2.9	3.5	

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

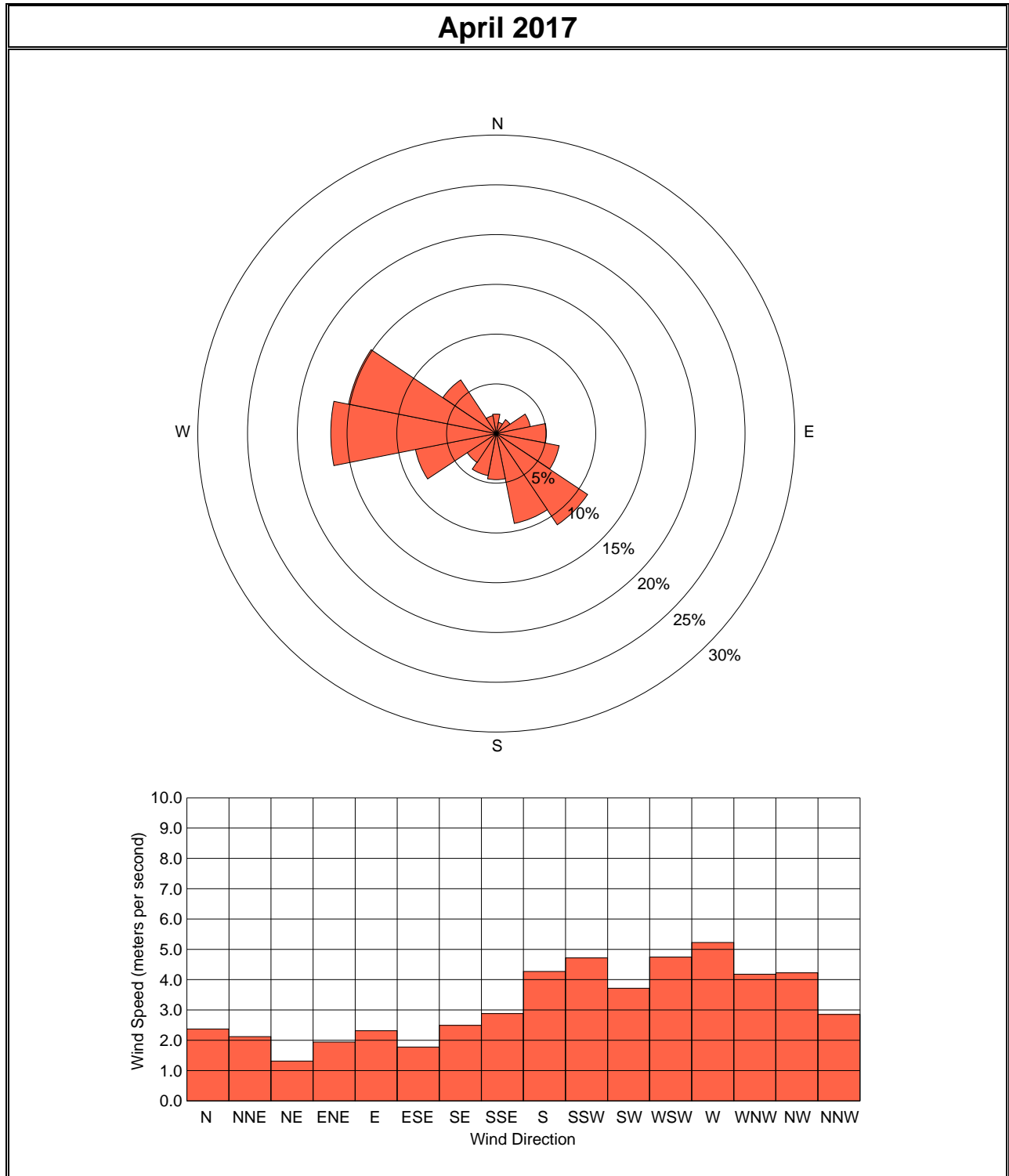


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

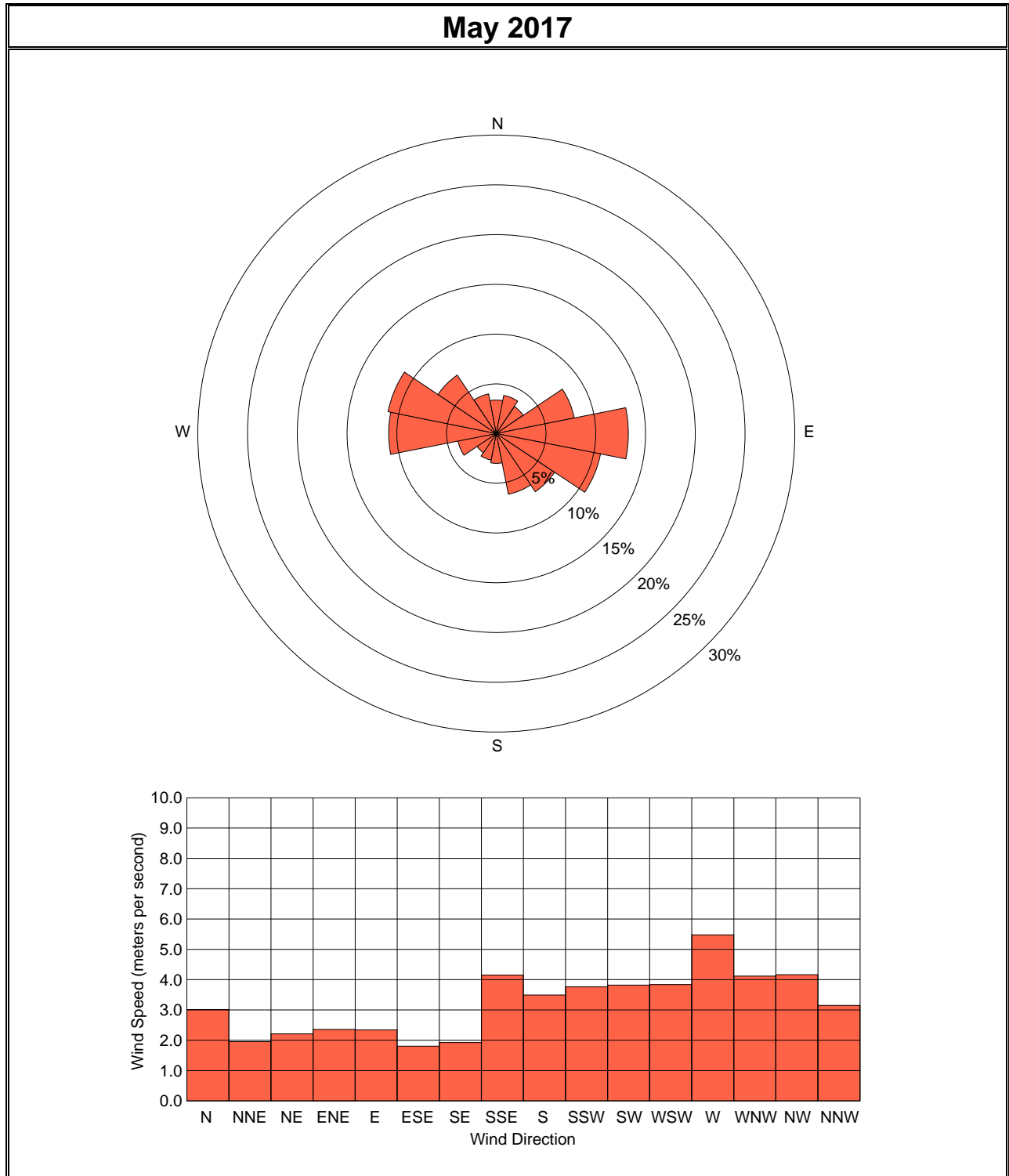


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

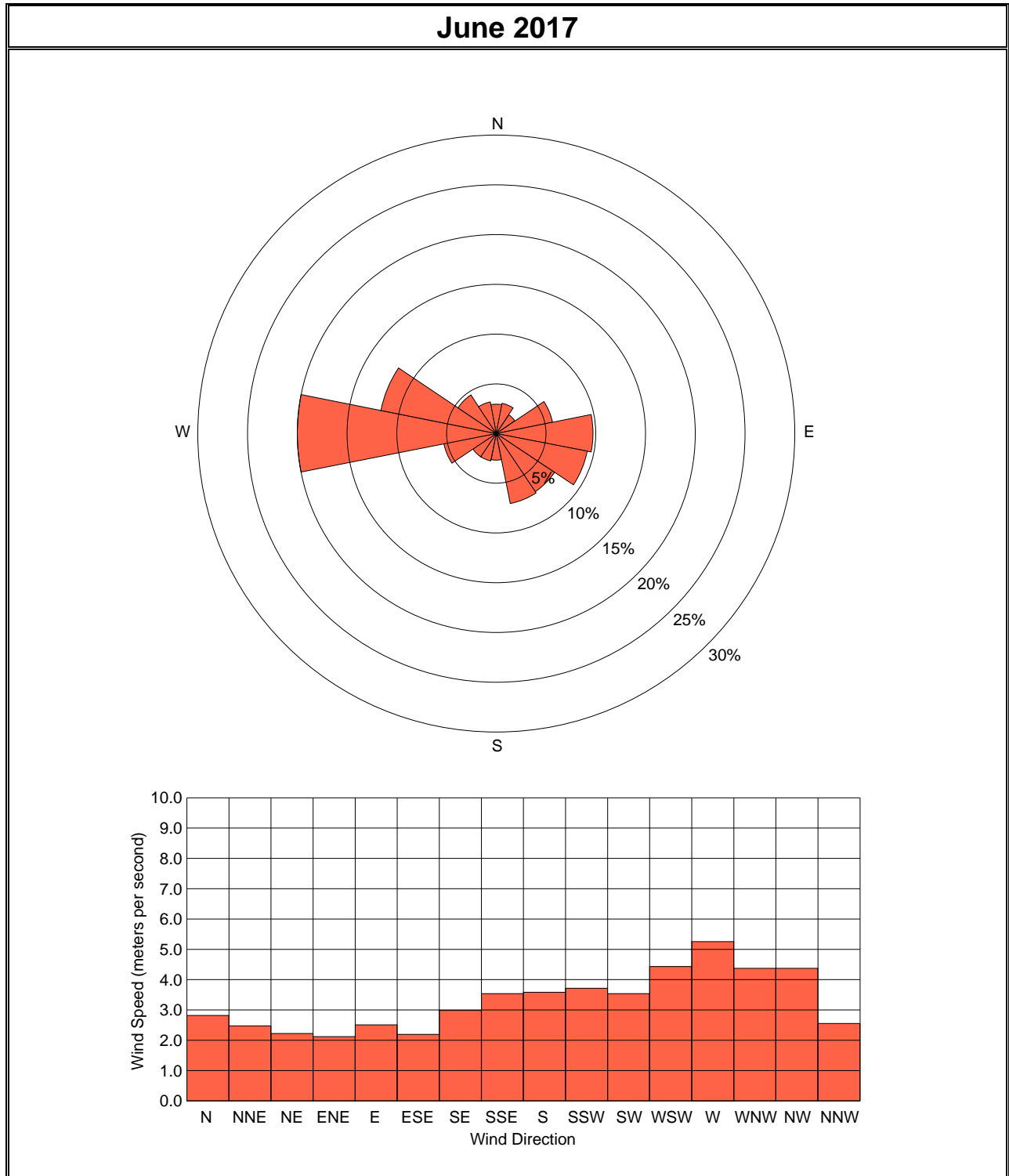
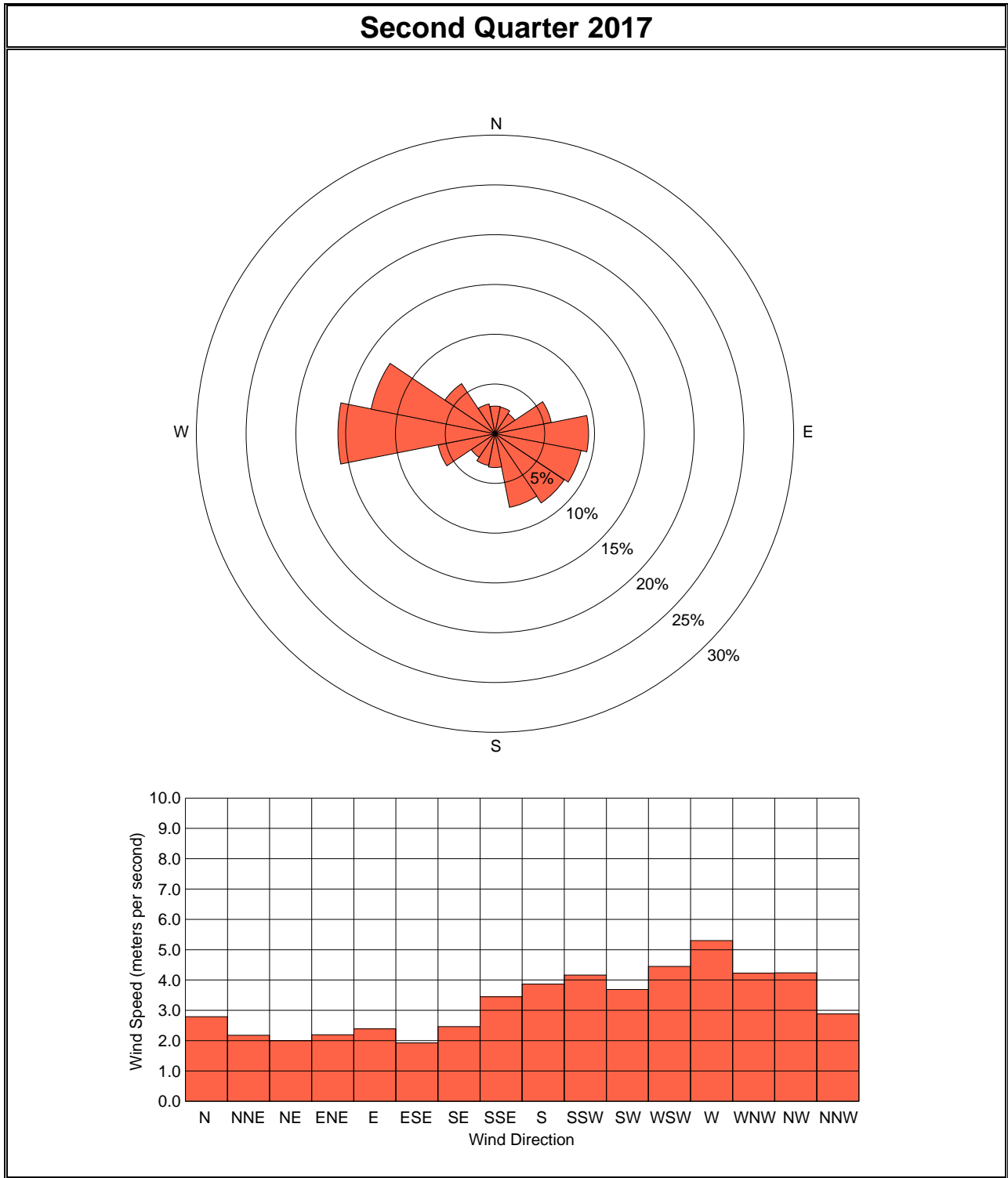


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, SECOND QUARTER 2017**

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
April 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.8	1.2	1.3	1.5	0.9	1.4	1.3	0.7	0.5	1.7	4.7	6.9	6.0	5.7	5.0	5.4	5.9	5.6	4.7	5.7	6.3	5.1	7.1	9.1	4.0	9.1	0.5
2	6.4	3.7	3.8	3.5	2.7	2.2	1.2	2.1	0.9	4.4	5.9	6.3	7.8	8.3	7.4	8.9	8.6	8.2	7.5	6.5	5.1	5.2	3.4	4.4	5.2	8.9	0.9
3	4.0	2.9	1.1	2.4	2.3	0.6	1.0	1.7	4.4	6.4	6.0	7.0	7.0	7.0	6.7	8.0	6.4	5.2	5.2	4.9	3.8	4.2	2.8	3.6	4.4	8.0	0.6
4	4.0	4.1	2.5	2.0	2.2	2.9	1.7	1.0	1.3	2.4	3.5	4.2	5.0	5.1	5.2	6.2	6.3	5.6	3.4	1.2	1.7	0.8	0.9	1.3	3.1	6.3	0.8
5	0.9	0.9	1.5	1.2	0.7	0.6	0.8	0.6	2.9	6.9	8.4	8.2	7.8	7.2	7.8	7.5	5.6	4.3	4.3	2.4	2.8	3.8	2.2	1.9	3.8	8.4	0.6
6	1.7	1.7	2.3	2.5	1.4	1.7	1.3	1.2	3.3	6.1	6.3	6.5	6.7	7.0	7.1	8.1	7.0	5.6	6.1	6.2	3.2	4.5	3.6	3.7	4.4	8.1	1.2
7	4.0	2.7	4.6	2.4	2.3	1.2	1.2	1.4	3.5	10.9	9.0	8.7	12.7	10.4	5.4	5.1	5.6	3.5	3.8	3.5	3.9	3.3	1.4	1.7	4.7	12.7	1.2
8	2.6	1.1	1.1	1.3	1.6	1.3	1.0	0.6	0.7	2.1	3.8	2.4	3.4	1.9	2.6	5.3	3.2	2.4	1.9	1.7	0.8	3.0	2.1	2.7	2.1	5.3	0.6
9	3.3	4.0	4.6	5.3	6.4	7.7	6.7	6.7	6.5	7.9	7.5	6.2	7.2	6.6	5.8	5.2	4.6	3.6	2.3	0.9	1.3	1.3	0.8	1.0	4.7	7.9	0.8
10	0.4	0.6	0.5	0.8	0.8	1.0	0.6	0.4	1.0	3.0	5.1	5.2	3.7	4.3	5.2	4.1	5.2	1.9	6.7	1.9	2.7	1.9	4.2	1.6	2.6	6.7	0.4
11	1.9	2.8	2.4	3.0	2.1	3.5	3.3	2.8	2.8	4.9	5.7	6.0	4.2	3.5	2.6	2.2	2.1	1.8	2.2	3.3	4.0	2.0	4.4	5.3	3.3	6.0	1.8
12	3.6	1.5	3.9	3.7	2.1	3.4	3.6	2.7	3.6	4.3	4.2	3.9	3.2	4.5	4.7	4.9	4.3	5.2	4.8	5.4	7.1	7.0	8.8	6.7	4.5	8.8	1.5
13	2.9	3.7	2.1	2.5	2.5	1.6	2.2	6.4	8.5	8.6	9.7	9.4	8.0	6.1	7.2	7.5	7.3	4.4	5.5	3.4	4.5	7.0	4.1	3.3	5.4	9.7	1.6
14	4.2	4.3	5.0	3.3	4.5	5.1	4.0	3.7	6.6	7.4	8.0	8.4	8.5	7.6	7.4	5.5	4.9	3.8	4.1	2.7	2.7	3.2	4.1	3.3	5.1	8.5	2.7
15	5.2	6.9	5.6	5.7	7.5	7.6	6.7	7.9	7.9	9.5	9.1	9.0	11.3	10.4	9.9	9.4	9.5	9.0	7.0	3.7	1.3	1.9	5.0	5.4	7.2	11.3	1.3
16	3.4	1.5	2.0	1.7	3.4	2.5	2.4	1.5	4.9	5.4	5.0	4.8	3.9	3.5	2.6	2.3	2.3	2.8	2.8	2.1	3.5	4.5	3.0	3.0	3.1	5.4	1.5
17	5.4	4.0	2.0	2.5	2.3	3.5	4.6	5.4	4.1	2.2	4.5	3.4	6.2	8.8	4.8	2.9	7.0	8.8	9.2	8.3	5.1	2.2	2.8	2.0	4.7	9.2	2.0
18	1.3	1.2	1.0	0.9	0.7	1.1	0.7	0.7	1.8	4.4	4.7	4.9	4.3	4.2	3.2	2.7	2.6	1.2	1.1	3.7	2.4	5.0	5.1	2.0	2.5	5.1	0.7
19	1.5	0.8	0.7	1.0	1.6	0.2	0.2	0.9	3.1	5.1	6.3	5.4	6.0	5.3	5.6	4.7	4.2	5.0	3.8	1.7	4.3	2.9	2.1	1.9	3.1	6.3	0.2
20	1.6	1.5	1.8	1.4	1.7	1.6	0.7	0.9	3.4	4.2	5.8	5.7	7.3	5.6	5.1	4.6	6.7	3.3	3.7	2.3	0.8	1.6	4.1	3.1	3.3	7.3	0.7
21	2.9	1.9	4.0	4.1	3.0	2.9	2.4	3.0	4.4	5.4	5.9	6.4	5.9	7.1	7.8	7.9	7.4	6.5	4.8	3.7	3.4	2.1	1.9	2.1	4.5	7.9	1.9
22	1.2	0.7	1.1	1.6	1.6	0.5	2.3	2.5	2.8	3.4	4.5	5.3	4.7	5.4	6.2	6.1	6.1	4.9	2.9	2.3	1.7	1.8	2.0	3.6	3.1	6.2	0.5
23	2.8	2.1	2.1	2.7	1.5	2.3	1.6	1.2	1.0	4.4	4.0	1.7	1.1	2.3	4.2	5.1	2.7	2.2	1.8	1.3	1.6	2.2	2.0	1.4	2.3	5.1	1.0
24	1.1	0.7	0.8	0.7	0.9	1.0	0.7	0.7	1.4	2.6	2.6	3.0	2.0	1.8	2.4	4.4	6.0	6.4	2.6	2.4	2.3	1.6	1.0	2.0	2.1	6.4	0.7
25	0.7	0.7	1.3	0.7	0.5	0.8	1.1	1.4	3.0	2.6	3.4	1.9	5.2	6.2	3.1	3.5	3.4	6.8	4.1	3.3	2.0	1.1	1.3	1.8	2.5	6.8	0.5
26	1.3	1.5	1.9	1.2	0.9	0.9	1.5	0.8	1.7	2.9	3.1	2.2	4.1	4.5	4.1	7.3	2.0	3.3	1.5	2.3	1.0	0.9	0.8	1.2	2.2	7.3	0.8
27	0.8	1.0	0.6	1.6	3.7	4.3	2.6	3.3	5.3	6.1	5.1	5.8	6.3	5.3	6.5	5.9	5.8	5.4	4.5	4.3	4.4	3.0	1.8	1.4	3.9	6.5	0.6
28	1.7	1.9	1.6	1.3	1.2	1.5	1.3	2.8	2.0	3.8	5.7	4.4	3.9	3.2	3.8	5.1	5.3	4.5	2.6	2.5	1.2	0.9	1.1	1.2	2.7	5.7	0.9
29	1.4	1.1	0.9	2.1	3.4	2.0	1.8	1.0	1.4	3.4	4.2	4.1	4.2	5.4	5.0	5.4	5.3	4.8	4.3	1.5	2.9	3.5	3.1	1.6	3.1	5.4	0.9
30	1.7	0.7	1.1	4.1	2.9	2.2	0.9	1.5	2.2	2.5	2.5	2.2	1.8	6.0	5.8	3.5	4.8	7.2	6.5	4.0	4.4	4.9	7.1	6.0	3.6	7.2	0.7
Avg	2.5	2.1	2.2	2.3	2.3	2.3	2.0	2.3	3.2	4.8	5.5	5.3	5.6	5.7	5.3	5.5	5.3	4.8	4.2	3.3	3.1	3.1	3.1	3.0	3.7	7.5	1.0
Max	6.4	6.9	5.6	5.7	7.5	7.7	6.7	7.9	8.5	10.9	9.7	9.4	12.7	10.4	9.9	9.4	9.5	9.0	9.2	8.3	7.1	7.0	8.8	9.1	7.2	12.7	2.7
Min	0.4	0.6	0.5	0.7	0.5	0.2	0.2	0.4	0.5	1.7	2.5	1.7	1.1	1.8	2.4	2.2	2.0	1.2	1.1	0.9	0.8	0.8	0.8	1.0	2.1	5.1	0.2

A-1

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
May 2017

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	4.3	3.2	4.3	3.2	3.5	2.0	3.9	4.3	5.6	7.0	7.0	6.5	7.6	5.4	4.0	3.0	3.8	2.7	2.5	2.7	3.1	1.0	0.4	0.8	3.8	7.6	0.4
2	1.2	1.5	1.3	2.0	3.3	2.3	2.4	3.7	4.6	4.1	3.8	4.6	5.0	5.3	5.9	6.3	5.3	5.7	4.7	3.5	2.8	1.8	1.7	1.8	3.5	6.3	1.2
3	1.0	1.3	1.4	1.3	1.6	2.0	1.5	0.8	2.8	4.1	3.7	4.5	5.2	5.8	6.4	6.4	5.7	6.0	5.6	5.7	3.5	1.5	3.1	1.7	3.4	6.4	0.8
4	1.8	1.6	1.2	1.1	1.4	0.9	0.9	0.8	2.2	3.0	4.2	3.8	3.6	3.5	3.8	3.9	3.6	3.1	1.6	2.7	4.7	3.4	1.8	2.3	2.5	4.7	0.8
5	2.0	2.0	2.0	2.4	2.0	1.8	1.1	0.9	3.3	5.3	5.3	5.4	4.6	5.5	5.8	4.9	3.7	3.3	2.4	2.3	4.4	2.0	4.4	3.3	3.3	5.8	0.9
6	3.0	2.8	1.7	2.1	1.3	1.3	1.5	0.9	1.0	3.3	3.3	3.5	3.6	4.4	5.0	4.0	5.9	4.1	2.8	2.8	1.3	2.2	1.8	1.6	2.7	5.9	0.9
7	1.8	1.8	1.5	1.4	1.3	1.1	0.6	0.9	1.3	4.2	4.1	5.4	7.3	5.1	6.9	3.9	4.5	5.9	3.9	4.0	3.6	4.3	3.3	2.4	3.4	7.3	0.6
8	1.2	1.3	0.6	1.0	0.6	0.6	0.7	1.0	1.9	3.4	3.7	3.1	2.6	2.4	2.2	2.5	2.2	2.7	2.5	2.5	2.1	1.6	2.0	1.0	1.9	3.7	0.6
9	1.5	2.1	2.4	2.4	1.9	1.0	0.9	1.2	1.1	3.1	4.5	4.7	4.7	4.8	6.3	6.1	3.9	3.7	5.2	3.9	1.5	2.6	1.7	2.0	3.1	6.3	0.9
10	2.2	2.5	2.8	1.5	1.7	1.4	1.2	1.0	2.9	3.1	3.0	2.1	2.8	3.4	3.0	2.8	3.9	2.5	1.1	4.7	1.7	2.6	2.2	2.3	2.4	4.7	1.0
11	2.7	2.7	2.2	2.0	1.2	1.4	0.9	0.7	0.7	1.2	3.0	3.1	3.2	3.2	2.0	3.0	3.9	2.9	7.8	3.6	3.3	4.7	1.7	1.2	2.6	7.8	0.7
12	0.9	1.8	2.5	1.9	2.2	1.0	1.0	3.2	5.1	5.5	7.4	7.2	8.1	10.9	9.2	10.5	10.3	5.6	2.8	6.5	3.1	8.6	7.6	6.5	5.4	10.9	0.9
13	2.9	3.2	2.6	2.3	2.7	2.3	2.7	3.2	2.9	3.6	3.9	4.4	3.7	3.7	3.4	1.8	3.9	5.3	2.3	1.7	2.2	1.9	1.7	2.4	2.9	5.3	1.7
14	1.8	1.8	1.5	1.3	1.4	1.1	0.7	0.9	2.7	4.8	6.5	6.0	4.9	4.6	5.8	5.2	5.3	4.3	4.3	1.8	1.5	3.0	2.7	1.6	3.1	6.5	0.7
15	1.0	1.9	1.1	1.1	1.0	1.5	1.6	2.5	0.8	1.3	2.0	2.3	2.2	3.7	3.2	3.7	3.0	3.8	3.2	2.6	2.2	2.6	2.2	1.9	2.2	3.8	0.8
16	1.9	1.4	1.5	1.0	1.6	0.9	0.5	0.8	3.4	6.4	5.4	6.3	7.0	6.6	6.1	7.5	4.2	1.2	1.1	1.8	2.1	4.1	3.3	1.4	3.2	7.5	0.5
17	1.0	1.0	0.9	1.7	1.8	1.0	0.9	1.1	2.2	3.0	3.3	4.9	2.5	3.2	3.8	5.2	5.9	2.5	2.4	0.9	2.6	2.0	1.6	1.4	2.4	5.9	0.9
18	1.0	3.8	3.2	2.5	2.3	2.5	2.9	4.2	2.8	3.1	4.1	4.2	3.4	3.4	3.3	5.0	6.3	7.1	6.8	4.7	2.4	3.8	2.6	0.8	3.6	7.1	0.8
19	1.6	1.2	0.7	0.5	0.7	0.6	0.5	0.4	0.8	1.2	1.7	2.5	2.5	3.3	3.3	3.1	1.7	4.1	2.7	3.2	3.1	2.3	3.2	2.7	2.0	4.1	0.4
20	2.6	2.4	2.3	2.0	1.9	1.3	0.8	0.7	1.5	2.6	3.0	3.8	2.7	3.7	3.4	4.4	3.2	2.0	4.0	1.3	1.0	0.9	1.1	1.3	2.2	4.4	0.7
21	0.6	1.1	0.5	0.9	0.7	0.4	0.7	0.9	1.8	4.3	4.9	4.3	5.2	5.4	5.0	5.6	7.1	6.0	4.4	3.9	1.3	1.6	2.3	2.1	3.0	7.1	0.4
22	1.6	1.3	2.0	2.0	1.1	1.3	1.8	4.4	4.1	6.5	6.1	4.5	4.7	5.6	5.9	5.6	5.7	5.7	5.2	1.7	1.8	2.7	3.0	2.4	3.6	6.5	1.1
23	2.4	1.7	1.7	1.8	1.7	1.4	0.5	0.6	0.9	2.5	2.9	3.7	4.0	4.1	5.6	5.4	5.0	5.2	3.8	1.8	1.4	1.6	1.6	1.5	2.6	5.6	0.5
24	1.7	1.3	1.1	1.5	3.9	6.0	7.0	6.7	11.3	14.2	15.7	15.6	13.5	14.8	14.0	15.3	14.3	11.6	11.7	8.5	6.6	7.9	7.5	7.1	9.1	15.7	1.1
25	7.2	5.4	3.7	4.1	3.5	5.0	4.2	4.9	6.6	6.1	5.1	6.1	7.3	9.2	9.6	7.5	6.3	5.3	4.5	2.1	0.8	0.9	1.4	1.7	4.9	9.6	0.8
26	1.2	1.2	0.8	0.8	0.8	0.9	0.7	0.9	2.0	3.0	3.2	2.9	3.5	4.4	4.5	4.5	4.4	4.8	2.8	3.0	2.8	1.4	2.8	4.0	2.6	4.8	0.7
27	3.9	4.0	3.0	1.7	1.3	0.8	0.7	1.0	2.7	3.7	5.1	5.1	6.0	6.3	5.9	6.1	5.7	4.6	4.3	2.6	2.0	2.1	2.4	1.8	3.4	6.3	0.7
28	1.1	1.6	1.5	1.3	1.4	0.7	1.3	1.2	2.0	5.1	4.6	3.4	3.8	4.0	4.8	4.2	5.6	6.7	3.3	2.3	1.2	2.2	3.1	3.2	2.9	6.7	0.7
29	2.6	2.3	2.0	1.2	1.3	0.9	0.6	0.6	1.0	2.3	2.6	3.8	4.2	3.1	1.7	2.1	2.4	3.3	3.0	1.3	2.7	2.8	2.7	4.0	2.3	4.2	0.6
30	3.1	2.5	3.0	2.7	2.1	1.4	1.7	1.1	2.4	4.4	4.1	4.0	2.4	5.5	6.2	6.9	5.2	6.3	5.8	3.4	2.4	1.0	1.2	2.0	3.4	6.9	1.0
31	2.5	2.4	2.2	1.8	1.8	1.4	0.9	2.0	4.4	4.4	4.0	4.3	4.5	4.4	4.2	6.1	6.9	4.3	5.1	4.9	5.4	5.2	2.7	2.5	3.7	6.9	0.9
Avg	2.1	2.1	1.9	1.8	1.8	1.6	1.5	1.9	2.9	4.2	4.6	4.7	4.7	5.1	5.2	5.2	5.1	4.6	4.0	3.2	2.6	2.8	2.6	2.3	3.3	6.5	0.8
Max	7.2	5.4	4.3	4.1	3.9	6.0	7.0	6.7	11.3	14.2	15.7	15.6	13.5	14.8	14.0	15.3	14.3	11.6	11.7	8.5	6.6	8.6	7.6	7.1	9.1	15.7	1.7
Min	0.6	1.0	0.5	0.5	0.6	0.4	0.5	0.4	0.7	1.2	1.7	2.1	2.2	2.4	1.7	1.8	1.7	1.2	1.1	0.9	0.8	0.9	0.4	0.8	1.9	3.7	0.4

A-2

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
June 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.4	2.5	2.2	2.8	2.4	1.3	1.2	0.9	1.0	1.5	1.5	5.0	4.1	2.6	5.3	5.8	6.2	8.0	2.7	1.8	1.5	1.8	1.9	2.4	2.8	8.0	0.9
2	1.3	1.7	1.3	1.7	1.0	2.6	4.1	6.1	7.5	6.8	6.7	7.0	7.1	7.1	7.5	6.7	7.0	6.2	5.9	4.8	1.9	2.9	3.7	2.0	4.6	7.5	1.0
3	2.1	1.9	1.6	2.0	1.9	1.6	1.4	0.8	3.1	4.9	4.7	4.6	6.1	5.3	4.3	4.2	4.0	2.9	1.4	2.5	1.6	4.1	3.4	1.9	3.0	6.1	0.8
4	1.6	1.7	2.4	1.5	1.0	1.1	1.8	1.8	2.4	4.1	3.9	4.6	5.4	4.3	4.6	6.4	3.1	4.8	3.5	4.0	6.8	3.2	5.0	5.5	3.5	6.8	1.0
5	4.0	1.6	5.9	2.0	1.6	1.3	1.3	2.5	4.6	5.6	4.7	6.5	5.0	4.4	4.1	4.0	4.1	5.0	4.6	3.8	1.1	1.2	1.6	1.2	3.4	6.5	1.1
6	1.1	1.3	0.8	1.0	0.9	0.9	0.8	3.9	5.9	6.8	7.2	7.1	6.6	7.0	7.2	7.0	7.5	8.6	6.2	3.2	1.4	1.3	1.8	1.8	4.1	8.6	0.8
7	2.7	2.2	1.7	2.0	2.5	2.7	1.5	2.6	5.3	4.7	3.6	3.4	3.8	3.6	2.5	4.1	6.1	7.8	5.4	6.0	5.3	5.8	5.7	4.2	4.0	7.8	1.5
8	2.6	2.8	2.7	1.9	1.5	1.3	1.0	1.1	4.4	5.9	Au	Au	Au	Au	Au	6.1	4.9	5.5	6.2	5.5	6.7	2.0	1.4	1.7	3.4	6.7	1.0
9	2.0	1.8	1.5	0.9	2.6	1.5	2.7	2.9	3.8	4.3	6.6	6.0	3.0	6.9	3.1	4.5	1.8	2.8	1.6	1.7	2.3	2.0	1.1	1.2	2.9	6.9	0.9
10	1.8	1.7	1.4	1.3	1.6	1.4	2.3	3.7	6.0	6.3	4.7	4.7	2.6	4.9	2.8	4.0	5.0	4.7	1.7	3.1	2.7	1.8	2.4	3.1	3.2	6.3	1.3
11	2.2	2.3	1.6	2.0	1.0	1.8	1.5	4.0	4.3	3.9	3.0	3.0	2.6	2.8	2.1	2.3	2.0	3.0	2.6	2.5	3.3	3.0	2.1	1.7	2.5	4.3	1.0
12	1.3	1.2	3.1	1.3	2.9	3.1	3.6	2.2	4.3	5.5	4.5	4.5	7.1	6.9	7.2	6.0	4.4	3.8	4.6	3.1	3.9	4.3	3.1	1.4	3.9	7.2	1.2
13	3.2	3.0	3.3	5.9	3.4	2.2	2.8	3.6	3.2	3.4	2.2	1.8	2.5	2.7	3.3	5.2	5.7	4.5	4.1	5.2	4.1	3.3	4.2	3.9	3.6	5.9	1.8
14	4.8	5.4	5.9	5.8	5.9	5.8	4.9	6.5	8.4	8.9	9.3	9.2	9.9	10.1	9.5	10.4	9.3	9.5	7.7	5.4	2.8	4.6	6.2	5.4	7.1	10.4	2.8
15	4.4	5.3	3.4	3.1	1.8	2.8	1.3	0.8	1.4	2.7	4.5	3.4	3.6	4.4	5.4	5.9	6.4	6.6	5.4	3.4	2.9	1.9	2.2	1.1	3.5	6.6	0.8
16	1.1	0.8	2.1	1.7	3.9	3.6	4.7	5.0	7.1	6.7	6.3	8.3	9.1	6.4	5.7	5.0	5.3	3.5	3.8	5.2	4.3	4.1	5.5	4.1	4.7	9.1	0.8
17	4.1	4.6	4.7	4.3	4.4	3.4	5.0	6.1	7.0	6.2	5.1	4.4	5.0	4.1	4.9	4.6	5.3	5.3	4.5	3.6	1.9	2.1	2.8	2.0	4.4	7.0	1.9
18	1.6	1.5	0.8	0.8	1.4	3.5	5.2	5.1	6.2	6.4	6.4	5.7	4.3	7.2	8.0	8.1	8.4	9.2	8.2	5.0	3.8	2.6	1.6	1.8	4.7	9.2	0.8
19	2.2	2.0	1.7	1.6	1.1	1.0	0.7	1.1	3.5	4.7	4.9	3.1	3.8	3.1	3.3	2.2	1.9	1.6	1.6	2.8	2.0	3.7	1.7	2.9	2.4	4.9	0.7
20	2.5	2.2	1.8	2.5	2.0	2.1	1.4	1.2	1.2	1.9	3.5	2.0	3.3	4.4	5.1	6.8	4.9	5.6	5.7	4.9	3.9	7.2	4.9	5.8	3.6	7.2	1.2
21	4.7	4.2	4.1	3.0	3.4	5.1	5.7	6.7	6.9	7.6	6.9	7.1	9.5	9.0	9.2	10.8	10.9	9.4	8.6	6.1	5.0	4.2	2.0	1.4	6.3	10.9	1.4
22	3.1	2.1	1.7	2.0	1.7	1.1	0.9	3.3	7.6	8.8	8.5	7.5	7.5	7.7	7.5	6.9	6.0	8.1	6.2	5.1	5.1	2.3	2.0	1.5	4.8	8.8	0.9
23	1.5	1.3	1.2	1.1	1.3	0.8	0.5	0.7	1.0	2.3	4.0	4.1	4.6	4.5	5.5	5.0	4.9	4.9	4.0	2.1	1.2	1.5	1.6	1.5	2.5	5.5	0.5
24	0.8	1.4	2.0	1.0	1.2	1.2	0.6	0.7	1.0	1.4	1.4	3.1	3.6	3.2	3.1	3.6	2.7	2.2	1.9	3.9	3.0	3.7	3.7	3.1	2.2	3.9	0.6
25	3.0	3.4	4.2	2.4	2.7	1.5	1.4	1.0	1.2	2.2	1.9	2.8	2.6	2.8	3.5	3.7	3.3	3.1	3.0	1.0	1.8	4.2	3.4	1.1	2.6	4.2	1.0
26	1.4	2.1	2.2	2.1	1.8	1.3	1.1	0.7	2.3	4.1	4.0	4.8	6.0	4.2	4.4	5.2	3.3	2.6	2.1	1.6	2.1	2.0	5.6	5.1	3.0	6.0	0.7
27	2.9	2.9	1.4	3.8	1.3	1.0	1.1	1.2	6.2	6.1	4.3	4.6	5.1	6.7	6.5	5.4	6.3	4.7	2.9	4.0	3.5	4.2	3.0	2.7	3.8	6.7	1.0
28	2.9	2.2	1.9	1.6	1.6	1.6	1.3	0.9	4.5	5.5	7.0	7.0	5.4	4.3	5.5	5.9	5.9	2.5	1.8	1.9	2.2	2.1	1.6	1.6	3.3	7.0	0.9
29	1.7	1.7	1.4	1.3	1.1	1.1	1.4	6.0	5.4	4.4	5.4	5.3	6.1	6.1	5.6	5.0	6.3	5.6	3.2	3.5	1.6	1.4	1.9	1.7	3.5	6.3	1.1
30	1.7	1.4	1.7	1.6	1.6	1.0	0.8	0.5	1.8	3.4	3.0	2.4	2.8	2.8	3.0	3.1	2.7	2.6	1.1	1.0	1.5	3.3	3.3	2.8	2.1	3.4	0.5
Avg	2.4	2.3	2.4	2.2	2.1	2.0	2.1	2.8	4.3	4.9	4.8	4.9	5.1	5.2	5.2	5.5	5.2	5.2	4.1	3.6	3.0	3.1	3.0	2.6	3.7	6.9	1.1
Max	4.8	5.4	5.9	5.9	5.9	5.8	5.7	6.7	8.4	8.9	9.3	9.2	9.9	10.1	9.5	10.8	10.9	9.5	8.6	6.1	6.8	7.2	6.2	5.8	7.1	10.9	2.8
Min	0.8	0.8	0.8	0.8	0.9	0.8	0.5	0.5	1.0	1.4	1.4	1.8	2.5	2.6	2.1	2.2	1.8	1.6	1.1	1.0	1.1	1.2	1.1	1.1	2.1	3.4	0.5

A-3

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
April 2017

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	132	133	110	145	154	162	165	299	43	100	231	263	265	250	245	252	284	289	270	270	268	270	274	278	238
2	279	297	303	284	297	280	143	85	111	246	251	265	262	278	285	292	294	297	301	297	286	268	257	280	279
3	286	268	160	260	269	218	228	271	289	289	317	316	287	314	315	314	314	302	302	304	310	314	298	295	290
4	305	303	298	271	295	292	306	232	352	267	264	264	264	239	250	277	265	274	269	161	123	114	161	120	265
5	66	36	95	107	108	77	148	33	304	263	258	252	252	260	259	254	259	264	248	253	78	85	106	109	217
6	148	128	128	128	150	145	164	42	128	171	179	175	178	185	192	210	202	199	200	222	203	218	200	202	175
7	216	227	99	100	122	147	208	60	119	199	203	190	202	230	272	245	205	172	178	236	242	207	64	129	186
8	94	117	132	63	108	155	138	169	36	136	230	251	284	326	22	327	5	75	138	356	138	261	259	251	118
9	260	254	266	280	284	287	289	286	286	283	281	277	283	287	296	296	285	293	322	266	136	137	174	151	274
10	166	141	104	158	151	151	170	295	77	140	163	174	188	201	210	170	204	136	272	266	237	121	257	139	174
11	146	72	66	69	116	74	79	78	262	267	268	276	266	294	247	275	210	90	83	95	80	37	133	140	101
12	128	134	143	150	145	152	158	147	152	153	151	158	137	145	140	144	123	143	131	127	129	134	138	144	142
13	1	161	135	166	149	145	142	157	153	149	164	175	171	186	185	202	272	317	266	320	318	293	293	298	195
14	285	293	287	299	270	262	262	256	255	256	279	281	281	267	261	271	284	279	297	267	198	208	277	274	270
15	268	255	251	254	251	258	268	267	262	263	253	250	258	260	264	262	268	260	269	271	280	268	275	296	264
16	300	217	166	55	82	91	58	33	277	271	277	259	257	235	224	303	231	171	151	118	122	142	143	147	189
17	152	141	138	140	176	158	151	159	221	124	163	229	264	270	299	326	277	277	277	278	286	3	84	101	203
18	53	99	22	89	49	94	65	24	288	286	265	249	255	242	258	288	305	267	301	146	139	305	287	308	305
19	155	139	1	333	316	314	147	114	287	277	260	263	268	272	268	252	288	286	287	150	89	77	117	126	264
20	111	128	136	153	154	134	91	134	139	158	176	176	156	127	107	166	234	309	286	249	147	116	267	271	157
21	282	290	294	284	292	291	290	289	285	280	281	280	280	299	306	315	314	315	301	290	279	290	287	275	291
22	260	336	214	266	282	123	111	145	180	181	148	152	164	179	169	179	202	203	205	142	126	121	114	92	169
23	104	113	116	86	121	75	133	164	321	228	241	8	37	360	320	201	148	148	197	174	112	115	99	85	120
24	114	133	354	26	106	131	158	332	255	251	264	237	60	83	292	316	305	316	335	109	125	107	133	151	96
25	41	134	136	282	63	331	130	296	308	348	310	323	291	331	334	201	157	147	144	259	264	173	118	160	261
26	184	195	153	131	166	176	101	130	151	196	223	301	245	305	276	237	187	231	254	142	156	124	135	137	182
27	108	179	63	290	291	285	292	287	287	286	291	295	283	335	313	295	292	305	298	292	301	316	308	331	299
28	294	291	299	291	316	288	300	310	323	41	21	15	3	355	355	331	320	352	336	166	203	195	130	89	327
29	56	107	59	60	83	113	103	125	11	247	244	253	241	258	268	226	228	235	253	246	82	77	76	99	151
30	144	242	97	238	240	101	115	104	101	88	120	80	63	240	262	268	242	311	301	291	273	277	277	281	236
Prev	153	169	117	172	164	156	150	136	277	231	240	252	253	264	269	261	257	266	267	237	180	168	186	167	232

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
May 2017

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	277	275	296	303	293	288	299	291	313	309	309	293	298	308	341	262	319	6	49	83	256	33	23	167	309
2	169	173	184	265	276	287	278	270	268	288	296	291	286	294	305	296	305	290	297	311	351	104	110	123	279
3	148	112	87	143	73	76	142	94	227	261	259	255	248	266	288	277	266	271	276	274	292	106	72	98	223
4	89	67	47	50	64	51	58	23	297	276	298	272	261	284	275	270	268	251	218	96	83	83	83	107	13
5	73	91	98	118	142	123	146	341	135	190	191	202	213	224	227	226	208	199	162	135	85	46	80	54	147
6	91	70	83	65	108	104	90	145	156	162	192	202	186	206	171	183	240	181	287	248	328	21	199	212	162
7	110	34	122	69	131	32	103	105	4	283	277	282	265	255	267	276	304	298	266	276	286	295	291	300	297
8	220	77	12	83	128	29	156	132	296	281	280	287	278	266	335	296	264	269	271	162	83	94	88	171	266
9	123	110	98	79	117	73	133	121	355	293	290	278	287	330	308	306	291	321	20	58	107	86	107	93	49
10	66	65	59	28	85	70	102	122	151	177	192	243	217	212	210	238	285	288	273	134	98	88	101	82	130
11	84	71	64	85	44	115	132	322	351	14	281	270	281	261	256	227	229	271	214	59	107	108	62	96	58
12	334	137	144	131	122	182	313	149	153	152	167	171	167	167	184	193	153	152	135	266	335	277	292	290	175
13	299	330	300	283	286	276	324	299	287	282	300	283	281	291	309	340	291	260	222	218	209	163	108	108	282
14	118	112	100	61	111	131	23	94	206	239	227	249	276	253	248	252	259	262	295	225	126	74	66	122	181
15	111	34	136	145	319	135	69	122	33	21	359	265	244	273	252	285	329	316	7	87	81	114	105	119	58
16	104	157	112	104	153	134	144	57	106	143	149	153	181	197	228	295	340	20	317	134	111	83	80	112	125
17	112	116	90	118	136	230	160	137	308	339	69	70	35	10	71	81	69	48	102	266	76	80	54	87	81
18	19	78	83	59	96	72	83	75	99	103	101	91	80	81	107	149	152	156	146	141	100	98	51	84	96
19	104	85	70	344	2	278	95	18	145	99	154	183	255	257	314	333	311	265	277	78	81	110	85	89	61
20	97	93	85	80	79	97	162	298	300	283	296	4	354	198	177	155	137	203	250	248	141	79	58	135	126
21	11	96	60	121	126	91	116	126	260	278	287	321	315	315	308	303	322	308	311	302	355	92	94	75	357
22	67	91	7	183	152	196	159	1	347	16	13	9	358	355	360	349	31	34	41	22	138	86	84	81	42
23	81	102	51	88	111	136	20	6	24	303	257	273	260	245	244	259	255	250	240	184	125	123	115	104	172
24	124	121	144	97	137	211	223	271	277	276	281	277	277	276	272	278	269	266	276	273	273	274	279	280	259
25	304	301	305	295	300	290	294	296	311	301	303	308	319	320	335	327	340	316	305	307	337	105	126	112	313
26	71	137	34	54	68	308	326	316	333	331	337	326	333	313	311	327	323	329	344	283	256	124	79	76	346
27	69	75	88	134	107	98	191	29	285	255	267	292	283	288	283	288	297	305	304	328	96	109	88	31	338
28	76	92	101	26	66	20	134	103	311	266	320	341	356	4	3	355	12	286	306	38	108	101	78	68	32
29	78	53	105	89	118	116	348	70	328	297	320	290	314	81	55	54	27	29	152	122	99	98	65	76	61
30	103	77	66	76	83	105	54	101	179	154	157	166	130	86	156	154	171	154	149	154	138	127	110	109	124
31	112	104	94	104	98	106	75	127	158	152	156	153	153	153	122	135	165	49	97	104	81	88	101	76	115
Prev	90	90	81	84	101	103	106	68	298	275	271	271	275	273	278	277	288	287	276	183	91	93	84	98	75

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
June 2017

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	82	40	109	107	79	113	343	131	351	126	227	183	183	143	181	204	212	291	322	337	270	90	247	287	156
2	233	230	127	109	167	264	273	259	254	261	251	273	266	260	263	267	270	274	282	294	163	111	85	26	250
3	89	64	55	118	133	53	149	349	135	161	166	196	194	215	230	239	209	198	137	108	60	83	103	104	135
4	109	116	87	134	97	126	116	109	134	155	161	172	190	204	214	305	62	63	315	78	343	3	96	301	116
5	53	327	248	103	209	271	329	279	299	290	281	274	282	263	259	260	301	312	3	30	5	3	112	91	304
6	117	157	77	136	167	13	20	136	147	154	154	147	150	147	148	142	146	142	136	124	87	303	120	90	130
7	90	97	116	114	97	91	94	187	165	161	156	159	138	144	151	144	151	147	138	138	51	91	81	87	125
8	101	117	91	119	153	149	164	123	145	149	Au	Au	Au	Au	Au	130	168	180	172	198	279	81	284	86	142
9	69	54	82	46	92	60	223	261	243	203	195	225	287	273	81	179	96	132	149	185	143	119	119	159	145
10	120	158	123	113	159	128	146	166	229	234	245	287	246	234	161	229	257	261	206	216	261	131	88	72	189
11	94	106	63	78	101	122	12	278	261	265	260	245	271	281	318	173	171	156	154	104	108	59	74	68	120
12	212	295	83	299	113	111	67	85	109	154	160	127	119	125	139	108	91	123	337	68	62	359	170	151	111
13	328	290	236	150	126	108	149	147	146	157	205	254	300	287	291	285	280	277	274	269	283	274	267	272	251
14	271	271	259	267	276	273	270	273	264	261	260	255	254	267	262	264	265	272	273	283	288	292	295	291	271
15	290	276	282	87	99	86	54	7	40	292	272	275	272	254	247	244	248	269	270	266	282	208	179	206	267
16	88	252	293	291	260	273	278	271	264	259	257	257	268	276	295	290	270	263	271	249	266	258	273	261	269
17	264	275	264	286	301	291	293	275	264	269	283	259	264	273	254	265	263	280	283	283	181	116	90	59	272
18	64	105	130	95	284	269	277	272	260	270	277	279	295	272	270	276	280	284	287	285	276	268	358	61	283
19	99	77	63	113	47	10	308	350	263	255	280	278	272	275	260	307	360	301	251	210	85	100	103	106	327
20	121	121	70	94	95	86	88	7	296	323	277	267	269	284	299	308	307	287	280	277	277	275	308	308	306
21	298	295	281	243	281	297	298	285	280	262	259	264	277	279	278	277	266	286	288	292	302	297	137	337	282
22	114	89	75	66	77	12	108	314	284	292	299	290	311	326	320	334	8	18	13	6	20	310	157	75	4
23	33	63	108	18	103	237	14	298	344	293	265	303	306	308	299	320	357	37	26	13	218	173	164	133	343
24	61	18	83	37	104	151	331	328	299	276	332	255	259	249	307	3	359	11	74	109	82	79	77	85	23
25	85	84	82	61	83	26	133	343	23	191	12	294	337	264	233	265	289	271	266	251	133	85	71	108	31
26	123	113	119	124	138	145	140	289	134	169	153	180	209	243	216	203	154	233	280	86	135	52	245	313	166
27	103	99	52	56	68	92	16	70	267	248	266	251	283	264	255	274	282	286	329	221	60	100	114	121	340
28	114	113	132	126	150	115	149	334	263	268	271	298	303	289	290	302	335	285	288	305	18	154	127	112	268
29	136	95	72	56	29	99	342	17	5	326	322	306	319	322	319	315	354	335	338	309	346	71	92	104	6
30	77	67	92	111	121	114	214	83	336	269	262	305	304	266	301	245	257	251	207	71	131	84	86	84	123
Prev	94	88	93	96	115	97	25	311	265	239	250	254	267	261	260	262	275	272	280	273	6	76	114	85	246

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
April 2017

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

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
May 2017

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

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
June 2017

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

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
April 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-1.7	-2.8	-3.6	-4.0	-4.4	-5.1	-5.6	-3.8	-0.3	3.6	5.9	7.0	7.7	8.2	9.2	10.1	10.2	10.1	9.8	9.2	8.6	7.6	6.6	5.7	3.7	10.2	-5.6
2	4.8	4.1	3.4	3.0	2.7	1.9	0.6	1.0	2.6	4.0	4.5	4.9	6.1	6.2	6.7	6.6	5.8	4.9	3.8	2.0	0.2	-0.7	-1.9	-2.4	3.1	6.7	-2.4
3	-2.7	-3.1	-3.5	-3.6	-4.2	-4.9	-5.8	-4.3	-3.1	-2.3	-2.0	-1.4	-0.4	-1.2	-1.0	-1.4	-2.3	-2.5	-2.9	-3.1	-3.3	-3.6	-4.0	-4.1	-2.9	-0.4	-5.8
4	-4.2	-4.1	-4.2	-4.3	-3.9	-3.9	-4.1	-4.1	-2.6	-1.4	-0.2	1.0	2.0	2.9	3.5	4.0	4.3	4.1	3.0	-0.4	-2.1	-3.7	-5.0	-6.2	-1.2	4.3	-6.2
5	-6.9	-7.6	-8.1	-8.3	-7.2	-6.3	-5.8	-4.5	1.3	5.0	5.9	6.5	7.1	7.7	8.4	8.2	7.7	8.1	7.0	5.4	3.4	0.1	-1.0	-2.0	1.0	8.4	-8.3
6	-2.2	-2.3	-1.6	-1.6	-1.8	-1.6	-0.3	1.5	7.8	9.7	10.2	11.3	12.0	12.9	14.4	14.2	14.7	14.1	13.2	11.9	11.3	11.3	10.7	9.9	7.5	14.7	-2.3
7	9.4	6.3	4.1	1.6	0.9	0.3	0.6	5.9	10.1	12.7	12.8	12.7	12.9	10.6	6.3	6.0	5.4	4.9	4.9	5.9	5.9	5.1	4.0	1.6	6.3	12.9	0.3
8	1.0	0.2	-0.9	-1.3	-1.9	-2.4	-2.3	-1.5	0.6	5.1	7.3	7.4	8.4	8.4	7.5	6.9	2.9	0.9	1.1	0.7	0.7	0.3	-0.1	-0.5	2.0	8.4	-2.4
9	-0.8	-1.3	-1.7	-1.7	-2.0	-2.1	-2.3	-2.4	-2.4	-2.3	-2.1	-2.2	-2.2	-1.9	-1.6	-1.1	-1.1	-0.9	-1.4	-2.7	-4.8	-7.3	-9.7	-11.2	-2.9	-0.8	-11.2
10	-12.7	-13.3	-13.6	-12.9	-12.5	-12.8	-13.1	-11.9	-6.8	-2.1	1.2	2.1	2.9	3.2	3.2	3.7	2.0	0.6	-0.6	-1.1	-1.7	-2.6	-2.5	-4.1	-4.4	3.7	-13.6
11	-6.3	-7.0	-7.7	-7.2	-8.0	-6.7	-5.9	-3.3	-0.6	0.4	1.2	1.9	2.7	3.4	4.2	5.0	5.5	5.6	4.4	2.4	1.3	2.3	3.3	1.9	-0.3	5.6	-8.0
12	0.5	0.2	-0.1	-0.2	0.0	0.1	0.3	1.2	2.8	4.1	5.7	7.0	7.5	8.4	8.8	8.9	8.6	7.4	7.3	7.1	7.2	6.6	6.4	6.4	4.7	8.9	-0.2
13	6.0	5.4	4.8	4.2	3.4	4.4	3.6	8.2	10.9	13.7	15.9	16.4	16.5	16.6	17.0	16.1	12.1	10.5	7.9	6.0	5.1	3.1	1.9	0.8	8.8	17.0	0.8
14	0.5	0.4	0.3	0.0	-0.1	-0.6	-0.8	-0.8	-0.3	0.4	1.8	2.7	3.5	4.0	4.2	4.4	4.6	4.3	3.6	2.5	1.7	1.1	0.0	-1.1	1.5	4.6	-1.1
15	-0.7	-1.4	-1.6	-1.8	-2.1	-2.3	-2.3	-1.9	-1.4	-0.4	0.2	1.4	2.4	3.2	2.8	2.7	2.8	2.7	2.0	1.0	0.2	-0.9	-0.8	-1.1	0.1	3.2	-2.3
16	-1.9	-3.4	-4.2	-5.4	-6.3	-7.2	-6.5	-3.3	0.4	1.6	2.4	3.6	4.4	5.0	5.7	6.2	7.0	6.9	5.5	4.1	4.2	3.4	2.1	1.5	1.1	7.0	-7.2
17	0.7	0.5	1.1	1.3	2.0	2.7	3.2	2.2	2.9	2.0	3.2	4.1	6.0	5.4	2.8	4.6	7.0	6.6	6.5	5.5	4.7	3.1	0.1	-1.3	3.2	7.0	-1.3
18	-2.2	-2.7	-2.7	-2.8	-3.2	-3.5	-3.3	-1.0	4.1	6.4	7.0	8.3	9.0	9.7	10.1	10.5	10.5	10.2	9.9	8.2	6.3	4.4	2.0	0.4	4.0	10.5	-3.5
19	0.2	0.3	0.5	0.6	0.7	0.5	-0.5	-0.4	1.7	3.1	4.2	5.1	6.2	7.2	7.9	8.5	8.7	9.1	8.5	4.5	1.1	-0.4	-2.8	-3.1	3.0	9.1	-3.1
20	-3.9	-4.8	-4.6	-5.1	-5.3	-5.5	-4.4	0.1	6.0	8.5	9.9	10.4	10.9	10.7	10.9	10.8	7.9	6.5	5.7	4.5	3.9	3.5	2.2	0.5	3.3	10.9	-5.5
21	0.2	0.0	0.0	0.0	-0.2	-0.3	-0.3	-0.2	0.1	0.5	0.9	1.5	2.1	3.1	3.0	2.9	2.1	1.6	1.2	0.6	0.2	0.0	0.0	-0.2	0.8	3.1	-0.3
22	-0.3	-0.2	-0.2	-0.2	0.0	0.0	0.4	1.0	1.6	2.6	4.6	6.4	7.5	8.4	9.5	10.5	11.3	11.4	10.5	7.8	7.3	6.9	4.5	3.3	4.8	11.4	-0.3
23	2.0	1.0	0.1	0.4	-0.8	0.7	0.4	3.2	5.9	8.1	6.1	4.9	6.1	7.7	7.6	4.2	4.1	4.6	5.2	4.5	2.0	0.2	-0.5	-1.6	3.2	8.1	-1.6
24	-2.1	-2.0	-1.9	-1.6	-1.4	-1.4	-0.8	0.5	2.5	3.9	4.8	5.6	5.6	6.8	7.9	7.9	7.1	5.5	4.6	3.1	2.0	1.2	1.0	0.9	2.5	7.9	-2.1
25	1.4	0.8	0.2	0.4	0.5	0.5	0.9	1.9	2.7	1.6	2.0	3.7	3.8	3.0	5.1	4.6	5.4	4.3	3.4	3.2	1.8	0.2	-0.2	-1.9	2.1	5.4	-1.9
26	-1.3	-1.5	-1.3	-0.9	-0.8	-0.8	-0.7	0.0	1.2	2.8	3.3	3.4	4.9	5.9	4.7	2.3	2.9	3.4	3.5	2.2	1.5	1.1	0.1	-0.3	1.5	5.9	-1.5
27	-0.6	-0.9	-0.6	0.0	0.4	0.2	0.2	0.5	0.7	1.2	1.6	2.5	2.9	1.0	0.2	0.5	0.4	0.3	0.2	-0.2	-0.4	-0.6	-0.7	-0.9	0.3	2.9	-0.9
28	-0.8	-0.8	-0.9	-1.0	-0.8	-0.9	-1.0	-0.5	0.8	1.8	2.4	2.4	3.0	3.4	3.7	4.3	4.2	3.4	2.6	0.6	-1.2	-1.6	-2.2	-1.5	0.8	4.3	-2.2
29	-1.5	-3.2	-3.1	-2.9	-3.9	-4.8	-3.2	-1.4	1.0	3.0	4.1	5.0	5.4	6.8	7.5	7.4	7.7	8.1	7.7	4.9	2.0	0.0	-1.0	-3.1	1.8	8.1	-4.8
30	-3.7	-3.9	-2.8	2.8	2.2	0.4	0.2	0.5	1.4	1.4	1.9	3.2	4.7	7.1	5.3	6.6	6.8	7.5	6.2	5.2	4.7	4.2	4.0	3.0	2.9	7.5	-3.9
Avg	-1.0	-1.6	-1.8	-1.8	-1.9	-2.0	-2.0	-0.6	1.7	3.3	4.2	5.0	5.7	6.1	6.2	6.2	5.9	5.5	4.8	3.5	2.5	1.5	0.6	-0.4	2.1	7.2	-3.6
Max	9.4	6.3	4.8	4.2	3.4	4.4	3.6	8.2	10.9	13.7	15.9	16.4	16.5	16.6	17.0	16.1	14.7	14.1	13.2	11.9	11.3	11.3	10.7	9.9	8.8	17.0	0.8
Min	-12.7	-13.3	-13.6	-12.9	-12.5	-12.8	-13.1	-11.9	-6.8	-2.3	-2.1	-2.2	-2.2	-1.9	-1.6	-1.4	-2.3	-2.5	-2.9	-3.1	-4.8	-7.3	-9.7	-11.2	-4.4	-0.8	-13.6

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
May 2017

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	2.2	1.8	1.2	0.1	0.1	0.1	0.7	0.8	1.4	2.9	3.4	4.1	4.8	4.2	3.9	5.5	5.9	5.6	5.1	4.4	3.2	1.4	0.7	0.2	2.7	5.9	0.1
2	0.2	0.2	0.2	0.3	0.5	0.2	0.4	0.7	1.3	1.3	2.0	2.3	2.6	3.8	3.7	4.0	5.1	5.7	5.2	4.1	2.7	0.0	-2.0	-2.7	1.7	5.7	-2.7
3	-3.7	-4.5	-5.3	-5.0	-5.5	-5.2	-4.2	-0.1	3.8	5.3	6.6	8.2	9.7	11.4	12.3	13.2	13.9	14.5	14.2	12.5	10.7	8.3	4.3	2.6	4.9	14.5	-5.5
4	1.4	0.4	-0.3	-0.8	-1.1	-1.5	0.5	5.8	11.1	12.8	14.4	16.2	17.5	18.6	19.5	20.0	20.5	20.4	20.1	15.2	10.9	8.3	7.2	5.6	10.1	20.5	-1.5
5	5.4	4.8	3.7	2.4	2.1	2.2	5.1	10.5	17.0	19.3	20.3	21.0	21.9	22.6	22.8	22.9	22.8	22.6	22.3	17.8	14.3	12.6	11.2	10.6	14.1	22.9	2.1
6	9.0	8.1	6.2	5.2	3.6	3.3	5.7	10.2	14.2	16.4	17.7	19.0	20.1	20.8	21.3	21.1	19.3	18.3	16.5	12.8	11.2	10.7	9.9	8.6	12.9	21.3	3.3
7	6.6	4.6	4.1	3.5	3.5	3.5	4.6	6.9	10.7	12.2	11.7	10.8	9.2	7.8	6.8	4.8	5.7	5.1	4.4	3.3	3.1	2.8	1.9	1.1	5.8	12.2	1.1
8	-0.2	-1.2	-1.9	-2.4	-3.4	-4.2	-2.8	0.0	3.1	4.7	5.9	7.2	8.4	9.8	10.8	11.7	12.2	12.3	11.9	8.5	8.2	6.5	5.2	3.9	4.8	12.3	-4.2
9	4.5	2.0	0.2	-0.6	-1.9	-2.3	-0.7	3.7	8.6	10.5	11.6	12.5	13.1	13.5	13.8	13.8	14.0	13.9	12.4	10.7	7.0	5.5	3.3	1.7	7.1	14.0	-2.3
10	1.4	0.9	0.4	-0.9	-0.9	-1.7	0.7	6.6	11.4	12.9	13.8	14.8	15.8	16.7	17.2	18.0	18.4	18.3	18.2	14.8	13.4	11.5	8.1	6.0	9.8	18.4	-1.7
11	4.8	4.0	3.2	1.8	0.8	0.3	2.7	8.2	13.2	16.4	18.2	18.9	19.8	20.3	21.0	21.6	21.6	20.9	16.5	13.8	11.3	9.9	8.2	6.3	11.8	21.6	0.3
12	5.5	9.1	10.9	11.5	10.4	8.0	8.4	14.8	17.4	18.9	20.0	20.9	21.4	21.9	22.6	22.4	19.7	18.2	17.2	12.7	11.0	6.6	3.5	2.2	14.0	22.6	2.2
13	1.9	1.6	1.4	1.4	1.1	0.7	1.0	2.0	2.8	4.0	4.5	3.0	0.2	0.3	-0.2	0.4	1.6	1.8	1.4	0.7	0.6	-1.1	-2.3	-3.3	1.1	4.5	-3.3
14	-4.2	-4.7	-5.8	-5.7	-5.4	-6.2	-3.9	-0.4	1.9	3.5	4.4	3.8	4.3	4.9	6.0	6.6	6.8	7.2	6.3	4.7	2.6	1.6	1.1	0.3	1.2	7.2	-6.2
15	0.2	0.0	0.0	0.1	0.1	0.7	1.7	3.2	3.7	4.2	4.8	5.9	6.7	7.7	8.2	8.7	8.5	7.9	5.3	4.3	2.3	0.4	-0.9	-2.0	3.4	8.7	-2.0
16	-2.4	-3.6	-4.0	-4.7	-4.7	-5.0	-2.3	2.8	7.7	9.1	9.4	9.9	10.7	11.0	10.4	5.8	6.1	6.6	6.5	6.7	6.0	5.2	4.8	4.7	4.0	11.0	-5.0
17	4.4	4.3	4.5	4.9	4.2	3.9	3.8	4.1	4.6	5.4	5.3	5.9	4.3	5.0	4.6	5.4	5.8	5.4	3.9	3.2	3.2	2.9	2.2	2.2	4.3	5.9	2.2
18	2.3	3.4	3.2	3.1	2.9	2.5	3.1	3.4	3.8	4.6	5.0	5.4	5.8	6.5	7.2	7.7	7.8	7.2	6.3	5.1	2.5	0.5	-0.4	-1.4	4.1	7.8	-1.4
19	-2.2	-2.9	-3.3	-4.1	-4.7	-5.3	-4.1	-2.0	1.1	5.2	8.1	9.5	10.3	10.4	10.6	10.9	11.2	10.8	10.3	8.3	6.5	4.6	3.7	1.8	3.9	11.2	-5.3
20	1.0	0.9	0.2	-0.3	-0.9	-1.6	1.0	5.1	9.2	10.1	10.0	9.4	9.6	9.2	7.3	8.1	8.9	8.7	7.2	6.7	4.9	3.0	1.6	1.0	5.0	10.1	-1.6
21	-0.1	-0.8	-1.8	-2.3	-2.4	-2.9	-0.9	3.4	8.2	10.2	10.8	11.4	12.1	12.7	13.7	14.1	13.9	13.7	13.0	12.6	10.8	7.2	4.6	3.2	6.8	14.1	-2.9
22	2.4	1.5	3.1	4.3	4.2	5.0	7.1	9.5	10.2	10.5	9.4	10.3	12.1	13.0	13.8	13.9	13.7	13.5	13.4	12.1	7.9	5.4	3.9	2.9	8.5	13.9	1.5
23	2.1	0.8	0.7	0.1	-0.8	-0.7	1.9	7.0	11.8	14.0	15.3	16.4	17.3	18.3	19.0	19.6	19.9	20.2	19.7	16.7	13.3	10.9	9.4	6.3	10.8	20.2	-0.8
24	5.7	4.8	3.8	4.1	9.0	14.8	15.6	14.6	14.5	14.0	13.0	12.4	12.0	12.0	12.1	11.6	10.7	9.7	8.5	7.5	6.2	5.4	4.9	4.6	9.6	15.6	3.8
25	3.1	1.7	1.1	0.5	0.5	0.4	0.4	1.1	1.8	2.5	3.6	4.7	6.2	7.4	7.6	7.6	6.8	6.4	6.5	5.8	4.4	3.8	2.4	1.1	3.6	7.6	0.4
26	0.6	0.9	1.1	0.5	0.2	-0.1	2.2	5.3	7.3	8.5	9.3	9.7	10.5	10.9	11.1	11.3	11.6	11.5	10.7	9.5	8.0	6.5	4.1	3.2	6.4	11.6	-0.1
27	2.4	1.2	-0.1	-1.9	-2.2	-2.0	0.7	6.1	9.7	11.1	12.9	13.9	14.2	15.2	15.5	15.9	16.3	16.1	15.5	14.7	12.3	8.9	7.3	6.7	8.8	16.3	-2.2
28	6.3	5.0	3.0	2.4	2.1	1.5	3.1	6.6	12.4	14.5	14.8	15.5	15.2	16.4	16.5	16.2	16.1	13.6	12.6	11.6	10.9	8.7	7.1	5.9	9.9	16.5	1.5
29	4.2	3.2	1.8	0.4	-0.2	0.1	3.3	7.7	12.3	14.4	15.5	16.5	16.9	16.5	17.7	17.8	18.0	17.8	16.6	15.2	13.4	11.0	9.7	9.5	10.8	18.0	-0.2
30	8.6	7.4	6.4	5.3	4.7	4.3	6.6	11.8	15.2	16.7	17.6	18.0	18.5	18.6	16.3	16.8	16.3	17.4	16.9	15.6	13.1	12.1	10.5	8.3	12.6	18.6	4.3
31	7.4	7.3	6.7	6.2	5.6	6.4	9.3	15.1	17.7	19.1	20.3	21.5	22.4	23.1	23.5	23.3	20.8	13.0	13.0	13.9	12.5	10.7	9.1	9.8	14.1	23.5	5.6
Avg	2.6	2.0	1.4	0.9	0.7	0.6	2.3	5.6	8.7	10.2	11.0	11.6	12.1	12.6	12.8	12.9	12.9	12.4	11.5	9.9	8.0	6.2	4.7	3.6	7.4	14.0	-0.7
Max	9.0	9.1	10.9	11.5	10.4	14.8	15.6	15.1	17.7	19.3	20.3	21.5	22.4	23.1	23.5	23.3	22.8	22.6	22.3	17.8	14.3	12.6	11.2	10.6	14.1	23.5	5.6
Min	-4.2	-4.7	-5.8	-5.7	-5.5	-6.2	-4.2	-2.0	1.1	1.3	2.0	2.3	0.2	0.3	-0.2	0.4	1.6	1.8	1.4	0.7	0.6	-1.1	-2.3	-3.3	1.1	4.5	-6.2

A-11

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
June 2017

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	9.2	8.5	6.8	6.7	7.1	6.9	8.8	11.6	15.3	18.0	19.3	20.6	20.0	20.7	21.6	21.3	20.2	15.5	14.3	13.6	12.9	11.4	10.3	10.0	13.8	21.6	6.7
2	9.0	9.1	8.3	7.0	6.1	8.6	9.5	10.3	10.8	12.1	13.4	14.3	15.2	16.2	16.6	16.8	17.2	17.5	16.9	15.2	12.6	8.3	6.2	4.4	11.7	17.5	4.4
3	3.2	1.9	1.0	0.1	-0.4	0.0	3.4	9.6	15.5	17.3	18.6	20.0	20.9	21.1	21.2	22.0	22.1	21.9	21.1	18.0	15.8	14.0	11.8	10.3	12.9	22.1	-0.4
4	9.4	8.0	9.0	8.1	8.1	8.6	10.2	15.2	20.5	22.6	23.7	24.6	25.1	25.0	24.8	17.0	17.9	19.2	17.4	16.6	16.2	15.3	13.8	11.7	16.2	25.1	8.0
5	11.3	10.7	8.9	7.9	7.8	7.8	7.9	8.6	9.4	10.0	11.1	11.9	12.6	13.7	14.4	15.1	15.0	14.8	13.7	12.4	10.1	7.6	5.4	3.4	10.5	15.1	3.4
6	2.5	1.7	1.5	1.6	0.8	0.5	4.7	10.5	12.6	13.8	14.8	15.8	16.6	17.1	17.5	17.4	17.1	16.3	15.6	14.9	14.1	13.5	13.2	12.6	11.1	17.5	0.5
7	11.8	10.8	9.6	8.9	8.4	9.0	12.2	14.4	16.0	17.7	19.3	20.7	22.0	23.0	23.3	23.8	23.6	22.4	20.9	17.9	13.9	12.9	12.3	12.2	16.1	23.8	8.4
8	11.3	9.7	9.1	7.7	6.8	7.3	10.1	14.9	20.0	21.6	Au	Au	Au	Au	Au	25.0	25.1	25.1	25.3	23.8	18.2	15.2	12.5	10.8	15.8	25.3	6.8
9	8.5	7.3	6.2	4.9	5.8	6.5	11.1	11.2	11.2	11.9	13.1	12.3	12.1	8.9	9.0	8.9	8.1	8.3	8.2	7.9	7.6	7.2	6.7	6.0	8.7	13.1	4.9
10	4.7	3.1	1.8	1.2	0.2	0.7	3.0	6.5	8.0	9.2	9.1	9.4	9.7	8.2	8.5	10.1	9.8	6.8	7.0	6.7	5.6	2.8	1.6	0.3	5.6	10.1	0.2
11	-0.1	-0.7	-1.5	-2.3	-2.9	-2.3	0.6	5.0	6.5	7.7	9.0	10.3	11.5	12.7	13.4	14.5	15.0	15.3	14.8	10.9	7.6	5.9	4.2	3.3	6.6	15.3	-2.9
12	3.3	4.7	9.2	6.1	9.3	11.3	11.2	12.0	13.3	13.2	13.2	16.1	18.9	18.8	19.3	19.3	18.7	17.4	9.0	8.7	9.1	8.9	8.7	8.6	12.0	19.3	3.3
13	8.3	8.4	7.5	4.0	1.7	1.9	2.3	3.2	3.9	4.8	5.0	5.5	6.1	6.8	8.0	8.4	7.7	7.1	6.8	5.9	5.7	5.6	5.3	5.3	5.6	8.4	1.7
14	5.3	5.4	5.3	5.1	5.0	5.2	5.6	6.6	7.7	9.0	9.9	11.0	12.0	12.8	13.4	13.8	14.3	14.3	14.0	13.0	11.4	11.2	11.8	11.2	9.8	14.3	5.0
15	10.0	9.5	8.2	5.0	3.6	2.2	5.4	7.8	9.3	10.7	11.8	12.6	13.0	13.3	13.6	13.4	13.6	13.4	12.9	12.2	11.7	10.5	10.4	9.9	10.2	13.6	2.2
16	9.7	9.8	9.9	10.0	10.3	10.6	10.9	10.7	11.3	11.6	12.2	13.3	13.8	13.6	13.5	13.6	12.4	10.4	11.1	10.6	10.3	9.8	9.2	8.6	11.1	13.8	8.6
17	8.1	7.6	7.3	7.1	6.9	6.6	7.7	8.7	8.9	9.2	9.1	9.8	10.7	11.6	12.6	12.9	13.4	13.8	13.6	12.7	9.2	5.8	4.7	4.3	9.3	13.8	4.3
18	4.2	4.1	4.3	4.6	5.7	8.8	9.3	9.4	9.9	10.3	11.0	10.8	11.6	12.9	13.5	13.8	13.6	13.6	13.6	12.9	12.1	10.6	9.0	7.0	9.9	13.8	4.1
19	5.1	3.7	2.7	1.7	0.9	1.6	5.0	9.9	13.0	14.3	15.4	16.3	17.5	18.3	19.4	20.0	20.8	21.1	21.0	20.3	16.3	13.3	12.0	11.8	12.6	21.1	0.9
20	11.5	12.5	12.4	11.2	10.0	9.5	10.8	12.5	14.9	17.3	18.5	18.9	20.2	21.2	22.0	21.9	21.8	22.5	22.3	22.1	20.1	20.3	18.8	17.9	17.1	22.5	9.5
21	16.2	15.7	15.2	14.1	13.5	13.3	14.0	15.0	15.7	16.1	16.9	17.5	18.6	19.3	19.9	20.2	20.0	19.4	18.5	17.0	15.0	13.2	9.8	6.1	15.8	20.2	6.1
22	5.1	2.7	1.4	0.9	-0.3	-0.2	3.0	8.9	11.6	12.1	12.5	12.4	12.8	12.9	12.8	12.8	11.6	10.7	9.8	9.2	7.9	5.1	2.7	1.3	7.5	12.9	-0.3
23	0.9	-0.4	-1.4	-2.0	-2.5	-1.9	0.5	4.3	8.5	10.5	11.7	12.2	13.0	14.0	14.3	15.2	14.7	13.4	13.1	11.9	11.2	9.4	7.5	7.3	7.7	15.2	-2.5
24	5.1	4.0	2.7	1.6	0.9	1.1	4.2	8.7	12.3	13.5	14.5	15.4	16.0	16.8	17.0	17.5	17.1	17.0	17.2	14.9	13.1	11.7	11.2	11.2	11.0	17.5	0.9
25	10.4	9.6	7.3	5.3	4.7	4.2	6.6	11.3	14.2	16.3	17.2	18.3	18.8	19.6	20.5	21.1	21.7	21.8	21.6	19.8	16.5	14.9	13.3	11.4	14.4	21.8	4.2
26	9.8	8.4	6.6	5.6	4.2	5.6	9.0	14.3	19.4	22.0	23.4	25.0	26.0	26.6	26.9	25.5	26.2	26.9	26.6	23.4	16.8	16.4	19.0	17.1	17.9	26.9	4.2
27	14.3	12.5	12.2	11.6	10.5	9.4	10.0	12.8	15.7	15.4	14.9	15.3	16.8	17.2	18.4	19.1	19.7	19.6	19.2	16.4	12.4	10.4	9.1	8.0	14.2	19.7	8.0
28	7.2	6.2	4.6	4.1	3.1	2.8	5.7	10.2	14.4	15.2	16.3	16.9	16.8	17.2	18.3	18.1	17.7	17.2	16.8	15.7	14.4	12.4	9.9	7.7	12.0	18.3	2.8
29	7.7	7.0	5.8	4.3	3.6	4.3	5.3	9.3	9.4	10.2	11.4	12.3	12.8	13.2	13.7	14.2	13.3	13.3	13.1	12.4	10.0	6.7	5.1	3.7	9.3	14.2	3.6
30	2.7	1.7	0.9	0.3	-0.3	-0.1	2.6	7.9	12.7	14.5	15.7	16.5	17.4	18.5	19.1	19.8	20.2	20.4	20.3	18.9	13.7	11.2	9.5	8.1	11.3	20.4	-0.3
Avg	7.5	6.8	6.1	5.1	4.6	5.0	7.0	10.0	12.4	13.6	14.2	15.0	15.8	16.2	16.8	17.1	17.0	16.5	15.9	14.5	12.4	10.7	9.5	8.4	11.6	17.8	3.5
Max	16.2	15.7	15.2	14.1	13.5	13.3	14.0	15.2	20.5	22.6	23.7	25.0	26.0	26.6	26.9	25.5	26.2	26.9	26.6	23.8	20.1	20.3	19.0	17.9	17.9	26.9	9.5
Min	-0.1	-0.7	-1.5	-2.3	-2.9	-2.3	0.5	3.2	3.9	4.8	5.0	5.5	6.1	6.8	8.0	8.4	7.7	6.8	6.8	5.9	5.6	2.8	1.6	0.3	5.6	8.4	-2.9

A-12

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
April 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-2.7	-4.0	-4.9	-5.7	-5.5	-5.8	-6.3	-3.7	-0.1	4.0	6.5	7.8	8.3	8.9	10.0	10.7	10.5	10.1	9.5	8.9	8.3	7.4	6.4	5.6	3.5	10.7	-6.3
2	4.7	3.8	3.0	2.8	2.4	1.6	0.1	1.0	2.8	4.6	5.3	5.7	7.3	7.3	7.7	7.4	6.4	5.2	3.8	1.5	-0.1	-0.9	-2.1	-2.5	3.3	7.7	-2.5
3	-2.8	-3.1	-3.5	-3.7	-4.5	-5.4	-6.7	-4.0	-2.4	-1.5	-1.4	-0.8	0.9	-0.6	-0.4	-0.8	-1.9	-2.2	-2.7	-3.0	-3.2	-3.5	-4.0	-4.0	-2.7	0.9	-6.7
4	-4.1	-4.1	-4.2	-4.4	-3.8	-4.1	-4.2	-4.1	-2.2	-0.9	0.5	1.8	3.1	4.1	4.6	5.0	5.0	4.5	2.2	-1.2	-2.7	-5.4	-6.8	-7.8	-1.2	5.0	-7.8
5	-8.2	-8.6	-9.2	-8.8	-7.3	-6.4	-6.2	-4.2	1.7	5.8	7.0	7.8	8.1	8.8	9.3	8.9	8.1	8.4	6.9	4.5	1.9	-0.1	-1.9	-2.8	1.0	9.3	-9.2
6	-3.1	-3.2	-2.4	-2.3	-2.9	-2.8	-1.1	0.9	8.0	10.4	10.7	12.2	12.9	13.8	15.6	14.5	14.8	14.1	13.0	11.7	10.6	10.8	9.0	7.4	7.2	15.6	-3.2
7	6.8	4.6	3.2	0.8	-0.3	-1.3	-0.9	4.4	9.6	12.7	12.9	13.1	13.5	10.8	6.6	5.9	5.3	4.9	4.7	5.6	5.6	4.5	3.5	1.1	5.7	13.5	-1.3
8	0.9	-0.1	-1.4	-1.6	-2.4	-3.1	-2.9	-1.6	0.9	5.5	8.1	7.9	9.1	8.7	7.5	7.1	2.9	0.9	1.0	0.6	0.6	0.3	-0.1	-0.4	2.0	9.1	-3.1
9	-0.8	-1.2	-1.7	-1.7	-1.9	-2.1	-2.3	-2.3	-2.3	-2.1	-2.0	-2.0	-2.1	-1.8	-1.4	-1.0	-1.0	-0.9	-1.9	-3.6	-6.0	-8.8	-11.5	-12.6	-3.1	-0.8	-12.6
10	-13.8	-14.9	-15.1	-15.2	-14.8	-14.8	-15.0	-12.6	-7.0	-2.0	1.3	2.1	3.0	3.3	3.5	4.1	2.0	0.7	-0.5	-1.4	-2.5	-3.2	-3.4	-5.2	-5.1	4.1	-15.2
11	-6.9	-7.6	-8.1	-7.6	-8.6	-7.5	-6.6	-3.3	-0.4	0.9	1.8	2.5	3.4	4.0	4.7	5.6	6.0	5.7	4.3	2.4	1.4	1.8	3.2	1.8	-0.3	6.0	-8.6
12	0.6	0.2	0.0	-0.2	0.0	0.1	0.4	1.3	3.4	4.8	6.5	7.7	8.1	9.1	9.5	9.4	8.8	7.6	7.4	7.0	7.1	6.5	6.3	6.2	4.9	9.5	-0.2
13	5.8	5.1	4.6	3.3	2.5	3.6	2.3	8.3	11.5	14.4	16.8	17.4	17.4	17.3	17.5	16.3	12.1	10.7	8.0	5.8	4.9	3.1	1.9	0.9	8.8	17.5	0.9
14	0.6	0.5	0.4	0.1	-0.1	-0.6	-0.7	-0.8	-0.2	0.7	2.6	3.7	4.6	5.0	5.2	5.3	5.3	4.6	3.6	2.2	1.5	1.1	0.0	-1.1	1.8	5.3	-1.1
15	-0.8	-1.4	-1.6	-1.8	-2.1	-2.4	-2.4	-1.8	-1.3	0.1	1.0	2.3	3.7	4.3	3.6	3.5	3.4	3.0	2.1	0.6	-0.4	-2.0	-1.5	-1.6	0.3	4.3	-2.4
16	-2.7	-4.7	-5.1	-6.5	-6.7	-7.3	-6.4	-2.8	1.1	2.5	3.5	4.7	5.3	5.9	6.4	6.9	7.6	7.1	5.2	3.9	4.0	3.3	1.9	1.3	1.2	7.6	-7.3
17	0.5	0.3	1.1	1.4	1.9	2.6	3.2	2.4	3.2	2.4	3.7	4.6	6.9	5.9	3.2	5.2	7.7	6.6	6.4	5.3	4.2	2.3	-0.7	-1.7	3.3	7.7	-1.7
18	-2.6	-3.4	-3.1	-3.4	-3.9	-4.3	-3.9	-0.6	4.5	7.2	7.9	9.3	10.0	10.6	10.8	11.2	11.0	10.3	9.8	7.9	6.0	4.3	2.0	0.4	4.1	11.2	-4.3
19	0.2	0.3	0.4	0.5	0.4	0.0	-1.5	-0.6	1.7	3.2	4.9	5.8	7.1	8.1	8.8	9.4	9.1	9.6	8.2	3.9	0.9	-0.7	-3.8	-4.4	3.0	9.6	-4.4
20	-4.8	-5.8	-6.0	-6.6	-7.2	-6.4	-4.5	0.1	6.3	9.1	10.7	11.3	11.8	11.2	11.3	11.0	8.1	6.8	5.9	4.3	3.6	3.2	2.2	0.6	3.2	11.8	-7.2
21	0.3	0.0	0.0	0.0	-0.2	-0.2	-0.2	-0.1	0.2	0.6	1.1	1.9	2.8	4.1	3.9	3.6	2.5	2.0	1.5	0.7	0.4	0.2	0.2	0.0	1.1	4.1	-0.2
22	-0.2	-0.2	-0.1	0.0	0.0	0.1	0.6	1.4	2.0	3.2	5.5	7.5	8.5	9.5	10.6	11.5	12.1	11.6	9.9	7.1	6.9	6.7	4.1	3.2	5.1	12.1	-0.2
23	1.7	0.3	-0.3	0.2	-1.4	0.5	0.2	3.3	6.2	8.4	6.3	5.2	6.4	8.4	7.9	4.3	4.3	4.8	5.3	3.7	1.3	-0.1	-0.7	-2.0	3.1	8.4	-2.0
24	-2.6	-2.4	-2.1	-1.9	-1.8	-1.5	-0.8	0.7	2.8	4.5	5.4	6.1	6.0	7.3	8.5	8.5	7.5	5.8	4.8	3.2	2.0	1.3	0.9	1.0	2.6	8.5	-2.6
25	1.4	0.6	0.2	0.4	0.5	0.5	1.1	2.1	3.2	2.0	2.9	4.4	4.4	3.9	5.8	5.0	5.9	5.0	3.6	3.1	1.6	0.0	-0.3	-1.8	2.3	5.9	-1.8
26	-1.1	-1.3	-1.1	-0.8	-0.7	-0.6	-0.6	0.3	1.6	3.3	3.9	3.9	5.7	6.9	4.8	2.6	3.3	3.7	3.6	2.3	1.5	1.1	-0.1	-0.4	1.7	6.9	-1.3
27	-0.8	-1.0	-0.6	0.0	0.4	0.2	0.3	0.8	1.1	1.7	2.2	3.2	3.7	1.4	0.4	1.0	0.7	0.6	0.4	-0.1	-0.4	-0.7	-0.8	-0.9	0.5	3.7	-1.0
28	-0.9	-0.8	-0.8	-0.9	-0.8	-0.8	-0.8	-0.3	1.1	2.3	3.1	2.9	3.6	4.0	4.4	5.2	4.8	3.6	2.8	0.0	-1.7	-2.8	-2.7	-1.6	1.0	5.2	-2.8
29	-1.7	-3.8	-3.3	-2.8	-3.9	-5.3	-3.0	-1.2	1.4	3.8	5.1	6.0	6.2	8.0	8.6	8.2	8.4	8.6	7.7	4.3	1.6	-0.2	-1.3	-4.4	2.0	8.6	-5.3
30	-5.2	-4.7	-3.3	2.2	2.0	0.5	0.3	0.6	1.4	1.5	2.1	3.4	5.0	7.9	5.8	7.0	7.0	7.6	6.1	4.6	4.1	3.9	3.8	2.7	2.8	7.9	-5.2
Avg	-1.4	-2.0	-2.2	-2.1	-2.4	-2.4	-2.3	-0.5	2.0	3.8	4.9	5.6	6.5	6.9	6.8	6.8	6.3	5.7	4.8	3.2	2.1	1.1	0.1	-0.8	2.1	7.9	-4.2
Max	6.8	5.1	4.6	3.3	2.5	3.6	3.2	8.3	11.5	14.4	16.8	17.4	17.4	17.3	17.5	16.3	14.8	14.1	13.0	11.7	10.6	10.8	9.0	7.4	8.8	17.5	0.9
Min	-13.8	-14.9	-15.1	-15.2	-14.8	-14.8	-15.0	-12.6	-7.0	-2.1	-2.0	-2.0	-2.1	-1.8	-1.4	-1.0	-1.9	-2.2	-2.7	-3.6	-6.0	-8.8	-11.5	-12.6	-5.1	-0.8	-15.2

A-13

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
May 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	2.0	1.6	1.1	0.2	0.1	0.1	0.8	1.3	2.0	3.8	4.3	5.3	5.7	5.0	4.4	6.0	6.5	5.9	5.2	4.4	3.2	1.5	0.9	0.2	3.0	6.5	0.1
2	0.2	0.2	0.2	0.4	0.4	0.2	0.4	0.8	1.6	1.5	2.2	2.6	3.0	4.4	4.2	4.4	5.6	5.9	5.2	3.2	1.4	-0.8	-2.5	-3.2	1.7	5.9	-3.2
3	-4.9	-5.2	-6.3	-6.5	-6.3	-5.7	-4.1	0.2	4.2	6.1	7.4	9.2	10.7	12.5	13.6	14.1	14.8	15.2	14.2	12.1	9.9	7.1	3.9	1.9	4.9	15.2	-6.5
4	0.5	-0.3	-1.2	-1.5	-1.8	-2.7	0.6	6.2	11.6	13.6	15.6	17.2	18.5	19.6	20.4	21.0	21.2	20.9	20.1	14.5	10.8	8.0	6.5	4.6	10.2	21.2	-2.7
5	4.6	3.8	2.5	1.2	0.6	1.1	4.6	10.9	17.4	20.1	21.2	22.0	22.8	23.6	23.8	23.6	23.2	22.8	22.0	16.9	13.8	11.7	10.9	10.2	14.0	23.8	0.6
6	8.5	7.7	5.1	4.4	2.5	2.2	5.9	10.6	14.6	17.0	18.4	19.8	21.0	21.5	22.0	21.1	19.9	18.5	16.1	12.2	10.3	10.3	9.5	8.0	12.8	22.0	2.2
7	5.6	4.1	2.9	2.9	2.9	3.1	4.8	7.3	11.1	13.0	12.5	11.7	10.2	8.3	7.2	5.1	6.1	5.5	4.6	3.5	3.2	2.9	1.5	0.2	5.8	13.0	0.2
8	-0.6	-1.5	-2.0	-2.8	-3.7	-4.1	-2.6	0.4	3.7	5.5	6.9	8.1	9.3	10.6	11.6	12.4	12.8	12.9	12.1	7.7	7.7	5.8	4.6	3.1	4.9	12.9	-4.1
9	2.9	0.9	-0.4	-1.3	-3.1	-2.8	-0.6	4.1	9.1	11.3	12.8	13.7	14.2	14.5	15.0	14.8	14.9	14.6	12.3	10.3	6.2	5.2	2.6	0.7	7.2	15.0	-3.1
10	0.8	0.6	0.1	-1.6	-2.3	-2.6	0.8	7.0	12.1	13.7	14.5	15.5	16.7	17.6	18.1	18.8	19.2	18.8	18.4	14.4	13.1	10.6	7.3	5.1	9.9	19.2	-2.6
11	4.1	3.6	2.9	0.6	-0.4	-0.9	2.8	8.6	13.6	16.9	19.0	19.8	20.8	21.1	21.6	22.3	21.9	20.8	16.2	13.2	11.1	9.7	7.6	5.4	11.8	22.3	-0.9
12	3.9	6.2	9.6	10.2	9.0	6.7	7.7	14.9	17.9	19.7	21.0	22.0	22.1	22.7	23.4	22.9	19.9	17.7	16.9	12.5	10.7	6.6	3.6	2.3	13.8	23.4	2.3
13	2.0	1.7	1.5	1.5	1.2	0.7	1.3	2.7	3.3	4.9	5.2	3.5	0.3	0.6	0.0	0.8	1.9	2.1	1.6	0.5	0.1	-1.8	-2.9	-3.4	1.2	5.2	-3.4
14	-4.7	-5.1	-6.3	-5.7	-6.1	-6.6	-3.6	0.0	2.4	4.1	5.4	4.8	5.1	5.3	6.8	7.3	7.4	7.8	6.4	4.2	2.3	1.6	1.0	0.1	1.4	7.8	-6.6
15	0.0	0.0	0.0	0.0	0.1	0.7	1.9	3.4	4.0	4.5	5.3	6.5	7.3	8.5	9.0	9.5	8.8	7.9	5.0	4.2	2.0	0.2	-1.6	-3.0	3.5	9.5	-3.0
16	-3.2	-4.9	-5.7	-6.0	-6.2	-5.7	-2.2	3.1	8.2	9.9	10.2	10.8	11.7	11.8	10.7	6.0	6.5	6.8	6.5	6.6	5.8	5.2	4.9	4.6	4.0	11.8	-6.2
17	4.3	4.3	4.6	4.9	4.2	4.0	3.9	4.3	4.8	5.6	5.6	6.2	4.6	5.2	4.8	5.6	6.0	5.6	4.0	3.4	3.3	3.1	2.3	2.2	4.4	6.2	2.2
18	2.4	3.5	3.3	3.1	2.8	2.4	3.3	3.6	4.2	5.0	5.5	6.0	6.3	7.1	7.7	8.6	8.8	7.9	6.6	4.8	2.0	0.4	-0.5	-1.7	4.3	8.8	-1.7
19	-3.2	-3.8	-4.4	-5.1	-6.0	-6.0	-4.1	-1.7	1.4	5.7	8.6	10.2	11.0	11.0	11.1	11.3	11.6	11.1	10.3	8.2	6.4	4.3	3.7	1.5	3.9	11.6	-6.0
20	0.7	0.9	-0.1	-0.8	-1.5	-1.9	1.3	5.5	9.8	10.5	10.4	9.7	10.1	9.3	6.7	8.7	9.1	8.8	7.3	6.5	4.2	2.5	1.0	0.0	4.9	10.5	-1.9
21	-0.6	-1.5	-2.3	-2.9	-3.5	-3.3	-0.8	3.4	8.6	10.9	11.4	11.9	12.8	13.5	14.8	15.0	14.5	14.1	12.8	12.1	10.0	6.0	4.1	2.8	6.8	15.0	-3.5
22	1.9	0.5	2.5	3.9	3.7	4.2	6.9	9.8	10.6	10.7	9.8	10.9	12.6	13.6	14.5	14.5	14.1	13.8	13.6	11.6	6.9	5.2	3.5	2.3	8.4	14.5	0.5
23	1.8	-0.5	0.0	-0.9	-2.3	-1.8	2.3	7.4	12.4	14.6	16.1	17.3	18.2	19.1	20.0	20.6	20.7	20.7	19.6	15.3	12.3	9.9	8.4	5.0	10.7	20.7	-2.3
24	4.6	3.1	2.3	2.8	7.3	14.0	15.5	14.6	14.8	14.7	14.0	13.5	13.2	13.1	13.1	12.5	11.5	10.1	8.6	7.3	5.9	5.1	4.6	4.5	9.6	15.5	2.3
25	3.1	1.8	1.2	0.5	0.5	0.4	0.5	1.1	1.9	2.7	3.9	5.2	6.8	8.3	8.2	7.9	7.1	6.8	6.7	5.3	3.9	3.3	2.2	0.8	3.8	8.3	0.4
26	0.6	1.1	1.1	0.4	-0.1	-0.2	2.6	5.7	7.9	9.3	10.2	10.6	11.5	11.9	12.0	12.0	12.1	11.7	10.6	9.4	7.5	6.0	3.9	3.3	6.7	12.1	-0.2
27	2.5	1.2	-0.2	-2.8	-2.9	-2.2	1.0	6.7	10.3	11.8	13.8	14.8	14.8	16.4	16.2	16.7	17.1	16.3	15.0	13.9	11.4	8.3	7.0	6.3	8.9	17.1	-2.9
28	5.9	4.0	2.1	1.3	1.2	0.6	2.9	6.9	12.9	15.4	15.2	16.0	15.5	17.0	17.1	16.6	16.4	13.8	12.4	11.1	10.3	8.3	7.0	5.5	9.8	17.1	0.6
29	4.0	2.4	0.7	-0.6	-1.4	-0.5	3.6	8.2	12.7	15.1	16.3	17.5	17.9	17.0	18.0	18.0	18.1	17.9	16.4	15.0	13.0	10.6	9.6	9.4	10.8	18.1	-1.4
30	8.6	7.2	6.1	4.9	4.3	3.5	6.8	12.2	15.6	17.3	18.4	19.0	19.1	19.4	17.0	17.7	17.9	17.0	17.0	15.0	12.4	10.6	7.7	6.6	12.5	19.4	3.5
31	6.3	6.4	5.6	4.5	4.0	5.3	9.6	15.5	18.4	19.9	21.2	22.4	23.4	24.0	24.1	23.8	20.7	12.8	13.0	13.8	12.5	10.7	8.7	9.6	14.0	24.1	4.0
Avg	2.1	1.4	0.9	0.3	-0.1	0.1	2.4	6.0	9.1	10.8	11.7	12.4	12.8	13.3	13.5	13.5	13.4	12.7	11.5	9.5	7.5	5.7	4.2	3.1	7.4	14.6	-1.4
Max	8.6	7.7	9.6	10.2	9.0	14.0	15.5	15.5	18.4	20.1	21.2	22.4	23.4	24.0	24.1	23.8	23.2	22.8	22.0	16.9	13.8	11.7	10.9	10.2	14.0	24.1	4.0
Min	-4.9	-5.2	-6.3	-6.5	-6.3	-6.6	-4.1	-1.7	1.4	1.5	2.2	2.6	0.3	0.6	0.0	0.8	1.9	2.1	1.6	0.5	0.1	-1.8	-2.9	-3.4	1.2	5.2	-6.6

A-14

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
June 2017

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	8.3	7.9	6.1	6.3	6.9	6.8	8.9	11.9	15.7	18.3	19.8	21.1	20.3	21.0	21.9	21.2	20.0	15.8	14.4	13.3	12.6	11.1	9.7	9.0	13.7	21.9	6.1
2	8.1	8.4	7.7	6.6	5.6	8.3	9.7	10.5	11.0	12.9	14.5	15.5	16.4	17.2	17.6	17.7	18.0	18.0	17.0	14.2	10.7	7.1	5.9	3.8	11.8	18.0	3.8
3	2.4	1.2	0.1	-1.0	-1.8	-0.4	3.7	10.0	16.2	18.2	19.6	21.0	21.9	21.8	21.8	22.7	22.7	22.1	20.5	17.8	15.2	13.5	11.0	9.3	12.9	22.7	-1.8
4	7.9	6.6	8.4	7.2	7.2	8.0	10.2	15.6	20.9	23.3	24.5	25.4	25.7	25.4	24.8	16.6	18.0	19.2	17.3	16.5	15.9	14.9	13.5	11.6	16.0	25.7	6.6
5	11.3	10.7	8.9	7.7	7.7	7.7	8.1	8.8	9.8	10.6	11.9	13.1	13.8	14.8	15.4	16.0	15.7	15.3	14.1	12.4	9.7	6.5	4.3	2.2	10.7	16.0	2.2
6	1.7	0.7	0.6	0.1	-0.4	0.4	5.0	11.0	13.5	14.9	16.1	17.1	17.9	18.4	18.6	18.2	17.7	16.7	15.7	14.9	14.0	12.9	12.9	12.2	11.3	18.6	-0.4
7	11.3	10.2	8.6	8.2	7.7	8.8	12.5	14.8	16.8	18.6	20.2	21.6	22.9	23.9	23.9	24.3	24.1	22.5	20.7	17.6	13.6	12.9	12.3	12.2	16.3	24.3	7.7
8	11.2	9.6	9.0	7.0	5.7	6.6	10.3	15.2	20.4	22.1	Au	Au	Au	Au	Au	25.1	24.9	24.6	24.8	22.5	17.8	13.7	11.2	9.6	15.3	25.1	5.7
9	7.7	6.7	5.4	4.2	4.9	6.4	11.1	11.1	11.3	12.4	14.1	12.8	12.6	9.2	9.3	9.0	8.3	8.5	8.4	7.9	7.6	7.1	6.7	5.9	8.7	14.1	4.2
10	4.4	2.6	1.3	0.9	-0.2	0.8	3.2	6.9	8.6	10.1	9.7	10.4	10.2	8.7	9.0	11.0	10.2	6.9	7.3	6.5	5.2	2.4	1.4	0.2	5.7	11.0	-0.2
11	-0.2	-1.0	-2.0	-2.7	-3.7	-2.7	0.9	5.5	7.2	8.6	9.8	11.1	12.4	13.5	14.2	15.1	15.6	15.8	14.8	10.2	7.4	5.6	3.6	2.6	6.7	15.8	-3.7
12	2.0	2.9	7.4	4.5	8.2	11.1	11.1	12.1	13.5	13.5	13.4	16.6	19.7	19.5	20.1	19.6	19.0	17.4	9.0	8.8	9.2	8.9	8.6	8.6	11.9	20.1	2.0
13	8.3	8.3	7.6	4.2	1.9	2.2	2.7	3.7	4.5	5.4	5.5	5.9	6.5	7.2	8.5	8.5	7.7	7.4	6.9	6.0	5.7	5.7	5.4	5.4	5.9	8.5	1.9
14	5.4	5.4	5.3	5.1	5.0	5.1	5.5	6.7	8.1	9.6	10.8	12.0	13.0	13.7	14.2	14.5	14.9	14.7	14.2	12.4	10.2	10.5	11.5	10.9	9.9	14.9	5.0
15	9.2	8.8	7.4	3.5	2.4	2.3	5.7	8.1	9.6	11.3	12.3	13.2	13.5	13.8	14.0	13.7	14.0	13.6	12.8	11.8	10.8	9.9	9.9	9.4	10.0	14.0	2.3
16	9.4	9.4	9.5	9.8	10.1	10.4	10.8	10.8	11.6	11.8	12.5	13.9	14.5	13.9	13.8	13.8	12.4	10.5	11.1	10.5	10.1	9.5	8.8	8.2	11.1	14.5	8.2
17	7.8	7.3	7.1	6.8	6.6	6.4	8.1	9.2	9.3	9.8	9.4	10.4	11.5	12.3	13.5	13.4	13.9	14.3	13.9	12.1	7.8	5.3	4.6	4.2	9.4	14.3	4.2
18	4.1	4.2	4.3	4.5	5.5	8.3	9.3	9.8	10.6	10.7	11.4	11.0	11.8	13.4	14.0	14.2	14.0	13.8	13.6	12.7	11.7	10.0	8.3	6.3	9.9	14.2	4.1
19	4.7	3.3	2.2	0.8	0.3	1.6	5.4	10.5	13.6	15.1	16.2	17.0	18.5	19.2	20.2	20.6	21.4	21.2	21.0	18.9	14.8	12.8	11.3	11.0	12.6	21.4	0.3
20	10.7	11.5	11.5	10.7	9.5	9.4	11.0	12.8	15.2	17.6	18.7	19.3	20.8	21.4	22.3	21.8	21.9	22.6	21.9	21.5	18.8	19.8	18.1	16.9	16.9	22.6	9.4
21	14.5	13.8	13.9	12.4	12.6	12.8	14.1	15.3	16.2	16.8	17.7	18.4	19.4	20.1	20.7	20.8	20.4	19.7	18.5	16.5	13.8	11.3	8.4	4.9	15.5	20.8	4.9
22	3.3	2.2	0.8	0.2	-1.1	-0.3	3.3	9.5	12.3	12.8	13.5	13.0	13.7	13.8	13.4	13.3	11.6	11.1	10.2	9.2	7.2	4.2	1.9	0.9	7.5	13.8	-1.1
23	0.2	-0.9	-2.3	-2.5	-3.3	-2.0	0.8	4.7	9.0	11.2	12.7	12.9	13.8	14.9	15.3	16.1	15.3	13.6	13.2	11.5	10.6	8.6	6.9	6.8	7.8	16.1	-3.3
24	3.6	2.6	1.7	1.0	-0.2	0.6	4.7	9.1	12.8	14.0	15.1	16.3	17.0	17.7	17.6	18.1	17.1	17.1	17.5	14.8	13.0	11.5	11.2	10.9	11.0	18.1	-0.2
25	10.2	8.6	6.9	5.2	4.6	4.4	7.0	11.8	14.7	17.0	17.8	19.0	19.6	20.4	21.3	21.9	22.3	22.2	21.6	19.4	15.8	14.1	12.5	9.8	14.5	22.3	4.4
26	7.4	5.8	4.8	3.6	2.4	4.1	9.2	14.6	19.9	22.6	24.2	25.8	26.9	27.1	27.2	24.9	26.5	26.9	26.3	21.6	15.0	14.8	18.3	16.6	17.4	27.2	2.4
27	14.1	12.5	12.1	11.5	10.2	9.3	10.1	13.3	16.0	15.5	15.2	15.7	17.4	17.7	19.0	19.6	19.9	19.7	19.2	15.9	12.0	10.4	8.9	7.4	14.3	19.9	7.4
28	6.9	5.5	3.4	2.9	2.1	2.3	6.1	10.6	14.9	16.0	17.0	17.7	17.1	17.5	19.1	18.4	18.0	17.0	16.4	15.3	13.1	12.0	9.0	6.8	11.9	19.1	2.1
29	6.4	6.1	5.0	3.5	2.7	4.0	5.4	9.8	9.9	10.7	12.2	13.2	13.9	14.3	14.7	15.1	14.0	13.9	13.5	12.1	9.0	5.8	4.2	2.5	9.2	15.1	2.5
30	1.9	0.3	-0.3	-1.0	-1.8	-0.9	3.0	8.4	13.4	15.4	16.5	17.3	18.2	19.4	19.9	20.6	20.9	20.9	20.6	18.5	12.9	11.0	9.2	7.4	11.3	20.9	-1.8
Avg	6.8	6.0	5.4	4.4	3.9	4.7	7.2	10.4	12.9	14.2	14.9	15.8	16.6	16.9	17.4	17.5	17.3	16.8	15.9	14.1	11.7	10.1	9.0	7.8	11.5	18.4	2.8
Max	14.5	13.8	13.9	12.4	12.6	12.8	14.1	15.6	20.9	23.3	24.5	25.8	26.9	27.1	27.2	25.1	26.5	26.9	26.3	22.5	18.8	19.8	18.3	16.9	17.4	27.2	9.4
Min	-0.2	-1.0	-2.3	-2.7	-3.7	-2.7	0.8	3.7	4.5	5.4	5.5	5.9	6.5	7.2	8.5	8.5	7.7	6.9	6.9	6.0	5.2	2.4	1.4	0.2	5.7	8.5	-3.7

A-15

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
April 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.03	1.20	1.33	1.64	1.04	0.67	0.71	-0.05	-0.21	-0.37	-0.65	-0.73	-0.63	-0.66	-0.79	-0.62	-0.25	0.06	0.27	0.29	0.24	0.21	0.16	0.14	0.17	1.64	-0.79
2	0.18	0.27	0.34	0.26	0.30	0.33	0.55	0.01	-0.21	-0.58	-0.78	-0.84	-1.20	-1.10	-1.04	-0.87	-0.57	-0.22	0.05	0.42	0.32	0.18	0.21	0.16	-0.16	0.55	-1.20
3	0.08	0.01	0.02	0.10	0.36	0.50	0.85	-0.23	-0.65	-0.81	-0.61	-0.61	-1.30	-0.58	-0.66	-0.59	-0.37	-0.27	-0.15	-0.10	-0.07	-0.03	-0.08	-0.04	-0.22	0.85	-1.30
4	-0.05	-0.08	-0.02	0.11	-0.03	0.17	0.04	-0.06	-0.42	-0.53	-0.73	-0.83	-1.05	-1.15	-1.15	-0.99	-0.71	-0.38	0.80	0.78	0.63	1.69	1.79	1.57	-0.03	1.79	-1.15
5	1.30	0.94	1.11	0.57	0.06	0.16	0.41	-0.29	-0.41	-0.81	-1.03	-1.24	-1.02	-1.13	-0.89	-0.68	-0.40	-0.25	0.10	0.91	1.53	0.25	0.81	0.79	0.03	1.53	-1.24
6	0.85	0.91	0.80	0.69	1.15	1.16	0.80	0.66	-0.15	-0.69	-0.54	-0.86	-0.83	-0.98	-1.21	-0.34	-0.13	0.04	0.20	0.19	0.70	0.46	1.77	2.52	0.30	2.52	-1.21
7	2.57	1.67	0.94	0.74	1.16	1.65	1.55	1.50	0.42	0.02	-0.13	-0.33	-0.56	-0.20	-0.29	0.07	0.13	0.05	0.28	0.36	0.38	0.67	0.50	0.47	0.57	2.57	-0.56
8	0.09	0.37	0.43	0.35	0.45	0.68	0.62	0.05	-0.30	-0.42	-0.71	-0.45	-0.64	-0.26	-0.05	-0.18	0.00	0.05	0.09	0.05	0.02	0.04	-0.07	-0.06	0.01	0.68	-0.71
9	-0.06	-0.06	-0.05	-0.05	-0.05	-0.04	-0.07	-0.09	-0.12	-0.11	-0.13	-0.16	-0.15	-0.16	-0.19	-0.18	-0.18	-0.02	0.57	0.85	1.26	1.41	1.69	1.35	0.22	1.69	-0.19
10	1.12	1.53	1.53	2.24	2.43	2.09	1.88	0.65	0.19	-0.07	-0.12	-0.02	-0.09	-0.14	-0.21	-0.39	-0.08	-0.18	-0.07	0.28	0.75	0.62	0.95	1.16	0.67	2.43	-0.39
11	0.59	0.55	0.48	0.47	0.64	0.84	0.62	-0.01	-0.27	-0.45	-0.57	-0.67	-0.69	-0.62	-0.52	-0.53	-0.46	-0.12	0.10	0.06	-0.02	0.42	0.13	0.09	0.00	0.84	-0.69
12	-0.07	-0.06	-0.05	-0.01	0.01	-0.01	-0.05	-0.16	-0.53	-0.70	-0.82	-0.66	-0.61	-0.68	-0.71	-0.52	-0.24	-0.21	-0.07	0.02	0.06	0.11	0.13	0.19	-0.23	0.19	-0.82
13	0.18	0.28	0.26	0.90	0.90	0.82	1.34	-0.15	-0.58	-0.78	-0.90	-1.02	-0.96	-0.67	-0.48	-0.21	0.02	-0.26	-0.03	0.20	0.18	-0.03	-0.06	-0.07	-0.05	1.34	-1.02
14	-0.05	-0.03	-0.04	-0.06	-0.04	-0.01	-0.01	-0.02	-0.06	-0.34	-0.78	-1.00	-1.08	-0.99	-0.98	-0.86	-0.76	-0.25	0.07	0.27	0.20	0.01	-0.09	-0.01	-0.29	0.27	-1.08
15	0.15	0.00	0.02	0.01	0.02	0.04	0.02	-0.04	-0.14	-0.50	-0.72	-0.86	-1.26	-1.17	-0.76	-0.74	-0.58	-0.35	-0.10	0.39	0.64	1.06	0.66	0.54	-0.15	1.06	-1.26
16	0.76	1.36	0.90	1.11	0.41	0.09	-0.09	-0.44	-0.72	-0.94	-1.07	-1.07	-0.94	-0.87	-0.74	-0.70	-0.62	-0.25	0.24	0.17	0.11	0.07	0.20	0.23	-0.12	1.36	-1.07
17	0.22	0.18	0.02	0.00	0.08	0.08	0.03	-0.20	-0.29	-0.32	-0.53	-0.52	-0.87	-0.52	-0.32	-0.62	-0.62	-0.02	0.03	0.21	0.44	0.79	0.81	0.46	-0.06	0.81	-0.87
18	0.45	0.64	0.32	0.60	0.72	0.76	0.53	-0.33	-0.42	-0.78	-0.87	-1.00	-0.99	-0.86	-0.68	-0.71	-0.53	-0.06	0.10	0.27	0.38	0.10	0.01	-0.01	-0.10	0.76	-1.00
19	-0.02	0.01	0.07	0.12	0.32	0.49	0.95	0.23	0.06	-0.12	-0.64	-0.74	-0.91	-0.96	-0.92	-0.83	-0.49	-0.52	0.31	0.61	0.24	0.37	0.98	1.35	-0.00	1.35	-0.96
20	0.82	0.99	1.33	1.44	1.84	0.91	0.05	0.00	-0.23	-0.62	-0.84	-0.93	-0.96	-0.50	-0.34	-0.18	-0.15	-0.23	-0.11	0.20	0.26	0.24	-0.02	-0.05	0.12	1.84	-0.96
21	-0.07	-0.08	-0.06	-0.04	-0.07	-0.04	-0.06	-0.08	-0.09	-0.10	-0.21	-0.43	-0.68	-0.99	-0.87	-0.71	-0.44	-0.39	-0.25	-0.15	-0.13	-0.14	-0.15	-0.14	-0.27	-0.04	-0.99
22	-0.07	-0.07	-0.11	-0.13	-0.10	-0.15	-0.19	-0.38	-0.47	-0.61	-0.94	-1.08	-1.02	-1.00	-1.11	-0.93	-0.75	-0.26	0.59	0.64	0.35	0.22	0.35	0.11	-0.30	0.64	-1.11
23	0.34	0.70	0.50	0.16	0.57	0.21	0.21	-0.15	-0.29	-0.32	-0.21	-0.31	-0.29	-0.74	-0.29	-0.04	-0.23	-0.20	-0.14	0.75	0.69	0.31	0.17	0.39	0.07	0.75	-0.74
24	0.55	0.31	0.21	0.30	0.31	0.10	0.00	-0.23	-0.32	-0.55	-0.58	-0.56	-0.45	-0.50	-0.60	-0.64	-0.44	-0.36	-0.19	-0.09	0.01	-0.10	0.04	-0.07	-0.16	0.55	-0.64
25	0.00	0.21	-0.03	0.05	-0.01	-0.06	-0.18	-0.25	-0.44	-0.38	-0.85	-0.73	-0.62	-0.91	-0.66	-0.39	-0.44	-0.68	-0.18	0.07	0.20	0.25	0.10	-0.05	-0.25	0.25	-0.91
26	-0.18	-0.17	-0.22	-0.12	-0.09	-0.14	-0.13	-0.23	-0.36	-0.48	-0.51	-0.51	-0.86	-0.99	-0.14	-0.32	-0.35	-0.30	-0.16	-0.08	0.05	0.00	0.24	0.13	-0.25	0.24	-0.99
27	0.22	0.14	-0.03	0.00	0.02	-0.02	-0.12	-0.23	-0.34	-0.52	-0.57	-0.73	-0.79	-0.40	-0.21	-0.51	-0.34	-0.28	-0.20	-0.08	-0.03	0.08	0.06	0.04	-0.20	0.22	-0.79
28	0.05	-0.04	-0.07	-0.04	-0.08	-0.12	-0.15	-0.23	-0.22	-0.55	-0.63	-0.53	-0.58	-0.56	-0.65	-0.83	-0.64	-0.21	-0.22	0.55	0.49	1.17	0.45	0.10	-0.15	1.17	-0.83
29	0.11	0.53	0.18	-0.09	-0.03	0.44	-0.20	-0.25	-0.41	-0.83	-0.95	-0.93	-0.72	-1.14	-1.02	-0.77	-0.68	-0.54	-0.03	0.65	0.42	0.22	0.25	1.36	-0.18	1.36	-1.14
30	1.42	0.84	0.43	0.55	0.15	-0.07	-0.09	-0.08	-0.02	-0.06	-0.14	-0.24	-0.30	-0.77	-0.53	-0.34	-0.20	-0.07	0.08	0.52	0.53	0.28	0.16	0.28	0.10	1.42	-0.77
Avg	0.42	0.44	0.35	0.40	0.41	0.38	0.33	-0.04	-0.27	-0.48	-0.63	-0.69	-0.77	-0.74	-0.63	-0.54	-0.38	-0.22	0.07	0.31	0.36	0.36	0.40	0.43	-0.03	1.09	-0.91
Max	2.57	1.67	1.53	2.24	2.43	2.09	1.88	1.50	0.42	0.02	-0.12	-0.02	-0.09	-0.14	-0.05	0.07	0.13	0.06	0.80	0.91	1.53	1.69	1.79	2.52	0.67	2.57	-0.19
Min	-0.18	-0.17	-0.22	-0.13	-0.10	-0.15	-0.20	-0.44	-0.72	-0.94	-1.07	-1.24	-1.30	-1.17	-1.21	-0.99	-0.76	-0.68	-0.25	-0.15	-0.13	-0.14	-0.15	-0.14	-0.30	-0.04	-1.30

A-16

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
May 2017

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	0.26	0.17	0.05	-0.04	0.01	-0.01	-0.12	-0.41	-0.60	-0.87	-0.83	-1.16	-0.92	-0.77	-0.43	-0.53	-0.57	-0.34	-0.15	-0.07	0.03	-0.11	-0.11	-0.06	-0.32	0.26	-1.16
2	-0.04	-0.03	-0.02	0.00	0.02	0.04	0.00	-0.07	-0.25	-0.20	-0.18	-0.27	-0.40	-0.55	-0.45	-0.44	-0.41	-0.25	-0.02	0.96	1.21	0.92	0.54	0.57	0.03	1.21	-0.55
3	1.20	0.75	1.06	1.48	0.76	0.56	-0.05	-0.36	-0.47	-0.78	-0.86	-0.99	-1.00	-1.11	-1.25	-0.97	-0.88	-0.66	-0.05	0.43	0.81	1.19	0.46	0.67	-0.00	1.48	-1.25
4	0.86	0.68	0.84	0.71	0.79	1.22	-0.09	-0.38	-0.55	-0.79	-1.11	-1.02	-0.97	-1.00	-0.94	-0.94	-0.68	-0.47	0.04	0.78	0.12	0.28	0.68	1.02	-0.04	1.22	-1.11
5	0.82	0.93	1.26	1.16	1.59	1.14	0.51	-0.33	-0.45	-0.80	-0.89	-1.03	-0.91	-1.04	-0.98	-0.71	-0.48	-0.22	0.30	0.92	0.48	0.94	0.27	0.35	0.12	1.59	-1.04
6	0.49	0.39	1.09	0.78	1.16	1.05	-0.20	-0.33	-0.39	-0.56	-0.67	-0.76	-0.88	-0.74	-0.68	-0.06	-0.51	-0.18	0.46	0.57	0.88	0.39	0.39	0.61	0.10	1.16	-0.88
7	0.95	0.57	1.16	0.59	0.56	0.35	-0.18	-0.33	-0.45	-0.74	-0.79	-0.83	-0.99	-0.45	-0.42	-0.25	-0.37	-0.38	-0.25	-0.18	-0.11	-0.03	0.36	0.95	-0.05	1.16	-0.99
8	0.42	0.23	0.16	0.44	0.31	-0.08	-0.18	-0.35	-0.57	-0.79	-1.02	-0.92	-0.91	-0.82	-0.77	-0.74	-0.64	-0.62	-0.14	0.79	0.43	0.67	0.58	0.88	-0.15	0.88	-1.02
9	1.61	1.14	0.66	0.69	1.26	0.55	-0.10	-0.33	-0.49	-0.83	-1.14	-1.20	-1.17	-1.07	-1.17	-1.09	-0.84	-0.65	0.07	0.37	0.77	0.36	0.70	0.93	-0.04	1.61	-1.20
10	0.60	0.28	0.28	0.68	1.43	0.91	-0.14	-0.34	-0.66	-0.77	-0.70	-0.68	-0.84	-0.90	-0.90	-0.74	-0.83	-0.53	-0.14	0.37	0.29	0.87	0.83	0.93	-0.03	1.43	-0.90
11	0.66	0.44	0.29	1.13	1.19	1.17	-0.04	-0.40	-0.40	-0.52	-0.78	-0.85	-0.98	-0.82	-0.58	-0.69	-0.32	0.00	0.35	0.58	0.24	0.26	0.67	0.85	0.06	1.19	-0.98
12	1.60	2.93	1.27	1.37	1.38	1.27	0.69	-0.10	-0.56	-0.81	-1.03	-1.12	-0.76	-0.87	-0.85	-0.50	-0.18	0.46	0.31	0.27	0.32	0.00	-0.12	-0.11	0.20	2.93	-1.12
13	-0.14	-0.14	-0.12	-0.10	-0.07	-0.01	-0.27	-0.67	-0.55	-0.89	-0.68	-0.42	-0.14	-0.24	-0.23	-0.42	-0.29	-0.37	-0.17	0.22	0.49	0.60	0.55	0.18	-0.16	0.60	-0.89
14	0.47	0.38	0.54	0.03	0.64	0.43	-0.30	-0.39	-0.50	-0.67	-1.00	-0.99	-0.77	-0.40	-0.76	-0.71	-0.59	-0.63	-0.05	0.47	0.27	0.03	0.09	0.16	-0.18	0.64	-1.00
15	0.32	0.06	0.02	0.15	0.01	-0.02	-0.18	-0.24	-0.29	-0.36	-0.52	-0.64	-0.53	-0.82	-0.83	-0.76	-0.38	-0.04	0.28	0.10	0.35	0.22	0.64	0.98	-0.10	0.98	-0.83
16	0.82	1.26	1.63	1.24	1.47	0.75	-0.07	-0.37	-0.48	-0.84	-0.78	-0.86	-0.99	-0.75	-0.29	-0.17	-0.37	-0.19	-0.08	0.05	0.21	-0.04	-0.06	0.06	0.05	1.63	-0.99
17	0.01	-0.07	-0.03	-0.06	-0.02	-0.04	-0.14	-0.24	-0.21	-0.28	-0.27	-0.25	-0.27	-0.19	-0.20	-0.22	-0.21	-0.16	-0.16	-0.16	-0.10	-0.12	-0.11	-0.04	-0.15	0.01	-0.28
18	-0.05	-0.07	-0.08	0.05	0.10	0.08	-0.17	-0.21	-0.36	-0.42	-0.47	-0.64	-0.54	-0.57	-0.50	-0.83	-1.02	-0.70	-0.29	0.27	0.52	0.07	0.10	0.31	-0.23	0.52	-1.02
19	1.05	0.82	1.05	1.03	1.31	0.71	-0.04	-0.26	-0.30	-0.48	-0.52	-0.76	-0.70	-0.57	-0.46	-0.46	-0.37	-0.30	-0.06	0.02	0.08	0.24	0.01	0.27	0.05	1.31	-0.76
20	0.31	0.05	0.39	0.46	0.56	0.30	-0.30	-0.39	-0.54	-0.45	-0.35	-0.33	-0.42	-0.12	0.55	-0.56	-0.13	-0.11	-0.10	0.18	0.63	0.46	0.58	0.95	0.07	0.95	-0.56
21	0.55	0.65	0.53	0.63	1.06	0.45	-0.02	-0.02	-0.38	-0.74	-0.61	-0.44	-0.61	-0.79	-1.06	-0.82	-0.60	-0.36	0.17	0.46	0.82	1.21	0.55	0.45	0.05	1.21	-1.06
22	0.52	0.96	0.53	0.43	0.47	0.72	0.15	-0.25	-0.40	-0.21	-0.33	-0.51	-0.48	-0.65	-0.73	-0.59	-0.40	-0.27	-0.18	0.54	0.97	0.19	0.41	0.67	0.07	0.97	-0.73
23	0.38	1.29	0.75	1.11	1.41	1.06	-0.45	-0.39	-0.52	-0.68	-0.80	-0.99	-0.95	-0.86	-1.00	-0.95	-0.76	-0.49	0.08	1.37	1.00	1.05	1.07	1.34	0.13	1.41	-1.00
24	1.06	1.65	1.47	1.37	1.72	0.80	0.18	-0.02	-0.34	-0.76	-0.95	-1.06	-1.12	-1.11	-1.03	-0.95	-0.78	-0.39	-0.13	0.13	0.33	0.32	0.29	0.11	0.03	1.72	-1.12
25	0.02	-0.08	-0.06	0.00	-0.01	-0.03	-0.04	0.00	-0.07	-0.15	-0.28	-0.46	-0.65	-0.91	-0.57	-0.39	-0.27	-0.39	-0.19	0.44	0.46	0.53	0.21	0.27	-0.11	0.53	-0.91
26	0.00	-0.17	0.05	0.16	0.29	0.13	-0.36	-0.40	-0.56	-0.79	-0.86	-0.82	-0.98	-0.94	-0.81	-0.65	-0.42	-0.23	0.13	0.13	0.47	0.42	0.12	-0.10	-0.26	0.47	-0.98
27	-0.05	0.00	0.16	0.88	0.72	0.17	-0.29	-0.54	-0.65	-0.71	-0.96	-0.82	-0.56	-1.20	-0.77	-0.76	-0.79	-0.21	0.53	0.83	0.91	0.57	0.36	0.42	-0.11	0.91	-1.20
28	0.45	1.01	0.91	1.08	0.92	0.82	0.12	-0.28	-0.55	-0.89	-0.35	-0.52	-0.37	-0.66	-0.67	-0.36	-0.29	-0.19	0.11	0.59	0.61	0.43	0.14	0.39	0.10	1.08	-0.89
29	0.26	0.78	1.11	1.11	1.26	0.68	-0.31	-0.47	-0.42	-0.69	-0.78	-0.94	-0.94	-0.48	-0.38	-0.20	-0.10	-0.05	0.29	0.23	0.37	0.44	0.07	0.01	0.04	1.26	-0.94
30	0.09	0.24	0.26	0.39	0.44	0.83	-0.15	-0.39	-0.39	-0.58	-0.85	-0.96	-0.59	-0.78	-0.72	-0.88	-0.40	-0.50	-0.11	0.59	0.76	1.45	2.76	1.65	0.09	2.76	-0.96
31	1.09	0.93	1.12	1.73	1.59	1.11	-0.22	-0.43	-0.67	-0.80	-0.86	-0.93	-0.94	-0.91	-0.67	-0.57	-0.02	0.21	-0.07	0.10	0.00	0.04	0.42	0.22	0.06	1.73	-0.94
Avg	0.54	0.58	0.59	0.67	0.78	0.55	-0.09	-0.31	-0.45	-0.64	-0.72	-0.78	-0.75	-0.74	-0.66	-0.61	-0.48	-0.30	0.03	0.40	0.47	0.45	0.43	0.51	-0.02	1.19	-0.94
Max	1.61	2.93	1.63	1.73	1.72	1.27	0.69	0.00	-0.07	-0.15	-0.18	-0.25	-0.14	-0.12	0.55	-0.06	0.02	0.46	0.53	1.37	1.21	1.45	2.76	1.65	0.20	2.93	-0.28
Min	-0.14	-0.17	-0.12	-0.10	-0.07	-0.08	-0.45	-0.67	-0.67	-0.89	-1.14	-1.20	-1.17	-1.20	-1.25	-1.09	-1.02	-0.70	-0.29	-0.18	-0.11	-0.12	-0.12	-0.11	-0.32	0.01	-1.25

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
June 2017

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	0.86	0.58	0.69	0.43	0.20	0.12	-0.14	-0.33	-0.42	-0.31	-0.40	-0.58	-0.27	-0.38	-0.27	0.12	0.21	-0.33	-0.05	0.32	0.33	0.30	0.59	1.01	0.10	1.01	-0.58
2	0.87	0.70	0.67	0.45	0.58	0.35	-0.25	-0.18	-0.14	-0.81	-1.09	-1.17	-1.22	-1.02	-0.97	-0.91	-0.77	-0.52	-0.15	0.95	1.87	1.16	0.25	0.55	-0.03	1.87	-1.22
3	0.83	0.76	0.97	1.17	1.41	0.48	-0.23	-0.39	-0.69	-0.90	-0.97	-0.98	-1.05	-0.65	-0.55	-0.73	-0.63	-0.17	0.58	0.23	0.63	0.43	0.83	1.01	0.06	1.41	-1.05
4	1.49	1.34	0.58	0.84	0.89	0.59	0.03	-0.32	-0.43	-0.72	-0.80	-0.84	-0.64	-0.43	0.05	0.41	-0.10	0.07	0.11	0.13	0.28	0.36	0.31	0.09	0.14	1.49	-0.84
5	0.06	0.02	0.03	0.21	0.04	0.09	-0.24	-0.26	-0.42	-0.54	-0.85	-1.23	-1.18	-1.09	-1.06	-0.91	-0.73	-0.54	-0.36	-0.03	0.35	1.09	1.07	1.22	-0.22	1.22	-1.23
6	0.75	0.99	0.91	1.47	1.27	0.08	-0.24	-0.52	-0.85	-1.12	-1.30	-1.30	-1.29	-1.27	-1.14	-0.84	-0.62	-0.35	-0.13	-0.03	0.11	0.64	0.29	0.35	-0.17	1.47	-1.30
7	0.56	0.65	0.96	0.74	0.73	0.18	-0.28	-0.42	-0.80	-0.94	-0.89	-0.88	-0.87	-0.92	-0.55	-0.58	-0.56	-0.13	0.17	0.30	0.34	0.00	-0.04	0.00	-0.13	0.96	-0.94
8	0.14	0.04	0.07	0.66	1.15	0.75	-0.21	-0.27	-0.34	-0.45	Au	Au	Au	Au	Au	-0.16	0.19	0.47	0.50	1.25	0.42	1.50	1.24	1.16	0.43	1.50	-0.45
9	0.78	0.67	0.76	0.65	0.95	0.00	0.06	0.07	-0.07	-0.48	-0.98	-0.41	-0.47	-0.22	-0.30	-0.13	-0.20	-0.23	-0.21	-0.04	-0.06	0.12	-0.03	0.09	0.01	0.95	-0.98
10	0.32	0.49	0.51	0.34	0.40	-0.07	-0.26	-0.43	-0.59	-0.90	-0.61	-0.98	-0.49	-0.49	-0.56	-0.85	-0.37	-0.02	-0.30	0.18	0.45	0.38	0.19	0.06	-0.15	0.51	-0.98
11	0.14	0.28	0.46	0.45	0.76	0.35	-0.39	-0.49	-0.69	-0.87	-0.83	-0.78	-0.86	-0.82	-0.75	-0.63	-0.58	-0.52	-0.04	0.69	0.21	0.38	0.60	0.69	-0.13	0.76	-0.87
12	1.29	1.74	1.84	1.65	1.11	0.18	0.06	-0.09	-0.27	-0.32	-0.22	-0.49	-0.79	-0.67	-0.75	-0.32	-0.20	0.01	-0.02	-0.13	-0.06	0.02	0.05	-0.07	0.15	1.84	-0.79
13	0.03	0.14	-0.09	-0.15	-0.14	-0.29	-0.43	-0.48	-0.58	-0.59	-0.45	-0.40	-0.43	-0.45	-0.43	-0.16	0.00	-0.31	-0.13	-0.10	-0.08	-0.06	-0.07	-0.06	-0.24	0.14	-0.59
14	-0.02	0.00	0.00	0.00	0.01	0.06	0.04	-0.10	-0.32	-0.60	-0.85	-0.97	-0.95	-0.88	-0.82	-0.77	-0.61	-0.38	-0.13	0.64	1.23	0.77	0.30	0.36	-0.17	1.23	-0.97
15	0.76	0.68	0.77	1.55	1.18	-0.08	-0.26	-0.27	-0.30	-0.52	-0.48	-0.56	-0.48	-0.44	-0.38	-0.33	-0.44	-0.20	0.06	0.39	0.88	0.60	0.50	0.43	0.13	1.55	-0.56
16	0.28	0.46	0.45	0.23	0.22	0.16	0.08	-0.05	-0.30	-0.23	-0.37	-0.58	-0.66	-0.32	-0.30	-0.24	0.00	-0.05	0.02	0.12	0.22	0.32	0.40	0.40	0.01	0.46	-0.66
17	0.35	0.28	0.24	0.29	0.27	0.18	-0.35	-0.50	-0.46	-0.59	-0.23	-0.56	-0.83	-0.76	-0.84	-0.48	-0.52	-0.52	-0.29	0.56	1.45	0.51	0.05	0.05	-0.11	1.45	-0.84
18	0.12	-0.03	-0.02	0.05	0.13	0.47	-0.02	-0.39	-0.69	-0.38	-0.40	-0.15	-0.20	-0.51	-0.51	-0.39	-0.37	-0.12	0.00	0.24	0.41	0.64	0.77	0.67	-0.03	0.77	-0.69
19	0.48	0.40	0.50	0.92	0.60	0.03	-0.33	-0.55	-0.62	-0.81	-0.72	-0.71	-0.97	-0.89	-0.79	-0.64	-0.56	-0.14	0.06	1.43	1.50	0.41	0.65	0.88	0.01	1.50	-0.97
20	0.80	1.05	0.97	0.50	0.51	0.13	-0.18	-0.33	-0.29	-0.31	-0.27	-0.39	-0.51	-0.28	-0.32	0.10	-0.05	-0.10	0.37	0.54	1.31	0.56	0.64	0.96	0.23	1.31	-0.51
21	1.74	1.92	1.25	1.66	0.93	0.44	-0.07	-0.29	-0.48	-0.70	-0.84	-0.92	-0.78	-0.78	-0.72	-0.54	-0.38	-0.22	0.02	0.42	1.18	1.91	1.41	1.22	0.31	1.92	-0.92
22	1.80	0.52	0.67	0.71	0.82	0.14	-0.30	-0.63	-0.65	-0.64	-0.96	-0.65	-0.93	-0.85	-0.62	-0.56	-0.05	-0.33	-0.34	0.02	0.67	0.93	0.85	0.42	0.00	1.80	-0.96
23	0.71	0.52	0.84	0.53	0.81	0.02	-0.35	-0.36	-0.52	-0.70	-0.97	-0.73	-0.74	-0.94	-0.97	-0.92	-0.65	-0.18	-0.08	0.37	0.60	0.78	0.57	0.52	-0.08	0.84	-0.97
24	1.47	1.41	0.97	0.64	1.17	0.52	-0.44	-0.40	-0.46	-0.54	-0.59	-0.90	-0.98	-0.94	-0.60	-0.62	-0.05	-0.06	-0.29	0.10	0.09	0.18	0.03	0.25	-0.00	1.47	-0.98
25	0.18	0.97	0.44	0.13	0.05	-0.16	-0.33	-0.47	-0.51	-0.66	-0.60	-0.75	-0.81	-0.78	-0.83	-0.77	-0.65	-0.41	-0.04	0.43	0.64	0.74	0.80	1.60	-0.07	1.60	-0.83
26	2.42	2.59	1.85	2.01	1.79	1.45	-0.15	-0.35	-0.48	-0.66	-0.85	-0.86	-0.82	-0.57	-0.29	0.56	-0.34	-0.02	0.33	1.81	1.81	1.54	0.73	0.47	0.58	2.59	-0.86
27	0.27	-0.02	0.06	0.11	0.31	0.10	-0.14	-0.51	-0.32	-0.12	-0.25	-0.42	-0.57	-0.48	-0.61	-0.49	-0.24	-0.07	0.02	0.58	0.38	-0.01	0.11	0.61	-0.07	0.61	-0.61
28	0.31	0.69	1.19	1.19	1.06	0.46	-0.38	-0.42	-0.50	-0.73	-0.73	-0.80	-0.34	-0.37	-0.80	-0.28	-0.25	0.27	0.42	0.35	1.27	0.44	0.98	0.84	0.16	1.27	-0.80
29	1.31	0.96	0.78	0.79	0.96	0.32	-0.11	-0.55	-0.49	-0.54	-0.77	-0.90	-1.03	-1.01	-0.98	-0.90	-0.66	-0.55	-0.47	0.26	1.00	0.94	0.86	1.19	0.02	1.31	-1.03
30	0.83	1.31	1.25	1.37	1.55	0.83	-0.34	-0.54	-0.70	-0.83	-0.87	-0.82	-0.76	-0.99	-0.85	-0.80	-0.69	-0.51	-0.29	0.37	0.82	0.15	0.38	0.70	0.02	1.55	-0.99
Avg	0.73	0.74	0.69	0.72	0.72	0.26	-0.21	-0.36	-0.48	-0.62	-0.69	-0.75	-0.76	-0.70	-0.64	-0.46	-0.36	-0.21	-0.02	0.41	0.68	0.59	0.51	0.59	0.02	1.28	-0.87
Max	2.42	2.59	1.85	2.01	1.79	1.45	0.08	0.07	-0.07	-0.12	-0.22	-0.15	-0.20	-0.22	0.05	0.56	0.21	0.47	0.58	1.81	1.87	1.91	1.41	1.60	0.58	2.59	-0.45
Min	-0.02	-0.03	-0.09	-0.15	-0.14	-0.29	-0.44	-0.63	-0.85	-1.12	-1.30	-1.30	-1.29	-1.27	-1.14	-0.92	-0.77	-0.55	-0.47	-0.13	-0.08	-0.06	-0.07	-0.07	-0.24	0.14	-1.30

A-18

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
April 2017

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	30	174	328	463	522	508	399	392	527	385	184	83	15	0	0	0	0	0	167	527	0
2	0	0	0	0	0	0	18	85	183	303	422	441	763	635	632	482	314	152	59	0	0	0	0	0	187	763	0
3	0	0	0	0	0	0	25	73	318	374	249	357	818	302	357	280	101	51	16	0	0	0	0	0	138	818	0
4	0	0	0	0	0	0	28	214	454	595	646	712	749	889	720	520	354	181	23	0	0	0	0	0	254	889	0
5	0	0	0	0	0	4	46	232	436	622	718	828	595	671	426	316	172	100	33	0	0	0	0	0	217	828	0
6	0	0	0	0	0	0	45	130	364	426	313	513	467	638	749	230	148	74	15	0	0	0	0	0	171	749	0
7	0	0	0	0	0	3	31	68	113	148	179	295	337	132	210	35	35	42	11	0	0	0	0	0	68	337	0
8	0	0	0	0	0	0	39	140	320	532	603	317	483	156	143	112	17	41	5	0	0	0	0	0	121	603	0
9	0	0	0	0	0	0	19	84	185	294	332	331	377	396	438	358	253	159	41	2	0	0	0	0	136	438	0
10	0	0	0	0	0	1	54	250	471	630	771	522	442	432	467	522	89	148	24	1	0	0	0	0	201	771	0
11	0	0	0	0	0	3	122	301	465	665	795	869	886	850	748	596	405	132	29	0	0	0	0	0	286	886	0
12	0	0	0	0	0	2	33	156	470	549	671	675	680	510	480	253	159	86	38	1	0	0	0	0	198	680	0
13	0	0	0	0	0	3	104	297	485	650	776	786	696	509	373	229	67	140	8	0	0	0	0	0	213	786	0
14	0	0	0	0	0	5	86	186	343	611	792	820	808	613	567	455	361	133	40	0	0	0	0	0	243	820	0
15	0	0	0	0	0	7	58	106	169	470	490	583	882	770	417	381	300	173	89	2	0	0	0	0	204	882	0
16	0	0	0	0	0	5	119	326	518	616	773	911	911	860	750	602	456	151	36	1	0	0	0	0	293	911	0
17	0	0	0	0	0	2	23	76	93	205	218	344	466	266	182	525	410	47	40	1	0	0	0	0	121	525	0
18	0	0	0	0	0	4	78	278	495	558	624	732	715	567	479	479	240	70	56	2	0	0	0	0	224	732	0
19	0	0	0	0	0	2	32	221	299	584	768	634	741	784	655	625	276	273	90	3	0	0	0	0	249	784	0
20	0	0	0	0	0	16	141	235	332	640	704	731	714	427	364	157	82	85	44	2	0	0	0	0	195	731	0
21	0	0	0	0	0	2	36	128	266	369	489	510	450	700	529	388	172	123	43	2	0	0	0	0	175	700	0
22	0	0	0	0	0	4	94	196	239	487	818	818	751	686	734	598	429	187	42	2	0	0	0	0	254	818	0
23	0	0	0	0	0	6	55	146	261	192	103	258	280	701	123	37	74	73	91	3	0	0	0	0	100	701	0
24	0	0	0	0	0	6	60	176	287	457	424	503	584	570	587	329	161	111	42	4	0	0	0	0	179	587	0
25	0	0	0	0	0	5	37	107	176	208	594	910	502	697	425	299	266	272	33	3	0	0	0	0	189	910	0
26	0	0	0	0	0	3	29	162	218	363	346	333	707	696	143	177	212	109	58	3	0	0	0	0	148	707	0
27	0	0	0	0	0	8	59	118	162	253	257	420	406	233	198	262	159	111	56	4	0	0	0	0	113	420	0
28	0	0	0	0	0	8	27	113	182	494	419	324	296	379	414	503	325	108	92	8	0	0	0	0	154	503	0
29	0	0	0	0	0	14	48	219	443	647	798	653	582	775	662	415	404	306	106	8	0	0	0	0	253	798	0
30	0	0	0	0	0	4	29	123	128	124	248	212	276	667	442	303	173	135	46	8	0	0	0	0	122	667	0
Avg	0	0	0	0	0	4	54	171	307	451	529	562	592	563	465	362	227	129	44	2	0	0	0	0	186	709	0
Max	0	0	0	0	0	16	141	326	518	665	818	911	911	889	750	625	456	306	106	8	0	0	0	0	293	911	0
Min	0	0	0	0	0	0	18	68	93	124	103	212	276	132	123	35	17	41	5	0	0	0	0	0	68	337	0

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
May 2017

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	16	118	194	414	662	550	831	591	557	308	420	262	130	50	4	0	0	0	0	213	831	0
2	0	0	0	0	0	7	40	81	266	151	197	195	278	349	271	235	229	157	74	8	0	0	0	0	106	349	0
3	0	0	0	0	0	47	230	405	581	734	781	888	900	845	789	608	506	336	131	14	0	0	0	0	325	900	0
4	0	0	0	0	0	56	218	394	573	728	846	919	935	892	803	669	505	324	144	14	0	0	0	0	334	935	0
5	0	0	0	0	0	51	222	408	591	743	836	985	905	903	823	574	451	298	163	10	0	0	0	0	332	985	0
6	0	0	0	0	0	47	213	403	410	442	592	768	884	655	557	213	433	215	82	7	0	0	0	0	247	884	0
7	0	0	0	0	0	37	84	262	564	341	364	450	433	127	157	50	177	156	51	9	0	0	0	0	136	564	0
8	0	0	0	0	0	50	242	422	580	755	874	958	952	900	822	690	524	340	146	10	0	0	0	0	344	958	0
9	0	0	0	0	1	56	150	391	581	630	865	939	960	912	839	687	522	345	87	20	0	0	0	0	333	960	0
10	0	0	0	0	1	63	231	415	594	749	749	942	948	916	829	682	523	341	153	18	0	0	0	0	340	948	0
11	0	0	0	0	1	67	233	419	599	750	868	939	951	863	759	623	358	205	10	4	0	0	0	0	319	951	0
12	0	0	0	0	0	21	161	347	550	732	855	925	678	736	739	508	232	120	32	6	0	0	0	0	277	925	0
13	0	0	0	0	0	39	148	399	264	588	339	146	99	128	187	287	130	185	52	10	0	0	0	0	125	588	0
14	0	0	0	0	2	76	274	413	438	545	720	721	446	180	452	425	305	325	103	16	0	0	0	0	227	721	0
15	0	0	0	0	1	20	68	98	158	199	333	507	375	491	531	443	160	56	37	17	0	0	0	0	146	531	0
16	0	0	0	0	2	102	255	383	550	609	435	610	607	428	189	185	237	108	43	9	0	0	0	0	198	610	0
17	0	0	0	0	0	8	32	118	102	163	204	174	126	88	147	206	210	68	24	10	0	0	0	0	70	210	0
18	0	0	0	0	2	28	116	169	342	562	439	840	505	523	528	626	587	368	186	34	0	0	0	0	244	840	0
19	0	0	0	0	2	67	103	170	420	773	889	965	797	292	258	285	263	180	61	20	0	0	0	0	231	965	0
20	0	0	0	0	5	100	233	383	525	365	369	366	416	230	76	435	182	139	98	22	0	0	0	0	164	525	0
21	0	0	0	0	3	110	271	447	600	670	492	445	564	741	902	621	466	282	77	18	1	0	0	0	280	902	0
22	0	0	0	0	0	36	122	288	351	190	234	431	420	590	660	479	303	231	173	41	1	0	0	0	190	660	0
23	0	0	0	0	2	88	252	425	572	706	853	915	945	892	855	714	541	366	170	24	1	0	0	0	347	945	0
24	0	0	0	0	4	64	193	164	454	787	898	973	993	951	860	730	566	292	155	40	0	0	0	0	339	993	0
25	0	0	0	0	0	20	66	156	344	286	327	460	616	848	540	297	185	219	123	27	0	0	0	0	188	848	0
26	0	0	0	0	6	89	291	456	625	787	854	763	903	812	589	512	326	220	61	58	0	0	0	0	306	903	0
27	0	0	0	0	4	109	266	442	552	598	786	742	466	937	570	565	554	218	102	39	1	0	0	0	290	937	0
28	0	0	0	0	2	23	104	270	642	719	365	587	620	863	678	410	301	144	74	15	0	0	0	0	242	863	0
29	0	0	0	0	7	111	265	391	619	771	895	989	853	506	463	235	235	248	87	34	1	0	0	0	280	989	0
30	0	0	0	0	4	72	236	509	454	526	826	959	709	904	480	570	329	387	210	60	0	0	0	0	301	959	0
31	0	0	0	0	10	100	269	448	617	760	888	960	947	884	728	543	120	14	53	17	0	0	0	0	307	960	0
Avg	0	0	0	0	2	57	184	331	482	581	630	719	672	643	561	469	346	226	97	20	0	0	0	0	251	811	0
Max	0	0	0	0	10	111	291	509	642	787	898	989	993	951	902	730	587	387	210	60	1	0	0	0	347	993	0
Min	0	0	0	0	0	7	32	81	102	151	197	146	99	88	76	50	120	14	10	4	0	0	0	0	70	210	0

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
June 2017

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	6	57	108	399	414	427	644	678	370	492	420	209	152	276	135	38	0	0	0	0	201	678	0
2	0	0	0	0	3	67	265	221	236	646	929	984	978	827	778	698	564	394	213	44	2	0	0	0	327	984	0
3	0	0	0	0	7	117	284	465	634	781	883	926	941	618	570	698	560	290	109	35	2	0	0	0	330	941	0
4	0	0	0	0	4	42	109	412	622	770	878	911	731	654	348	165	280	175	93	18	0	0	0	0	259	911	0
5	0	0	0	0	2	45	131	237	328	378	691	1013	1014	979	890	761	505	362	217	76	2	0	0	0	318	1014	0
6	0	0	0	0	7	115	281	459	629	775	887	916	925	870	753	528	404	268	126	40	2	0	0	0	333	925	0
7	0	0	0	0	7	102	266	438	608	763	863	938	959	914	608	585	513	252	34	3	0	0	0	0	327	959	0
8	0	0	0	0	4	108	262	445	615	764	Au	Au	Au	Au	Au	424	354	255	257	72	5	0	0	0	188	764	0
9	0	0	0	0	7	103	109	97	133	401	797	421	498	167	205	54	54	131	59	19	0	0	0	0	136	797	0
10	0	0	0	0	5	105	214	356	550	796	423	729	283	385	514	706	234	46	204	35	2	0	0	0	233	796	0
11	0	0	0	0	9	144	295	467	639	795	926	911	975	996	876	779	552	468	215	31	3	0	0	0	378	996	0
12	0	0	0	0	6	14	54	195	341	286	216	704	1037	814	694	342	198	26	0	0	0	0	0	0	205	1037	0
13	0	0	0	0	18	38	126	146	316	248	172	276	245	294	220	72	54	178	30	23	1	0	0	0	102	316	0
14	0	0	0	0	1	16	63	217	429	663	876	982	999	958	872	759	592	421	244	54	2	0	0	0	340	999	0
15	0	0	0	0	7	111	155	149	212	433	403	467	403	385	331	290	364	214	72	35	1	0	0	0	168	467	0
16	0	0	0	0	3	24	40	89	275	199	356	560	614	302	303	259	110	106	108	52	2	0	0	0	142	614	0
17	0	0	0	0	3	102	305	422	366	467	190	386	636	642	707	416	434	411	253	80	2	0	0	0	243	707	0
18	0	0	0	0	1	27	99	310	454	231	288	115	158	468	452	369	337	210	140	43	3	0	0	0	154	468	0
19	0	0	0	0	4	127	275	450	510	714	623	771	1047	976	869	673	592	290	201	85	5	0	0	0	342	1047	0
20	0	0	0	0	7	51	115	212	233	331	356	483	627	499	575	322	385	396	187	113	7	0	0	0	204	627	0
21	0	0	0	0	7	111	277	455	623	773	883	960	989	950	871	755	588	420	256	92	3	0	0	0	376	989	0
22	0	0	0	0	5	106	277	454	647	675	917	564	864	856	606	554	153	272	237	92	4	0	0	0	303	917	0
23	0	0	0	0	7	51	161	298	564	644	858	567	701	882	849	846	520	162	145	46	2	0	0	0	304	882	0
24	0	0	0	0	4	99	270	448	620	777	907	1012	986	928	646	627	287	226	219	28	3	0	0	0	337	1012	0
25	0	0	0	0	6	104	268	443	613	764	814	952	975	943	865	743	589	421	250	88	5	0	0	0	368	975	0
26	0	0	0	0	6	113	273	435	600	752	881	930	913	787	589	280	509	368	250	27	2	0	0	0	321	930	0
27	0	0	0	0	2	44	97	390	441	195	241	339	567	510	618	542	440	325	182	14	3	0	0	0	206	618	0
28	0	0	0	0	3	87	263	458	626	768	864	925	514	574	841	430	447	136	56	35	3	0	0	0	293	925	0
29	0	0	0	0	8	44	145	392	303	361	584	645	906	845	795	711	487	404	271	86	4	0	0	0	291	906	0
30	0	0	0	0	5	95	251	405	608	746	874	890	910	952	867	745	589	420	246	81	4	0	0	0	362	952	0
Avg	0	0	0	0	5	79	195	345	473	577	663	723	751	706	639	511	395	277	167	50	2	0	0	0	270	838	0
Max	0	0	0	0	18	144	305	467	647	796	929	1013	1047	996	890	846	592	468	271	113	7	0	0	0	378	1047	0
Min	0	0	0	0	1	14	40	89	133	195	172	115	158	167	205	54	54	26	0	0	0	0	0	0	102	316	0

A-21

**Tintina Resources, Inc.
 Black Butte Copper Project Met Tower Air Monitoring Summary
 Barometric Pressure (InHg)
 April 2017**

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	24.41	24.40	24.40	24.40	24.38	24.36	24.34	24.36	24.37	24.35	24.33	24.31	24.30	24.28	24.26	24.24	24.23	24.22	24.22	24.22	24.23	24.24	24.23	24.24	24.31	24.41	24.22		
2	24.24	24.24	24.24	24.24	24.24	24.24	24.24	24.24	24.23	24.22	24.21	24.20	24.18	24.16	24.15	24.14	24.14	24.14	24.15	24.17	24.19	24.20	24.20	24.20	24.20	24.20	24.24	24.14	
3	24.21	24.21	24.20	24.20	24.19	24.19	24.20	24.20	24.20	24.21	24.21	24.21	24.20	24.20	24.21	24.21	24.22	24.23	24.24	24.25	24.26	24.26	24.26	24.26	24.26	24.22	24.26	24.19	
4	24.27	24.28	24.29	24.30	24.31	24.33	24.34	24.36	24.39	24.39	24.39	24.39	24.38	24.37	24.36	24.35	24.35	24.35	24.34	24.33	24.34	24.34	24.34	24.34	24.35	24.34	24.39	24.27	
5	24.34	24.34	24.34	24.33	24.33	24.33	24.33	24.33	24.34	24.33	24.34	24.33	24.33	24.33	24.33	24.34	24.34	24.35	24.34	24.35	24.36	24.36	24.35	24.35	24.34	24.36	24.33	24.33	
6	24.34	24.32	24.31	24.31	24.31	24.30	24.30	24.30	24.29	24.28	24.25	24.22	24.20	24.17	24.14	24.13	24.12	24.12	24.13	24.13	24.12	24.11	24.10	24.10	24.10	24.22	24.34	24.10	
7	24.09	24.08	24.06	24.04	24.01	23.98	23.96	23.96	23.95	23.94	23.97	23.96	23.94	23.95	23.97	23.97	23.99	23.98	23.99	24.00	24.02	24.03	24.04	24.04	24.02	24.00	24.09	23.94	
8	24.04	24.04	24.03	24.02	24.02	24.01	24.01	24.02	24.01	24.01	24.01	23.99	23.97	23.95	23.94	23.94	23.98	23.98	23.98	23.98	23.99	24.00	24.01	24.02	24.00	24.04	23.94	23.94	
9	24.03	24.04	24.05	24.06	24.08	24.09	24.12	24.14	24.17	24.19	24.21	24.23	24.25	24.27	24.28	24.29	24.30	24.31	24.31	24.32	24.34	24.35	24.36	24.36	24.21	24.36	24.03	24.03	
10	24.36	24.36	24.35	24.35	24.34	24.34	24.34	24.33	24.33	24.33	24.32	24.30	24.29	24.28	24.27	24.26	24.26	24.27	24.29	24.31	24.32	24.34	24.34	24.36	24.32	24.36	24.26	24.26	
11	24.36	24.36	24.37	24.36	24.36	24.36	24.36	24.38	24.39	24.38	24.37	24.37	24.37	24.36	24.34	24.33	24.33	24.32	24.30	24.30	24.31	24.31	24.31	24.31	24.35	24.39	24.30	24.30	
12	24.31	24.30	24.29	24.30	24.30	24.31	24.32	24.33	24.34	24.34	24.35	24.34	24.33	24.32	24.31	24.31	24.30	24.30	24.29	24.27	24.27	24.27	24.25	24.23	24.30	24.35	24.23	24.23	
13	24.20	24.19	24.17	24.15	24.11	24.10	24.09	24.09	24.08	24.06	24.04	24.03	24.01	23.99	23.97	23.96	23.99	24.00	24.00	23.98	23.97	24.02	24.02	24.02	24.05	24.20	23.96	23.96	
14	24.03	24.03	24.04	24.06	24.08	24.09	24.11	24.13	24.13	24.15	24.16	24.16	24.16	24.16	24.16	24.16	24.16	24.17	24.17	24.17	24.19	24.20	24.21	24.21	24.14	24.21	24.03	24.03	
15	24.22	24.24	24.25	24.26	24.27	24.27	24.29	24.30	24.30	24.32	24.32	24.31	24.31	24.31	24.31	24.31	24.32	24.33	24.34	24.34	24.35	24.35	24.35	24.35	24.30	24.35	24.22	24.22	
16	24.36	24.36	24.37	24.38	24.38	24.39	24.39	24.40	24.40	24.41	24.41	24.41	24.41	24.40	24.40	24.39	24.38	24.37	24.35	24.34	24.35	24.34	24.33	24.31	24.38	24.41	24.31	24.31	
17	24.29	24.26	24.23	24.21	24.18	24.15	24.11	24.09	24.11	24.11	24.11	24.12	24.12	24.12	24.16	24.17	24.17	24.20	24.21	24.23	24.25	24.26	24.26	24.25	24.18	24.29	24.09	24.09	
18	24.24	24.23	24.23	24.22	24.22	24.23	24.24	24.27	24.27	24.27	24.26	24.26	24.24	24.21	24.22	24.21	24.20	24.20	24.20	24.20	24.22	24.23	24.25	24.25	24.23	24.23	24.27	24.20	
19	24.28	24.28	24.30	24.31	24.31	24.32	24.33	24.36	24.37	24.39	24.40	24.41	24.41	24.41	24.41	24.42	24.42	24.42	24.42	24.42	24.42	24.43	24.43	24.43	24.38	24.43	24.28	24.28	
20	24.42	24.41	24.40	24.40	24.39	24.38	24.37	24.37	24.37	24.35	24.33	24.31	24.30	24.29	24.27	24.27	24.29	24.31	24.31	24.31	24.33	24.33	24.33	24.36	24.34	24.42	24.27	24.27	
21	24.37	24.37	24.38	24.39	24.40	24.41	24.42	24.43	24.43	24.44	24.45	24.46	24.47	24.48	24.48	24.49	24.51	24.52	24.52	24.52	24.53	24.53	24.53	24.54	24.46	24.54	24.37	24.37	
22	24.54	24.53	24.52	24.53	24.52	24.52	24.50	24.48	24.47	24.46	24.44	24.41	24.39	24.37	24.33	24.30	24.28	24.27	24.26	24.26	24.25	24.26	24.25	24.24	24.39	24.54	24.24	24.24	
23	24.23	24.21	24.20	24.18	24.16	24.15	24.15	24.15	24.14	24.13	24.12	24.11	24.09	24.08	24.06	24.08	24.08	24.07	24.07	24.07	24.07	24.07	24.06	24.06	24.12	24.23	24.06	24.06	
24	24.05	24.04	24.03	24.02	24.02	24.02	24.01	24.01	24.01	24.00	23.99	23.98	23.97	23.96	23.95	23.95	23.94	23.95	23.96	23.97	23.99	24.00	24.00	24.01	23.99	24.05	23.94	23.94	
25	24.02	24.02	24.03	24.04	24.05	24.06	24.08	24.10	24.11	24.12	24.13	24.12	24.12	24.12	24.12	24.11	24.11	24.10	24.11	24.11	24.13	24.14	24.15	24.14	24.10	24.15	24.02	24.02	
26	24.12	24.10	24.09	24.09	24.08	24.08	24.07	24.07	24.06	24.05	24.04	24.03	24.01	24.01	24.02	24.04	24.06	24.07	24.08	24.10	24.11	24.13	24.14	24.14	24.15	24.03	24.15	23.94	23.94
27	23.95	23.94	23.95	23.95	23.96	23.97	23.98	23.99	24.00	24.00	24.01	24.01	24.01	24.01	24.02	24.04	24.06	24.07	24.08	24.10	24.11	24.13	24.14	24.14	24.15	24.03	24.15	23.94	23.94
28	24.16	24.16	24.17	24.18	24.19	24.21	24.22	24.24	24.27	24.29	24.30	24.32	24.33	24.34	24.35	24.36	24.36	24.38	24.40	24.41	24.42	24.44	24.44	24.45	24.31	24.45	24.16	24.16	
29	24.45	24.44	24.44	24.45	24.45	24.46	24.47	24.49	24.50	24.48	24.48	24.47	24.45	24.44	24.42	24.40	24.39	24.38	24.38	24.37	24.37	24.37	24.37	24.35	24.34	24.43	24.50	24.34	24.34
30	24.33	24.30	24.30	24.30	24.31	24.31	24.32	24.32	24.31	24.31	24.31	24.29	24.27	24.25	24.25	24.24	24.24	24.24	24.25	24.27	24.28	24.29	24.30	24.30	24.29	24.33	24.24	24.24	
Avg	24.24	24.24	24.23	24.23	24.23	24.23	24.23	24.24	24.24	24.24	24.24	24.24	24.23	24.22	24.22	24.21	24.21	24.22	24.22	24.22	24.23	24.24	24.24	24.24	24.23	24.31	24.15	24.15	
Max	24.54	24.53	24.52	24.53	24.52	24.52	24.50	24.49	24.50	24.48	24.48	24.47	24.47	24.48	24.48	24.49	24.51	24.52	24.52	24.52	24.53	24.53	24.53	24.54	24.46	24.54	24.37	24.37	
Min	23.95	23.94	23.95	23.95	23.96	23.97	23.96	23.96	23.95	23.94	23.97	23.96	23.94	23.95	23.94	23.94	23.94	23.95	23.96	23.97	23.97	23.97	23.96	23.95	23.99	24.04	23.94	23.94	

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
May 2017

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

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
June 2017

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	24.25	24.24	24.25	24.23	24.24	24.25	24.26	24.26	24.26	24.25	24.24	24.23	24.23	24.22	24.20	24.19	24.21	24.24	24.25	24.26	24.27	24.28	24.28	24.29	24.24	24.29	24.19
2	24.29	24.30	24.31	24.32	24.34	24.36	24.38	24.37	24.39	24.39	24.39	24.40	24.39	24.39	24.39	24.39	24.39	24.38	24.39	24.40	24.42	24.44	24.45	24.46	24.38	24.46	24.29
3	24.46	24.47	24.47	24.47	24.48	24.49	24.50	24.48	24.47	24.45	24.44	24.42	24.41	24.40	24.39	24.39	24.38	24.38	24.37	24.38	24.39	24.38	24.38	24.37	24.43	24.50	24.37
4	24.37	24.36	24.35	24.34	24.34	24.35	24.36	24.35	24.34	24.33	24.32	24.30	24.29	24.27	24.25	24.30	24.29	24.27	24.27	24.24	24.27	24.26	24.26	24.34	24.31	24.37	24.24
5	24.31	24.31	24.33	24.32	24.34	24.37	24.40	24.42	24.43	24.44	24.46	24.47	24.47	24.47	24.47	24.47	24.48	24.50	24.51	24.53	24.54	24.55	24.55	24.44	24.55	24.31	
6	24.56	24.57	24.56	24.56	24.56	24.57	24.58	24.57	24.57	24.55	24.54	24.54	24.52	24.51	24.50	24.49	24.48	24.48	24.48	24.49	24.49	24.49	24.49	24.48	24.53	24.58	24.48
7	24.47	24.46	24.46	24.46	24.45	24.45	24.45	24.44	24.43	24.42	24.41	24.40	24.39	24.38	24.37	24.36	24.35	24.34	24.35	24.38	24.44	24.42	24.39	24.38	24.41	24.47	24.34
8	24.38	24.36	24.34	24.31	24.30	24.30	24.29	24.27	24.25	24.24	Au	Au	Au	Au	Au	24.13	24.10	24.08	24.08	24.09	24.12	24.14	24.15	24.16	24.22	24.38	24.08
9	24.16	24.15	24.15	24.16	24.17	24.19	24.18	24.18	24.18	24.16	24.14	24.13	24.12	24.12	24.10	24.11	24.11	24.10	24.09	24.08	24.09	24.09	24.10	24.10	24.13	24.19	24.08
10	24.09	24.08	24.08	24.08	24.08	24.08	24.07	24.07	24.07	24.06	24.06	24.05	24.05	24.06	24.07	24.06	24.06	24.10	24.11	24.14	24.16	24.17	24.18	24.19	24.09	24.19	24.05
11	24.19	24.19	24.20	24.20	24.21	24.24	24.27	24.28	24.28	24.28	24.28	24.29	24.28	24.28	24.27	24.26	24.26	24.25	24.25	24.24	24.24	24.26	24.25	24.25	24.25	24.29	24.19
12	24.24	24.22	24.22	24.22	24.22	24.24	24.21	24.20	24.20	24.19	24.17	24.14	24.11	24.10	24.08	24.08	24.07	24.06	24.14	24.13	24.11	24.08	24.07	24.07	24.15	24.24	24.06
13	24.02	23.99	23.99	24.01	24.01	24.00	24.00	23.99	24.00	24.02	24.02	24.04	24.05	24.07	24.08	24.10	24.12	24.15	24.16	24.18	24.20	24.21	24.21	24.23	24.08	24.23	23.99
14	24.25	24.25	24.25	24.26	24.27	24.27	24.27	24.27	24.28	24.28	24.29	24.29	24.28	24.29	24.30	24.29	24.30	24.31	24.32	24.33	24.33	24.34	24.35	24.34	24.29	24.35	24.25
15	24.34	24.34	24.35	24.34	24.35	24.36	24.38	24.37	24.38	24.38	24.37	24.36	24.36	24.35	24.34	24.34	24.33	24.32	24.32	24.32	24.32	24.31	24.31	24.30	24.34	24.38	24.30
16	24.29	24.28	24.27	24.27	24.27	24.28	24.29	24.29	24.29	24.29	24.29	24.28	24.27	24.27	24.27	24.25	24.25	24.26	24.25	24.25	24.25	24.27	24.28	24.28	24.27	24.29	24.25
17	24.28	24.29	24.30	24.31	24.33	24.34	24.36	24.36	24.38	24.39	24.41	24.41	24.42	24.41	24.41	24.41	24.41	24.41	24.41	24.41	24.41	24.42	24.41	24.41	24.38	24.42	24.28
18	24.40	24.40	24.40	24.41	24.41	24.41	24.42	24.43	24.43	24.43	24.43	24.44	24.44	24.44	24.44	24.45	24.46	24.46	24.47	24.48	24.49	24.50	24.51	24.51	24.44	24.51	24.40
19	24.51	24.51	24.51	24.52	24.52	24.54	24.55	24.55	24.54	24.53	24.52	24.52	24.51	24.50	24.49	24.49	24.47	24.45	24.44	24.44	24.45	24.46	24.45	24.44	24.50	24.55	24.44
20	24.43	24.41	24.41	24.40	24.39	24.40	24.41	24.42	24.41	24.40	24.40	24.40	24.38	24.36	24.34	24.33	24.33	24.31	24.30	24.30	24.31	24.30	24.31	24.32	24.37	24.43	24.30
21	24.33	24.34	24.35	24.35	24.36	24.37	24.37	24.37	24.37	24.36	24.36	24.35	24.32	24.30	24.29	24.28	24.27	24.28	24.29	24.30	24.32	24.35	24.36	24.36	24.33	24.37	24.27
22	24.36	24.37	24.37	24.38	24.38	24.39	24.40	24.40	24.39	24.39	24.40	24.41	24.42	24.44	24.46	24.47	24.49	24.50	24.53	24.54	24.55	24.57	24.57	24.58	24.45	24.58	24.36
23	24.57	24.56	24.56	24.57	24.57	24.58	24.59	24.60	24.60	24.59	24.58	24.57	24.57	24.56	24.56	24.56	24.56	24.57	24.58	24.58	24.59	24.61	24.61	24.61	24.58	24.61	24.56
24	24.61	24.61	24.61	24.62	24.62	24.63	24.65	24.65	24.64	24.63	24.63	24.63	24.62	24.62	24.61	24.61	24.61	24.61	24.61	24.62	24.64	24.66	24.67	24.67	24.63	24.67	24.61
25	24.66	24.65	24.64	24.64	24.64	24.65	24.66	24.65	24.64	24.63	24.62	24.61	24.60	24.60	24.59	24.58	24.56	24.55	24.55	24.54	24.55	24.55	24.55	24.54	24.60	24.66	24.54
26	24.53	24.52	24.51	24.50	24.49	24.49	24.48	24.47	24.44	24.42	24.41	24.39	24.37	24.34	24.32	24.31	24.29	24.26	24.25	24.24	24.25	24.26	24.29	24.32	24.38	24.53	24.24
27	24.32	24.30	24.29	24.22	24.23	24.24	24.25	24.25	24.23	24.23	24.23	24.24	24.24	24.23	24.23	24.21	24.21	24.21	24.21	24.23	24.24	24.25	24.24	24.24	24.24	24.32	24.21
28	24.24	24.23	24.22	24.22	24.22	24.22	24.23	24.23	24.22	24.21	24.20	24.20	24.20	24.20	24.19	24.18	24.19	24.21	24.22	24.25	24.26	24.28	24.29	24.31	24.23	24.31	24.18
29	24.33	24.34	24.34	24.35	24.36	24.38	24.40	24.42	24.43	24.45	24.45	24.46	24.46	24.47	24.48	24.48	24.49	24.50	24.51	24.52	24.52	24.53	24.54	24.53	24.45	24.54	24.33
30	24.53	24.52	24.51	24.51	24.51	24.52	24.53	24.53	24.52	24.51	24.50	24.49	24.48	24.47	24.46	24.46	24.45	24.44	24.44	24.43	24.44	24.44	24.44	24.44	24.48	24.53	24.43
Avg	24.36	24.35	24.35	24.35	24.36	24.37	24.37	24.37	24.37	24.36	24.36	24.36	24.35	24.35	24.34	24.33	24.33	24.33	24.34	24.34	24.36	24.36	24.36	24.37	24.35	24.43	24.29
Max	24.66	24.65	24.64	24.64	24.64	24.65	24.66	24.65	24.64	24.63	24.63	24.63	24.62	24.62	24.61	24.61	24.61	24.61	24.61	24.62	24.64	24.66	24.67	24.67	24.63	24.67	24.61
Min	24.02	23.99	23.99	24.01	24.01	24.00	24.00	23.99	24.00	24.02	24.02	24.04	24.05	24.06	24.07	24.06	24.06	24.06	24.08	24.08	24.09	24.08	24.07	24.07	24.08	24.19	23.99

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
April 2017

A-25

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	90.6	90.6	91.4	91.8	91.1	90.5	90.1	91.5	90.4	72.5	54.8	46.2	42.6	41.6	39.6	37.2	36.7	38.0	39.5	43.0	48.1	56.2	59.5	58.4	63.8	91.8	36.7
2	57.9	62.8	66.1	68.6	70.6	72.2	77.5	75.9	65.3	58.0	50.3	46.8	39.1	35.5	28.9	22.7	24.9	22.3	25.3	38.0	48.3	52.7	60.1	62.3	51.3	77.5	22.3
3	63.8	66.9	70.2	70.9	76.6	82.0	85.0	78.9	72.1	68.0	67.6	60.5	54.9	68.8	65.5	66.1	71.3	72.8	74.0	75.3	78.1	78.1	85.6	86.2	72.5	86.2	54.9
4	86.5	86.6	87.3	86.9	83.1	79.3	79.5	70.1	59.3	57.7	53.6	47.3	42.0	36.2	31.4	32.8	31.4	33.3	39.6	51.9	59.6	68.6	75.2	79.2	60.8	87.3	31.4
5	80.4	81.3	81.8	81.5	81.0	79.4	79.1	69.7	46.6	33.0	35.6	36.6	37.9	39.3	41.1	43.8	47.4	47.6	55.4	64.0	71.6	78.0	82.2	85.9	61.7	85.9	33.0
6	87.3	87.9	86.6	85.4	87.7	87.2	83.2	79.4	47.6	38.3	37.4	34.9	34.5	32.2	29.4	29.9	28.9	29.8	31.7	37.6	41.8	40.8	44.0	47.3	52.9	87.9	28.9
7	49.5	57.7	63.5	72.5	75.0	80.8	81.1	66.6	46.7	34.0	35.1	37.2	38.1	51.9	82.2	79.6	74.5	81.9	81.6	63.5	63.1	63.5	66.6	79.7	63.6	82.2	34.0
8	82.6	85.3	89.3	88.6	89.7	90.9	90.1	87.6	79.2	62.1	46.0	40.8	38.2	37.4	50.6	47.3	75.4	92.2	92.0	93.4	93.8	93.3	93.4	93.9	76.4	93.9	37.4
9	93.5	91.8	90.4	90.9	89.8	88.1	89.1	88.9	88.5	85.9	84.3	84.0	83.1	81.6	81.3	80.0	81.9	79.1	81.9	87.0	90.4	88.9	86.2	84.8	86.3	93.5	79.1
10	83.5	82.4	82.5	82.3	82.5	82.5	83.3	88.0	80.6	59.7	58.6	54.8	52.3	56.1	57.9	56.2	70.8	83.5	85.7	84.6	81.0	77.1	73.3	80.0	74.1	88.0	52.3
11	87.0	85.9	85.2	83.8	84.8	81.3	78.3	67.2	48.2	43.5	39.1	35.8	32.6	32.0	29.9	32.1	31.8	33.5	47.9	63.8	67.0	58.5	42.8	58.9	56.3	87.0	29.9
12	77.8	79.9	83.6	88.5	86.6	85.8	86.3	82.9	77.6	73.4	67.1	61.5	59.6	56.8	55.5	56.3	58.2	66.8	69.7	69.9	68.0	73.2	74.0	71.1	72.1	88.5	55.5
13	71.9	75.5	77.2	79.3	82.5	75.7	78.1	57.7	45.6	36.9	26.3	23.2	24.5	25.0	22.4	25.3	52.0	62.7	77.8	88.2	87.3	88.7	89.9	91.9	61.1	91.9	22.4
14	92.1	91.8	92.6	94.5	94.6	92.4	87.3	83.4	79.8	73.6	68.5	58.7	52.7	51.0	45.0	44.7	41.1	40.5	47.6	53.2	62.3	65.1	75.4	84.3	69.7	94.6	40.5
15	66.9	73.0	69.1	68.9	66.5	65.8	63.1	58.1	55.8	54.6	50.6	42.9	35.8	34.3	32.3	34.0	34.2	36.0	37.9	43.4	47.7	55.4	53.9	52.6	51.4	73.0	32.3
16	59.0	66.2	69.7	75.0	75.9	78.6	75.7	64.3	52.8	48.3	40.3	32.1	24.7	25.1	24.7	24.5	23.3	26.9	34.8	36.2	37.0	41.7	50.1	51.1	47.4	78.6	23.3
17	53.3	55.2	52.8	53.9	54.0	53.2	53.8	57.7	56.0	67.7	70.0	73.9	61.5	66.2	85.0	75.5	55.5	52.7	51.7	54.6	57.4	63.1	75.6	80.5	61.7	85.0	51.7
18	83.6	85.7	86.6	86.9	88.7	88.9	87.9	76.7	57.6	48.4	45.2	40.0	36.5	35.1	34.3	33.8	33.9	38.2	43.1	52.8	65.7	78.5	90.0	93.4	63.0	93.4	33.8
19	94.4	94.6	94.7	94.4	87.7	81.7	84.3	78.3	70.8	66.4	60.9	52.0	47.1	41.0	36.5	35.3	33.3	27.4	29.9	43.1	61.2	66.5	75.9	79.1	64.0	94.7	27.4
20	79.5	82.2	82.4	82.9	83.9	81.8	76.3	72.4	47.4	33.1	29.4	28.8	26.7	30.5	28.8	28.5	48.9	59.9	67.2	78.1	80.5	85.8	88.9	92.4	62.3	92.4	26.7
21	92.4	94.4	94.6	94.9	95.1	95.1	95.0	94.4	89.6	83.3	84.6	85.6	85.9	82.4	79.3	76.3	76.8	76.3	79.2	83.6	86.6	89.3	89.5	92.4	87.4	95.1	76.3
22	93.6	93.5	92.2	92.2	92.9	92.7	88.5	78.9	75.6	70.4	61.2	54.0	49.1	45.1	43.2	36.0	34.5	36.6	41.8	56.9	61.3	64.4	74.5	78.1	67.0	93.6	34.5
23	81.5	84.2	85.6	82.1	88.1	82.6	86.2	75.4	63.6	50.3	66.4	77.6	69.7	64.4	66.6	82.6	84.7	83.6	80.9	83.2	89.1	92.4	92.3	92.5	79.4	92.5	50.3
24	93.0	92.8	92.4	92.7	92.3	92.3	91.4	89.0	80.1	65.5	57.8	50.9	56.0	50.9	42.0	45.6	51.8	63.6	69.1	82.2	86.8	88.5	89.8	91.2	75.3	93.0	42.0
25	89.6	90.6	92.8	92.4	92.7	92.7	91.4	85.1	79.4	87.5	86.6	70.7	72.7	85.7	67.6	71.7	67.0	75.4	77.6	77.2	81.3	88.8	91.1	93.5	83.4	93.5	67.0
26	94.5	94.2	94.7	94.5	94.3	94.3	93.9	91.2	87.7	78.0	75.9	78.1	69.7	63.5	67.8	84.7	80.0	78.4	73.3	85.9	87.7	88.4	90.9	92.8	84.8	94.7	63.5
27	93.4	93.5	93.6	93.3	89.6	87.7	87.9	81.9	77.9	75.2	74.4	71.3	67.4	84.5	89.5	87.4	88.3	85.5	87.5	88.5	86.3	85.2	84.3	86.0	85.0	93.6	67.4
28	87.3	87.5	89.4	90.8	90.3	91.3	92.3	90.8	78.1	69.6	63.9	61.8	58.3	56.6	56.2	53.9	55.5	61.8	68.5	82.4	90.4	89.0	90.8	91.0	77.0	92.3	53.9
29	88.7	90.6	90.1	87.6	86.3	87.9	86.8	85.9	73.1	62.0	53.0	48.3	46.4	37.3	32.0	35.6	35.5	32.9	33.1	44.5	60.8	69.3	74.8	82.8	63.6	90.6	32.0
30	85.9	84.8	85.3	64.8	74.4	91.1	92.5	89.6	87.6	87.3	88.1	83.0	77.0	62.6	75.0	71.9	65.7	56.2	63.9	60.5	62.0	62.7	59.0	63.5	74.8	92.5	56.2
Avg	81.4	83.0	83.8	83.8	84.3	84.2	83.8	78.6	68.7	61.5	57.8	54.0	50.6	50.4	50.7	51.0	53.2	55.8	59.6	65.6	70.1	73.1	76.0	79.2	68.3	89.5	43.2
Max	94.5	94.6	94.7	94.9	95.1	95.1	95.0	94.4	90.4	87.5	88.1	85.6	85.9	85.7	89.5	87.4	88.3	92.2	92.0	93.4	93.8	93.3	93.4	93.9	87.4	95.1	79.1
Min	49.5	55.2	52.8	53.9	54.0	53.2	53.8	57.7	45.6	33.0	26.3	23.2	24.5	25.0	22.4	22.7	23.3	22.3	25.3	36.2	37.0	40.8	42.8	47.3	47.4	73.0	22.3

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
May 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	64.8	67.2	75.9	87.5	87.7	86.4	81.0	82.2	79.2	66.5	60.0	57.6	51.1	63.2	62.9	50.0	47.4	53.0	58.0	61.9	71.0	88.2	89.1	92.4	70.2	92.4	47.4
2	93.8	94.2	94.5	94.3	92.5	90.5	89.9	88.7	85.3	85.8	80.3	77.1	74.7	67.0	68.3	66.2	57.3	50.3	53.7	59.0	67.6	80.4	85.2	87.2	78.5	94.5	50.3
3	87.8	89.3	89.2	90.1	89.0	86.0	83.9	71.9	54.9	48.0	43.9	39.3	35.4	32.6	33.3	33.2	32.1	33.0	37.5	44.1	53.5	63.6	76.8	82.6	59.6	90.1	32.1
4	86.3	89.2	90.1	90.3	92.0	89.7	82.2	71.9	57.5	51.4	45.8	39.5	34.8	30.9	28.3	24.1	22.4	22.0	23.4	41.3	53.3	63.6	68.3	73.9	57.2	92.0	22.0
5	74.4	77.2	82.8	84.8	88.2	86.6	75.2	54.4	33.7	24.9	24.3	22.2	19.5	15.9	18.5	19.4	19.5	19.6	21.6	37.1	47.1	54.3	57.4	58.8	46.6	88.2	15.9
6	65.3	68.7	76.8	80.7	84.8	85.4	76.3	57.6	45.4	46.5	43.2	36.7	31.5	31.4	30.1	32.0	33.8	37.8	45.2	65.7	70.7	70.3	74.5	79.3	57.1	85.4	30.1
7	84.6	89.0	91.3	91.1	90.7	91.6	88.5	80.1	64.3	66.8	71.9	76.0	81.7	86.5	87.8	91.8	89.2	85.0	85.7	88.9	87.2	85.9	88.6	90.0	84.8	91.8	64.3
8	92.0	92.9	92.6	93.5	92.3	92.3	90.5	79.3	61.1	53.8	47.8	42.0	40.1	36.6	32.7	27.0	23.4	25.9	25.9	50.7	54.0	59.5	62.9	67.7	59.9	93.5	23.4
9	68.7	76.3	81.9	84.7	87.8	86.5	81.8	70.6	50.3	47.5	39.7	35.2	30.7	26.7	29.9	27.7	24.1	26.9	37.2	43.7	60.1	65.5	75.2	80.5	55.8	87.8	24.1
10	80.2	80.8	81.6	85.3	87.2	86.7	78.4	61.7	45.2	39.5	36.2	31.9	28.4	27.6	27.6	26.0	21.7	20.3	20.1	45.2	48.1	55.8	67.2	74.4	52.4	87.2	20.1
11	78.6	79.4	81.3	85.1	88.4	88.0	79.3	63.2	44.1	34.7	26.6	22.5	21.5	22.8	21.8	19.9	18.4	24.5	41.7	56.4	67.0	69.5	75.9	80.6	53.8	88.4	18.4
12	84.4	74.9	68.0	61.8	64.8	74.6	75.7	49.3	37.2	32.7	27.8	26.2	26.0	25.6	23.4	22.1	32.2	40.6	41.0	72.5	83.2	84.9	89.4	88.1	54.4	89.4	22.1
13	90.2	90.0	87.6	85.4	84.5	84.4	80.2	75.3	71.5	63.8	60.8	71.3	93.0	94.0	94.1	92.3	86.5	80.5	76.9	77.7	76.7	86.6	90.3	88.5	82.6	94.1	60.8
14	89.3	89.3	87.9	88.7	88.0	85.6	77.3	69.2	62.1	54.7	48.0	55.8	55.7	50.8	42.7	39.5	37.6	36.6	40.5	51.3	65.5	69.1	71.0	77.5	63.9	89.3	36.6
15	79.1	78.2	79.3	81.0	82.3	80.8	77.9	70.2	65.1	62.4	60.1	53.3	49.2	47.3	42.9	39.8	44.8	47.9	69.0	74.4	81.3	84.7	86.8	89.9	67.8	89.9	39.8
16	88.4	91.0	90.9	91.3	90.9	89.1	78.7	72.2	50.8	45.8	47.5	46.3	41.8	38.1	40.6	78.3	74.2	66.5	70.4	69.4	72.5	74.9	76.4	79.0	69.4	91.3	38.1
17	81.7	81.7	82.2	82.1	89.3	91.0	89.7	84.0	83.6	79.1	77.4	74.4	83.1	82.0	81.0	77.9	75.0	77.1	85.4	89.7	88.2	88.6	90.1	91.2	83.6	91.2	74.4
18	91.9	84.2	84.3	85.2	82.5	85.4	78.3	73.8	69.8	63.2	63.8	61.7	56.6	55.1	52.9	52.1	52.4	52.6	53.1	58.1	70.6	81.6	84.0	87.1	70.0	91.9	52.1
19	88.3	89.6	89.7	90.1	89.6	87.4	85.5	82.6	71.3	45.9	39.4	37.1	38.8	42.8	41.6	39.2	36.3	43.4	46.9	59.6	69.5	78.9	82.1	85.9	65.1	90.1	36.3
20	86.9	87.3	88.9	88.9	90.5	88.4	80.7	69.8	53.7	53.3	55.8	60.8	59.0	64.7	75.4	75.2	69.9	73.2	76.9	78.9	86.5	90.8	91.6	93.0	76.7	93.0	53.3
21	93.4	93.3	93.6	93.9	93.6	92.5	84.7	76.3	64.4	55.0	46.6	38.4	37.4	36.0	31.4	31.9	34.2	35.3	39.0	42.1	50.8	67.7	76.8	80.7	62.0	93.9	31.4
22	83.4	87.2	84.9	84.2	85.4	86.2	79.1	58.9	54.8	50.7	58.3	54.3	45.5	41.1	36.0	35.4	39.5	41.8	42.0	46.8	68.3	75.4	79.5	83.0	62.6	87.2	35.4
23	83.9	88.2	87.6	89.0	90.1	89.2	74.2	62.2	44.3	43.1	40.4	37.8	34.6	32.7	31.1	31.5	32.1	32.6	35.4	51.3	63.0	70.8	75.2	86.0	58.6	90.1	31.1
24	86.1	89.9	89.9	88.3	72.6	48.3	44.2	50.8	37.4	29.0	29.1	22.6	20.4	18.5	20.2	19.8	22.2	25.5	27.4	32.0	36.1	39.8	43.9	47.6	43.4	89.9	18.5
25	65.8	82.8	88.3	92.9	94.1	94.8	95.3	92.3	87.8	84.8	80.3	76.8	66.4	56.4	49.8	51.2	56.8	61.1	59.0	64.6	73.4	80.1	85.4	88.5	76.2	95.3	49.8
26	89.7	90.7	91.5	91.8	92.9	91.2	78.4	62.2	48.2	40.0	37.5	38.6	37.7	37.8	39.3	39.1	33.9	35.3	42.5	52.5	61.9	69.3	77.1	76.6	60.7	92.9	33.9
27	78.0	81.2	84.4	90.3	90.7	84.8	76.0	62.9	53.6	51.4	42.9	36.9	37.1	34.1	33.7	33.9	33.2	34.8	37.3	40.4	53.6	65.8	70.8	74.1	57.6	90.7	33.2
28	78.4	81.1	85.3	88.0	87.2	88.5	86.0	75.0	51.1	46.0	45.3	40.3	45.6	39.4	40.4	41.4	40.4	55.9	59.5	67.9	69.4	75.9	78.4	81.1	64.5	88.5	39.4
29	84.3	87.6	88.9	92.6	92.7	89.8	77.3	64.2	52.5	42.3	37.5	35.8	35.2	34.7	30.1	32.0	32.2	33.6	44.1	51.5	57.9	66.3	71.8	68.4	58.5	92.7	30.1
30	72.5	76.4	79.2	81.5	85.2	85.7	77.3	57.2	42.3	35.2	33.1	33.5	33.9	36.4	49.0	48.0	50.3	41.7	47.7	51.1	60.4	64.5	73.6	76.9	58.0	85.7	33.1
31	78.6	77.6	80.5	83.2	84.2	80.3	69.0	48.2	39.7	35.5	32.5	30.3	29.1	27.1	28.6	33.1	40.4	75.1	76.3	70.9	75.8	82.1	86.4	82.4	60.3	86.4	27.1
Avg	82.3	84.1	85.5	87.0	87.5	86.1	79.8	69.0	56.8	50.9	47.9	45.6	44.4	43.1	42.8	42.9	42.4	44.8	49.0	58.0	65.9	72.7	77.5	80.4	63.6	90.5	36.3
Max	93.8	94.2	94.5	94.3	94.1	94.8	95.3	92.3	87.8	85.8	80.3	77.1	93.0	94.0	94.1	92.3	89.2	85.0	85.7	89.7	88.2	90.8	91.6	93.0	84.8	95.3	74.4
Min	64.8	67.2	68.0	61.8	64.8	48.3	44.2	48.2	33.7	24.9	24.3	22.2	19.5	15.9	18.5	19.4	18.4	19.6	20.1	32.0	36.1	39.8	43.9	47.6	43.4	85.4	15.9

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
June 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	84.8	86.6	89.7	88.9	86.9	88.8	84.8	72.3	61.6	46.7	36.7	33.9	38.0	36.4	32.6	32.4	33.7	57.1	57.0	61.0	62.3	71.2	79.8	77.6	62.5	89.7	32.4
2	81.2	81.9	85.1	86.8	88.5	73.5	65.9	60.2	56.4	51.7	44.1	40.9	39.1	35.3	34.2	34.9	32.1	31.3	34.3	41.7	51.3	67.0	73.0	79.9	57.1	88.5	31.3
3	82.9	86.3	86.6	87.7	89.8	82.3	76.0	58.8	38.3	36.0	34.0	32.6	31.0	27.4	26.7	23.6	24.2	26.5	33.7	45.8	53.6	57.6	64.0	71.6	53.2	89.8	23.6
4	77.3	82.5	78.5	81.9	84.0	83.9	82.0	62.3	36.6	28.8	24.8	22.8	22.8	23.5	25.5	59.8	60.2	49.6	54.8	61.3	57.5	62.1	70.9	85.9	57.5	85.9	22.8
5	85.4	89.6	87.5	90.0	90.2	84.4	80.3	76.0	73.0	69.2	63.2	61.9	56.4	49.1	43.1	37.0	41.2	45.1	55.0	60.5	69.7	81.3	87.8	90.1	69.5	90.2	37.0
6	93.1	93.3	93.7	93.9	94.0	88.6	77.9	63.9	57.4	53.2	51.6	48.8	46.2	45.4	46.4	49.1	50.9	53.0	55.4	56.5	58.8	62.1	60.1	59.8	64.7	94.0	45.4
7	62.1	66.9	71.8	75.0	80.1	75.9	62.2	55.8	55.0	49.3	43.7	39.2	37.4	35.9	33.7	33.6	36.4	41.8	49.3	62.1	79.3	79.8	78.6	78.6	57.6	80.1	33.6
8	82.0	88.8	90.1	91.8	94.4	92.8	83.6	66.6	46.8	42.2	Au	Au	Au	Au	Au	36.9	29.6	27.7	21.7	26.0	47.2	62.1	72.4	77.7	62.1	94.4	21.7
9	82.2	85.8	87.0	90.9	88.4	84.1	61.7	61.4	57.4	54.5	53.2	59.9	59.8	76.5	78.9	83.9	85.9	84.9	84.6	87.7	87.9	87.3	90.0	89.0	77.6	90.9	53.2
10	91.1	92.5	93.5	94.2	94.1	92.7	89.4	77.0	64.3	54.2	54.1	56.4	54.4	66.6	65.0	51.8	53.0	72.2	70.9	71.4	72.3	85.0	88.5	89.7	74.8	94.2	51.8
11	88.9	89.4	89.5	89.5	90.0	85.6	78.3	58.7	49.6	44.4	40.7	32.8	30.1	27.3	26.5	22.9	19.3	19.3	25.5	45.9	57.1	62.5	69.8	73.5	54.9	90.0	19.3
12	79.4	76.3	57.4	65.7	56.5	44.5	48.6	45.7	48.9	53.5	54.9	48.5	42.6	43.3	42.9	42.6	46.7	52.9	87.3	92.0	89.1	90.1	89.4	91.1	62.1	92.0	42.6
13	91.0	88.1	90.1	90.1	90.7	92.0	89.7	87.9	83.7	79.9	80.8	81.0	84.4	84.2	84.0	86.2	84.4	86.6	88.4	89.9	89.3	87.7	88.7	88.1	87.0	92.0	79.9
14	87.1	86.2	86.9	87.5	85.9	83.8	80.2	72.7	65.1	59.9	55.1	52.2	46.7	40.9	39.0	36.9	35.5	34.8	34.2	38.5	47.1	44.5	37.9	39.3	57.4	87.5	34.2
15	42.4	39.7	44.8	66.1	70.6	75.5	69.2	61.8	49.7	47.3	45.8	45.1	43.4	44.0	49.1	53.9	54.1	56.0	58.5	63.1	67.6	74.0	74.6	77.7	57.2	77.7	39.7
16	77.2	77.1	77.6	75.4	72.6	70.8	66.8	67.0	63.9	62.2	60.3	53.8	51.3	55.2	55.8	55.4	64.6	80.2	73.4	68.3	63.4	69.4	69.2	70.7	66.7	80.2	51.3
17	71.8	74.7	72.8	71.1	71.6	70.7	65.3	62.8	61.3	56.4	55.8	54.0	51.3	49.0	45.1	43.9	41.7	39.0	37.8	43.7	61.2	73.8	78.0	81.0	59.7	81.0	37.8
18	83.8	85.4	86.7	88.2	83.9	64.1	60.4	63.8	64.3	64.1	62.0	64.8	62.8	58.5	56.0	55.0	54.8	53.8	53.0	56.3	59.9	68.0	74.8	81.2	66.9	88.2	53.0
19	86.0	89.0	90.8	92.1	93.5	89.1	77.2	67.0	63.4	59.7	54.2	52.2	46.7	42.9	39.3	35.6	33.9	33.3	37.4	45.8	63.6	69.4	73.1	76.0	63.0	93.5	33.3
20	78.3	75.0	76.0	80.1	83.8	85.6	82.1	77.5	70.6	60.1	56.5	53.5	48.5	43.4	43.4	42.8	43.7	40.5	39.2	39.5	48.0	39.1	42.4	42.8	58.0	85.6	39.1
21	50.6	50.5	52.1	57.2	56.0	57.0	52.7	44.8	39.2	42.3	37.1	32.4	24.3	26.6	27.0	21.2	20.3	23.0	24.9	27.5	30.9	37.2	46.2	65.8	39.4	65.8	20.3
22	68.9	71.5	75.6	77.1	80.1	78.7	66.1	49.7	37.2	33.9	33.5	36.9	37.3	34.1	33.6	33.7	39.7	48.3	51.0	53.0	61.6	73.3	80.5	83.4	55.8	83.4	33.5
23	86.2	86.5	87.9	89.6	89.0	87.9	80.9	71.8	52.6	48.2	45.9	43.2	39.5	36.1	32.9	29.1	34.9	41.8	45.9	54.5	57.4	66.8	73.9	74.3	60.7	89.6	29.1
24	82.9	85.2	84.1	85.2	88.6	84.9	71.7	57.2	37.3	32.7	31.1	34.4	33.8	30.1	31.0	31.9	33.7	34.1	32.9	44.3	50.0	54.2	54.2	54.6	52.5	88.6	30.1
25	57.4	64.2	69.1	75.6	77.0	75.5	68.5	53.3	43.8	35.1	33.8	32.1	29.4	28.0	25.4	25.7	25.8	26.7	29.8	38.5	49.4	51.3	54.5	63.6	47.2	77.0	25.4
26	70.2	74.0	77.6	81.0	84.4	78.9	65.2	46.3	35.7	30.5	29.5	27.5	25.0	23.5	21.7	26.4	23.7	21.6	24.1	32.6	53.6	54.1	42.5	56.1	46.1	84.4	21.6
27	74.7	86.3	87.9	88.1	90.7	91.4	90.9	74.5	63.8	64.7	65.7	63.1	55.3	53.4	47.2	40.8	35.7	35.4	41.0	50.9	75.0	84.1	88.3	90.7	68.3	91.4	35.4
28	91.3	93.2	93.8	95.1	95.0	95.2	90.5	75.0	48.1	44.5	33.5	30.2	31.5	30.3	27.9	28.1	32.8	34.5	38.4	37.2	43.0	50.3	65.3	73.3	57.4	95.2	27.9
29	72.7	76.4	80.5	84.2	87.2	83.1	83.8	70.5	70.8	66.3	60.6	58.0	56.4	53.4	51.2	48.3	55.3	52.3	53.8	57.1	69.9	81.9	85.7	89.2	68.7	89.2	48.3
30	91.2	90.6	93.2	93.2	93.3	91.8	83.1	67.4	54.5	49.1	40.7	36.2	33.3	31.3	29.3	27.0	25.9	25.7	24.0	35.0	58.0	61.7	67.0	71.1	57.2	93.3	24.0
Avg	78.5	80.5	81.3	83.8	84.4	81.1	74.5	64.3	55.0	50.7	47.7	45.8	43.4	42.5	41.2	41.0	41.8	44.3	47.2	52.9	61.2	67.0	70.7	74.8	60.8	87.4	36.0
Max	93.1	93.3	93.8	95.1	95.0	95.2	90.9	87.9	83.7	79.9	80.8	81.0	84.4	84.2	84.0	86.2	85.9	86.6	88.4	92.0	89.3	90.1	90.0	91.1	87.0	95.2	79.9
Min	42.4	39.7	44.8	57.2	56.0	44.5	48.6	44.8	35.7	28.8	24.8	22.8	22.8	23.5	21.7	21.2	19.3	19.3	21.7	26.0	30.9	37.2	37.9	39.3	39.4	65.8	19.3

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
May 2017

Day	<< Hour >>																								Tot	Max
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.030	0.010	
2	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.020	0.090	0.020	0.040	0.020	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.210	0.090	
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.060	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.060	
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.010	0.010	
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.000	0.000	0.030	0.030	
13	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.030	0.020	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.130	0.060	
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.010	0.010	
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.030	
17	0.000	0.000	0.000	0.000	0.030	0.030	0.060	0.000	0.010	0.000	0.000	0.010	0.030	0.040	0.050	0.000	0.010	0.000	0.060	0.020	0.040	0.030	0.020	0.440	0.060	
18	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.000	0.000	0.090	0.110	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.110	
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
25	0.000	0.000	0.000	0.010	0.000	0.000	0.010	0.000	0.170	0.070	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.270	0.170	
26	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	
27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
31	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.050	0.010	0.000	0.000	0.000	0.000	0.080	0.050	
Tot	0.010	0.020	0.010	0.010	0.030	0.030	0.070	0.020	0.270	0.090	0.060	0.040	0.070	0.170	0.210	0.150	0.090	0.050	0.080	0.060	0.040	0.030	0.030	0.010	1.650	0.000
Max	0.010	0.010	0.010	0.010	0.030	0.030	0.060	0.020	0.170	0.070	0.040	0.020	0.030	0.090	0.110	0.060	0.030	0.050	0.060	0.030	0.040	0.030	0.020	0.010	0.440	0.170

**APPENDIX B: PERFORMANCE AUDIT REPORT
SECOND QUARTER 2017**



BISON ENGINEERING, INC.

Bison Engineering

Preliminary Meteorological Parameters Audit Form

Audit Dates: 06/08/2017 Tower Lowered : 10:05 MST Tower Back Up : 14:50 MST
 Client: Tintina Resources
 Site: Black Butte
 AUDITOR: Steve Heck STATION OPERATOR: Jeff Bell

Temperature

Audit Device: Control Company - digital thermometer Model 4000
 Meter S/N: 130236679 Temperature Sensor: Climatronics 100093
 Last certified: 7/20/2016 S/N P12535 (Upper), S/N P12535 (Lower) - Matched Set

Temperature bath results

	9m	9m	2m	2m	9m - 2m
Audit Value	DAS Value	DAS Diff.	DAS Value	DAS Diff.	DAS Diff.
	°C	°C	°C	°C	°C
0.07	0.19	0.12	0.25	0.18	-0.06
19.51	19.40	-0.11	19.47	-0.04	-0.07
37.10	37.24	0.14	37.29	0.19	-0.05

Wind Direction

	Setpoint	Clockwise	Counter-CW	Diff CW	Diff CCW
Sensor height: 9 Meter	0	0.1	0.1	0.1	0.1
Sensor (Make/model number): Climatronics/ 102083	30	29.9	29.5	-0.1	-0.5
Serial Number : P1336C	60	59.7	59.3	-0.3	-0.7
Crossarm orientation (from Garmin GPS): 1.0 / 181.0	90	89.8	89.4	-0.2	-0.6
GPS location at sensor:	120	119.6	119.1	-0.4	-0.9
N 46 deg 46.373 min, W 110 deg 52.8855 min	150	149.5	149.0	-0.5	-1.0
GPS location at sighting point:	180	179.1	178.9	-0.9	-1.1
N 46 deg 46.315 min, W 110 deg 52.887 min	210	208.9	208.5	-1.1	-1.5
Sensor response aligned with crossarm (as found): 180.9	240	238.6	238.2	-1.4	-1.8
Sensor response aligned with crossarm (as left): 180.4	270	268.5	268.1	-1.5	-1.9
Linearity Audit Device: Climatronics 101966, SN 70	300	298.0	297.6	-2.0	-2.4
	330	328.8	328.4	-1.2	-1.6
			Max Diff	-2.0	-2.4

Threshold Torque: 0.05 oz.-in.
 (Waters Model 366-1 torque watch)

Wind Speed

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

Synchronous motor checks

Known Value	Known Value	DAS Value	DAS Diff.
RPM	m/s	m/s	m/s
0	0.22	0.22	0.00
300	6.66	6.65	-0.01
600	13.09	13.08	-0.01

Threshold Torque: 0.004 oz.-in.
 (Waters Model 366-3 torque watch)

Solar Radiation

Audit Device: Eppley Pyranometer, SN 16166F3 (certified by Eppley August 2016)

Time (MST)	CTS Value (W/m2)	Site Value (W/m2)	Diff. (%)	Diff. (% FS)
1423	505	507	0.4	0.2
1429	394	396	0.5	0.2
1436	317	321	1.3	0.3

Relative Humidity

Site Sensor: Met One 083E-0-35
 Sensor Height: 2 meters
 Reference Std: Assmann Psychrometer, thermometer calibrations checked March 2017

Ref Dry-Bulb: 24.8 deg C BP = 24.18 in. Hg
 Ref Wet-Bulb: 15.9 deg C
 Ref RH: 42.6 %RH
 Station RH: 39.3 %RH
 Diff: -3.3 %RH

Barometric Pressure

Audit Device: Wallace & Tiernan Model FA185260, S/N LL03297.
 Checked against Bison Mercury barometer (Butte) June 2017

Audit Value: 24.18 in Hg
 Station Value: 24.15 in Hg
 Diff: -0.03 in Hg

Precipitation

Rain Gauge = Met One Model 375
 Level checked OK
 Wind Screen in place
 8" opening Precip audit performed during hour ending at 1500 MST

559 ml water added
 Calibration is 8.24 ml per tip
 Known audit value is 559 / 8.24 = 67.8 tips (so 67 full tips expected)

Unit registered 70 tips
 % difference from expected = 4.5%

Signature Site Operator : _____

Signature Auditor : Steven B. Hulse

APPENDIX C: CALIBRATION REPORT SECOND QUARTER 2017

No calibration adjustments were made to any instruments based on the performance audit results. The aspirator fans were replaced as preventative maintenance.

**APPENDIX D: EVAPORATION AND PRECIPITATION
SUMMARY, SECOND QUARTER 2017**

EVAPORATION AND PRECIPITATION SUMMARY FOR TINTINA SITE

(All values in inches)

DATE	TIME	EVAPORATION AS-FOUND	EVAPORATION AS-LEFT	PRECIPITATION (MANUAL)	PRECIPITATION (AUTOMATED)	TOTAL EVAPORATION	NET EVAPORATION
5/1/2017	N/A**	No Data	No Data	No Data	No Data	No Data	No Data
5/8/2017	1000	No Data	No Data	0.25	0.35	No Data	No Data
5/12/2017	0900	Start	3.500	0.00	0.01	No Data	No Data
5/15/2017	1300	3.312	3.312	0.05	0.16	0.238	0.188
5/18/2017	1000	3.592	3.592	0.51	0.50	0.230	-0.280
6/1/2017	1130	1.696	3.500	0.65	0.63	2.546	1.896
TOTAL PRECIPITATION FOR MAY 1 - JUNE 1				1.46	1.65		
TOTAL EVAPORATION FOR MAY 12 - JUNE 1						2.78	1.62

** Data sheet for April could not be found, assumed May 1 start date for manual gauge total shown on May 8.
The evaporation pan was not operated during April.

EVAPORATION AND PRECIPITATION SUMMARY FOR TINTINA SITE

(All values in inches)

DATE	TIME	EVAPORATION AS-FOUND	EVAPORATION AS-LEFT	PRECIPITATION (MANUAL)	PRECIPITATION (AUTOMATED)	TOTAL EVAPORATION	NET EVAPORATION
6/1/2017	1130		3.500				
6/8/2017	1015	2.594	2.594	0.72	0.70	1.626	0.906
6/14/2017	1120	3.174	3.174	1.99	1.92	1.410	-0.580
6/15/2017	1135	2.930	2.930	0.00	0.00	0.244	0.244
6/16/2017	1400	2.808	2.808	0.00	0.00	0.122	0.122
6/21/2017	1040	2.024	2.024	0.07	0.09	0.854	0.784
6/26/2017	1240	1.020	3.500	0.00	0.00	1.004	1.004
6/27/2017	1140	3.402	3.402	0.05	0.05	0.148	0.098
6/30/2017	1200	2.865	2.865	0.10	0.09	0.637	0.537
TOTAL FOR JUNE 1 - JUNE 30				2.93	2.85	6.05	3.12

**TINTINA RESOURCES, INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
Third Quarter 2017**

Prepared for:

Tintina Resources, Inc.
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Prepared by:

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November 15, 2017

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: Jeffrey S. Bell

Signature: _____

Title: Senior Field Technician

Date: _____

Reviewer: Steven R. Heck

Signature: _____

Title: Meteorologist

Date: _____

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APPENDICES

- Appendix A: Meteorological Data
- Appendix B: Performance Audit Reports
- Appendix C: Evaporation and Precipitation Summary

1.0 INTRODUCTION

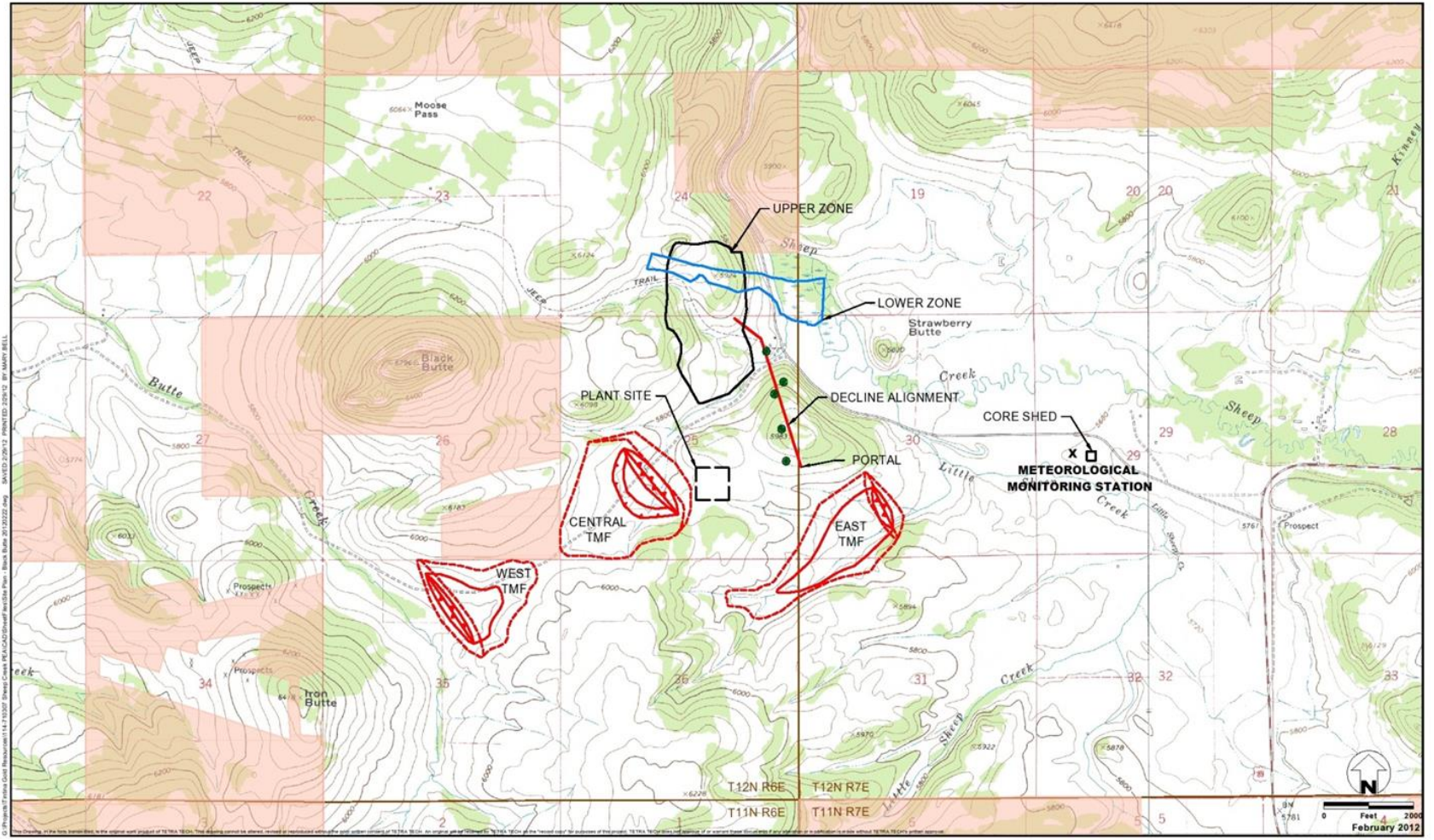
Tintina Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately characterize 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 location of the monitoring site.

This report presents the data collected during the third quarter (July through September) of 2017. 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.

Figure 1. Monitoring Site Location



- ADIT ALIGNMENT HOLES
- TAILINGS MANAGEMENT FACILITY
- USFS PROPERTY

Site Plan
 Black Butte Copper Project
 Meagher County, Montana
 FIGURE 1



2.0 MONITORING SYSTEM OPERATIONS

The installation of the monitoring meteorological system equipment took place in April 2012, soon after the equipment was received from the manufacturers. The installation and calibration of the equipment required about two weeks to complete. All meteorological sensors were in full operation and producing valid data by April 30, 2012.

Jeff Bell of Bison conducted performance audits of the meteorological system on September 20, 2017, and made any necessary calibration adjustments to the meteorological system following the audits. The Bison report of the audits is presented in Appendix B.

Manual measurements of evaporation and precipitation were recorded by Tintina's on-site personnel two to three times per week. Operation of the evaporation pan was discontinued in October due to frequent subfreezing temperatures.

3.0 CALIBRATION DATA

As discussed in Section 4.0, the system's as-found condition was audited on September 20, 2017. No calibration adjustments were made to the system.

4.0 PERFORMANCE AUDIT DATA

Jeff Bell of Bison conducted performance audits of the meteorological system on September 20, 2017. Based on those results no calibration adjustments were required. The Bison report of the audits is presented in Appendix B.

5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the third quarter of 2017 are given in Tables 1 and 2. In these tables, the number of possible data values during each month of the quarter is given, together with the number of valid readings and the number of hours spent on quality assurance activities (such as calibrations, performance audits, and maintenance on the sensors). The quality assurance hours are added to the number of hours of valid data to compute the net percentage data recovery.

During the third quarter the net percentage data recovery was 100.0 percent for all parameters at the site.

Table 1. Monthly Data Completeness

July 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
Temperature 9 Meters	744	744	100.0	0	100.0
Temperature 2 Meters	744	744	100.0	0	100.0
Temperature Delta T	744	744	100.0	0	100.0
Solar Radiation	744	744	100.0	0	100.0
Barometric Pressure	744	744	100.0	0	100.0
Relative Humidity	744	744	100.0	0	100.0
Precipitation	744	744	100.0	0	100.0
Total	7,440	7,440	100.0	0	100.0

Table 1. Monthly Data Completeness (Continued)

August 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
Temperature 9 Meters	744	744	100.0	0	100.0
Temperature 2 Meters	744	744	100.0	0	100.0
Temperature Delta T	744	744	100.0	0	100.0
Solar Radiation	744	744	100.0	0	100.0
Barometric Pressure	744	744	100.0	0	100.0
Relative Humidity	744	744	100.0	0	100.0
Precipitation	744	744	100.0	0	100.0
Total	7,440	7,440	100.0	0	100.0

Table 1. Monthly Data Completeness (Continued)

September 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	716	99.4	4	100.0
Wind Direction	720	716	99.4	4	100.0
Standard Deviation	720	716	99.4	4	100.0
Temperature 9 Meters	720	716	99.4	4	100.0
Temperature 2 Meters	720	716	99.4	4	100.0
Temperature Delta T	720	716	99.4	4	100.0
Solar Radiation	720	716	99.4	4	100.0
Barometric Pressure	720	716	99.4	4	100.0
Relative Humidity	720	716	99.4	4	100.0
Precipitation	720	716	99.4	4	100.0
Total	7,200	7,160	99.4	40	100.0

Table 2. Quarterly Data Completeness

Third Quarter 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,208	2,204	99.8	4	100.0
Wind Direction	2,208	2,204	99.8	4	100.0
Standard Deviation	2,208	2,204	99.8	4	100.0
Temperature 9 Meters	2,208	2,204	99.8	4	100.0
Temperature 2 Meters	2,208	2,204	99.8	4	100.0
Temperature Delta T	2,208	2,204	99.8	4	100.0
Solar Radiation	2,208	2,204	99.8	4	100.0
Barometric Pressure	2,208	2,204	99.8	4	100.0
Relative Humidity	2,208	2,204	99.8	4	100.0
Precipitation	2,208	2,204	99.8	4	100.0
Total	22,080	22,040	99.8	40	100.0

6.0 MONITORING DATA

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

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

A separate compilation of data collected from the evaporation pan and manual rain gauge is presented in Appendix C. For comparison purposes, the precipitation amounts reported by the automatic rain gauge over the same time periods are provided. Overall, the precipitation amounts obtained from the manual gauge were comparable to those reported by the automated rain gauge.

Table 3. Missing Data Codes

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

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

July 2017																		
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	2.0	1.7	2.3	1.5	1.1	1.5	0.8	0.8	0.0	0.0	0.3	0.3	0.4	0.3	1.5	1.1	15.5
	1.1 - 2.0	2.6	1.5	2.8	4.0	5.9	4.4	1.6	0.8	0.3	0.3	0.3	0.1	0.1	0.7	0.8	2.0	28.2
	2.1 - 3.0	0.3	0.3	1.1	4.2	2.7	1.5	0.8	0.5	0.4	0.4	0.1	1.1	1.2	2.3	1.6	0.7	19.1
	3.1 - 4.0	0.1	0.1	0.5	1.2	1.3	0.3	0.5	0.3	0.1	0.3	1.1	1.2	2.3	3.1	1.2	0.8	14.5
	4.1 - 5.0	0.1	0.0	0.0	0.3	0.8	0.0	1.7	0.8	0.1	0.0	0.4	1.5	2.0	2.3	0.7	0.3	11.0
	5.1 - 6.0	0.0	0.1	0.0	0.0	0.7	0.1	0.3	0.1	0.0	0.1	0.3	1.1	1.3	0.9	0.5	0.1	5.8
	6.1 - 7.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.3	1.6	0.7	0.3	0.0	3.5
	7.1 - 8.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.1	0.0	0.0	1.5
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.4
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.4
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	5.2	3.8	6.7	11.3	12.5	7.8	5.9	3.6	0.9	1.2	2.7	5.9	10.3	10.5	6.6	5.0	100.0	
Average Speed	1.5	1.4	1.5	2.1	2.3	1.8	3.0	3.0	2.6	3.2	3.8	4.3	4.8	3.9	2.8	2.1	2.8	

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

August 2017																		
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	2.4	1.3	3.1	1.2	1.3	1.7	1.3	0.4	0.1	0.3	0.3	0.1	0.4	0.1	1.5	1.1	16.8
	1.1 - 2.0	1.1	1.5	3.9	6.2	4.8	3.1	3.0	1.1	0.4	0.1	0.1	0.3	0.4	0.7	0.4	1.2	28.2
	2.1 - 3.0	1.1	0.3	0.5	2.7	3.5	1.5	1.3	0.3	0.5	0.1	0.3	0.7	1.9	2.0	1.3	0.4	18.4
	3.1 - 4.0	0.4	0.1	0.4	0.9	1.6	0.4	0.1	0.4	0.7	0.1	0.7	1.3	3.2	2.3	1.1	0.5	14.4
	4.1 - 5.0	0.9	0.4	0.4	0.3	0.3	0.1	0.0	0.3	0.3	0.5	0.0	0.7	2.8	2.0	1.7	0.7	11.4
	5.1 - 6.0	0.1	0.1	0.0	0.4	0.8	0.0	0.0	0.0	0.1	0.0	0.1	1.3	1.7	1.5	0.9	0.7	7.9
	6.1 - 7.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.1	0.1	0.0	0.1	2.2
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.5
	8.1 - 9.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	6.0	4.0	8.3	11.7	12.4	6.9	5.8	2.4	2.2	1.2	1.6	5.5	11.6	8.7	7.0	4.7	100.0	
Average Speed	2.1	2.3	1.5	2.0	2.3	1.8	1.6	2.2	3.0	3.1	3.2	4.5	4.0	3.7	3.2	2.9	2.7	

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

September 2017																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	0.8	1.1	1.5	2.2	2.2	1.5	2.2	0.6	1.0	0.1	0.7	0.0	0.4	1.0	1.3	1.0	17.7
	1.1 - 2.0	0.4	1.8	2.8	3.2	7.1	3.1	4.6	2.5	0.6	0.7	1.1	1.1	1.4	0.7	1.4	1.4	33.9
	2.1 - 3.0	0.8	0.0	0.3	2.5	2.4	1.5	0.6	1.5	1.5	0.8	0.4	1.8	2.2	1.5	1.0	0.6	19.6
	3.1 - 4.0	0.1	0.0	0.0	1.4	0.8	0.0	0.0	1.1	0.4	0.3	0.3	1.4	3.6	1.7	1.4	0.3	12.8
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.0	0.3	0.1	0.7	1.1	3.1	1.1	0.3	0.3	8.1
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.0	0.0	0.6	0.7	1.4	0.4	0.1	0.1	4.2
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.3	0.1	0.0	0.0	2.4
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.3	0.0	0.0	0.0	0.7
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.6
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.2	2.9	4.6	9.4	12.6	6.3	7.7	7.3	3.8	2.4	3.8	7.4	14.0	6.7	5.4	3.6		100.0
Average Speed	1.9	1.2	1.4	1.9	1.7	1.7	1.5	2.7	2.2	3.2	2.8	3.9	4.0	3.1	2.3	2.1		2.5

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

Third Quarter 2017																		
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	1.8	1.4	2.3	1.6	1.5	1.6	1.5	0.6	0.4	0.1	0.4	0.1	0.4	0.5	1.4	1.0	16.7
	1.1 - 2.0	1.4	1.6	3.2	4.5	5.9	3.5	3.0	1.5	0.4	0.4	0.5	0.5	0.6	0.7	0.9	1.5	30.1
	2.1 - 3.0	0.7	0.2	0.6	3.1	2.9	1.5	0.9	0.8	0.8	0.5	0.3	1.2	1.8	2.0	1.3	0.5	19.0
	3.1 - 4.0	0.2	0.1	0.3	1.2	1.3	0.2	0.2	0.6	0.4	0.2	0.7	1.3	3.0	2.4	1.2	0.5	13.9
	4.1 - 5.0	0.4	0.1	0.1	0.2	0.4	0.1	0.6	0.7	0.2	0.2	0.4	1.1	2.6	1.8	0.9	0.4	10.2
	5.1 - 6.0	0.0	0.1	0.0	0.1	0.5	0.0	0.2	0.2	0.0	0.0	0.3	1.0	1.5	1.0	0.5	0.3	6.0
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.3	0.3	0.1	0.0	2.7
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.4	0.0	0.0	0.0	0.9
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.4
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	4.5	3.6	6.6	10.8	12.5	7.0	6.4	4.4	2.3	1.6	2.7	6.3	11.9	8.7	6.4	4.4	100.0	
Average Speed	1.8	1.7	1.5	2.0	2.1	1.7	2.0	2.7	2.5	3.2	3.2	4.2	4.2	3.7	2.8	2.4	2.6	

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

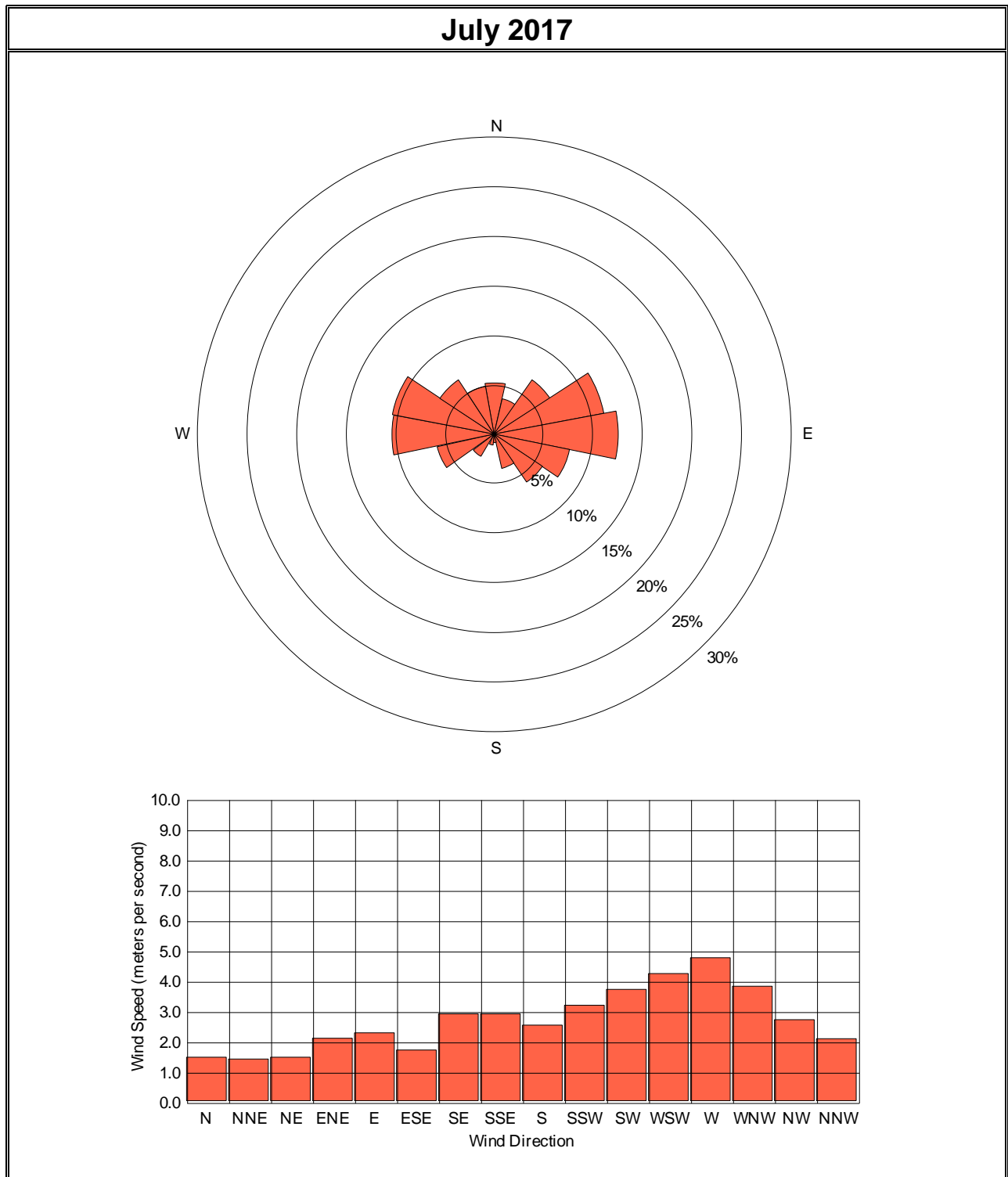


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

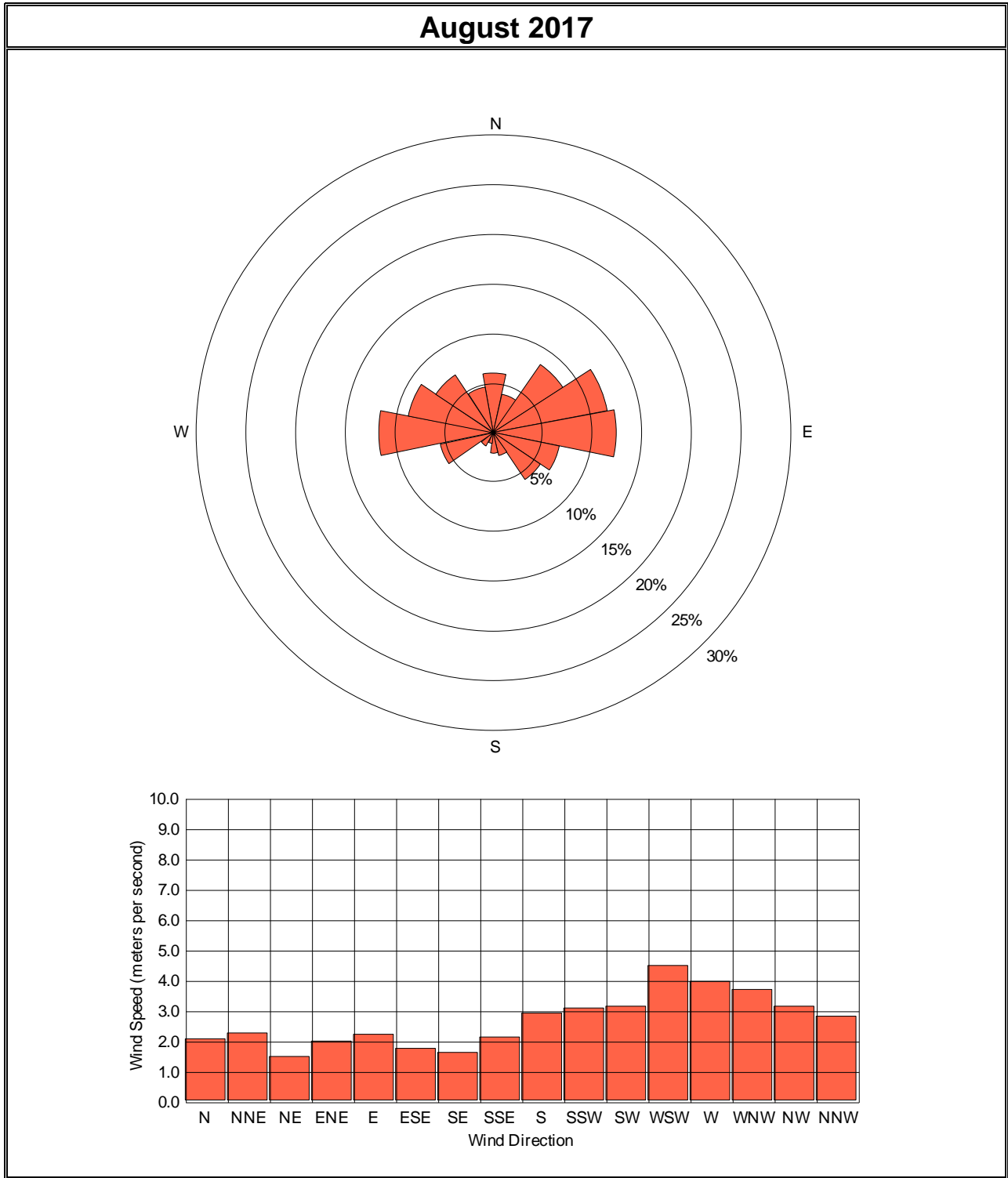


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

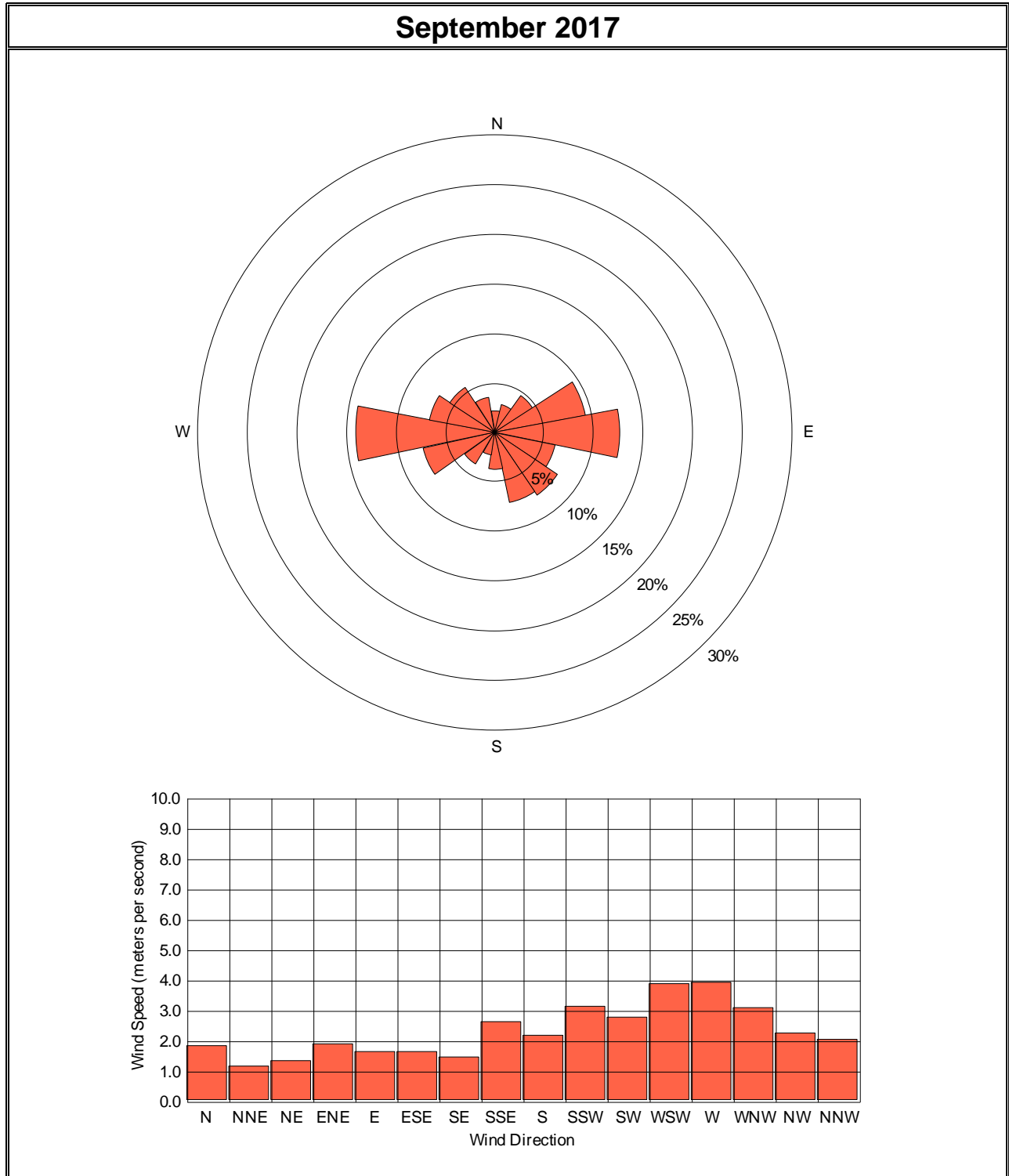
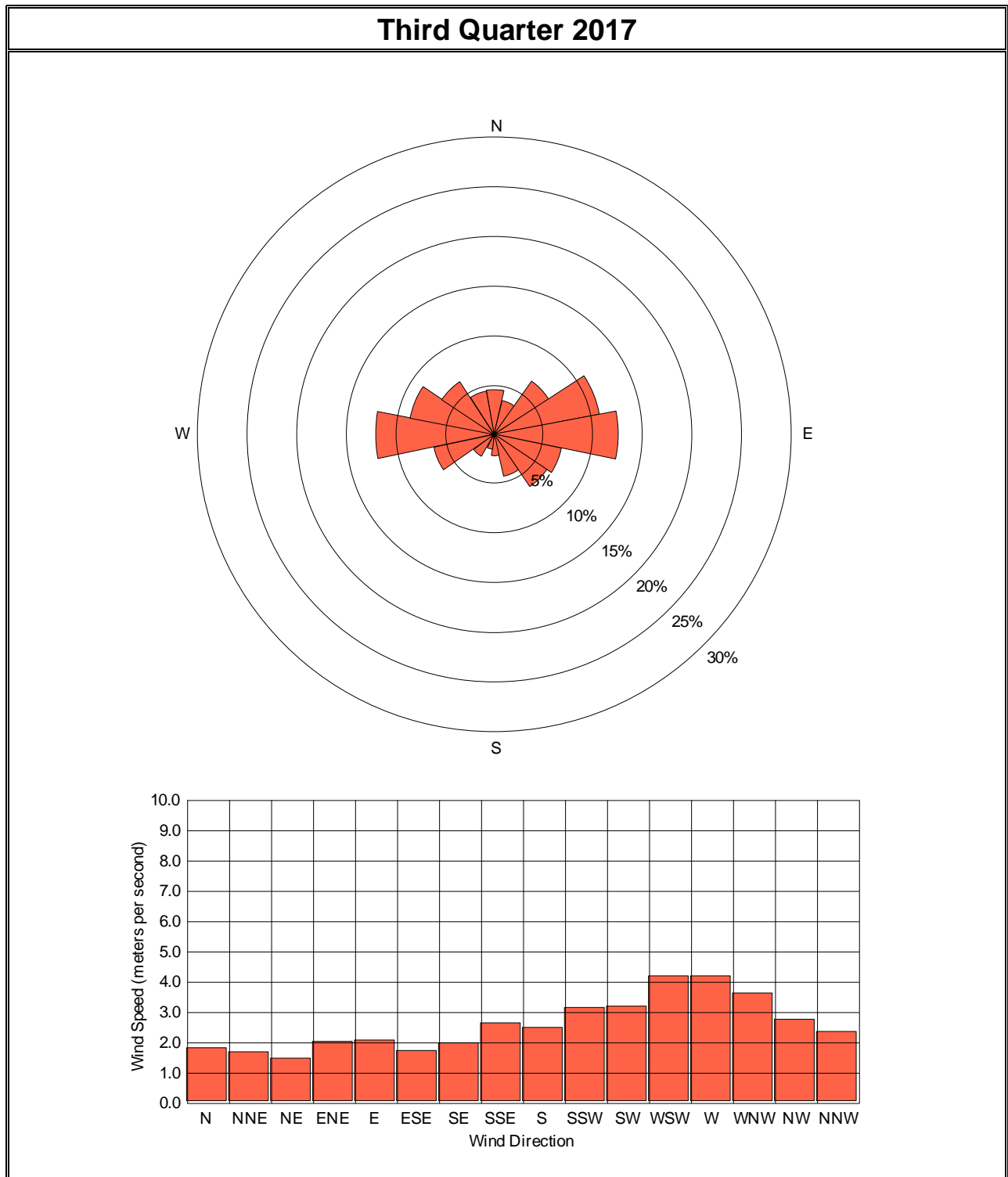


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, THIRD QUARTER 2017**

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
July 2017

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	2.4	1.7	1.1	1.7	1.4	0.8	0.8	0.6	1.1	1.6	2.6	3.6	3.6	3.1	2.9	3.3	2.4	1.9	3.2	1.7	1.2	2.0	2.0	2.5	2.1	3.6	0.6
2	1.8	1.2	1.5	1.7	1.8	1.4	1.3	0.6	0.7	1.5	2.9	2.7	2.1	2.0	2.2	3.4	3.1	5.8	2.3	1.7	1.6	2.0	2.3	1.8	2.1	5.8	0.6
3	2.1	2.3	2.0	1.9	1.2	1.5	0.7	0.6	1.9	4.9	4.4	4.7	6.5	6.9	7.8	7.2	7.5	7.3	6.0	4.9	2.5	3.4	3.0	2.3	3.9	7.8	0.6
4	2.5	1.5	1.9	1.4	1.1	0.9	0.9	0.8	1.1	1.6	2.0	1.7	4.0	4.0	3.4	3.1	3.4	2.9	2.2	1.1	1.4	2.6	2.9	2.4	2.1	4.0	0.8
5	1.8	1.6	0.9	1.6	0.9	0.9	0.5	0.7	0.7	1.7	3.5	3.3	2.9	2.4	4.0	4.2	2.4	6.0	10.9	4.8	5.6	3.3	5.9	3.4	3.1	10.9	0.5
6	3.0	2.8	3.0	3.2	2.7	2.8	1.5	0.9	0.9	1.4	3.4	3.4	1.8	2.1	5.7	3.4	2.2	3.5	0.8	3.3	1.7	3.3	2.3	2.4	2.6	5.7	0.8
7	1.7	2.3	1.4	1.3	1.3	0.8	1.0	1.1	1.0	2.5	2.3	1.0	1.1	2.3	2.2	1.4	2.2	1.6	2.7	4.5	2.2	1.1	2.1	1.8	1.8	4.5	0.8
8	1.6	1.0	2.0	2.1	2.0	1.7	0.8	0.7	1.4	1.9	3.7	3.4	2.8	3.7	3.4	4.0	4.7	4.0	3.2	1.0	2.6	3.4	2.2	2.0	2.5	4.7	0.7
9	2.0	1.4	1.9	1.0	1.1	0.8	0.6	0.7	0.8	1.4	2.4	2.9	2.0	3.1	4.0	6.6	4.9	2.3	2.4	8.2	5.4	3.0	2.0	3.4	2.7	8.2	0.6
10	2.6	1.9	2.0	2.1	2.6	2.1	1.3	1.6	1.1	3.1	6.2	7.3	5.0	2.0	1.8	1.4	3.6	3.6	2.9	3.2	1.7	2.7	3.5	2.8	2.8	7.3	1.1
11	1.9	2.3	1.4	1.1	1.3	1.1	1.0	1.1	3.7	5.8	4.8	4.9	6.4	6.3	5.3	4.8	5.2	4.7	3.2	5.3	3.5	3.0	1.4	0.9	3.4	6.4	0.9
12	1.4	0.8	0.7	0.8	1.0	0.7	0.6	4.5	6.0	4.3	3.5	3.0	1.9	2.1	3.4	2.9	2.7	2.8	2.1	4.7	2.9	2.8	3.5	1.0	2.5	6.0	0.6
13	1.3	0.8	0.9	0.9	0.7	0.8	0.9	0.6	0.9	2.8	3.2	4.1	4.1	4.6	4.8	4.8	4.2	2.2	2.4	1.9	3.1	3.4	4.0	7.5	2.7	7.5	0.6
14	6.1	5.6	3.4	1.8	2.7	1.3	0.9	1.0	1.4	2.5	2.6	3.2	4.1	3.5	3.8	5.3	4.8	4.1	4.5	4.5	2.8	1.1	1.4	1.6	3.1	6.1	0.9
15	2.6	1.4	2.2	1.4	0.8	1.7	1.0	3.4	4.8	4.1	4.4	5.0	4.7	4.9	5.5	6.9	4.9	6.2	5.0	6.5	3.4	2.3	1.7	1.6	3.6	6.9	0.8
16	1.3	1.2	1.7	1.0	1.0	0.6	0.6	0.9	1.7	4.4	3.7	3.4	5.7	6.6	7.0	5.3	6.7	6.1	5.5	4.3	3.3	1.9	2.3	2.5	3.3	7.0	0.6
17	1.3	1.2	1.2	1.7	1.7	1.5	0.9	0.7	1.3	1.6	2.0	3.8	3.7	6.1	6.3	6.2	5.4	5.3	3.6	2.9	2.3	1.8	1.6	1.0	2.7	6.3	0.7
18	1.1	1.3	1.1	1.0	1.1	0.9	0.6	0.6	3.2	3.1	2.8	4.0	5.9	6.7	5.4	5.0	5.6	4.4	2.9	1.5	2.5	2.6	2.5	2.5	2.8	6.7	0.6
19	4.3	4.2	3.7	2.3	2.9	1.9	1.8	1.1	2.7	4.0	4.3	4.8	5.3	5.1	5.9	4.6	3.0	1.8	2.4	4.1	3.8	1.7	1.5	1.2	3.3	5.9	1.1
20	1.4	1.7	1.0	1.0	1.0	1.3	1.2	1.2	1.3	3.8	5.5	4.6	4.8	4.1	5.6	5.0	6.5	5.9	6.2	6.1	3.5	0.9	1.5	1.2	3.2	6.5	0.9
21	1.7	1.3	2.5	1.6	2.0	1.8	1.0	1.0	5.4	9.2	7.9	8.5	9.9	9.3	8.4	7.4	6.8	7.0	7.5	5.5	2.5	2.2	2.9	1.4	4.8	9.9	1.0
22	1.6	0.8	1.2	1.2	1.4	0.6	0.9	0.7	2.0	3.8	4.2	3.8	4.3	4.6	4.5	3.4	3.4	3.7	3.4	2.3	2.0	2.6	2.9	2.1	2.6	4.6	0.6
23	1.2	1.5	0.7	0.8	0.9	0.6	0.9	0.7	1.2	1.7	3.0	3.3	4.7	4.4	4.1	4.4	5.3	3.9	2.5	1.7	4.0	2.7	2.4	1.9	2.4	5.3	0.6
24	1.5	1.5	1.3	1.0	1.3	1.6	1.3	1.6	1.9	2.5	5.7	5.9	6.2	6.3	6.0	7.6	8.0	6.0	5.9	2.7	1.8	2.3	2.1	1.6	3.5	8.0	1.0
25	1.4	1.5	1.6	1.7	2.1	0.8	0.8	1.1	2.3	6.3	4.5	4.5	4.1	4.3	4.8	5.0	4.2	4.9	5.6	2.9	2.8	2.5	1.6	1.0	3.0	6.3	0.8
26	0.8	0.7	0.8	0.6	0.6	0.9	0.7	0.9	1.1	2.0	1.8	3.0	3.9	4.4	2.9	3.4	3.7	5.3	4.2	3.0	3.2	2.1	2.5	2.2	2.3	5.3	0.6
27	1.9	1.8	0.8	0.8	1.3	0.9	1.1	0.9	1.2	1.8	2.1	2.0	2.8	3.1	6.0	3.3	3.9	3.9	3.0	1.2	1.6	1.8	1.1	1.0	2.1	6.0	0.8
28	1.9	1.4	1.2	1.2	0.7	0.6	0.7	0.7	2.3	5.6	4.9	4.3	4.2	3.5	3.9	3.1	3.1	2.9	3.0	2.4	1.4	3.3	2.0	3.5	2.6	5.6	0.6
29	2.2	2.2	1.1	1.1	1.0	0.9	0.7	1.1	0.9	1.5	2.5	3.9	4.6	3.7	4.4	3.8	3.5	4.4	1.6	3.3	2.9	1.6	2.3	2.9	2.4	4.6	0.7
30	1.7	1.1	1.2	1.1	1.4	1.3	0.8	0.7	0.8	2.2	4.0	3.4	4.9	5.9	5.5	4.9	4.0	3.4	4.9	3.7	2.5	2.9	2.5	1.5	2.8	5.9	0.7
31	1.3	1.3	0.9	1.1	0.9	1.1	0.8	0.6	0.8	1.3	2.7	3.6	4.8	3.6	4.3	4.4	4.6	2.6	3.7	3.5	4.2	2.9	0.9	2.1	2.4	4.8	0.6
Avg	2.0	1.7	1.6	1.4	1.4	1.2	0.9	1.1	1.9	3.1	3.7	3.9	4.3	4.3	4.7	4.5	4.4	4.2	3.9	3.5	2.8	2.4	2.4	2.2	2.8	6.3	0.7
Max	6.1	5.6	3.7	3.2	2.9	2.8	1.8	4.5	6.0	9.2	7.9	8.5	9.9	9.3	8.4	7.6	8.0	7.3	10.9	8.2	5.6	3.4	5.9	7.5	4.8	10.9	1.1
Min	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.6	0.7	1.3	1.8	1.0	1.1	2.0	1.8	1.4	2.2	1.6	0.8	1.0	1.2	0.9	0.9	0.9	1.8	3.6	0.5

A-1

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
August 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.8	1.3	1.1	1.1	0.9	0.7	0.9	0.6	1.2	3.4	4.0	5.2	5.2	5.4	4.2	4.4	5.4	3.9	4.5	4.1	4.8	2.0	1.2	2.3	2.9	5.4	0.6
2	2.0	1.0	5.0	4.4	5.5	6.5	3.0	1.3	2.7	2.4	3.9	2.2	2.2	2.7	3.2	3.9	5.0	4.3	5.3	3.6	2.4	2.5	2.5	2.5	3.3	6.5	1.0
3	1.4	1.5	1.3	1.2	0.7	0.6	0.5	1.4	4.6	4.8	4.0	3.2	2.2	2.6	2.2	2.3	2.1	2.3	2.6	3.8	1.6	0.9	1.4	1.6	2.1	4.8	0.5
4	2.2	2.9	1.8	1.0	0.7	1.2	0.6	0.7	0.9	3.4	5.4	5.3	5.5	6.0	4.6	4.9	4.5	5.8	8.3	4.8	5.0	4.7	3.7	2.7	3.6	8.3	0.6
5	2.1	3.3	1.0	0.9	1.5	2.0	3.4	4.4	4.8	4.7	5.7	5.3	5.0	5.3	5.7	5.3	4.9	4.7	4.8	3.4	1.0	0.7	1.3	0.9	3.4	5.7	0.7
6	0.8	0.8	0.8	1.1	1.0	0.5	0.5	0.6	1.0	1.8	1.5	2.0	2.0	2.0	3.2	2.4	2.0	2.5	3.0	2.8	2.9	1.5	2.6	2.6	1.7	3.2	0.5
7	2.5	1.2	1.5	1.1	1.1	0.9	0.8	0.7	1.5	2.5	2.1	2.9	2.8	2.2	3.1	2.5	3.0	3.8	3.9	3.6	2.6	1.0	1.1	1.0	2.1	3.9	0.7
8	1.5	1.2	1.4	1.8	1.1	1.5	1.5	1.0	2.3	3.3	4.3	3.6	3.8	5.1	4.9	5.4	6.5	5.0	3.9	2.4	1.1	0.8	1.3	1.1	2.7	6.5	0.8
9	0.9	0.9	0.8	1.3	1.1	1.1	1.0	0.9	0.8	1.3	2.1	2.4	2.6	3.1	5.5	6.0	5.1	4.9	3.3	4.2	5.4	5.8	4.0	2.1	2.8	6.0	0.8
10	1.2	1.3	1.3	2.2	2.6	1.9	1.2	0.7	0.6	1.3	2.6	3.5	2.9	3.6	4.1	3.8	3.1	2.6	4.0	2.5	3.8	2.9	5.1	2.4	2.5	5.1	0.6
11	3.2	5.1	3.3	2.7	3.0	2.9	1.4	1.3	0.8	1.2	1.7	3.0	3.1	3.5	3.9	4.8	3.5	3.1	4.1	1.9	3.6	3.4	1.9	0.8	2.8	5.1	0.8
12	1.2	1.9	1.5	1.5	1.7	2.3	2.3	0.9	1.1	1.7	1.7	2.6	4.0	4.4	4.0	4.4	5.6	3.5	3.7	2.0	4.2	5.1	3.4	2.1	2.8	5.6	0.9
13	0.9	1.4	1.3	1.6	2.2	2.0	2.1	1.3	1.2	3.0	4.5	4.4	4.7	6.3	6.3	7.8	7.3	2.6	2.3	1.9	3.5	3.2	3.6	1.6	3.2	7.8	0.9
14	1.6	1.2	1.5	1.3	0.9	0.7	0.7	0.7	1.0	2.1	1.8	4.2	4.4	4.1	4.4	4.3	4.1	2.9	1.7	1.1	2.1	2.0	2.0	1.7	2.2	4.4	0.7
15	1.9	1.2	0.8	0.9	0.7	1.0	0.7	0.7	1.2	3.0	4.3	4.3	4.0	3.4	4.0	3.1	2.9	2.8	1.4	1.4	3.2	2.6	1.3	1.4	2.2	4.3	0.7
16	1.1	1.4	1.1	1.2	1.4	0.8	0.7	0.8	1.8	4.8	5.8	5.5	6.4	7.2	6.9	6.3	5.8	5.8	3.4	0.9	2.8	2.8	1.6	1.5	3.2	7.2	0.7
17	1.1	1.1	1.1	0.9	1.1	0.9	1.1	0.8	1.0	4.2	3.9	5.0	5.2	5.8	5.1	4.7	4.0	4.1	1.9	2.2	2.9	2.9	2.7	2.2	2.7	5.8	0.8
18	1.3	1.0	1.1	0.8	1.2	1.2	0.9	0.9	0.9	5.0	5.1	4.7	5.2	6.0	6.1	6.7	5.9	6.7	4.4	2.7	2.0	2.1	1.4	1.6	3.1	6.7	0.8
19	1.8	2.2	1.5	1.3	1.3	4.6	5.6	5.1	5.0	4.6	4.8	5.7	5.7	6.1	5.0	5.9	5.3	4.8	4.4	3.7	2.3	1.7	2.4	1.4	3.8	6.1	1.3
20	1.0	1.3	1.1	0.9	0.6	0.8	0.8	0.4	0.9	4.2	5.6	5.2	5.1	5.2	5.8	4.6	3.3	5.0	3.8	1.8	3.7	2.2	1.7	1.7	2.8	5.8	0.4
21	1.0	1.1	1.0	0.7	0.7	0.9	1.0	0.6	0.8	2.4	3.6	3.2	3.6	3.6	3.2	3.2	3.3	2.5	2.7	2.5	3.4	2.1	2.4	2.3	2.2	3.6	0.6
22	1.0	1.4	1.4	1.5	1.0	1.2	0.7	1.0	0.6	1.0	3.3	3.1	3.0	3.8	3.6	2.8	2.7	2.3	1.2	2.7	1.7	1.8	1.7	1.9	1.9	3.8	0.6
23	1.7	1.4	0.7	1.1	1.0	1.1	1.0	0.7	0.7	1.6	3.0	5.2	3.9	5.0	5.0	5.0	4.3	2.8	2.8	2.0	3.4	2.2	1.1	1.4	2.4	5.2	0.7
24	1.3	1.5	1.6	1.9	1.7	2.4	2.5	2.0	1.9	2.2	4.0	4.9	4.0	4.5	6.2	4.0	4.6	2.9	2.3	2.8	3.3	2.6	1.7	2.1	2.9	6.2	1.3
25	1.4	1.3	1.2	1.5	1.5	1.7	1.1	1.0	0.9	1.5	3.5	4.6	5.3	5.5	4.9	5.3	5.5	5.4	3.4	2.1	3.5	2.1	2.3	2.2	2.9	5.5	0.9
26	1.4	1.7	1.5	1.3	1.3	1.2	0.9	0.6	0.7	2.8	3.0	3.6	3.2	4.7	4.3	4.1	3.4	2.9	1.7	2.3	2.2	2.1	1.6	1.8	2.3	4.7	0.6
27	2.0	1.1	1.1	1.0	0.9	1.0	0.7	1.2	0.7	1.0	3.0	4.2	3.6	3.9	3.7	3.1	3.1	2.2	1.4	2.6	3.0	3.4	2.0	1.7	2.1	4.2	0.7
28	1.3	1.0	1.1	0.8	1.0	0.9	0.8	0.9	0.5	2.0	3.7	4.1	4.1	3.7	3.6	3.6	3.0	3.6	4.7	2.9	3.1	2.6	1.4	1.4	2.3	4.7	0.5
29	1.3	1.8	0.9	0.9	1.3	1.6	2.6	3.0	1.4	1.1	1.6	1.7	2.6	2.9	2.3	2.7	2.9	3.1	3.6	4.0	1.3	1.5	1.5	0.9	2.0	4.0	0.9
30	1.0	0.9	1.3	2.0	2.0	1.9	1.7	1.8	0.9	2.0	3.6	3.4	3.1	2.7	3.8	3.7	4.8	5.7	5.8	6.7	2.2	1.7	1.7	1.4	2.7	6.7	0.9
31	1.6	1.0	1.3	0.9	1.2	1.0	1.1	0.9	0.9	2.6	3.8	4.8	4.1	5.5	6.5	7.2	6.7	6.2	5.5	4.5	4.2	2.9	1.1	1.6	3.2	7.2	0.9
Avg	1.5	1.5	1.4	1.4	1.4	1.6	1.4	1.3	1.5	2.7	3.6	4.0	4.0	4.4	4.5	4.5	4.3	3.9	3.5	2.9	3.0	2.4	2.1	1.7	2.7	5.5	0.8
Max	3.2	5.1	5.0	4.4	5.5	6.5	5.6	5.1	5.0	5.0	5.8	5.7	6.4	7.2	6.9	7.8	7.3	6.7	8.3	6.7	5.4	5.8	5.1	2.7	3.8	8.3	1.3
Min	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.5	1.0	1.5	1.7	2.0	2.0	2.2	2.3	2.0	2.2	1.2	0.9	1.0	0.7	1.1	0.8	1.7	3.2	0.4

A-2

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
September 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.8	2.1	1.8	1.4	1.2	0.9	0.8	0.9	0.8	1.9	3.9	3.7	5.5	5.8	5.9	6.6	7.0	6.2	4.8	1.7	1.7	3.1	2.2	2.2	3.1	7.0	0.8
2	1.2	1.2	1.5	1.4	1.5	0.9	0.9	1.0	0.9	3.9	5.0	5.0	5.6	6.4	6.8	6.2	5.0	5.1	3.3	2.1	2.4	2.1	2.1	1.6	3.0	6.8	0.9
3	1.4	1.1	1.4	1.7	2.0	2.0	1.5	1.2	0.8	0.8	2.5	3.7	4.0	4.4	3.9	4.4	5.4	4.1	2.9	2.3	3.9	1.3	1.4	4.5	2.6	5.4	0.8
4	5.9	3.2	3.2	2.0	2.1	1.5	1.8	0.6	1.4	2.5	2.0	3.3	2.9	3.1	4.3	4.2	4.6	4.0	3.7	3.6	4.0	3.9	2.6	2.1	3.0	5.9	0.6
5	1.4	0.9	0.6	0.9	1.7	1.4	1.6	0.7	1.0	2.1	2.5	3.0	2.7	2.6	2.8	2.8	4.5	5.3	3.4	1.9	1.9	1.6	2.4	1.9	2.1	5.3	0.6
6	1.7	1.1	1.0	0.8	0.9	1.0	0.8	0.7	0.7	0.7	2.3	4.2	4.3	5.1	5.3	5.8	6.0	4.6	2.5	1.7	2.1	1.2	1.8	1.7	2.4	6.0	0.7
7	0.9	0.9	0.7	0.9	0.6	1.0	0.9	0.6	0.7	0.8	1.4	2.8	4.3	2.5	3.2	2.8	2.5	5.7	2.8	2.0	3.5	1.2	0.9	1.0	1.9	5.7	0.6
8	1.8	1.2	0.6	0.8	0.8	1.3	1.2	0.7	0.7	1.0	2.8	4.0	3.2	2.3	2.2	3.3	3.8	2.9	2.0	1.3	1.7	2.0	1.2	1.5	1.8	4.0	0.6
9	1.9	2.4	1.5	1.5	0.9	1.6	1.3	1.1	0.7	1.3	3.2	4.0	5.1	4.3	4.4	4.2	5.0	5.4	3.0	2.8	4.2	2.3	2.1	1.7	2.7	5.4	0.7
10	1.4	2.3	1.9	1.4	1.6	0.8	0.8	1.0	2.6	6.1	5.8	6.3	7.6	8.4	8.5	6.5	5.9	5.0	3.5	1.5	2.5	2.1	1.9	1.7	3.6	8.5	0.8
11	1.3	1.3	1.6	1.2	1.2	1.2	1.6	0.8	1.0	3.3	4.2	4.2	5.5	4.3	4.1	5.0	4.4	3.5	1.8	2.4	2.6	1.6	1.2	1.5	2.5	5.5	0.8
12	1.1	1.2	0.8	0.9	0.9	1.0	1.1	0.9	0.7	1.8	4.7	3.9	3.6	3.5	4.8	3.6	3.7	2.6	1.9	3.1	2.0	1.7	1.7	1.7	2.2	4.8	0.7
13	1.5	1.8	1.2	1.3	1.4	1.1	1.1	1.1	1.2	1.3	2.5	4.4	4.0	3.4	4.3	5.2	4.9	3.0	5.1	2.3	3.6	3.6	3.8	2.8	2.7	5.2	1.1
14	1.9	1.4	2.5	2.5	2.1	2.6	3.3	2.8	1.8	4.7	2.5	1.8	2.4	3.3	3.2	3.3	3.3	2.0	2.0	2.0	1.4	1.3	1.2	2.4	2.4	4.7	1.2
15	2.9	3.1	2.4	3.2	2.6	3.1	2.0	4.0	3.6	2.8	3.0	2.5	2.5	2.6	3.0	2.7	2.0	2.2	1.6	2.1	1.6	0.8	0.9	1.1	2.4	4.0	0.8
16	0.9	1.5	1.1	1.5	1.0	0.8	0.8	0.5	1.0	1.6	2.7	3.2	2.5	2.9	4.3	3.8	4.3	4.4	2.1	1.1	1.4	1.2	1.3	1.1	2.0	4.4	0.5
17	0.8	1.1	0.9	1.1	1.1	1.3	1.7	2.4	3.1	2.2	3.7	4.1	4.8	5.6	5.1	5.4	2.9	3.0	1.9	2.4	2.9	2.5	2.0	1.2	2.6	5.6	0.8
18	1.5	1.7	1.7	1.0	1.1	1.2	2.1	1.1	1.2	2.6	4.7	4.5	7.9	7.9	5.9	6.4	4.1	3.7	2.3	2.8	2.1	1.6	1.5	1.9	3.0	7.9	1.0
19	1.7	1.4	1.3	1.3	1.0	1.1	0.9	0.8	2.2	6.8	7.0	8.0	8.3	6.4	7.0	5.8	8.1	1.6	1.8	1.9	1.5	1.5	1.2	1.4	3.3	8.3	0.8
20	2.3	3.6	3.0	2.0	2.4	2.8	2.7	4.3	Au	Au	Au	Au	3.7	3.9	3.7	4.6	7.1	6.4	2.1	2.2	2.5	1.8	1.9	1.4	3.2	7.1	1.4
21	2.5	2.0	1.6	1.2	1.3	1.3	1.4	0.7	0.6	0.8	1.3	1.8	2.0	2.0	1.7	2.0	1.5	2.0	2.6	1.7	2.2	1.2	1.3	1.8	1.6	2.6	0.6
22	1.1	1.0	0.9	1.6	1.2	1.5	3.2	3.6	2.0	1.7	1.4	1.5	1.7	1.0	2.1	3.7	5.3	4.0	2.8	4.0	4.4	3.6	3.2	2.2	2.4	5.3	0.9
23	3.3	2.7	1.6	0.9	0.7	1.2	1.2	1.5	1.8	2.4	2.2	2.6	2.6	1.7	4.6	4.3	3.4	1.7	0.8	1.0	1.0	1.0	2.5	1.4	2.0	4.6	0.7
24	0.9	0.8	1.2	0.9	0.9	0.9	0.9	0.9	0.5	0.8	1.8	2.3	2.6	2.3	1.5	1.1	1.4	2.9	2.1	1.7	1.3	1.4	1.4	1.7	1.4	2.9	0.5
25	0.9	1.0	1.1	1.1	1.1	0.8	1.0	0.8	0.9	1.0	3.6	3.6	2.8	2.7	2.9	3.6	3.1	3.4	1.9	2.3	2.8	2.6	2.3	1.6	2.0	3.6	0.8
26	1.4	0.7	0.4	0.6	0.6	1.0	0.8	0.4	0.9	2.0	3.8	3.1	3.0	4.1	3.6	3.3	3.4	2.7	2.4	2.5	2.1	2.1	1.9	1.1	2.0	4.1	0.4
27	1.5	1.2	0.8	0.7	1.1	0.9	0.5	0.9	0.5	0.5	1.3	2.0	2.3	3.6	3.2	3.4	2.8	2.1	1.7	2.6	2.8	1.8	1.3	1.1	1.7	3.6	0.5
28	1.7	1.0	1.2	1.0	1.3	1.2	1.0	1.2	0.5	0.7	4.0	5.0	5.4	5.7	4.8	5.0	5.4	4.7	1.3	3.5	3.4	2.2	2.6	1.4	2.7	5.7	0.5
29	1.1	0.7	1.3	1.2	0.7	1.1	0.8	0.7	0.7	3.0	4.5	3.0	3.4	3.8	4.1	3.6	2.7	1.7	1.9	1.3	1.2	1.5	1.9	2.3	2.0	4.5	0.7
30	1.3	1.8	1.5	1.6	0.8	0.9	1.0	0.5	1.0	2.2	4.3	4.9	6.3	6.2	5.8	3.8	1.7	3.0	2.9	3.5	4.7	4.5	3.7	3.8	3.0	6.3	0.5
Avg	1.7	1.6	1.4	1.3	1.3	1.3	1.4	1.3	1.2	2.2	3.3	3.7	4.1	4.1	4.2	4.2	4.2	3.6	2.5	2.2	2.5	2.0	1.9	1.8	2.5	5.4	0.7
Max	5.9	3.6	3.2	3.2	2.6	3.1	3.3	4.3	3.6	6.8	7.0	8.0	8.3	8.4	8.5	6.6	8.1	6.4	5.1	4.0	4.7	4.5	3.8	4.5	3.6	8.5	1.4
Min	0.8	0.7	0.4	0.6	0.6	0.8	0.5	0.4	0.5	0.5	1.3	1.5	1.7	1.0	1.5	1.1	1.4	1.6	0.8	1.0	1.0	0.8	0.9	1.0	1.4	2.6	0.4

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
July 2017

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	78	88	49	107	143	74	168	273	351	340	290	291	286	319	283	279	261	224	280	302	131	108	70	73	332
2	87	8	87	89	111	89	147	317	11	1	268	254	284	305	283	34	56	292	293	133	77	105	96	122	47
3	111	88	63	95	57	121	293	316	336	268	266	256	264	275	277	265	276	281	297	301	356	94	74	50	317
4	68	61	82	97	41	29	127	15	309	337	341	41	247	238	254	213	201	198	190	5	102	50	69	65	54
5	22	129	56	122	120	125	55	308	345	26	265	283	239	254	283	288	286	208	165	95	83	78	79	101	73
6	93	72	66	92	78	90	100	326	342	8	316	353	322	213	97	75	313	229	36	135	138	84	78	58	60
7	26	65	55	112	80	152	237	36	322	292	308	8	4	309	360	52	61	78	62	137	133	56	120	80	52
8	90	41	92	93	92	122	94	11	353	33	302	274	276	282	321	296	295	312	325	4	93	83	62	84	22
9	78	56	83	67	116	17	23	314	55	7	318	292	285	282	234	249	235	318	148	233	109	144	109	82	33
10	107	100	112	101	101	122	141	96	96	225	272	280	336	104	71	194	173	112	99	336	131	130	74	70	111
11	77	63	48	59	19	80	23	154	278	311	298	305	296	303	280	290	294	297	340	20	64	72	92	279	352
12	159	3	75	138	106	110	332	147	151	141	150	143	206	264	245	235	248	241	244	142	84	38	62	288	159
13	122	121	121	125	15	50	44	275	53	163	231	251	253	277	252	260	233	208	176	159	84	72	70	357	155
14	76	79	58	349	34	44	135	2	333	300	301	304	273	289	56	91	89	84	94	86	70	102	294	315	34
15	324	306	167	42	239	187	106	139	167	157	155	139	132	141	140	144	147	193	63	298	303	311	111	131	151
16	75	85	123	114	112	56	20	325	358	258	284	286	277	265	277	274	282	305	313	311	333	71	66	112	337
17	115	111	105	84	94	113	82	156	11	18	7	258	268	267	273	269	285	290	324	345	30	89	235	87	28
18	91	134	167	220	140	153	1	7	144	148	186	226	249	263	276	234	237	245	268	4	99	341	60	21	202
19	324	353	341	71	87	117	115	74	323	265	292	303	251	263	251	303	266	330	63	81	82	112	75	323	353
20	85	126	305	156	101	98	54	342	8	290	255	251	283	240	262	238	239	268	299	309	330	342	81	26	304
21	347	116	97	103	77	89	354	232	249	252	251	268	262	269	283	286	280	279	281	305	331	66	75	81	298
22	88	50	59	45	87	46	5	338	333	275	305	280	266	268	282	278	286	291	299	281	119	62	84	111	342
23	39	70	25	14	78	49	154	345	340	15	275	252	279	278	276	244	224	229	253	286	95	60	55	58	344
24	74	61	76	17	30	115	340	331	347	300	268	246	266	234	251	245	265	286	284	308	106	75	105	52	330
25	36	75	71	93	114	92	45	336	278	147	143	145	141	166	140	138	137	137	145	167	143	137	94	53	118
26	70	44	67	9	79	116	348	8	360	355	351	282	279	284	298	277	295	224	180	121	105	90	102	116	25
27	100	116	64	16	130	91	3	12	350	272	55	57	335	225	329	332	288	278	286	180	120	63	156	78	36
28	106	58	69	90	56	25	70	58	347	321	330	302	298	252	251	228	146	299	290	314	94	302	42	82	7
29	59	76	100	19	104	121	44	341	307	44	252	243	284	303	240	280	265	287	289	61	81	54	62	89	14
30	67	16	83	76	88	96	131	316	349	326	281	268	263	273	266	273	287	305	317	316	44	79	55	47	350
31	43	93	348	93	7	78	85	74	353	256	282	296	275	284	264	272	293	315	18	54	65	82	307	98	1
Prev	73	72	74	81	86	93	62	351	346	313	284	276	274	266	272	263	261	267	295	349	85	75	79	68	28

A-4

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
August 2017

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	122	74	41	93	129	340	45	321	334	313	305	290	290	289	331	321	312	332	12	1	345	331	316	84	346
2	42	51	317	316	318	333	342	179	305	275	188	274	180	122	108	138	113	87	85	92	111	107	148	134	100
3	119	117	141	153	273	105	11	134	151	164	157	169	360	276	200	132	254	309	247	152	137	145	136	128	155
4	126	86	76	64	26	125	6	84	4	296	280	310	303	311	310	301	353	3	15	29	327	352	278	295	352
5	360	329	334	325	322	316	319	318	343	351	332	329	334	334	333	328	351	355	3	9	29	277	25	90	342
6	95	5	55	48	118	360	102	35	208	111	10	289	329	19	288	308	1	291	52	97	130	72	53	73	40
7	89	152	128	90	49	32	129	350	123	144	142	242	305	295	185	221	25	334	7	43	92	35	38	11	66
8	21	353	52	80	73	142	131	288	329	285	309	318	302	306	312	18	22	38	19	10	1	329	359	15	358
9	98	72	71	104	57	78	130	145	254	78	330	2	277	281	65	75	72	76	79	76	80	81	78	98	75
10	77	79	67	79	90	105	40	312	38	288	318	266	279	258	264	350	317	22	85	91	75	58	85	50	36
11	108	80	98	81	87	82	141	81	216	165	328	287	272	293	245	266	268	51	46	188	83	77	89	83	94
12	41	86	32	68	39	84	74	202	98	131	303	321	281	274	287	313	308	326	171	122	85	83	74	110	53
13	229	131	147	143	115	112	98	132	110	152	180	184	204	219	242	244	245	278	272	243	246	251	280	104	192
14	107	75	91	91	26	33	15	325	313	267	300	278	262	285	285	270	295	295	242	198	92	58	66	49	338
15	100	95	102	84	49	133	156	343	342	290	281	259	278	253	259	280	261	263	227	66	51	83	98	105	32
16	44	88	61	64	100	27	37	61	133	265	256	252	259	253	265	270	256	292	293	345	98	79	59	52	10
17	78	53	72	63	97	93	109	321	5	306	301	276	270	318	302	304	290	279	277	234	105	69	65	89	1
18	15	36	154	94	74	95	54	260	344	251	266	259	262	275	264	251	244	262	274	243	125	98	77	48	279
19	67	97	78	88	51	285	288	293	294	280	298	257	266	258	248	270	300	313	319	308	174	109	113	56	301
20	51	89	144	123	318	4	139	36	5	261	253	252	265	273	243	242	246	277	272	106	79	72	124	114	238
21	38	56	50	332	2	99	127	116	29	299	268	296	289	282	336	250	284	319	352	75	83	65	80	126	13
22	121	73	68	65	58	72	5	153	341	1	291	248	297	228	283	311	288	351	280	73	29	73	77	80	20
23	58	42	34	93	75	96	103	306	349	331	317	268	270	278	273	300	315	299	282	125	58	67	60	95	6
24	69	110	115	77	56	125	185	75	341	74	226	202	199	208	261	105	55	105	99	89	85	95	83	109	106
25	133	49	65	82	85	55	2	138	164	296	265	249	248	254	287	264	277	267	273	135	83	52	77	73	54
26	77	68	68	78	60	43	122	360	325	282	281	274	288	286	303	268	273	297	357	57	70	113	52	53	8
27	81	36	42	49	50	77	34	154	325	6	269	256	269	281	288	253	276	293	270	112	60	81	96	82	12
28	81	55	74	41	90	75	124	110	2	10	260	282	279	249	265	263	259	325	30	78	79	80	67	50	41
29	81	147	15	43	100	30	63	59	342	75	169	23	133	311	349	356	57	93	76	73	63	25	52	49	55
30	190	122	348	116	69	114	26	112	122	128	167	180	218	176	214	227	196	190	231	284	292	81	119	97	155
31	88	11	70	19	136	109	147	307	55	244	281	296	277	296	263	253	245	267	284	293	291	277	94	56	298
Prev	81	72	70	74	64	72	77	44	354	292	276	272	273	275	277	279	295	318	325	79	75	68	74	78	28

A-5

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
September 2017

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	103	93	66	66	101	62	24	126	136	195	258	255	253	266	262	256	258	261	272	275	9	70	68	103	136
2	79	13	49	110	121	82	26	145	342	271	252	260	254	253	265	265	264	262	261	182	100	79	84	84	241
3	110	135	48	82	31	39	78	53	10	354	312	309	280	254	279	292	267	258	251	56	77	92	94	344	13
4	332	287	305	313	147	228	165	68	151	175	263	272	301	306	274	285	283	251	100	76	77	68	75	92	281
5	93	93	70	92	113	58	65	177	94	167	175	180	188	187	188	160	156	148	154	135	112	100	70	50	127
6	52	27	47	38	104	126	134	133	8	58	314	259	265	285	284	274	281	308	299	119	64	49	63	86	27
7	20	18	27	80	51	70	66	105	57	72	253	239	259	251	214	244	229	144	150	51	75	81	133	116	91
8	115	97	347	75	34	98	140	124	327	64	163	196	176	195	246	280	299	290	144	99	95	86	93	112	114
9	89	84	74	84	48	101	95	188	264	347	265	250	253	254	271	252	231	276	63	209	102	94	104	45	125
10	16	74	77	32	127	63	64	4	250	286	273	265	277	282	272	260	284	306	322	235	69	66	86	92	342
11	95	90	95	84	114	25	111	316	339	279	275	273	263	264	268	264	264	264	210	112	84	26	22	58	346
12	79	108	92	102	87	106	57	87	326	338	290	284	268	274	261	253	278	263	253	100	74	105	82	96	62
13	91	52	298	51	130	132	100	32	95	41	104	218	224	251	232	247	287	355	306	344	290	295	314	337	336
14	33	274	267	267	274	237	263	264	315	335	77	276	279	301	300	308	350	345	318	309	278	310	319	311	300
15	321	323	302	295	295	321	309	329	328	349	349	355	351	347	1	340	309	309	264	275	260	173	212	157	313
16	170	156	132	283	287	302	292	283	291	236	264	256	266	240	225	242	242	261	268	155	144	159	158	149	233
17	158	159	135	152	151	142	146	113	83	142	193	188	218	232	225	228	249	211	147	118	111	106	117	147	159
18	150	142	154	75	343	97	128	131	3	198	239	193	197	208	219	237	260	280	124	126	229	252	79	286	185
19	186	334	132	344	227	146	143	265	275	255	257	260	255	275	260	256	269	82	73	108	47	136	142	95	220
20	101	184	199	149	156	99	160	160	Au	Au	Au	Au	165	72	82	287	240	248	42	115	226	60	92	113	139
21	111	91	24	67	136	12	118	360	67	33	331	307	259	219	303	124	203	70	63	57	80	97	96	134	72
22	246	302	234	287	226	272	83	69	111	169	224	134	126	221	185	168	163	177	188	162	166	167	159	154	180
23	160	180	190	124	177	193	125	146	207	259	294	265	293	313	274	287	305	341	309	317	144	219	102	61	230
24	17	355	117	116	98	102	139	174	318	343	357	152	287	256	227	333	237	169	152	128	99	53	61	94	102
25	79	117	136	137	139	114	127	147	156	49	266	277	282	271	252	256	265	262	271	80	80	68	64	35	138
26	82	53	233	340	117	50	79	325	98	332	305	292	276	245	261	271	79	93	84	70	91	74	90	69	49
27	124	127	70	76	90	138	131	154	324	324	35	252	318	276	258	293	284	290	137	66	74	54	54	74	63
28	114	47	59	92	77	80	93	147	26	301	151	162	161	159	163	159	145	150	254	65	66	62	76	123	110
29	151	274	98	100	82	127	189	191	306	147	170	202	265	282	289	295	248	244	128	111	95	37	84	83	160
30	13	69	52	87	55	48	88	120	330	325	280	278	267	276	268	269	224	248	266	265	276	279	272	266	294
Prev	93	79	82	76	108	92	107	127	355	322	267	248	256	258	255	262	258	262	216	106	92	82	87	89	139

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
July 2017

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	22	30	37	40	34	67	46	85	42	56	51	25	37	43	47	33	58	37	13	31	85	19	40	36	42	85	13
2	32	58	50	33	39	70	71	74	69	46	32	31	47	97	48	55	50	14	40	54	58	22	32	20	48	97	14
3	21	35	23	25	43	36	97	81	42	20	27	20	21	18	16	22	17	14	10	8	74	28	40	48	33	97	8
4	44	56	41	69	53	60	78	71	66	35	41	55	54	30	24	32	29	22	40	68	40	24	27	26	45	78	22
5	54	28	68	55	41	31	73	75	59	47	21	49	57	66	39	25	77	20	31	70	13	53	14	88	48	88	13
6	30	47	40	40	24	26	61	39	51	32	33	23	66	81	92	57	63	23	69	42	59	15	34	30	45	92	15
7	45	35	50	31	59	84	93	70	64	53	81	94	63	41	47	40	41	64	19	11	42	63	24	26	52	94	11
8	37	64	37	25	39	38	84	79	71	72	34	34	46	37	38	25	15	18	10	48	16	14	28	31	39	84	10
9	31	40	43	52	47	92	78	66	72	31	31	62	79	62	25	20	33	77	50	29	88	99	50	51	55	99	20
10	23	29	36	49	35	34	30	40	65	76	22	14	62	39	34	62	53	26	60	44	68	30	19	20	40	76	14
11	33	29	65	75	89	87	87	72	36	17	22	23	20	20	26	18	24	19	27	10	67	43	52	72	43	89	10
12	43	78	68	97	38	56	52	46	14	20	41	51	73	62	25	40	46	47	46	10	63	12	29	96	48	97	10
13	35	76	49	55	62	74	89	61	77	36	37	26	35	42	35	28	39	64	35	31	18	35	75	82	50	89	18
14	11	11	67	45	30	60	67	87	65	30	44	39	29	44	62	11	12	15	17	8	13	72	73	41	40	87	8
15	66	66	33	95	79	56	58	43	12	15	19	11	18	18	17	15	16	38	82	32	15	65	38	47	40	95	11
16	49	34	33	48	50	63	91	79	54	22	27	38	24	20	25	22	14	15	12	12	48	86	32	24	38	91	12
17	53	76	45	35	23	30	71	81	41	43	76	37	46	24	20	22	24	12	29	15	50	58	86	84	45	86	12
18	49	41	81	87	49	61	47	62	21	27	50	32	32	25	38	20	21	23	25	72	38	87	57	74	47	87	20
19	27	24	79	87	34	26	37	79	74	23	27	26	36	34	22	41	24	70	28	5	42	57	67	61	43	87	5
20	58	83	63	70	52	69	54	25	40	46	22	28	38	35	30	30	20	25	8	9	11	70	45	39	40	83	8
21	48	65	36	40	61	45	56	98	16	13	15	17	17	17	17	15	17	15	11	12	46	51	21	39	33	98	11
22	45	67	49	62	62	67	87	39	57	25	25	35	36	37	36	33	41	22	13	32	30	28	13	24	40	87	13
23	38	54	35	59	59	49	66	54	35	46	65	47	36	44	35	36	22	24	34	59	19	27	28	33	42	66	19
24	37	59	61	52	72	60	78	52	37	42	21	19	22	16	25	18	20	16	12	35	36	34	57	41	38	78	12
25	45	63	42	28	32	82	45	49	73	11	17	21	26	25	23	12	21	16	10	28	17	13	36	55	33	82	10
26	23	40	53	45	76	51	81	30	67	40	85	44	40	43	56	45	33	53	22	27	16	62	27	26	45	85	16
27	27	26	88	48	27	72	32	39	53	32	29	55	77	72	9	40	34	29	17	78	51	81	58	85	48	88	9
28	21	39	35	52	42	50	67	80	74	15	19	42	47	49	42	34	77	28	18	35	56	62	62	18	44	80	15
29	34	29	55	38	62	63	77	37	70	91	72	34	37	60	50	36	48	14	45	41	24	71	29	26	48	91	14
30	50	47	56	53	70	62	62	71	58	43	26	44	32	22	26	25	32	15	13	12	55	17	29	36	40	71	12
31	32	52	52	53	60	79	68	67	65	68	41	28	38	59	48	40	31	63	37	9	10	43	85	31	48	85	9
Avg	38	48	51	53	50	58	67	62	53	38	37	36	42	41	35	31	34	30	28	32	41	46	42	45	43	87	13
Max	66	83	88	97	89	92	97	98	77	91	85	94	79	97	92	62	77	77	82	78	88	99	86	96	55	99	22
Min	11	11	23	25	23	26	30	25	12	11	15	11	17	16	9	11	12	12	8	5	10	12	13	18	33	66	5

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
August 2017

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	29	49	67	66	73	78	79	47	38	17	18	12	13	17	38	26	15	30	11	15	14	76	49	22	37	79	11
2	56	75	9	7	8	25	28	79	21	50	42	77	44	85	43	20	26	15	10	12	14	12	23	25	34	85	7
3	24	20	29	39	71	92	81	73	15	18	27	41	77	60	78	73	72	35	13	36	25	48	27	15	45	92	13
4	12	23	16	38	47	50	87	65	50	35	23	17	18	13	25	17	28	13	14	35	48	68	53	71	36	87	12
5	63	13	36	40	32	11	8	11	21	20	16	15	16	15	10	12	14	13	15	22	79	86	62	81	30	86	8
6	56	64	58	81	56	97	88	71	88	88	84	68	74	86	28	44	65	31	25	16	20	36	16	16	57	97	16
7	34	36	32	62	47	47	64	93	88	44	65	78	46	75	51	89	42	45	15	16	29	55	51	58	53	93	15
8	36	26	77	63	64	47	80	100	36	29	23	35	37	20	32	18	14	14	13	27	32	49	52	41	40	100	13
9	55	53	60	63	76	67	32	55	80	81	48	67	68	58	54	14	16	10	12	7	9	9	39	24	44	81	7
10	32	45	38	17	21	25	61	78	65	61	36	52	47	47	38	44	24	65	12	58	16	59	14	57	42	78	12
11	103	11	22	19	18	28	53	72	87	71	93	60	44	54	45	22	16	35	39	51	23	45	32	75	47	103	11
12	46	44	51	59	61	60	57	72	90	58	61	35	24	41	28	16	12	14	65	31	6	6	27	64	43	90	6
13	92	48	38	32	24	24	31	34	52	42	37	37	26	19	13	12	21	18	79	27	12	19	41	66	35	92	12
14	61	64	42	47	70	84	87	57	79	28	82	28	24	24	33	27	29	60	23	85	35	21	18	33	48	87	18
15	49	40	48	75	93	80	67	61	29	41	30	38	34	47	57	48	48	47	44	79	33	24	35	53	50	93	24
16	68	42	45	43	58	52	67	93	89	17	15	27	20	22	20	22	22	19	9	80	27	24	39	45	40	93	9
17	37	38	64	81	40	61	54	42	82	33	27	35	27	20	26	25	45	22	21	26	31	28	24	25	38	82	20
18	36	47	54	74	66	55	69	91	73	19	24	29	27	21	22	15	19	13	12	31	29	28	43	35	39	91	12
19	53	40	63	63	65	49	12	12	18	24	29	26	31	33	25	28	19	16	8	9	84	47	46	75	36	84	8
20	61	56	46	41	93	60	36	83	47	32	18	30	30	25	17	21	26	20	11	91	37	59	68	44	44	93	11
21	77	33	54	61	52	55	44	77	82	43	17	31	37	38	45	51	36	16	24	32	23	34	55	19	43	82	16
22	62	42	33	34	35	48	89	26	49	71	29	52	64	34	52	51	57	31	52	66	52	58	60	30	49	89	26
23	50	52	48	35	47	28	55	78	56	40	37	26	33	33	24	30	26	24	11	61	35	28	65	41	40	78	11
24	74	67	29	23	31	27	83	86	51	81	39	24	28	44	17	77	27	32	16	16	14	21	56	28	41	86	14
25	66	48	78	35	68	64	43	57	64	81	24	26	27	30	24	24	20	16	14	68	17	34	35	37	42	81	14
26	64	55	55	44	32	52	69	57	53	47	51	35	56	36	25	36	27	13	61	42	38	34	43	28	44	69	13
27	30	31	30	45	42	38	39	48	35	54	57	33	26	25	38	41	44	30	23	26	20	17	19	29	34	57	17
28	45	65	34	56	40	41	47	88	51	59	25	19	23	29	43	42	38	84	28	11	15	23	41	60	42	88	11
29	54	59	76	67	71	87	79	59	85	63	36	95	38	42	81	37	31	7	8	7	59	37	37	91	54	95	7
30	80	70	72	52	33	34	34	34	91	34	37	35	50	60	45	46	19	14	16	18	49	70	27	89	46	91	14
31	29	78	51	56	55	51	73	51	57	63	29	23	36	20	28	18	14	16	11	8	6	29	84	62	40	84	6
Avg	53	46	47	49	51	52	58	63	59	47	38	39	37	38	36	34	29	26	23	36	30	38	41	46	42	87	13
Max	103	78	78	81	93	97	89	100	91	88	93	95	77	86	81	89	72	84	79	91	84	86	84	91	57	103	26
Min	12	11	9	7	8	11	8	11	15	17	15	12	13	13	10	12	12	7	8	7	6	6	14	15	30	57	6

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
September 2017

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	26	34	35	35	27	55	39	46	82	78	31	33	24	24	17	19	16	12	11	47	91	31	39	19	36	91	11
2	69	50	46	58	41	89	80	93	46	34	16	19	21	17	17	20	20	14	10	69	23	23	33	41	40	93	10
3	38	90	68	39	35	30	73	59	82	53	40	24	25	32	26	15	28	11	5	65	14	55	79	30	42	90	5
4	11	31	32	83	57	72	63	82	69	38	65	34	46	54	20	19	9	14	43	11	10	7	15	37	38	83	7
5	49	77	95	83	24	21	29	69	91	34	40	32	50	41	31	41	14	8	11	21	33	32	18	26	40	95	8
6	23	33	49	63	66	38	79	72	63	63	28	23	21	12	21	14	9	22	85	38	27	34	24	34	39	85	9
7	39	47	46	57	44	49	49	75	69	78	83	65	21	48	29	43	71	12	59	74	38	72	69	43	53	83	12
8	19	32	69	51	61	41	47	38	41	37	39	18	39	43	69	20	9	50	60	59	52	29	44	39	42	69	9
9	31	29	27	62	87	37	51	79	73	50	50	28	21	30	36	25	17	19	94	100	89	37	24	44	48	100	17
10	82	29	39	28	60	92	81	69	52	11	17	20	16	14	16	19	24	10	65	95	30	57	74	39	43	95	10
11	60	63	60	68	56	67	66	67	50	42	21	25	19	25	33	23	15	13	59	20	25	39	33	41	41	68	13
12	40	44	45	79	30	47	53	94	73	46	18	27	48	43	23	41	22	12	93	13	24	65	60	64	46	94	12
13	68	75	84	70	38	45	92	101	67	58	81	20	35	32	31	25	27	76	17	70	33	19	37	49	52	101	17
14	71	28	55	13	24	67	16	20	63	23	54	19	9	11	13	11	23	28	32	21	39	36	31	9	30	71	9
15	11	14	59	16	17	7	16	9	8	20	17	19	42	26	40	15	21	9	17	12	51	49	54	17	24	59	7
16	44	21	31	63	17	20	9	18	33	47	27	15	25	39	26	19	12	14	39	51	28	26	20	20	28	63	9
17	67	28	55	35	32	27	26	34	9	45	16	20	26	21	27	22	49	20	69	12	16	18	35	32	31	69	9
18	21	15	23	55	102	98	30	79	89	63	27	31	16	12	15	11	19	16	70	15	31	25	59	81	42	102	11
19	79	63	80	73	90	33	77	81	90	13	13	15	14	15	17	20	14	53	39	32	89	35	59	68	48	90	13
20	46	10	16	48	36	20	30	31	Au	Au	Au	Au	56	22	15	66	14	9	91	47	42	54	53	70	39	91	9
21	32	75	72	90	51	59	39	79	74	34	86	50	63	75	52	90	39	28	10	28	18	45	28	27	52	90	10
22	36	53	66	58	72	61	26	14	55	38	43	62	49	57	16	11	9	9	47	18	9	9	10	26	36	72	9
23	7	19	32	46	81	52	15	32	40	27	21	23	51	60	37	10	12	31	28	56	48	73	13	27	35	81	7
24	48	55	17	22	47	65	46	55	85	52	61	47	29	44	82	65	22	24	13	27	39	21	25	27	42	85	13
25	49	43	23	26	28	38	38	44	54	69	22	27	23	51	34	16	15	14	76	20	14	30	11	16	33	76	11
26	35	38	61	53	61	33	70	43	57	45	17	31	28	17	21	23	36	8	17	28	19	29	22	55	35	70	8
27	34	27	58	61	68	69	96	51	68	69	48	28	60	34	29	24	22	13	60	18	22	35	51	49	46	96	13
28	26	37	38	45	47	40	40	46	82	79	31	19	17	18	17	16	10	9	87	7	13	19	18	81	35	87	7
29	44	76	59	34	46	31	48	39	47	70	19	49	31	31	27	29	28	14	55	34	68	28	26	15	40	76	14
30	27	58	37	34	61	64	61	73	47	56	16	25	17	12	9	21	54	12	17	12	11	9	11	12	32	73	9
Avg	41	43	49	52	50	49	50	56	61	47	36	29	31	32	28	26	23	19	46	37	35	35	36	38	40	83	10
Max	82	90	95	90	102	98	96	101	91	79	86	65	63	75	82	90	71	76	94	100	91	73	79	81	53	102	17
Min	7	10	16	13	17	7	9	9	8	11	13	15	9	11	9	10	9	8	5	7	9	7	10	9	24	59	5

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
July 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	6.7	5.3	4.3	3.6	3.2	3.7	7.3	12.7	17.6	19.9	21.0	21.8	22.6	23.4	24.2	24.4	24.3	24.4	24.0	21.3	19.3	16.2	14.4	13.4	15.8	24.4	3.2
2	11.4	9.4	8.3	7.3	6.9	6.4	7.7	11.2	17.2	20.6	21.8	22.8	23.7	24.3	25.0	23.0	23.6	22.9	21.8	18.5	15.9	12.9	11.7	10.0	16.0	25.0	6.4
3	8.8	8.1	8.0	6.6	6.2	6.0	9.0	14.1	19.4	21.6	22.6	24.0	25.3	25.6	26.3	26.7	26.6	26.3	25.3	23.5	20.9	14.2	10.9	9.5	17.3	26.7	6.0
4	8.1	5.2	4.3	2.3	2.7	2.2	5.3	11.5	16.7	19.9	21.3	22.7	24.2	24.6	24.9	25.4	25.7	25.9	25.0	22.6	18.2	15.9	13.7	11.7	15.8	25.9	2.2
5	9.9	9.0	7.0	6.4	6.6	6.5	8.6	13.7	19.9	24.0	25.8	26.8	27.7	28.5	29.4	29.5	29.5	26.3	18.0	18.5	16.2	15.0	14.3	16.0	18.0	29.5	6.4
6	13.9	12.9	12.8	11.6	10.6	10.2	12.0	16.0	21.2	23.8	25.7	26.6	27.1	24.7	23.3	22.8	24.2	25.1	25.6	22.9	20.0	15.7	13.3	12.0	18.9	27.1	10.2
7	11.0	10.4	8.6	7.2	7.1	7.7	11.7	16.2	20.6	23.0	23.3	23.2	25.0	27.1	27.5	27.4	27.7	28.2	27.6	25.3	21.3	19.6	15.4	13.6	19.0	28.2	7.1
8	11.4	10.4	9.6	9.5	9.8	9.3	11.8	16.0	21.8	25.7	26.7	27.2	28.1	28.7	29.3	29.2	29.7	29.4	27.8	25.7	20.9	18.5	17.0	15.2	20.4	29.7	9.3
9	13.2	11.5	10.6	9.2	8.4	9.0	11.6	16.4	20.9	25.5	27.1	28.1	28.5	29.0	29.0	28.9	26.3	24.4	24.2	22.2	18.9	18.7	16.2	14.9	19.7	29.0	8.4
10	13.8	12.1	10.8	10.3	10.3	9.6	10.5	17.1	21.9	24.1	24.3	22.5	16.4	18.3	20.2	20.9	18.4	16.2	16.1	15.2	12.9	11.0	10.4	9.4	15.5	24.3	9.4
11	8.0	7.9	7.1	7.5	7.3	6.8	9.2	13.2	15.9	17.2	17.7	18.9	20.4	20.8	21.5	21.7	21.9	22.1	21.2	19.1	16.8	15.5	13.2	9.9	15.0	22.1	6.8
12	8.2	6.8	6.4	5.2	4.7	4.2	6.7	14.0	16.3	17.8	19.1	20.5	21.4	22.7	23.9	24.3	24.7	25.0	24.6	22.3	20.9	20.2	19.6	17.0	16.5	25.0	4.2
13	14.0	12.3	12.2	11.5	9.3	9.0	11.8	16.6	21.4	24.4	25.7	26.6	27.6	28.2	29.0	29.3	29.2	29.3	28.9	26.7	20.1	18.6	18.3	20.8	20.9	29.3	9.0
14	17.7	18.0	18.3	15.9	14.1	11.9	13.9	17.4	22.4	25.1	26.3	27.2	28.1	28.7	29.1	27.7	28.0	28.4	27.9	24.7	21.1	20.2	18.6	18.0	22.0	29.1	11.9
15	19.9	19.6	20.6	20.4	19.5	18.9	20.4	23.3	23.7	25.1	26.0	26.4	27.7	28.9	29.4	29.2	28.6	26.7	21.3	19.3	17.2	16.7	14.1	12.3	22.3	29.4	12.3
16	11.5	10.3	9.2	7.8	7.4	7.1	10.1	14.8	20.2	21.7	22.5	23.9	25.2	25.9	26.3	26.4	26.6	26.1	24.5	22.4	19.2	15.9	13.4	12.4	17.9	26.6	7.1
17	11.6	11.3	9.6	7.5	6.7	5.5	7.5	12.6	16.2	18.0	19.4	21.1	21.5	22.8	23.4	23.7	23.7	23.4	22.8	21.1	18.1	16.3	14.5	12.1	16.3	23.7	5.5
18	9.9	8.5	7.2	5.9	4.7	3.3	5.9	12.4	18.0	19.7	21.3	22.7	23.7	24.6	25.0	25.0	25.5	25.6	25.2	23.1	19.1	19.7	17.6	14.2	17.0	25.6	3.3
19	15.7	15.0	14.8	13.8	10.7	8.4	10.6	14.5	19.1	20.7	22.0	23.4	24.5	25.3	26.1	26.0	26.0	25.7	25.0	22.4	19.2	17.3	16.2	14.9	19.1	26.1	8.4
20	14.3	14.1	13.3	12.7	11.5	8.5	11.1	15.5	21.0	23.4	25.4	26.3	27.1	27.7	28.4	29.0	29.4	28.8	26.8	24.4	21.8	19.1	15.6	14.4	20.4	29.4	8.5
21	12.2	12.3	8.0	5.1	4.2	3.9	5.0	12.1	16.9	18.2	19.4	20.4	21.7	22.9	23.3	23.8	23.9	23.8	23.0	21.2	18.4	15.5	10.8	8.7	15.6	23.9	3.9
22	7.3	5.5	4.3	3.8	2.6	2.4	5.3	11.5	17.4	19.3	20.2	21.5	22.7	23.7	24.3	25.0	25.3	25.3	24.7	22.9	18.3	14.7	13.0	10.4	15.5	25.3	2.4
23	8.9	8.5	7.4	6.8	5.7	5.6	8.2	13.6	20.1	22.9	24.8	25.8	26.8	27.8	28.6	29.3	29.4	29.2	28.7	25.6	20.1	16.7	15.3	12.4	18.7	29.4	5.6
24	10.7	10.1	8.1	8.2	7.0	8.1	10.4	14.3	17.9	20.0	22.1	23.5	24.9	25.7	26.7	27.7	27.8	27.0	26.2	23.7	20.6	15.1	13.5	11.0	17.9	27.8	7.0
25	10.9	8.4	8.0	6.3	5.6	4.6	7.1	10.3	13.6	17.3	18.1	19.9	21.0	22.1	22.9	22.8	23.4	22.9	21.1	18.8	16.3	15.1	13.6	10.1	15.0	23.4	4.6
26	9.9	8.2	7.6	6.4	6.5	5.4	7.3	12.7	18.6	21.3	23.2	24.6	25.1	26.2	26.2	27.1	26.6	24.5	22.8	21.4	19.7	16.6	14.3	13.7	17.3	27.1	5.4
27	12.5	11.5	10.9	11.6	11.2	11.1	13.0	16.6	18.6	19.5	20.6	22.9	24.2	25.0	24.8	25.7	26.3	26.1	24.5	22.1	20.4	19.3	17.3	14.8	18.8	26.3	10.9
28	12.8	10.6	9.2	8.3	7.8	7.3	8.3	13.8	19.6	22.4	23.3	24.3	25.3	26.0	26.4	26.6	26.8	26.1	25.7	23.4	21.5	20.4	18.1	14.8	18.7	26.8	7.3
29	14.4	14.4	13.5	12.9	11.4	10.1	10.1	14.6	20.0	22.9	24.9	25.6	26.5	26.6	27.5	27.8	27.8	27.8	26.9	25.7	21.9	17.1	15.3	13.6	20.0	27.8	10.1
30	10.9	9.9	8.7	7.8	6.2	6.5	8.6	14.0	20.2	24.1	25.4	26.6	27.9	28.2	28.7	28.9	28.7	28.2	27.7	25.4	20.8	15.7	13.3	12.0	18.9	28.9	6.2
31	9.2	8.7	6.4	6.6	5.7	5.0	6.7	12.6	19.5	23.1	24.5	25.3	26.3	26.7	27.6	27.8	28.0	27.7	26.4	23.9	21.4	18.9	17.0	14.4	18.3	28.0	5.0
Avg	11.6	10.5	9.5	8.6	7.8	7.2	9.4	14.4	19.2	21.7	23.0	24.0	24.8	25.5	26.1	26.2	26.2	25.8	24.6	22.4	19.3	16.8	14.8	13.1	18.0	26.8	6.9
Max	19.9	19.6	20.6	20.4	19.5	18.9	20.4	23.3	23.7	25.7	27.1	28.1	28.5	29.0	29.4	29.5	29.7	29.4	28.9	26.7	21.9	20.4	19.6	20.8	22.3	29.7	12.3
Min	6.7	5.2	4.3	2.3	2.6	2.2	5.0	10.3	13.6	17.2	17.7	18.9	16.4	18.3	20.2	20.9	18.4	16.2	16.1	15.2	12.9	11.0	10.4	8.7	15.0	22.1	2.2

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
August 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	12.1	10.3	9.2	8.4	7.7	6.6	8.6	13.5	19.7	22.7	23.4	24.2	25.0	25.6	25.8	25.6	25.5	25.1	23.5	21.3	19.4	16.7	14.4	11.6	17.7	25.8	6.6
2	9.3	8.7	10.4	10.4	9.7	9.9	10.1	11.7	12.8	14.5	15.7	16.6	17.5	18.1	18.4	18.5	17.4	16.4	15.2	13.7	12.7	12.3	11.7	12.4	13.5	18.5	8.7
3	12.0	10.9	9.2	7.3	5.2	5.3	5.4	11.3	14.0	15.0	16.3	17.2	18.8	20.1	21.3	21.9	22.8	23.1	22.8	20.0	18.0	16.6	15.6	14.7	15.2	23.1	5.2
4	12.9	9.5	7.6	6.2	5.2	4.4	5.3	10.5	16.4	20.9	22.1	22.4	23.0	23.4	23.8	24.0	23.1	20.9	17.0	14.6	14.1	13.5	12.2	11.0	15.2	24.0	4.4
5	10.4	10.7	8.4	8.2	8.8	8.4	9.4	11.1	11.8	12.6	13.4	13.6	14.4	14.6	14.8	15.5	14.9	14.2	13.0	12.2	10.6	7.9	6.4	5.3	11.3	15.5	5.3
6	3.2	2.3	2.2	1.2	1.1	0.4	1.4	6.2	11.7	13.9	14.8	16.4	17.4	17.7	18.5	18.6	19.0	19.1	18.9	17.7	14.7	13.9	13.5	12.8	11.5	19.1	0.4
7	11.9	10.6	9.0	6.1	4.1	3.4	3.9	9.2	14.1	16.6	17.9	19.2	20.3	21.5	22.2	23.1	23.6	23.3	21.9	20.3	17.5	13.8	12.3	10.2	14.8	23.6	3.4
8	9.3	8.8	9.1	8.4	7.2	5.0	6.3	10.8	15.1	16.7	18.5	20.0	21.0	21.2	21.4	20.5	20.2	19.4	18.0	16.3	14.5	12.6	11.4	10.3	14.3	21.4	5.0
9	8.8	6.5	5.4	4.3	3.5	3.2	4.0	7.9	13.0	16.3	17.9	19.3	20.7	21.6	20.8	17.8	14.7	15.8	16.4	14.6	12.3	10.5	9.4	6.9	12.1	21.6	3.2
10	5.9	5.0	4.1	4.7	4.2	2.9	3.8	8.0	14.0	17.8	19.9	20.9	21.5	22.4	22.9	23.0	23.1	22.1	19.8	18.3	15.6	15.0	14.3	13.3	14.3	23.1	2.9
11	12.9	11.2	10.0	8.9	7.5	6.7	6.1	9.5	14.1	18.9	20.9	21.9	22.4	23.3	24.2	24.1	23.7	22.3	19.7	18.8	15.4	12.3	10.8	9.8	15.6	24.2	6.1
12	8.9	7.7	6.6	6.2	6.2	6.7	7.5	8.9	12.6	15.5	18.7	20.9	22.4	23.5	23.8	24.6	24.8	24.1	21.7	19.7	16.8	15.1	15.2	16.6	15.6	24.8	6.2
13	15.5	14.9	14.2	12.7	12.0	10.5	10.0	11.9	16.0	20.0	21.5	22.1	23.0	23.8	23.5	22.0	16.1	15.2	15.3	14.7	14.4	13.5	12.6	11.3	16.1	23.8	10.0
14	8.7	7.7	5.6	4.9	4.7	5.1	5.2	6.4	9.3	11.8	13.0	15.4	16.2	16.8	17.7	18.6	18.6	18.6	18.4	15.5	11.3	9.8	8.5	7.2	11.5	18.6	4.7
15	5.2	4.0	3.2	2.2	1.0	0.1	1.1	5.5	11.9	15.4	16.6	17.8	18.8	19.8	20.4	20.7	21.2	21.3	20.8	16.4	12.7	11.1	7.3	5.8	11.7	21.3	0.1
16	5.2	4.4	3.0	2.1	1.7	0.9	2.4	6.8	13.9	17.6	18.9	20.0	21.3	21.9	22.6	23.1	23.1	22.6	21.6	18.3	13.6	11.2	8.7	7.0	13.0	23.1	0.9
17	5.6	4.5	3.7	3.2	2.6	2.6	2.0	6.0	13.6	17.6	18.7	19.9	21.2	21.6	22.4	22.6	22.7	22.5	21.4	20.0	15.6	11.6	10.5	8.1	13.3	22.7	2.0
18	6.4	6.2	4.7	3.1	2.7	2.0	2.5	6.4	13.0	17.8	19.2	20.8	22.5	23.9	24.6	24.9	25.4	25.5	24.3	20.8	15.6	12.2	10.6	9.9	14.4	25.5	2.0
19	9.6	9.4	8.5	8.6	11.5	16.5	17.8	17.9	18.6	19.2	19.8	20.9	21.7	22.3	23.2	23.2	22.1	21.1	19.9	18.5	16.4	12.8	10.0	8.2	16.6	23.2	8.2
20	6.2	4.1	3.1	1.8	0.9	1.3	1.5	4.7	10.0	14.6	16.1	17.6	18.9	19.8	19.9	19.7	20.3	20.5	18.7	16.1	12.1	10.5	10.0	7.9	11.5	20.5	0.9
21	6.9	4.9	3.9	3.1	1.6	1.6	2.4	7.4	13.9	17.2	16.8	17.7	19.1	20.0	20.6	21.4	21.5	21.5	20.8	17.5	15.2	12.7	10.9	8.4	12.8	21.5	1.6
22	8.3	6.5	5.8	4.8	3.6	3.1	3.6	7.9	14.5	19.5	21.7	22.7	23.7	24.6	25.5	25.9	26.3	26.1	25.1	19.8	16.9	13.7	11.5	10.6	15.5	26.3	3.1
23	8.8	8.0	6.9	5.6	5.3	4.6	4.4	7.7	13.5	20.7	23.8	25.1	25.8	26.6	27.3	27.3	27.2	26.5	25.4	21.4	18.3	17.7	16.5	16.0	17.1	27.3	4.4
24	15.1	13.6	12.6	11.8	11.0	11.2	14.5	14.7	18.1	22.0	23.3	24.0	23.5	24.7	22.3	16.6	16.4	17.0	15.6	13.4	11.8	10.1	8.6	8.8	15.9	24.7	8.6
25	8.3	8.4	7.5	6.9	5.6	5.4	4.6	7.6	11.5	16.8	18.9	20.3	21.4	22.9	23.3	23.7	23.9	23.7	22.4	17.9	14.5	12.3	11.8	11.0	14.6	23.9	4.6
26	10.4	9.5	7.6	6.2	4.3	3.0	2.0	5.9	13.0	18.1	19.4	20.8	21.9	23.0	23.8	24.2	24.3	23.5	20.5	15.5	13.3	9.5	8.9	8.7	14.1	24.3	2.0
27	7.0	5.9	5.1	3.8	3.3	2.1	2.8	6.6	12.5	19.6	22.6	23.8	24.7	25.7	26.5	27.1	27.5	27.3	25.8	18.7	15.7	13.9	10.3	9.0	15.3	27.5	2.1
28	7.4	7.0	6.3	5.9	5.0	4.2	4.1	7.5	14.1	21.4	24.3	25.4	26.3	27.2	27.9	28.4	28.5	27.7	25.4	21.4	17.1	14.9	11.0	10.1	16.6	28.5	4.1
29	9.6	11.0	10.6	10.5	10.6	11.0	13.6	15.3	17.0	19.7	23.6	25.8	26.6	27.4	27.9	27.6	26.8	25.5	23.3	21.3	18.0	16.5	14.9	12.7	18.6	27.9	9.6
30	13.5	13.3	11.5	10.9	10.7	9.8	9.4	12.2	17.2	22.6	25.5	26.8	27.6	28.2	28.7	28.7	28.5	27.8	25.9	24.0	21.1	17.2	14.1	12.0	19.5	28.7	9.4
31	10.0	9.6	9.4	9.5	9.0	8.4	9.1	9.5	15.0	20.3	22.2	23.6	24.8	25.1	25.9	25.7	25.6	24.7	23.4	21.4	19.6	17.8	13.9	10.5	17.3	25.9	8.4
Avg	9.2	8.2	7.2	6.4	5.7	5.4	6.0	9.2	14.1	17.8	19.5	20.7	21.7	22.5	23.0	22.9	22.5	22.1	20.7	18.1	15.3	13.2	11.5	10.3	14.7	23.5	4.6
Max	15.5	14.9	14.2	12.7	12.0	16.5	17.8	17.9	19.7	22.7	25.5	26.8	27.6	28.2	28.7	28.7	28.5	27.8	25.9	24.0	21.1	17.8	16.5	16.6	19.5	28.7	10.0
Min	3.2	2.3	2.2	1.2	0.9	0.1	1.1	4.7	9.3	11.8	13.0	13.6	14.4	14.6	14.8	15.5	14.7	14.2	13.0	12.2	10.6	7.9	6.4	5.3	11.3	15.5	0.1

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
September 2017

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	8.8	6.8	5.6	4.2	3.5	2.6	2.5	4.7	10.3	15.9	17.8	19.3	20.4	21.4	22.0	23.1	23.8	23.6	22.9	20.9	17.1	14.2	11.4	9.7	13.9	23.8	2.5
2	7.8	7.4	6.2	5.7	4.8	3.8	3.9	8.2	15.3	21.6	23.1	24.5	25.6	26.3	27.4	28.0	28.1	28.0	26.2	22.0	15.4	12.5	10.7	8.9	16.3	28.1	3.8
3	8.2	6.9	6.6	7.2	6.8	7.2	6.6	6.7	10.2	16.7	21.3	23.9	26.2	27.4	28.7	29.2	29.9	28.6	27.0	22.8	18.3	16.4	15.4	17.0	17.3	29.9	6.6
4	16.4	13.6	12.6	10.6	7.6	6.3	5.4	6.1	9.7	13.3	15.0	16.0	17.0	17.7	17.9	18.0	17.8	17.2	15.4	12.5	11.0	10.3	8.3	5.6	12.6	18.0	5.4
5	5.1	5.1	4.5	3.1	2.2	0.7	1.1	3.7	10.6	13.9	16.0	17.7	19.5	20.8	21.8	22.5	22.3	21.1	18.5	15.9	11.4	9.9	8.9	7.5	11.8	22.5	0.7
6	6.1	4.3	2.9	3.1	2.0	1.3	1.5	3.3	8.9	15.4	19.9	21.6	23.2	24.3	25.1	25.4	24.8	23.5	21.3	17.2	12.9	9.9	8.7	6.5	13.0	25.4	1.3
7	5.0	4.9	3.3	2.7	1.7	1.0	1.0	5.6	12.3	19.7	23.1	24.5	25.2	25.7	26.5	27.0	26.8	25.4	22.7	21.1	16.9	12.4	12.9	12.9	15.0	27.0	1.0
8	10.3	7.7	6.8	5.4	5.1	4.0	4.1	6.1	10.7	18.5	23.7	25.0	26.0	26.7	27.1	27.2	26.8	25.3	23.2	20.7	17.9	16.9	14.6	12.0	16.3	27.2	4.0
9	10.0	10.0	8.9	7.9	7.0	6.4	5.8	8.5	14.9	21.1	23.3	24.3	25.4	26.0	26.4	26.0	26.2	23.9	20.6	19.3	17.5	16.0	14.9	13.5	16.8	26.4	5.8
10	12.9	10.9	9.2	8.4	7.3	6.5	6.0	7.5	13.5	17.5	19.0	20.3	21.5	22.3	23.0	23.3	22.5	21.4	19.4	16.6	12.5	10.6	8.9	7.8	14.5	23.3	6.0
11	5.9	4.8	4.5	3.6	2.3	2.1	1.8	4.1	11.8	17.5	19.2	20.9	22.7	23.9	25.1	25.5	25.4	24.8	21.6	15.3	12.5	10.6	8.3	6.8	13.4	25.5	1.8
12	5.1	4.4	3.3	2.0	2.4	1.7	2.2	4.6	12.0	20.2	22.6	23.6	24.4	25.3	26.0	26.2	26.2	25.2	20.7	16.6	14.9	14.0	13.6	12.7	14.6	26.2	1.7
13	11.2	11.5	12.9	12.1	9.8	9.6	9.3	10.7	11.9	15.1	18.8	19.7	21.1	21.5	21.9	22.7	21.6	19.2	15.3	12.8	11.5	10.4	9.1	8.6	14.5	22.7	8.6
14	8.0	6.6	5.8	5.5	5.6	5.4	5.1	4.7	5.2	4.3	4.3	3.7	4.1	4.3	4.0	4.2	4.2	4.1	3.9	3.7	3.2	3.3	3.2	3.0	4.6	8.0	3.0
15	2.9	2.8	2.8	2.1	2.0	1.9	1.8	1.8	2.0	3.0	3.1	3.4	3.7	3.6	3.6	2.8	2.2	2.0	1.4	1.0	1.2	0.8	1.1	0.9	2.2	3.7	0.8
16	0.7	0.8	1.1	0.6	0.0	0.0	0.0	0.0	0.7	1.8	2.1	2.6	3.3	4.1	5.0	4.6	5.0	5.0	3.9	1.5	-0.1	-0.8	-1.7	-2.4	1.6	5.0	-2.4
17	-3.4	-3.7	-3.9	-3.9	-3.7	-3.6	-3.2	-1.6	1.1	5.5	7.1	8.4	9.9	10.4	10.9	11.5	11.2	10.9	8.6	6.0	3.8	2.6	1.5	0.8	3.5	11.5	-3.9
18	0.0	0.1	0.6	1.0	2.5	3.6	4.1	4.5	6.4	10.0	12.0	12.5	13.6	12.3	11.8	10.5	8.6	6.3	5.9	5.6	5.1	4.3	3.2	2.6	6.1	13.6	0.0
19	2.5	2.7	2.6	2.6	2.1	1.5	1.8	1.8	2.7	4.3	5.1	6.1	6.7	6.3	7.5	7.5	3.0	1.9	1.7	0.1	0.1	0.5	0.5	0.9	3.0	7.5	0.1
20	1.4	1.9	1.8	0.1	-0.3	1.3	1.6	2.3	Au	Au	Au	Au	2.7	3.0	3.8	6.6	6.2	3.8	3.5	2.9	3.3	2.3	0.0	-0.5	2.4	6.6	-0.5
21	-0.1	-0.5	-0.8	-0.9	-1.1	-1.3	-1.5	-1.4	-0.2	2.2	4.2	5.1	5.5	5.8	6.0	6.0	5.7	5.3	4.4	4.0	3.8	3.5	3.5	2.3	2.5	6.0	-1.5
22	0.6	0.4	0.1	0.2	0.4	0.4	0.8	0.9	1.0	0.7	1.2	1.7	1.0	0.4	1.1	1.5	1.3	1.0	0.7	0.4	0.3	0.3	0.2	0.3	0.7	1.7	0.1
23	0.3	0.4	0.3	0.2	0.1	0.0	0.1	0.5	1.1	1.2	1.3	1.9	3.1	3.9	4.6	4.4	4.4	4.4	3.9	3.1	2.5	1.6	-0.4	-1.5	1.7	4.6	-1.5
24	-2.5	-3.6	-3.6	-4.7	-5.1	-6.0	-6.0	-4.9	-1.1	3.1	5.7	6.3	6.4	6.8	7.2	7.3	7.3	6.8	4.9	2.6	-0.5	-1.6	-2.0	-3.4	0.8	7.3	-6.0
25	-4.1	-4.7	-5.0	-5.6	-5.8	-6.0	-6.5	-4.9	0.0	4.8	6.3	7.0	7.4	8.8	9.3	9.4	9.2	8.5	7.2	6.0	3.8	3.1	2.1	1.6	2.2	9.4	-6.5
26	2.0	2.0	2.0	2.2	2.2	2.3	2.0	1.7	4.3	7.5	8.4	10.1	11.0	12.3	12.4	12.3	10.3	9.1	6.9	5.1	3.3	2.4	1.4	0.6	5.6	12.4	0.6
27	0.2	-0.7	-0.6	-1.3	-2.5	-2.2	-2.5	-1.1	3.3	8.9	12.0	12.7	13.8	15.2	15.7	15.7	15.6	14.3	9.9	7.2	5.5	3.4	2.4	1.4	6.1	15.7	-2.5
28	0.2	-0.4	-0.4	-1.0	-1.5	-1.7	-1.9	-0.9	4.1	11.0	15.2	16.0	16.5	17.1	17.1	17.4	16.8	15.2	13.0	11.8	10.8	10.6	9.8	8.8	8.5	17.4	-1.9
29	6.2	3.1	3.1	1.9	0.0	-1.0	-1.5	-0.6	4.6	13.1	15.1	16.3	16.9	17.4	17.6	17.8	17.7	16.3	11.5	10.0	7.1	5.0	4.8	3.9	8.6	17.8	-1.5
30	2.8	2.8	1.4	0.6	-0.6	-0.9	-0.8	1.1	4.9	10.6	11.9	12.6	12.8	10.7	9.5	8.9	8.4	8.3	7.7	7.5	6.7	5.9	5.2	4.1	5.9	12.8	-0.9
Avg	4.4	3.6	3.2	2.5	1.9	1.6	1.5	2.8	6.6	11.0	13.0	14.1	14.6	15.1	15.5	15.7	15.3	14.3	12.5	10.4	8.3	7.0	6.0	5.1	8.6	16.2	0.8
Max	16.4	13.6	12.9	12.1	9.8	9.6	9.3	10.7	15.3	21.6	23.7	25.0	26.2	27.4	28.7	29.2	29.9	28.6	27.0	22.8	18.3	16.9	15.4	17.0	17.3	29.9	8.6
Min	-4.1	-4.7	-5.0	-5.6	-5.8	-6.0	-6.5	-4.9	-1.1	0.7	1.2	1.7	1.0	0.4	1.1	1.5	1.3	1.0	0.7	0.1	-0.5	-1.6	-2.0	-3.4	0.7	1.7	-6.5

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
July 2017

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	3.6	3.2	2.1	1.9	3.2	7.6	13.1	18.0	20.5	21.7	22.6	23.4	24.3	25.0	25.1	24.6	24.8	23.4	20.2	17.5	15.9	14.0	12.9	15.6	25.1	1.9
2	10.4	8.2	6.5	6.1	5.7	5.0	7.3	11.6	17.7	21.2	22.4	23.5	24.4	24.8	25.6	23.1	23.9	23.2	21.0	17.3	15.0	11.8	10.7	8.7	15.6	25.6	5.0
3	7.1	7.1	7.2	5.1	4.8	4.9	9.2	14.6	19.9	22.3	23.5	24.9	26.3	26.6	27.1	27.4	27.1	26.5	25.0	22.4	19.0	13.1	10.3	8.4	17.1	27.4	4.8
4	7.2	3.9	3.0	0.8	1.3	1.4	5.0	11.9	17.2	20.4	22.0	23.4	25.2	25.4	25.5	26.0	26.3	26.4	24.4	21.5	17.0	14.5	13.1	10.8	15.6	26.4	0.8
5	8.7	7.6	5.7	4.5	4.7	5.6	8.8	14.1	20.4	24.7	26.6	27.6	28.5	29.2	30.1	29.9	29.6	25.0	17.3	17.9	16.2	14.9	14.3	15.2	17.8	30.1	4.5
6	13.7	12.5	12.2	11.4	10.3	9.9	12.2	16.4	21.6	24.4	26.3	27.3	27.4	24.6	23.5	23.2	24.3	25.0	25.8	22.4	19.1	15.2	12.5	11.0	18.8	27.4	9.9
7	10.0	9.7	7.5	5.8	5.8	7.0	12.0	16.7	21.1	23.3	23.3	23.3	25.4	27.7	28.0	27.6	27.9	28.6	27.6	24.6	20.2	17.9	13.7	12.2	18.6	28.6	5.8
8	10.0	9.0	7.9	8.1	8.2	8.5	11.9	16.5	22.2	26.3	27.4	28.1	28.9	29.5	30.1	29.3	30.1	29.4	26.2	24.3	20.2	18.2	16.6	13.8	20.0	30.1	7.9
9	11.9	10.3	9.1	7.7	7.1	8.5	11.9	16.8	21.4	26.0	27.7	28.9	29.2	29.6	29.3	29.3	26.0	23.6	23.7	21.7	18.7	17.9	15.5	14.6	19.4	29.6	7.1
10	13.3	11.2	10.0	9.5	9.4	9.0	10.2	17.5	22.3	24.8	25.1	22.6	15.9	18.7	20.7	21.0	18.0	16.2	16.2	14.8	12.6	10.8	10.3	9.2	15.4	25.1	9.0
11	7.7	7.7	6.9	7.3	6.8	6.4	9.5	13.5	16.6	17.9	18.6	19.9	21.5	21.7	22.4	22.6	22.4	22.7	21.5	18.8	16.0	15.2	12.1	8.5	15.2	22.7	6.4
12	6.3	5.5	4.5	4.1	3.5	3.4	7.2	14.6	17.2	18.7	20.1	21.5	21.9	23.2	24.8	24.9	25.2	25.2	24.7	22.0	20.5	18.7	18.8	15.7	16.3	25.2	3.4
13	12.1	10.3	9.7	9.1	7.7	7.8	11.9	16.9	21.9	25.1	26.6	27.7	28.7	29.3	30.1	30.2	29.8	29.6	28.8	25.6	19.8	18.4	17.7	19.8	20.6	30.2	7.7
14	17.6	17.7	17.6	14.4	12.8	11.2	14.2	17.9	22.9	25.5	27.0	28.0	29.0	29.7	29.9	28.1	28.4	28.8	28.2	24.4	20.7	19.1	16.3	16.1	21.9	29.9	11.2
15	19.1	18.3	19.7	19.1	17.8	17.4	19.8	23.8	24.1	25.9	26.7	27.5	28.8	30.0	30.6	29.9	28.7	26.3	21.2	19.2	17.0	16.3	12.9	11.4	22.1	30.6	11.4
16	10.4	8.9	7.6	6.8	6.0	6.3	10.3	15.2	20.8	22.6	23.5	24.9	26.5	27.1	27.4	27.2	27.4	26.5	24.5	21.3	16.8	14.4	12.6	11.4	17.8	27.4	6.0
17	11.0	10.6	8.7	6.4	5.2	4.3	7.7	12.9	16.8	18.7	20.2	22.2	22.3	24.1	24.6	24.5	24.5	23.9	23.1	20.2	17.3	15.1	13.2	10.3	16.2	24.6	4.3
18	8.3	7.1	5.6	3.8	2.8	1.9	6.4	12.9	18.7	20.5	22.2	23.8	25.0	25.9	26.2	25.8	26.4	26.2	25.3	22.2	18.4	18.7	16.7	13.3	16.8	26.4	1.9
19	14.5	14.2	14.0	13.0	10.4	7.8	10.9	15.0	19.7	21.5	22.9	24.4	25.7	26.5	27.3	26.9	26.3	25.9	24.3	21.8	18.7	16.2	14.8	12.8	19.0	27.3	7.8
20	10.6	10.2	11.1	10.0	9.1	6.3	10.8	15.9	21.6	24.2	26.5	27.4	28.1	28.9	29.6	30.0	30.2	29.2	26.6	23.8	19.5	17.6	13.8	12.3	19.7	30.2	6.3
21	10.6	9.8	6.6	3.6	3.1	3.1	5.1	12.5	17.7	19.1	20.6	21.7	23.0	24.2	24.6	24.8	24.8	24.3	23.0	20.6	16.9	13.9	9.5	7.5	15.4	24.8	3.1
22	5.5	3.6	2.8	2.0	1.5	1.7	5.6	12.0	18.0	20.2	21.2	22.7	23.9	25.1	25.4	25.9	26.0	25.9	24.9	21.9	17.4	13.9	12.2	8.6	15.3	26.0	1.5
23	7.6	6.7	6.2	5.1	4.3	4.5	8.2	14.1	20.7	23.6	25.7	26.8	28.0	29.0	29.6	30.3	30.0	29.7	28.5	24.4	19.3	16.0	14.7	11.5	18.5	30.3	4.3
24	9.3	8.3	6.8	6.9	5.3	6.4	10.6	14.9	18.5	20.5	23.2	24.8	26.0	26.9	27.7	28.8	28.5	27.0	25.8	22.9	18.9	13.8	12.4	9.8	17.7	28.8	5.3
25	9.7	6.4	6.7	5.2	4.6	3.8	7.4	10.8	14.2	18.2	18.9	21.0	22.1	23.4	24.1	23.9	24.3	23.4	21.3	18.3	16.0	14.3	12.3	9.4	15.0	24.3	3.8
26	8.3	7.3	6.2	5.7	4.5	4.6	7.6	13.2	19.1	22.1	24.0	25.5	25.9	27.4	27.1	28.0	26.9	24.4	22.8	21.4	19.2	15.6	14.1	13.3	17.3	28.0	4.5
27	11.6	10.6	10.4	11.3	10.2	10.5	13.3	17.0	19.1	19.7	21.2	23.6	25.0	25.8	25.5	26.5	27.1	26.6	23.8	21.3	19.3	18.1	16.0	13.3	18.6	27.1	10.2
28	11.2	9.5	7.8	6.9	6.2	6.5	8.5	14.4	20.1	23.2	24.3	25.5	26.5	27.1	27.5	27.4	27.5	26.2	25.5	22.4	20.5	19.6	17.0	14.7	18.6	27.5	6.2
29	14.2	14.3	13.3	12.6	10.1	8.4	9.7	15.0	20.4	23.5	25.8	26.7	27.8	27.5	28.5	28.8	28.6	28.3	26.9	25.2	20.8	16.5	14.7	12.9	20.0	28.8	8.4
30	9.2	8.6	6.9	6.1	4.5	5.1	8.6	14.4	20.6	24.7	26.2	27.6	29.1	29.2	29.8	29.7	29.2	28.3	27.6	24.0	19.6	15.0	12.3	10.7	18.6	29.8	4.5
31	7.6	6.4	4.6	4.5	3.8	3.1	6.2	13.1	20.0	23.6	25.4	26.3	27.5	27.7	28.7	28.8	28.7	28.1	26.4	23.3	21.0	18.0	15.4	12.9	18.0	28.8	3.1
Avg	10.3	9.2	8.3	7.3	6.4	6.2	9.5	14.8	19.7	22.4	23.8	24.9	25.7	26.5	27.0	26.9	26.7	26.0	24.4	21.7	18.4	16.0	13.9	12.0	17.8	27.6	5.7
Max	19.1	18.3	19.7	19.1	17.8	17.4	19.8	23.8	24.1	26.3	27.7	28.9	29.2	30.0	30.6	30.3	30.2	29.7	28.8	25.6	21.0	19.6	18.8	19.8	22.1	30.6	11.4
Min	5.5	3.6	2.8	0.8	1.3	1.4	5.0	10.8	14.2	17.9	18.6	19.9	15.9	18.7	20.7	21.0	18.0	16.2	16.2	14.8	12.6	10.8	9.5	7.5	15.0	22.7	0.8

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
August 2017

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	10.3	8.4	7.5	6.5	5.4	5.1	8.0	13.8	20.1	23.5	24.5	25.4	26.3	26.9	26.7	26.3	26.2	25.6	23.3	20.2	18.5	15.2	13.5	10.4	17.4	26.9	5.1
2	8.5	7.1	9.3	9.5	9.0	9.7	10.3	12.1	13.6	15.2	16.7	17.3	18.2	18.8	19.0	19.1	17.7	16.8	15.5	13.7	12.7	12.3	11.5	12.4	13.6	19.1	7.1
3	11.9	10.6	7.0	5.2	4.0	4.1	5.3	11.7	15.0	16.3	17.5	18.4	19.8	21.0	22.1	22.6	23.5	23.7	23.0	19.4	17.2	15.8	14.0	12.5	15.1	23.7	4.0
4	11.5	9.1	6.4	4.8	4.4	3.0	5.5	11.0	16.9	21.7	23.2	23.6	24.4	24.7	25.0	25.1	23.9	21.4	17.2	14.7	14.1	13.5	12.1	10.3	15.3	25.1	3.0
5	9.9	9.6	8.1	8.1	8.9	8.3	9.6	11.5	12.4	13.5	14.6	14.7	15.6	15.8	15.7	16.6	15.8	14.8	13.3	12.0	9.9	6.7	5.1	4.0	11.4	16.6	4.0
6	2.1	1.3	0.9	-0.1	-0.3	-0.9	1.3	6.7	12.3	14.7	15.6	17.2	18.2	18.5	19.7	19.2	19.5	19.5	19.2	17.8	14.2	13.3	12.6	12.0	11.4	19.7	-0.9
7	11.3	8.6	6.0	4.1	2.8	2.2	4.0	9.7	14.7	17.4	18.6	20.3	21.3	22.5	23.2	24.1	24.5	23.9	21.8	19.6	17.0	13.1	11.4	9.1	14.6	24.5	2.2
8	7.8	7.5	8.0	7.6	5.7	3.4	5.9	11.1	15.8	17.5	19.5	21.1	22.2	22.1	22.5	21.0	20.8	19.8	18.1	15.7	13.4	11.3	10.1	9.0	14.0	22.5	3.4
9	7.4	5.5	4.2	2.6	2.0	1.6	3.7	8.3	13.5	17.0	18.8	20.3	21.8	22.7	21.8	18.3	15.0	16.1	16.6	14.6	12.3	10.4	9.1	6.4	12.1	22.7	1.6
10	5.1	4.0	3.1	4.3	3.4	1.3	3.4	8.4	14.5	18.4	20.8	21.9	22.5	23.5	24.0	23.9	23.8	22.3	19.9	18.1	15.2	14.6	14.3	13.1	14.3	24.0	1.3
11	12.4	11.3	9.9	8.7	7.2	6.0	5.4	9.9	14.6	19.4	21.6	22.8	23.5	24.4	25.2	24.8	24.0	22.4	19.7	18.3	15.1	12.1	10.7	9.4	15.8	25.2	5.4
12	8.3	7.5	6.1	5.8	5.5	6.6	7.6	9.2	13.0	15.9	19.3	21.8	23.5	24.6	24.4	25.4	25.2	23.9	21.2	18.8	15.5	14.1	13.8	15.1	15.5	25.4	5.5
13	13.6	13.5	12.4	11.8	10.9	9.9	9.9	12.2	16.5	20.8	22.6	23.1	23.9	25.3	24.3	22.3	16.2	15.3	15.4	14.4	14.2	13.1	12.3	10.2	16.0	25.3	9.9
14	8.2	6.8	4.7	4.0	4.2	4.7	5.1	6.7	9.6	12.2	13.6	16.5	17.1	17.6	18.6	19.6	19.5	19.1	18.4	14.7	10.7	9.2	7.9	6.6	11.5	19.6	4.0
15	4.1	2.6	1.8	0.3	-0.2	-1.2	0.8	6.0	12.5	16.3	17.7	18.9	20.0	20.8	21.6	21.5	22.0	21.8	20.8	15.4	12.1	10.1	5.6	4.2	11.5	22.0	-1.2
16	3.7	2.4	1.3	0.4	-0.2	-0.2	1.7	7.3	14.4	18.6	20.1	21.2	22.7	23.4	23.9	24.2	23.8	22.9	21.2	16.9	12.5	10.5	7.3	5.5	12.7	24.2	-0.2
17	3.9	3.1	2.0	1.7	1.3	0.8	1.0	6.4	14.1	18.5	19.8	21.2	22.6	22.7	23.7	23.9	23.6	22.8	20.9	18.3	14.0	11.2	9.9	6.9	13.1	23.9	0.8
18	5.4	4.8	3.2	1.2	1.5	0.6	1.8	6.7	13.5	18.6	20.3	22.0	23.8	25.3	25.8	26.0	26.3	25.7	23.6	18.6	14.4	11.3	9.5	9.0	14.1	26.3	0.6
19	8.6	8.7	7.5	8.1	10.2	15.6	17.6	18.2	19.2	20.2	20.9	22.2	23.0	23.6	24.4	24.1	22.4	21.2	19.8	17.4	15.1	11.8	8.7	6.5	16.5	24.4	6.5
20	4.2	2.5	1.1	0.1	-0.3	-0.3	0.5	5.1	10.5	15.5	17.3	18.9	20.2	20.9	20.7	20.5	20.9	20.7	17.7	14.6	11.5	9.8	9.1	6.3	11.2	20.9	-0.3
21	5.2	3.4	2.4	1.6	0.6	-0.3	1.7	7.7	14.5	17.9	16.7	18.5	20.1	21.0	21.7	22.2	22.3	21.9	20.4	16.8	14.6	12.0	9.7	7.1	12.5	22.3	-0.3
22	5.9	4.8	4.4	2.9	2.2	1.3	2.7	8.2	15.0	20.1	22.7	23.7	24.6	25.8	26.5	26.7	27.1	26.6	24.7	18.4	15.2	12.2	9.8	8.9	15.0	27.1	1.3
23	7.0	6.0	5.4	3.8	3.1	2.4	3.3	8.0	13.9	21.3	24.6	26.2	26.8	27.8	28.2	28.2	27.8	26.3	24.4	20.6	17.9	17.3	15.6	15.4	16.7	28.2	2.4
24	14.0	12.2	11.4	10.5	9.8	10.2	13.9	14.5	18.5	22.7	24.5	25.2	24.3	25.9	22.4	16.2	16.7	17.3	15.7	13.4	11.8	9.9	7.9	8.4	15.7	25.9	7.9
25	7.9	7.9	6.9	6.0	4.6	4.6	4.0	7.9	11.8	17.3	19.8	21.4	22.6	24.2	24.4	24.7	24.7	24.1	21.7	17.0	14.2	11.4	11.5	10.4	14.6	24.7	4.0
26	9.7	8.3	6.5	4.7	2.9	1.3	1.2	6.4	13.4	18.9	20.3	21.9	23.0	24.2	24.9	25.1	24.8	23.2	19.4	14.9	12.0	7.7	7.3	7.2	13.7	25.1	1.2
27	5.2	4.6	3.6	2.1	1.4	0.4	1.8	6.7	12.9	20.2	23.5	25.0	25.8	26.8	27.5	28.0	28.2	27.7	25.1	17.9	14.9	13.2	8.0	7.3	14.9	28.2	0.4
28	5.7	4.7	4.2	3.7	2.9	2.2	2.6	7.6	14.5	22.1	25.2	26.4	27.3	28.2	28.8	29.1	29.1	27.8	24.8	20.4	16.6	13.3	9.5	8.6	16.1	29.1	2.2
29	8.3	9.6	9.1	9.2	9.5	9.9	13.1	15.2	17.2	20.1	24.0	26.3	27.3	28.3	28.7	28.1	27.0	25.4	22.9	20.4	17.4	15.6	13.3	10.8	18.2	28.7	8.3
30	11.4	10.3	9.2	9.5	9.5	8.3	8.6	12.2	17.5	23.1	26.4	27.7	28.5	29.0	29.7	29.4	29.0	27.7	25.5	23.6	20.2	15.9	13.0	10.5	19.0	29.7	8.3
31	8.7	8.2	8.4	8.8	7.5	7.5	8.3	9.5	15.5	20.9	23.2	24.8	25.8	26.2	27.0	26.5	26.3	24.7	23.0	20.0	17.6	16.1	11.9	9.1	16.9	27.0	7.5
Avg	8.0	6.9	5.9	5.1	4.5	4.1	5.5	9.5	14.6	18.6	20.4	21.8	22.8	23.6	23.9	23.6	23.1	22.3	20.5	17.3	14.6	12.4	10.5	9.1	14.5	24.5	3.4
Max	14.0	13.5	12.4	11.8	10.9	15.6	17.6	18.2	20.1	23.5	26.4	27.7	28.5	29.0	29.7	29.4	29.1	27.8	25.5	23.6	20.2	17.3	15.6	15.4	19.0	29.7	9.9
Min	2.1	1.3	0.9	-0.1	-0.3	-1.2	0.5	5.1	9.6	12.2	13.6	14.7	15.6	15.8	15.7	16.2	15.0	14.8	13.3	12.0	9.9	6.7	5.1	4.0	11.2	16.6	-1.2

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
September 2017

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	7.6	5.6	4.5	3.2	1.9	1.4	1.5	4.4	10.6	16.4	18.8	20.3	21.6	22.6	23.2	24.1	24.5	23.9	22.4	19.6	15.8	12.9	10.7	8.1	13.6	24.5	1.4
2	6.3	6.1	4.8	4.1	2.9	2.5	3.3	8.5	15.8	22.5	24.2	25.7	26.7	27.6	28.5	29.0	28.8	28.1	24.9	20.2	14.3	11.5	9.4	7.1	16.0	29.0	2.5
3	6.2	4.8	5.3	5.7	5.7	5.3	4.7	6.0	10.5	17.1	22.0	24.9	27.3	28.4	29.5	29.7	30.3	28.2	25.1	20.9	18.0	15.9	14.1	16.3	16.7	30.3	4.7
4	16.1	12.8	11.9	10.0	6.9	5.1	4.5	5.6	10.2	13.9	15.7	17.1	17.9	18.7	19.0	19.0	18.6	17.7	15.4	12.3	10.8	10.0	7.7	4.4	12.6	19.0	4.4
5	4.1	3.2	2.4	0.7	-0.3	-0.2	0.3	4.0	11.1	14.5	16.8	18.7	20.3	21.7	22.7	23.2	23.1	21.3	17.7	14.3	9.9	9.3	8.4	6.6	11.4	23.2	-0.3
6	4.9	3.0	1.7	1.3	-0.1	-0.7	-0.2	3.3	9.3	15.9	20.5	22.7	24.2	25.3	26.0	26.0	25.2	23.0	20.0	15.2	11.7	7.8	7.2	4.5	12.4	26.0	-0.7
7	3.7	3.1	2.0	0.9	-0.1	-0.9	-0.5	5.6	12.8	20.2	23.7	25.4	26.3	26.6	27.3	27.8	27.3	25.5	22.3	19.5	15.8	11.3	10.1	8.5	14.3	27.8	-0.9
8	6.3	5.2	4.2	3.1	3.1	2.3	2.1	6.2	11.1	19.0	24.4	26.0	26.8	27.3	27.7	27.8	27.0	24.4	22.6	19.5	16.9	16.2	13.5	10.2	15.5	27.8	2.1
9	9.1	9.1	7.7	6.4	5.5	4.7	4.5	8.5	15.2	21.6	24.1	25.3	26.6	27.1	27.3	26.4	26.8	23.8	20.5	19.0	17.2	16.0	14.8	13.3	16.7	27.3	4.5
10	12.3	10.0	8.6	7.7	6.4	5.5	5.0	7.3	13.7	18.2	20.0	21.4	22.7	23.5	24.1	24.2	22.9	21.2	18.5	15.3	11.6	9.7	7.9	7.0	14.4	24.2	5.0
11	4.3	3.2	3.1	2.1	0.7	0.2	0.5	4.4	12.3	18.3	20.3	22.0	24.0	25.0	26.0	26.4	26.0	24.9	20.5	13.8	11.6	9.1	6.6	5.0	12.9	26.4	0.2
12	3.4	2.4	1.3	0.4	-0.1	-0.8	-0.1	4.7	12.5	20.8	23.7	24.6	25.5	26.2	27.0	27.0	26.7	24.6	19.7	16.3	14.0	13.1	13.1	11.5	14.1	27.0	-0.8
13	10.0	11.0	12.4	11.1	8.7	8.6	8.9	10.7	12.1	15.4	19.2	20.4	22.1	22.4	22.6	23.4	21.7	19.2	14.9	12.4	11.4	10.3	9.1	8.7	14.4	23.4	8.6
14	8.1	6.6	5.9	5.6	5.8	5.6	5.2	4.9	5.3	4.4	4.5	4.0	4.4	4.6	4.3	4.4	4.3	4.2	3.9	3.7	3.3	3.3	3.3	3.0	4.7	8.1	3.0
15	2.9	2.8	2.9	2.2	2.1	2.0	1.9	1.9	2.2	3.3	3.4	3.8	4.1	3.9	3.9	3.0	2.4	2.2	1.5	1.2	1.4	1.0	1.2	1.1	2.4	4.1	1.0
16	0.9	1.0	1.1	0.7	0.1	0.1	0.1	0.2	1.0	2.1	2.5	3.2	3.9	4.7	5.9	5.1	5.5	5.3	3.5	0.5	-0.7	-1.9	-3.3	-4.1	1.6	5.9	-4.1
17	-4.5	-4.9	-4.7	-4.9	-4.8	-4.6	-3.9	-1.6	1.1	5.8	7.6	9.2	10.9	11.4	11.8	12.3	11.5	10.5	7.2	5.8	3.7	2.2	1.2	-0.1	3.3	12.3	-4.9
18	-1.3	-0.8	-0.7	0.2	1.5	2.7	3.5	4.3	6.3	9.9	12.2	12.9	14.5	12.6	12.0	10.7	8.4	6.2	5.9	5.7	5.1	4.2	3.1	2.4	5.9	14.5	-1.3
19	2.2	2.4	2.3	2.4	1.8	1.1	1.8	1.9	3.0	4.9	5.8	7.1	7.7	6.6	8.3	8.1	3.1	2.2	1.5	0.0	0.2	0.2	0.3	0.8	3.2	8.3	0.0
20	1.1	1.0	0.0	-0.7	-0.9	1.1	1.1	2.2	Au	Au	Au	Au	3.0	3.2	4.1	6.9	6.3	3.8	3.5	2.9	3.0	1.7	-0.4	-0.9	2.1	6.9	-0.9
21	-0.4	-0.8	-1.2	-1.2	-1.5	-1.6	-1.6	-1.4	0.0	2.7	4.6	5.6	6.0	6.2	6.5	6.3	6.0	5.5	4.4	4.0	3.9	3.4	3.5	2.3	2.5	6.5	-1.6
22	0.6	0.4	0.2	0.2	0.3	0.3	0.8	0.9	1.0	0.8	1.4	1.9	1.2	0.6	1.5	1.8	1.6	1.2	0.8	0.6	0.4	0.4	0.3	0.4	0.8	1.9	0.2
23	0.4	0.4	0.4	0.3	0.2	0.1	0.3	0.7	1.4	1.7	1.7	2.5	3.9	4.5	5.5	5.0	4.7	4.6	3.9	3.0	2.5	1.1	-0.5	-1.7	1.9	5.5	-1.7
24	-3.0	-4.5	-5.4	-6.3	-6.7	-7.1	-7.5	-5.0	-0.8	3.6	6.3	7.0	6.8	7.4	7.6	7.6	7.6	6.8	4.5	1.7	-1.3	-2.2	-2.5	-4.7	0.4	7.6	-7.5
25	-5.6	-5.9	-6.5	-6.9	-7.2	-7.6	-7.7	-5.0	0.2	5.3	7.0	7.8	8.0	9.6	10.0	9.9	9.6	8.4	6.9	5.3	3.6	2.9	1.9	1.5	1.9	10.0	-7.7
26	2.0	1.9	1.9	2.1	1.9	2.1	1.6	1.5	4.6	8.0	9.1	10.9	11.8	13.3	12.9	12.6	10.5	9.0	6.5	4.5	2.2	1.7	0.3	-0.5	5.5	13.3	-0.5
27	-0.9	-1.7	-2.1	-2.6	-3.3	-3.9	-3.8	-1.6	3.6	9.2	12.6	12.9	14.4	16.1	16.4	16.4	16.1	14.2	9.3	6.7	4.6	2.3	0.9	-0.5	5.6	16.4	-3.9
28	-1.8	-1.8	-1.9	-2.5	-2.8	-3.2	-3.6	-1.3	4.5	11.4	16.0	17.0	17.7	18.2	18.1	18.2	17.3	14.9	12.2	10.6	9.6	8.9	8.4	6.5	7.9	18.2	-3.6
29	3.2	0.8	0.5	-0.4	-1.4	-3.0	-3.5	-1.0	4.9	13.7	16.1	17.0	17.8	18.4	18.5	18.5	18.1	15.9	10.5	8.5	6.1	4.1	3.2	2.9	7.9	18.5	-3.5
30	1.9	1.8	0.5	-0.4	-1.7	-2.2	-1.9	1.2	5.2	11.2	12.5	13.6	13.7	11.0	9.6	9.0	8.4	8.2	7.5	7.4	6.4	5.7	5.0	3.7	5.7	13.7	-2.2
Avg	3.3	2.6	2.1	1.5	0.8	0.5	0.6	2.7	6.9	11.4	13.7	14.9	15.4	15.8	16.3	16.3	15.7	14.3	11.9	9.7	7.8	6.4	5.3	4.1	8.3	16.9	-0.3
Max	16.1	12.8	12.4	11.1	8.7	8.6	8.9	10.7	15.8	22.5	24.4	26.0	27.3	28.4	29.5	29.7	30.3	28.2	25.1	20.9	18.0	16.2	14.8	16.3	16.7	30.3	8.6
Min	-5.6	-5.9	-6.5	-6.9	-7.2	-7.6	-7.7	-5.0	-0.8	0.8	1.4	1.9	1.2	0.6	1.5	1.8	1.6	1.2	0.8	0.0	-1.3	-2.2	-3.3	-4.7	0.4	1.9	-7.7

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
July 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.08	1.68	1.14	1.50	1.30	0.55	-0.33	-0.41	-0.45	-0.55	-0.68	-0.80	-0.79	-0.84	-0.82	-0.65	-0.33	-0.35	0.59	1.15	1.80	0.35	0.44	0.56	0.21	1.80	-0.84
2	1.06	1.15	1.79	1.27	1.19	1.36	0.44	-0.36	-0.49	-0.60	-0.55	-0.69	-0.66	-0.50	-0.57	-0.11	-0.24	-0.27	0.87	1.16	0.87	1.11	1.02	1.32	0.40	1.79	-0.69
3	1.70	0.99	0.79	1.56	1.43	1.08	-0.27	-0.45	-0.51	-0.73	-0.92	-0.95	-0.91	-0.92	-0.83	-0.71	-0.44	-0.15	0.22	1.07	1.91	1.09	0.68	1.10	0.24	1.91	-0.95
4	0.96	1.24	1.29	1.53	1.40	0.85	0.26	-0.43	-0.49	-0.55	-0.63	-0.64	-0.99	-0.82	-0.62	-0.56	-0.54	-0.45	0.62	1.12	1.20	1.38	0.59	0.94	0.28	1.53	-0.99
5	1.24	1.35	1.39	1.83	1.84	0.91	-0.20	-0.41	-0.46	-0.70	-0.77	-0.79	-0.79	-0.69	-0.71	-0.42	-0.08	1.31	0.78	0.52	0.07	0.14	-0.01	0.81	0.26	1.84	-0.79
6	0.20	0.40	0.57	0.21	0.26	0.29	-0.21	-0.39	-0.41	-0.59	-0.65	-0.71	-0.30	0.07	-0.20	-0.42	-0.10	0.13	-0.25	0.50	0.89	0.48	0.85	0.95	0.07	0.95	-0.71
7	1.01	0.71	1.04	1.49	1.30	0.75	-0.34	-0.52	-0.43	-0.30	0.00	-0.12	-0.45	-0.53	-0.49	-0.25	-0.18	-0.39	-0.02	0.65	1.05	1.67	1.70	1.39	0.36	1.70	-0.53
8	1.40	1.38	1.72	1.40	1.60	0.89	-0.12	-0.47	-0.36	-0.63	-0.69	-0.87	-0.84	-0.71	-0.77	-0.07	-0.38	0.00	1.62	1.41	0.75	0.36	0.42	1.40	0.35	1.72	-0.87
9	1.34	1.20	1.50	1.52	1.27	0.52	-0.29	-0.39	-0.49	-0.52	-0.66	-0.77	-0.66	-0.59	-0.27	-0.47	0.37	0.84	0.51	0.54	0.20	0.84	0.71	0.34	0.27	1.52	-0.77
10	0.47	0.89	0.81	0.71	0.90	0.59	0.32	-0.37	-0.45	-0.74	-0.86	-0.08	0.52	-0.41	-0.43	-0.08	0.34	-0.01	-0.04	0.36	0.34	0.28	0.11	0.24	0.14	0.90	-0.86
11	0.37	0.19	0.18	0.20	0.54	0.36	-0.34	-0.38	-0.67	-0.71	-0.88	-0.95	-1.09	-0.92	-0.98	-0.84	-0.58	-0.57	-0.21	0.31	0.79	0.31	1.07	1.36	-0.14	1.36	-1.09
12	1.89	1.26	1.87	1.17	1.24	0.80	-0.43	-0.64	-0.96	-0.93	-0.97	-0.95	-0.52	-0.55	-0.90	-0.62	-0.46	-0.18	-0.03	0.32	0.43	1.51	0.82	1.32	0.19	1.89	-0.97
13	1.84	2.02	2.53	2.34	1.62	1.18	-0.18	-0.31	-0.51	-0.72	-0.90	-1.13	-1.02	-1.07	-1.06	-0.94	-0.56	-0.37	0.15	1.16	0.38	0.23	0.54	0.91	0.26	2.53	-1.13
14	0.10	0.24	0.65	1.55	1.27	0.74	-0.27	-0.42	-0.46	-0.45	-0.66	-0.74	-0.97	-0.93	-0.78	-0.44	-0.43	-0.43	-0.23	0.32	0.40	1.03	2.30	1.83	0.13	2.30	-0.97
15	0.83	1.35	0.81	1.38	1.75	1.50	0.62	-0.55	-0.41	-0.81	-0.63	-1.03	-1.07	-1.08	-1.16	-0.77	-0.08	0.46	0.13	0.07	0.20	0.42	1.26	0.85	0.17	1.75	-1.16
16	1.07	1.35	1.53	1.00	1.36	0.83	-0.13	-0.43	-0.58	-0.92	-0.98	-0.98	-1.23	-1.20	-1.08	-0.80	-0.77	-0.46	0.00	1.14	2.39	1.51	0.78	1.01	0.18	2.39	-1.23
17	0.57	0.71	0.97	1.02	1.45	1.17	-0.23	-0.38	-0.58	-0.70	-0.76	-1.07	-0.81	-1.27	-1.22	-0.86	-0.82	-0.55	-0.28	0.96	0.85	1.21	1.31	1.78	0.10	1.78	-1.27
18	1.62	1.45	1.65	2.05	1.94	1.44	-0.45	-0.49	-0.76	-0.86	-0.89	-1.15	-1.28	-1.29	-1.17	-0.80	-0.93	-0.61	-0.05	0.87	0.63	1.03	0.88	0.83	0.15	2.05	-1.29
19	1.21	0.85	0.77	0.78	0.32	0.60	-0.25	-0.50	-0.63	-0.80	-0.86	-0.95	-1.19	-1.20	-1.16	-0.90	-0.28	-0.13	0.74	0.60	0.51	1.06	1.41	2.07	0.09	2.07	-1.20
20	3.62	3.90	2.18	2.75	2.38	2.19	0.32	-0.38	-0.57	-0.81	-1.11	-1.11	-1.06	-1.16	-1.17	-1.02	-0.80	-0.37	0.14	0.61	2.27	1.53	1.77	2.11	0.68	3.90	-1.17
21	1.64	2.48	1.32	1.56	1.14	0.77	-0.12	-0.38	-0.76	-0.93	-1.17	-1.24	-1.32	-1.29	-1.21	-1.02	-0.82	-0.50	-0.01	0.66	1.51	1.63	1.28	1.17	0.18	2.48	-1.32
22	1.77	1.89	1.47	1.80	1.13	0.72	-0.24	-0.49	-0.64	-0.91	-0.98	-1.13	-1.20	-1.31	-1.14	-0.95	-0.76	-0.61	-0.15	0.96	0.90	0.78	0.72	1.74	0.14	1.89	-1.31
23	1.27	1.80	1.20	1.70	1.40	1.16	0.00	-0.53	-0.54	-0.70	-0.91	-0.97	-1.18	-1.18	-1.01	-0.98	-0.60	-0.48	0.16	1.22	0.81	0.63	0.54	0.86	0.15	1.80	-1.18
24	1.37	1.79	1.38	1.32	1.76	1.61	-0.16	-0.51	-0.55	-0.52	-1.05	-1.30	-1.10	-1.13	-0.95	-1.08	-0.72	-0.03	0.41	0.85	1.67	1.28	1.16	1.19	0.28	1.79	-1.30
25	1.21	2.03	1.31	1.15	1.05	0.84	-0.32	-0.49	-0.59	-0.87	-0.89	-1.17	-1.16	-1.35	-1.14	-1.05	-0.92	-0.55	-0.16	0.59	0.28	0.79	1.27	0.65	0.02	2.03	-1.35
26	1.67	0.87	1.41	0.70	1.94	0.77	-0.32	-0.56	-0.52	-0.80	-0.75	-0.89	-0.81	-1.23	-0.93	-0.91	-0.30	0.13	0.06	0.04	0.51	1.07	0.21	0.47	0.08	1.94	-1.23
27	0.84	0.89	0.44	0.21	0.99	0.58	-0.29	-0.40	-0.46	-0.25	-0.54	-0.65	-0.76	-0.82	-0.71	-0.80	-0.80	-0.55	0.66	0.81	1.14	1.23	1.30	1.48	0.15	1.48	-0.82
28	1.56	1.08	1.46	1.35	1.55	0.85	-0.18	-0.56	-0.53	-0.81	-0.99	-1.18	-1.17	-1.11	-1.02	-0.84	-0.70	-0.03	0.25	1.02	0.98	0.82	1.12	0.10	0.13	1.56	-1.18
29	0.20	0.02	0.29	0.35	1.36	1.66	0.41	-0.41	-0.40	-0.63	-0.92	-1.15	-1.23	-0.82	-1.02	-0.95	-0.78	-0.57	0.06	0.51	1.04	0.58	0.64	0.66	-0.05	1.66	-1.23
30	1.69	1.30	1.88	1.72	1.67	1.33	0.06	-0.39	-0.47	-0.58	-0.75	-0.98	-1.18	-1.00	-1.12	-0.85	-0.47	-0.10	0.12	1.41	1.26	0.72	0.91	1.31	0.31	1.88	-1.18
31	1.61	2.30	1.82	2.05	1.86	1.91	0.46	-0.50	-0.49	-0.47	-0.82	-0.98	-1.18	-1.06	-1.06	-0.96	-0.73	-0.43	0.00	0.61	0.48	0.94	1.56	1.56	0.35	2.30	-1.18
Avg	1.24	1.31	1.26	1.33	1.36	0.99	-0.09	-0.45	-0.54	-0.68	-0.80	-0.91	-0.92	-0.93	-0.89	-0.71	-0.48	-0.20	0.21	0.76	0.92	0.90	0.95	1.11	0.20	1.89	-1.06
Max	3.62	3.90	2.53	2.75	2.38	2.19	0.62	-0.31	-0.36	-0.25	0.00	-0.08	0.52	0.07	-0.20	-0.07	0.37	1.31	1.62	1.41	2.39	1.67	2.30	2.11	0.68	3.90	-0.53
Min	0.10	0.02	0.18	0.20	0.26	0.29	-0.45	-0.64	-0.96	-0.93	-1.17	-1.30	-1.32	-1.35	-1.22	-1.08	-0.93	-0.61	-0.28	0.04	0.07	0.14	-0.01	0.10	-0.14	0.90	-1.35

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
August 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.85	1.83	1.73	1.94	2.34	1.49	0.59	-0.32	-0.43	-0.81	-1.03	-1.26	-1.35	-1.25	-0.93	-0.76	-0.67	-0.46	0.20	1.14	0.88	1.50	0.89	1.14	0.34	2.34	-1.35
2	0.76	1.55	1.08	0.91	0.70	0.17	-0.17	-0.41	-0.73	-0.79	-1.01	-0.69	-0.70	-0.64	-0.61	-0.57	-0.36	-0.34	-0.26	-0.07	0.02	0.02	0.23	-0.01	-0.08	1.55	-1.01
3	0.03	0.36	2.14	2.07	1.22	1.15	0.07	-0.39	-0.94	-1.22	-1.19	-1.12	-0.98	-0.97	-0.87	-0.67	-0.71	-0.62	-0.21	0.58	0.74	0.78	1.57	2.13	0.12	2.14	-1.22
4	1.38	0.40	1.15	1.34	0.87	1.40	-0.17	-0.43	-0.49	-0.83	-1.11	-1.18	-1.33	-1.29	-1.15	-1.09	-0.81	-0.49	-0.15	-0.06	0.06	-0.04	0.13	0.70	-0.13	1.40	-1.33
5	0.52	1.05	0.36	0.05	-0.01	0.15	-0.12	-0.36	-0.61	-0.93	-1.12	-1.05	-1.27	-1.18	-0.98	-1.05	-0.87	-0.61	-0.25	0.12	0.70	1.13	1.21	1.29	-0.16	1.29	-1.27
6	1.10	1.01	1.34	1.30	1.42	1.31	0.10	-0.49	-0.53	-0.71	-0.76	-0.83	-0.79	-0.74	-1.12	-0.57	-0.56	-0.41	-0.36	-0.08	0.44	0.60	0.91	0.80	0.10	1.42	-1.12
7	0.64	2.00	2.98	1.97	1.29	1.22	-0.09	-0.43	-0.52	-0.82	-0.71	-1.03	-0.97	-0.95	-1.02	-0.98	-0.91	-0.59	0.10	0.74	0.53	0.79	0.87	1.06	0.22	2.98	-1.03
8	1.52	1.33	1.16	0.75	1.45	1.57	0.38	-0.30	-0.67	-0.80	-1.05	-1.10	-1.18	-0.93	-1.06	-0.50	-0.61	-0.44	-0.04	0.54	1.08	1.31	1.31	1.31	0.21	1.57	-1.18
9	1.34	1.04	1.21	1.68	1.50	1.55	0.29	-0.42	-0.48	-0.72	-0.82	-1.00	-1.09	-1.10	-0.91	-0.58	-0.30	-0.29	-0.16	-0.01	-0.03	0.08	0.21	0.52	0.06	1.68	-1.10
10	0.75	0.99	1.03	0.37	0.76	1.56	0.33	-0.37	-0.48	-0.65	-0.87	-1.07	-0.97	-1.16	-1.04	-0.89	-0.71	-0.18	-0.13	0.25	0.40	0.41	0.00	0.17	-0.06	1.56	-1.16
11	0.48	-0.02	0.12	0.26	0.29	0.76	0.69	-0.40	-0.43	-0.51	-0.72	-0.96	-1.04	-1.07	-1.01	-0.67	-0.26	-0.10	0.03	0.43	0.35	0.19	0.08	0.40	-0.13	0.76	-1.07
12	0.60	0.24	0.51	0.35	0.65	0.15	-0.10	-0.29	-0.32	-0.42	-0.63	-0.84	-1.07	-1.05	-0.60	-0.76	-0.45	0.14	0.44	0.90	1.30	0.96	1.40	1.47	0.11	1.47	-1.07
13	1.88	1.40	1.79	0.96	1.08	0.55	0.11	-0.28	-0.44	-0.75	-1.05	-0.97	-0.93	-1.47	-0.84	-0.34	-0.15	-0.03	-0.17	0.28	0.23	0.34	0.34	1.05	0.11	1.88	-1.47
14	0.58	0.86	0.81	0.96	0.45	0.44	0.15	-0.27	-0.30	-0.39	-0.63	-1.02	-0.92	-0.79	-0.94	-1.05	-0.84	-0.49	0.00	0.83	0.61	0.58	0.64	0.67	-0.00	0.96	-1.05
15	1.13	1.37	1.43	1.93	1.27	1.41	0.25	-0.48	-0.60	-0.87	-1.06	-1.16	-1.22	-1.02	-1.12	-0.80	-0.74	-0.53	0.07	1.06	0.66	1.03	1.66	1.60	0.22	1.93	-1.22
16	1.59	1.97	1.66	1.67	1.94	1.17	0.73	-0.40	-0.49	-0.95	-1.14	-1.23	-1.41	-1.43	-1.24	-1.06	-0.74	-0.30	0.44	1.45	1.06	0.65	1.47	1.51	0.29	1.97	-1.43
17	1.71	1.46	1.70	1.56	1.33	1.85	1.05	-0.36	-0.52	-0.93	-1.07	-1.28	-1.43	-1.09	-1.33	-1.20	-0.82	-0.33	0.47	1.71	1.54	0.43	0.58	1.20	0.26	1.85	-1.43
18	1.02	1.37	1.58	1.86	1.24	1.41	0.69	-0.31	-0.44	-0.85	-1.11	-1.21	-1.26	-1.34	-1.29	-1.09	-0.83	-0.25	0.64	2.26	1.15	0.87	1.09	0.85	0.25	2.26	-1.34
19	0.95	0.63	1.01	0.51	1.31	0.90	0.15	-0.25	-0.63	-0.94	-1.08	-1.26	-1.24	-1.31	-1.17	-0.91	-0.30	-0.11	0.12	1.08	1.35	1.06	1.35	1.61	0.12	1.61	-1.31
20	2.00	1.65	2.07	1.72	1.27	1.61	0.97	-0.33	-0.51	-0.87	-1.16	-1.27	-1.31	-1.10	-0.84	-0.73	-0.62	-0.27	0.97	1.47	0.60	0.73	0.91	1.58	0.36	2.07	-1.31
21	1.69	1.49	1.51	1.56	1.01	1.92	0.70	-0.37	-0.54	-0.66	0.05	-0.81	-1.06	-1.06	-1.03	-0.87	-0.76	-0.43	0.33	0.67	0.60	0.61	1.15	1.36	0.29	1.92	-1.06
22	2.33	1.76	1.37	1.85	1.37	1.80	0.96	-0.31	-0.49	-0.55	-0.96	-1.03	-0.93	-1.17	-1.00	-0.82	-0.72	-0.45	0.39	1.37	1.79	1.55	1.78	1.68	0.48	2.33	-1.17
23	1.82	1.91	1.51	1.73	2.18	2.19	1.10	-0.32	-0.40	-0.62	-0.83	-1.14	-1.05	-1.16	-0.99	-0.87	-0.59	0.15	1.02	0.85	0.35	0.40	0.84	0.60	0.36	2.19	-1.16
24	1.16	1.36	1.23	1.24	1.12	0.99	0.54	0.22	-0.45	-0.72	-1.12	-1.15	-0.78	-1.17	-0.11	0.48	-0.23	-0.30	-0.04	0.03	-0.02	0.26	0.68	0.36	0.15	1.36	-1.17
25	0.37	0.48	0.55	0.94	1.07	0.85	0.62	-0.24	-0.26	-0.56	-0.87	-1.07	-1.12	-1.25	-1.15	-0.97	-0.76	-0.33	0.71	0.92	0.32	0.86	0.38	0.52	0.00	1.07	-1.25
26	0.76	1.11	1.16	1.53	1.42	1.68	0.80	-0.43	-0.39	-0.82	-0.90	-1.07	-1.02	-1.17	-1.15	-0.88	-0.56	0.27	1.12	0.56	1.27	1.83	1.63	1.45	0.34	1.83	-1.17
27	1.80	1.31	1.52	1.64	1.86	1.65	1.00	-0.13	-0.45	-0.54	-0.87	-1.15	-1.11	-1.08	-1.04	-0.86	-0.68	-0.35	0.69	0.87	0.84	0.68	2.31	1.71	0.40	2.31	-1.15
28	1.71	2.32	2.08	2.15	2.12	2.02	1.49	-0.07	-0.40	-0.69	-0.95	-1.01	-1.04	-1.04	-0.90	-0.78	-0.57	-0.10	0.60	0.97	0.54	1.62	1.52	1.44	0.54	2.32	-1.04
29	1.33	1.37	1.44	1.25	1.13	1.16	0.60	0.09	-0.23	-0.34	-0.47	-0.59	-0.69	-0.92	-0.79	-0.50	-0.16	0.08	0.33	0.90	0.57	0.85	1.60	1.91	0.41	1.91	-0.92
30	2.11	3.01	2.38	1.38	1.18	1.48	0.89	0.04	-0.34	-0.55	-0.88	-0.89	-0.89	-0.83	-0.94	-0.69	-0.46	0.17	0.45	0.41	0.87	1.24	1.11	1.48	0.49	3.01	-0.94
31	1.34	1.42	1.03	0.72	1.51	0.82	0.75	0.00	-0.49	-0.56	-0.95	-1.19	-1.01	-1.03	-1.13	-0.75	-0.63	-0.04	0.44	1.39	2.02	1.77	2.05	1.33	0.37	2.05	-1.19
Avg	1.23	1.29	1.38	1.30	1.24	1.24	0.50	-0.28	-0.48	-0.72	-0.91	-1.05	-1.07	-1.09	-0.98	-0.77	-0.59	-0.26	0.25	0.76	0.74	0.81	1.03	1.13	0.19	1.84	-1.18
Max	2.33	3.01	2.98	2.15	2.34	2.19	1.49	0.22	-0.23	-0.34	0.05	-0.59	-0.69	-0.64	-0.11	0.48	-0.15	0.27	1.12	2.26	2.02	1.83	2.31	2.13	0.54	3.01	-0.92
Min	0.03	-0.02	0.12	0.05	-0.01	0.15	-0.17	-0.49	-0.94	-1.22	-1.19	-1.28	-1.43	-1.47	-1.33	-1.20	-0.91	-0.62	-0.36	-0.08	-0.03	-0.04	0.00	-0.01	-0.16	0.76	-1.47

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
September 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.26	1.23	1.12	1.08	1.51	1.22	1.04	0.27	-0.38	-0.57	-0.98	-0.95	-1.21	-1.27	-1.15	-1.00	-0.69	-0.25	0.43	1.33	1.26	1.26	0.65	1.65	0.29	1.65	-1.27
2	1.50	1.31	1.38	1.55	1.91	1.31	0.62	-0.28	-0.46	-0.83	-1.07	-1.15	-1.18	-1.29	-1.10	-0.95	-0.65	-0.11	1.25	1.78	1.05	1.03	1.37	1.84	0.37	1.91	-1.29
3	2.05	2.12	1.29	1.57	1.07	1.87	1.97	0.70	-0.24	-0.44	-0.66	-0.97	-1.12	-0.99	-0.80	-0.46	-0.38	0.47	1.84	1.89	0.31	0.54	1.22	0.78	0.57	2.12	-1.12
4	0.35	0.88	0.72	0.61	0.70	1.14	0.93	0.41	-0.44	-0.67	-0.70	-1.06	-0.94	-1.02	-1.12	-1.04	-0.82	-0.48	-0.05	0.20	0.20	0.28	0.60	1.17	-0.01	1.17	-1.12
5	1.06	1.91	2.14	2.38	2.60	1.04	0.78	-0.31	-0.51	-0.59	-0.81	-0.96	-0.82	-0.89	-0.87	-0.75	-0.79	-0.19	0.75	1.61	1.50	0.63	0.47	0.93	0.43	2.60	-0.96
6	1.13	1.32	1.23	1.74	2.12	1.96	1.73	-0.01	-0.42	-0.50	-0.63	-1.02	-1.08	-1.03	-0.83	-0.67	-0.33	0.44	1.29	2.05	1.22	2.10	1.54	1.98	0.64	2.12	-1.08
7	1.24	1.75	1.30	1.82	1.82	1.94	1.53	-0.04	-0.47	-0.56	-0.51	-0.84	-1.09	-0.87	-0.86	-0.79	-0.45	-0.08	0.41	1.57	1.06	1.12	2.87	4.47	0.68	4.47	-1.09
8	4.00	2.53	2.66	2.30	2.05	1.66	2.02	-0.08	-0.38	-0.51	-0.69	-1.01	-0.84	-0.61	-0.52	-0.56	-0.23	0.89	0.61	1.18	0.96	0.66	1.09	1.89	0.79	4.00	-1.01
9	0.88	0.95	1.19	1.48	1.49	1.67	1.34	-0.01	-0.35	-0.55	-0.85	-1.06	-1.17	-1.10	-0.89	-0.41	-0.53	0.14	0.17	0.27	0.32	-0.03	0.16	0.24	0.14	1.67	-1.17
10	0.64	0.91	0.64	0.70	0.91	0.94	1.08	0.25	-0.20	-0.70	-0.99	-1.13	-1.21	-1.18	-1.06	-0.91	-0.42	0.17	0.89	1.37	0.83	0.82	0.98	0.76	0.17	1.37	-1.21
11	1.53	1.62	1.35	1.47	1.58	1.83	1.28	-0.30	-0.49	-0.78	-1.06	-1.10	-1.24	-1.08	-0.94	-0.94	-0.64	-0.11	1.14	1.50	0.94	1.53	1.70	1.72	0.44	1.83	-1.24
12	1.69	2.02	2.06	1.65	2.49	2.52	2.39	-0.04	-0.48	-0.65	-1.01	-0.99	-1.01	-0.89	-1.00	-0.77	-0.50	0.63	0.99	0.31	0.92	0.95	0.57	1.18	0.54	2.52	-1.01
13	1.20	0.48	0.45	1.02	1.08	1.02	0.41	-0.02	-0.19	-0.24	-0.42	-0.68	-0.94	-0.88	-0.74	-0.72	-0.09	-0.01	0.41	0.34	0.11	0.09	-0.06	-0.08	0.06	1.20	-0.94
14	-0.04	-0.03	-0.12	-0.10	-0.17	-0.18	-0.14	-0.18	-0.19	-0.07	-0.21	-0.31	-0.35	-0.30	-0.31	-0.20	-0.06	-0.05	-0.04	-0.01	-0.07	-0.06	-0.06	0.00	-0.14	0.00	-0.35
15	-0.01	0.00	-0.05	-0.11	-0.11	-0.07	-0.12	-0.12	-0.22	-0.36	-0.35	-0.39	-0.38	-0.37	-0.31	-0.22	-0.19	-0.15	-0.17	-0.14	-0.15	-0.20	-0.13	-0.18	-0.19	0.00	-0.39
16	-0.16	-0.12	-0.05	-0.08	-0.13	-0.12	-0.13	-0.20	-0.32	-0.34	-0.42	-0.61	-0.55	-0.52	-0.91	-0.45	-0.42	-0.33	0.34	0.92	0.67	1.11	1.60	1.71	0.02	1.71	-0.91
17	1.14	1.20	0.78	1.00	1.09	0.98	0.73	0.05	0.08	-0.36	-0.50	-0.82	-0.97	-0.97	-0.94	-0.84	-0.32	0.45	1.33	0.26	0.16	0.40	0.31	1.00	0.22	1.33	-0.97
18	1.39	0.93	1.35	0.79	1.01	0.89	0.62	0.19	0.03	0.19	-0.15	-0.44	-0.92	-0.34	-0.20	-0.18	0.18	0.05	-0.06	-0.07	0.00	0.08	0.13	0.24	0.24	1.39	-0.92
19	0.28	0.23	0.31	0.17	0.35	0.36	0.06	-0.06	-0.27	-0.58	-0.62	-1.04	-1.02	-0.34	-0.76	-0.57	-0.11	-0.26	0.22	0.12	-0.07	0.24	0.21	0.15	-0.12	0.36	-1.04
20	0.29	0.88	1.90	0.92	0.56	0.18	0.53	0.13	Au	Au	Au	Au	-0.28	-0.18	-0.30	-0.33	-0.11	-0.03	0.04	0.05	0.27	0.57	0.40	0.32	0.29	1.90	-0.33
21	0.39	0.29	0.43	0.25	0.32	0.34	0.16	-0.03	-0.25	-0.41	-0.44	-0.51	-0.50	-0.43	-0.45	-0.34	-0.25	-0.14	-0.03	0.00	-0.06	0.06	-0.06	-0.08	-0.07	0.43	-0.51
22	-0.01	-0.03	-0.06	0.02	0.09	0.03	-0.01	0.02	-0.02	-0.13	-0.20	-0.18	-0.18	-0.23	-0.36	-0.35	-0.29	-0.21	-0.13	-0.14	-0.11	-0.09	-0.10	-0.08	-0.11	0.09	-0.36
23	-0.07	-0.05	-0.05	-0.05	-0.10	-0.13	-0.16	-0.26	-0.34	-0.41	-0.47	-0.61	-0.80	-0.57	-0.93	-0.62	-0.39	-0.20	0.03	0.09	0.03	0.48	0.07	0.29	-0.22	0.48	-0.93
24	0.49	0.89	1.75	1.62	1.63	1.12	1.51	0.07	-0.29	-0.54	-0.67	-0.64	-0.47	-0.56	-0.41	-0.35	-0.25	-0.06	0.46	0.84	0.80	0.58	0.52	1.33	0.39	1.75	-0.67
25	1.49	1.25	1.54	1.33	1.45	1.64	1.19	0.07	-0.16	-0.56	-0.71	-0.75	-0.57	-0.82	-0.69	-0.53	-0.40	0.05	0.29	0.68	0.16	0.22	0.24	0.11	0.27	1.64	-0.82
26	0.01	0.04	0.05	0.05	0.24	0.20	0.38	0.19	-0.32	-0.54	-0.68	-0.87	-0.73	-1.02	-0.51	-0.30	-0.21	0.13	0.33	0.58	1.13	0.63	1.17	1.08	0.04	1.17	-1.02
27	1.15	1.11	1.55	1.34	0.82	1.69	1.38	0.45	-0.22	-0.26	-0.62	-0.18	-0.52	-0.93	-0.73	-0.71	-0.47	0.17	0.66	0.44	0.88	1.13	1.55	1.95	0.48	1.95	-0.93
28	2.00	1.48	1.46	1.49	1.36	1.50	1.70	0.37	-0.40	-0.47	-0.83	-1.04	-1.18	-1.15	-1.01	-0.83	-0.42	0.30	0.80	1.25	1.19	1.69	1.37	2.26	0.54	2.26	-1.18
29	2.93	2.24	2.56	2.38	1.42	2.01	2.06	0.42	-0.29	-0.66	-0.94	-0.72	-0.89	-0.96	-0.90	-0.70	-0.41	0.43	0.99	1.51	1.03	0.96	1.61	0.98	0.71	2.93	-0.96
30	0.82	0.94	0.88	1.03	1.12	1.25	1.09	0.00	-0.39	-0.53	-0.56	-0.94	-0.91	-0.30	-0.15	-0.09	-0.01	0.12	0.19	0.14	0.24	0.16	0.16	0.41	0.19	1.25	-0.94
Avg	1.02	1.01	1.06	1.05	1.08	1.06	0.93	0.06	-0.30	-0.47	-0.65	-0.79	-0.84	-0.77	-0.73	-0.59	-0.36	0.06	0.51	0.73	0.56	0.63	0.74	1.00	0.26	1.64	-0.92
Max	4.00	2.53	2.66	2.38	2.60	2.52	2.39	0.70	0.08	0.19	-0.15	-0.18	-0.18	-0.18	-0.15	-0.09	0.18	0.89	1.84	2.05	1.50	2.10	2.87	4.47	0.79	4.47	-0.33
Min	-0.16	-0.12	-0.12	-0.11	-0.17	-0.18	-0.16	-0.31	-0.51	-0.83	-1.07	-1.15	-1.24	-1.29	-1.15	-1.04	-0.82	-0.48	-0.17	-0.14	-0.15	-0.20	-0.13	-0.18	-0.22	0.00	-1.29

A-18

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
July 2017

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	6	95	256	431	595	744	865	872	877	964	895	707	430	393	195	50	3	0	0	0	349	964	0
2	0	0	0	0	3	32	125	370	591	706	619	809	849	709	750	229	319	415	98	47	3	0	0	0	278	849	0
3	0	0	0	0	4	91	253	428	599	750	865	941	961	927	866	743	589	421	247	89	4	0	0	0	366	961	0
4	0	0	0	0	3	85	227	446	614	762	880	937	943	715	669	564	508	451	175	75	6	0	0	0	336	943	0
5	0	0	0	0	7	67	193	426	593	744	859	931	957	905	845	585	399	34	11	26	6	0	0	0	316	957	0
6	0	0	0	0	4	50	232	410	583	735	814	937	499	215	360	654	324	272	241	77	3	0	0	0	267	937	0
7	0	0	0	0	5	97	261	395	503	436	244	249	763	807	520	383	371	430	233	78	2	0	0	0	241	807	0
8	0	0	0	0	3	51	164	377	526	754	775	913	960	695	862	420	541	342	117	35	2	0	0	0	314	960	0
9	0	0	0	0	4	80	220	379	518	683	853	968	796	643	407	467	83	127	101	8	0	0	0	0	264	968	0
10	0	0	0	0	4	34	154	411	591	755	725	221	35	551	396	179	113	71	87	13	1	0	0	0	181	755	0
11	0	0	0	0	2	78	253	367	615	699	807	856	994	790	781	649	482	421	239	75	2	0	0	0	338	994	0
12	0	0	0	0	3	78	233	404	574	728	840	879	489	583	695	600	472	317	212	77	3	0	0	0	299	879	0
13	0	0	0	0	3	74	230	405	576	728	842	920	959	935	854	739	480	387	225	63	4	0	0	0	351	959	0
14	0	0	0	0	1	68	226	399	571	728	844	917	950	941	835	371	408	406	262	24	1	0	0	0	331	950	0
15	0	0	0	0	2	51	211	488	363	632	471	717	827	886	862	536	187	17	27	12	0	0	0	0	262	886	0
16	0	0	0	0	1	71	221	390	561	701	827	906	944	838	747	610	574	402	228	69	2	0	0	0	337	944	0
17	0	0	0	0	1	44	214	365	507	680	816	943	646	974	892	627	571	410	265	85	4	0	0	0	335	974	0
18	0	0	0	0	2	60	217	394	568	725	837	919	933	925	854	514	570	396	216	50	1	0	0	0	341	933	0
19	0	0	0	0	1	54	228	374	562	722	839	917	957	927	858	693	284	228	84	53	1	0	0	0	324	957	0
20	0	0	0	0	1	53	209	390	564	723	849	921	942	913	852	735	594	379	198	55	1	0	0	0	349	942	0
21	0	0	0	0	1	51	184	363	539	719	846	926	955	922	842	718	560	386	205	57	1	0	0	0	345	955	0
22	0	0	0	0	1	54	208	385	555	711	829	900	934	910	825	703	544	386	211	53	1	0	0	0	342	934	0
23	0	0	0	0	1	51	202	380	551	709	823	906	930	902	793	700	414	355	200	46	1	0	0	0	332	930	0
24	0	0	0	0	1	51	206	382	472	482	792	871	703	710	624	695	540	224	99	32	2	0	0	0	287	871	0
25	0	0	0	0	1	54	156	263	409	468	490	805	865	829	747	576	583	308	162	37	1	0	0	0	281	865	0
26	0	0	0	0	1	44	187	361	541	701	822	807	688	900	726	715	333	100	59	19	0	0	0	0	292	900	0
27	0	0	0	0	0	55	208	192	324	181	524	820	678	677	533	614	552	361	102	20	0	0	0	0	243	820	0
28	0	0	0	0	0	37	178	365	523	694	816	931	916	923	694	654	567	214	154	27	0	0	0	0	321	931	0
29	0	0	0	0	0	11	161	342	529	690	821	914	891	775	729	710	522	383	156	52	0	0	0	0	320	914	0
30	0	0	0	0	0	37	180	353	475	619	646	878	898	708	781	620	405	255	192	39	0	0	0	0	295	898	0
31	0	0	0	0	0	32	169	341	522	665	795	876	926	889	806	668	517	343	166	32	0	0	0	0	323	926	0
Avg	0	0	0	0	2	58	205	380	536	670	764	849	828	806	739	593	446	311	167	48	2	0	0	0	308	918	0
Max	0	0	0	0	7	97	261	488	615	762	880	968	994	974	895	743	594	451	265	89	6	0	0	0	366	994	0
Min	0	0	0	0	0	11	125	192	324	181	244	221	35	215	360	179	83	17	11	8	0	0	0	0	181	755	0

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
August 2017

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	28	155	316	497	655	792	870	905	876	740	554	475	339	144	24	0	0	0	0	307	905	0
2	0	0	0	0	0	20	147	268	471	643	484	471	382	411	306	195	105	194	142	18	0	0	0	0	177	643	0
3	0	0	0	0	0	27	158	326	488	691	823	914	841	862	778	610	522	347	172	30	0	0	0	0	316	914	0
4	0	0	0	0	0	30	163	325	495	645	758	837	867	826	765	646	470	294	116	9	0	0	0	0	302	867	0
5	0	0	0	0	0	8	47	162	307	602	696	610	744	655	508	567	442	285	114	19	0	0	0	0	240	744	0
6	0	0	0	0	0	25	158	340	528	720	642	682	671	600	688	283	334	206	159	42	0	0	0	0	253	720	0
7	0	0	0	0	0	28	172	350	529	685	808	885	919	892	817	716	545	321	86	19	0	0	0	0	324	919	0
8	0	0	0	0	0	18	116	288	445	501	698	788	801	516	633	244	348	233	95	12	0	0	0	0	239	801	0
9	0	0	0	0	0	18	120	287	466	619	719	822	841	883	714	381	113	204	92	22	0	0	0	0	263	883	0
10	0	0	0	0	0	21	148	318	487	636	753	845	863	846	722	525	434	95	31	8	0	0	0	0	281	863	0
11	0	0	0	0	0	16	129	307	483	635	744	761	867	786	765	368	193	97	18	23	0	0	0	0	258	867	0
12	0	0	0	0	0	31	76	239	214	463	669	842	869	836	418	544	364	173	69	6	0	0	0	0	242	869	0
13	0	0	0	0	0	11	78	165	394	620	693	604	546	864	419	168	88	70	73	4	0	0	0	0	200	864	0
14	0	0	0	0	0	5	41	82	143	220	548	740	450	469	488	597	441	289	108	10	0	0	0	0	193	740	0
15	0	0	0	0	0	21	106	299	482	647	777	861	890	863	763	548	491	312	115	9	0	0	0	0	299	890	0
16	0	0	0	0	0	12	128	295	482	638	762	851	892	857	750	613	400	231	116	7	0	0	0	0	293	892	0
17	0	0	0	0	0	6	51	286	468	634	762	851	934	658	832	670	466	224	54	10	0	0	0	0	288	934	0
18	0	0	0	0	0	11	95	250	419	580	732	836	873	850	760	629	467	261	86	3	0	0	0	0	286	873	0
19	0	0	0	0	0	24	157	299	473	618	733	811	779	840	707	491	206	141	85	10	0	0	0	0	266	840	0
20	0	0	0	0	0	8	100	185	392	595	763	857	885	641	420	337	340	207	39	3	0	0	0	0	241	885	0
21	0	0	0	0	0	7	116	288	468	535	164	615	835	790	722	574	431	231	102	5	0	0	0	0	245	835	0
22	0	0	0	0	0	8	105	276	459	616	746	833	847	823	741	608	450	270	93	4	0	0	0	0	287	847	0
23	0	0	0	0	0	6	83	229	397	574	722	793	820	775	653	523	389	142	55	2	0	0	0	0	257	820	0
24	0	0	0	0	0	1	12	126	341	597	724	689	379	719	83	28	245	202	36	1	0	0	0	0	174	724	0
25	0	0	0	0	0	5	89	244	406	576	707	788	815	812	665	576	415	233	59	2	0	0	0	0	266	815	0
26	0	0	0	0	0	5	97	275	462	628	752	829	855	821	735	596	360	162	24	1	0	0	0	0	275	855	0
27	0	0	0	0	0	4	75	233	420	589	736	824	849	811	728	597	438	257	81	2	0	0	0	0	277	849	0
28	0	0	0	0	0	3	70	235	414	583	712	782	794	776	683	568	405	200	47	1	0	0	0	0	261	794	0
29	0	0	0	0	0	1	37	95	181	289	554	570	671	791	644	299	149	107	41	1	0	0	0	0	185	791	0
30	0	0	0	0	0	2	40	193	349	507	650	714	749	712	583	433	284	146	21	0	0	0	0	0	224	749	0
31	0	0	0	0	0	1	34	142	336	446	665	779	668	621	646	426	341	141	52	1	0	0	0	0	221	779	0
Avg	0	0	0	0	0	13	100	249	416	580	693	773	777	757	641	481	360	213	81	10	0	0	0	0	256	831	0
Max	0	0	0	0	0	31	172	350	529	720	823	914	934	892	832	716	545	347	172	42	0	0	0	0	324	934	0
Min	0	0	0	0	0	1	12	82	143	220	164	471	379	411	83	28	88	70	18	0	0	0	0	0	174	643	0

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
September 2017

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	2	59	166	363	537	684	756	785	748	667	541	374	203	45	1	0	0	0	0	247	785	0
2	0	0	0	0	0	2	77	246	430	595	715	781	809	773	696	564	399	206	33	0	0	0	0	0	264	809	0
3	0	0	0	0	0	2	37	116	267	468	634	743	778	696	613	399	336	129	28	0	0	0	0	0	219	778	0
4	0	0	0	0	0	1	31	119	340	522	668	738	704	675	601	506	347	192	41	0	0	0	0	0	229	738	0
5	0	0	0	0	0	3	72	245	421	586	715	791	814	782	684	539	378	173	29	0	0	0	0	0	260	814	0
6	0	0	0	0	0	1	45	154	326	495	612	656	697	612	530	419	279	115	22	0	0	0	0	0	207	697	0
7	0	0	0	0	0	2	73	233	411	566	707	789	794	757	666	526	359	179	32	0	0	0	0	0	254	794	0
8	0	0	0	0	0	2	45	155	322	487	602	668	695	591	501	381	234	91	12	0	0	0	0	0	199	695	0
9	0	0	0	0	0	0	32	191	372	524	647	735	759	727	524	202	269	34	12	0	0	0	0	0	210	759	0
10	0	0	0	0	0	1	22	142	219	462	610	698	741	708	630	484	223	63	6	0	0	0	0	0	209	741	0
11	0	0	0	0	0	0	59	229	405	563	691	765	786	744	650	521	359	176	23	0	0	0	0	0	249	786	0
12	0	0	0	0	0	1	53	234	409	565	687	762	769	719	629	490	303	101	12	0	0	0	0	0	239	769	0
13	0	0	0	0	0	0	15	43	71	162	341	366	746	598	418	347	77	37	13	0	0	0	0	0	135	746	0
14	0	0	0	0	0	0	3	7	20	39	67	90	101	90	87	41	23	14	2	0	0	0	0	0	24	101	0
15	0	0	0	0	0	0	5	28	96	206	172	187	159	140	104	54	42	19	2	0	0	0	0	0	51	206	0
16	0	0	0	0	0	0	4	28	212	221	178	299	266	294	522	135	148	147	14	0	0	0	0	0	103	522	0
17	0	0	0	0	0	0	26	95	200	558	362	674	763	678	590	487	189	77	5	0	0	0	0	0	196	763	0
18	0	0	0	0	0	0	17	65	127	103	164	316	644	164	123	83	16	13	2	0	0	0	0	0	77	644	0
19	0	0	0	0	0	0	10	53	207	494	393	740	666	155	452	298	24	123	6	0	0	0	0	0	151	740	0
20	0	0	0	0	0	0	31	65	Au	Au	Au	Au	150	60	231	238	82	26	1	0	0	0	0	0	44	238	0
21	0	0	0	0	0	0	12	71	137	333	335	320	343	286	267	170	95	33	3	0	0	0	0	0	100	343	0
22	0	0	0	0	0	0	1	9	23	66	75	58	71	100	137	103	70	30	1	0	0	0	0	0	31	137	0
23	0	0	0	0	0	0	7	60	148	124	174	435	606	491	446	189	100	56	2	0	0	0	0	0	118	606	0
24	0	0	0	0	0	0	12	190	377	531	705	571	235	352	225	134	83	39	3	0	0	0	0	0	144	705	0
25	0	0	0	0	0	0	23	186	366	571	463	454	283	648	448	204	167	43	3	0	0	0	0	0	161	648	0
26	0	0	0	0	0	0	15	75	254	316	333	621	473	619	202	128	113	23	2	0	0	0	0	0	132	621	0
27	0	0	0	0	0	0	24	187	359	503	638	184	503	631	559	424	258	87	2	0	0	0	0	0	182	638	0
28	0	0	0	0	0	0	28	192	355	508	626	690	704	661	564	425	258	83	1	0	0	0	0	0	212	704	0
29	0	0	0	0	0	0	28	186	348	504	622	687	696	649	550	412	245	74	1	0	0	0	0	0	208	696	0
30	0	0	0	0	0	0	29	117	299	366	298	536	473	240	186	75	34	20	0	0	0	0	0	0	111	536	0
Avg	0	0	0	0	0	1	30	130	272	413	480	556	567	513	450	317	196	87	12	0	0	0	0	0	166	625	0
Max	0	0	0	0	0	3	77	246	430	595	715	791	814	782	696	564	399	206	45	1	0	0	0	0	264	814	0
Min	0	0	0	0	0	0	1	7	20	39	67	58	71	60	87	41	16	13	0	0	0	0	0	0	24	101	0

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
July 2017

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	24.43	24.42	24.42	24.42	24.42	24.44	24.44	24.43	24.42	24.42	24.41	24.40	24.39	24.38	24.38	24.37	24.36	24.36	24.36	24.38	24.39	24.41	24.41	24.41	24.40	24.44	24.36	
2	24.42	24.41	24.41	24.42	24.43	24.44	24.45	24.46	24.45	24.44	24.44	24.43	24.42	24.41	24.40	24.39	24.38	24.39	24.40	24.40	24.41	24.42	24.42	24.41	24.42	24.46	24.38	
3	24.41	24.41	24.41	24.40	24.40	24.41	24.42	24.41	24.41	24.40	24.40	24.40	24.38	24.38	24.37	24.37	24.36	24.36	24.37	24.38	24.40	24.42	24.43	24.44	24.40	24.44	24.36	
4	24.44	24.45	24.46	24.47	24.48	24.50	24.50	24.49	24.49	24.48	24.48	24.48	24.46	24.46	24.46	24.45	24.44	24.43	24.43	24.43	24.44	24.46	24.47	24.47	24.46	24.50	24.43	
5	24.46	24.47	24.47	24.47	24.48	24.49	24.51	24.51	24.51	24.51	24.52	24.51	24.51	24.50	24.48	24.48	24.47	24.49	24.57	24.55	24.56	24.58	24.57	24.55	24.51	24.58	24.46	
6	24.57	24.59	24.57	24.58	24.60	24.61	24.62	24.62	24.61	24.61	24.61	24.61	24.62	24.60	24.59	24.61	24.61	24.60	24.60	24.59	24.60	24.61	24.63	24.63	24.64	24.60	24.64	24.57
7	24.64	24.64	24.63	24.63	24.63	24.64	24.64	24.64	24.64	24.63	24.64	24.63	24.62	24.60	24.59	24.57	24.57	24.56	24.55	24.55	24.55	24.56	24.56	24.56	24.60	24.64	24.55	
8	24.56	24.56	24.55	24.56	24.56	24.56	24.57	24.56	24.55	24.54	24.53	24.53	24.51	24.49	24.48	24.46	24.45	24.44	24.43	24.44	24.45	24.46	24.47	24.47	24.51	24.57	24.43	
9	24.48	24.47	24.47	24.47	24.47	24.48	24.48	24.47	24.47	24.46	24.45	24.44	24.43	24.41	24.40	24.39	24.39	24.38	24.39	24.44	24.42	24.40	24.41	24.41	24.44	24.48	24.38	
10	24.40	24.39	24.39	24.39	24.39	24.38	24.38	24.37	24.36	24.35	24.35	24.35	24.38	24.35	24.33	24.32	24.33	24.33	24.31	24.34	24.33	24.32	24.32	24.32	24.35	24.40	24.31	
11	24.33	24.33	24.34	24.34	24.34	24.35	24.36	24.36	24.36	24.36	24.36	24.36	24.36	24.36	24.37	24.37	24.37	24.36	24.37	24.39	24.41	24.43	24.45	24.45	24.37	24.45	24.33	
12	24.45	24.45	24.45	24.45	24.46	24.47	24.48	24.47	24.48	24.47	24.47	24.46	24.46	24.45	24.44	24.43	24.42	24.42	24.43	24.43	24.44	24.45	24.46	24.47	24.45	24.48	24.42	
13	24.47	24.48	24.48	24.48	24.49	24.49	24.50	24.49	24.49	24.49	24.48	24.48	24.47	24.46	24.45	24.45	24.44	24.44	24.43	24.44	24.45	24.47	24.48	24.52	24.47	24.52	24.43	
14	24.52	24.52	24.51	24.52	24.54	24.56	24.56	24.57	24.57	24.57	24.58	24.58	24.58	24.57	24.57	24.57	24.57	24.56	24.56	24.57	24.58	24.60	24.61	24.62	24.56	24.62	24.51	
15	24.62	24.62	24.61	24.60	24.60	24.59	24.59	24.58	24.57	24.56	24.55	24.54	24.53	24.50	24.49	24.47	24.45	24.45	24.49	24.52	24.54	24.50	24.48	24.48	24.54	24.62	24.45	
16	24.48	24.47	24.46	24.45	24.45	24.46	24.46	24.45	24.44	24.43	24.42	24.40	24.39	24.37	24.37	24.36	24.34	24.33	24.35	24.36	24.37	24.40	24.40	24.40	24.41	24.48	24.33	
17	24.41	24.41	24.40	24.40	24.41	24.42	24.43	24.43	24.42	24.40	24.39	24.39	24.38	24.37	24.37	24.36	24.35	24.36	24.36	24.37	24.38	24.41	24.42	24.42	24.39	24.43	24.35	
18	24.43	24.43	24.43	24.43	24.44	24.45	24.47	24.47	24.46	24.46	24.45	24.44	24.43	24.43	24.42	24.41	24.41	24.40	24.39	24.38	24.39	24.40	24.38	24.37	24.42	24.47	24.37	
19	24.41	24.42	24.43	24.45	24.45	24.46	24.47	24.48	24.48	24.48	24.48	24.46	24.46	24.45	24.44	24.43	24.42	24.40	24.40	24.39	24.41	24.42	24.42	24.41	24.44	24.48	24.39	
20	24.40	24.39	24.38	24.38	24.38	24.39	24.40	24.40	24.40	24.39	24.39	24.39	24.37	24.35	24.33	24.32	24.30	24.29	24.30	24.32	24.35	24.37	24.38	24.40	24.37	24.40	24.29	
21	24.40	24.41	24.41	24.42	24.43	24.45	24.46	24.46	24.46	24.44	24.44	24.44	24.43	24.43	24.42	24.41	24.41	24.41	24.42	24.44	24.46	24.48	24.49	24.50	24.44	24.50	24.40	
22	24.50	24.51	24.51	24.51	24.52	24.53	24.55	24.55	24.55	24.54	24.54	24.53	24.52	24.52	24.51	24.50	24.49	24.49	24.49	24.49	24.51	24.52	24.52	24.52	24.52	24.52	24.49	
23	24.51	24.51	24.50	24.50	24.50	24.50	24.50	24.49	24.48	24.46	24.45	24.43	24.41	24.39	24.37	24.35	24.33	24.32	24.31	24.30	24.32	24.33	24.33	24.33	24.41	24.51	24.30	
24	24.33	24.34	24.34	24.35	24.34	24.36	24.37	24.38	24.38	24.37	24.37	24.36	24.35	24.34	24.32	24.31	24.30	24.30	24.31	24.32	24.34	24.37	24.38	24.39	24.35	24.39	24.30	
25	24.40	24.42	24.43	24.44	24.45	24.47	24.49	24.49	24.49	24.49	24.49	24.48	24.47	24.46	24.46	24.45	24.44	24.44	24.44	24.45	24.47	24.48	24.48	24.49	24.46	24.49	24.40	
26	24.50	24.50	24.50	24.50	24.51	24.51	24.53	24.53	24.52	24.51	24.51	24.50	24.49	24.47	24.46	24.46	24.46	24.45	24.46	24.47	24.48	24.48	24.48	24.49	24.48	24.49	24.45	
27	24.48	24.48	24.48	24.48	24.48	24.49	24.49	24.49	24.49	24.49	24.48	24.47	24.45	24.44	24.43	24.42	24.41	24.40	24.41	24.41	24.43	24.44	24.45	24.45	24.46	24.49	24.40	
28	24.46	24.47	24.47	24.48	24.49	24.50	24.51	24.51	24.50	24.50	24.50	24.49	24.48	24.47	24.46	24.46	24.44	24.44	24.44	24.44	24.46	24.48	24.48	24.49	24.48	24.51	24.44	
29	24.49	24.49	24.50	24.50	24.51	24.52	24.53	24.54	24.53	24.53	24.52	24.52	24.51	24.51	24.51	24.50	24.49	24.49	24.49	24.49	24.51	24.53	24.54	24.54	24.51	24.54	24.49	
30	24.55	24.56	24.56	24.56	24.56	24.57	24.58	24.59	24.58	24.57	24.57	24.57	24.56	24.55	24.54	24.53	24.52	24.52	24.52	24.52	24.54	24.56	24.58	24.59	24.56	24.59	24.52	
31	24.59	24.60	24.60	24.60	24.61	24.62	24.64	24.64	24.64	24.63	24.63	24.62	24.60	24.60	24.59	24.58	24.57	24.56	24.56	24.58	24.59	24.60	24.61	24.61	24.60	24.64	24.56	
Avg	24.47	24.47	24.47	24.47	24.48	24.49	24.50	24.49	24.49	24.48	24.48	24.47	24.46	24.45	24.45	24.44	24.43	24.43	24.43	24.44	24.45	24.46	24.47	24.47	24.46	24.51	24.41	
Max	24.64	24.64	24.63	24.63	24.63	24.64	24.64	24.64	24.64	24.63	24.64	24.63	24.62	24.60	24.61	24.61	24.60	24.60	24.59	24.60	24.61	24.63	24.63	24.64	24.60	24.64	24.57	
Min	24.33	24.33	24.34	24.34	24.34	24.35	24.36	24.36	24.36	24.35	24.35	24.35	24.35	24.34	24.32	24.31	24.30	24.29	24.30	24.30	24.32	24.32	24.32	24.32	24.35	24.39	24.29	

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
August 2017

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

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
September 2017

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

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
July 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	77.4	83.7	86.6	89.7	89.4	83.7	72.6	57.9	45.6	35.5	31.1	32.0	28.9	27.2	24.2	24.4	26.6	26.7	25.8	34.6	39.6	49.2	58.4	58.6	50.4	89.7	24.2
2	64.5	73.8	76.7	80.4	80.1	84.0	80.3	63.7	46.1	34.9	33.4	29.5	24.4	22.9	19.4	30.5	30.0	30.9	35.8	49.3	58.7	67.4	70.6	76.3	52.6	84.0	19.4
3	80.2	80.7	79.5	85.7	86.3	85.1	73.1	53.2	41.7	32.5	31.7	27.5	23.4	25.0	21.4	18.1	16.6	17.3	19.6	22.6	26.9	46.4	55.3	61.0	46.3	86.3	16.6
4	63.7	73.3	72.4	80.6	77.1	74.1	66.4	44.8	35.9	24.6	20.1	17.6	17.0	19.1	19.2	18.7	18.3	18.0	24.9	43.4	49.4	51.6	54.0	59.0	43.5	80.6	17.0
5	68.4	69.4	75.8	79.6	79.9	76.0	65.4	53.2	34.9	25.5	21.6	20.0	18.1	17.6	17.0	18.2	17.3	28.3	62.3	54.4	65.8	73.0	77.0	67.0	49.4	79.9	17.0
6	74.5	79.0	75.4	79.1	81.9	81.2	74.9	62.7	44.5	33.1	29.7	24.5	23.2	35.7	36.2	36.2	36.2	30.4	27.5	40.2	49.8	64.5	72.2	76.2	52.9	81.9	23.2
7	79.5	77.0	84.9	88.0	88.8	83.6	67.8	54.4	42.9	39.6	38.4	37.8	26.1	19.1	18.8	19.7	17.5	13.5	17.8	26.7	37.1	43.0	57.6	63.5	47.6	88.8	13.5
8	71.3	74.8	78.9	78.2	77.7	81.7	71.1	58.0	45.9	28.1	28.6	27.1	24.1	22.2	19.7	17.8	18.1	20.3	26.9	32.0	44.7	48.5	54.0	61.9	46.3	81.7	17.8
9	65.6	73.3	73.5	79.7	81.2	74.9	63.8	49.3	43.8	23.4	18.9	17.6	17.6	18.0	18.6	19.9	24.8	33.7	27.5	33.8	44.0	44.0	53.5	57.6	44.1	81.2	17.6
10	61.3	69.6	72.8	74.8	74.3	76.8	76.0	52.0	34.0	31.7	32.4	35.9	65.8	55.7	46.6	46.2	64.3	72.2	70.3	72.2	83.2	87.9	86.3	87.5	63.7	87.9	31.7
11	89.9	91.2	91.3	91.4	91.7	91.7	80.7	70.0	57.6	49.5	44.4	38.7	27.9	26.2	26.7	25.7	26.4	25.5	29.4	38.6	51.7	58.9	68.4	81.1	57.3	91.7	25.5
12	87.0	89.8	91.9	92.6	93.1	90.1	79.4	66.0	58.6	50.6	46.5	41.8	37.7	29.3	26.7	25.4	24.4	23.1	25.2	40.3	45.1	50.2	51.2	60.7	55.3	93.1	23.1
13	74.2	81.0	82.8	84.5	88.4	85.6	73.1	57.3	41.4	32.4	27.4	25.0	20.7	17.2	14.4	14.8	16.2	15.7	18.6	25.7	41.3	43.2	48.2	42.9	44.7	88.4	14.4
14	56.5	52.7	46.5	57.8	62.7	69.5	58.9	47.2	34.6	26.1	24.5	23.9	22.2	19.9	20.5	24.6	23.0	21.6	22.5	30.0	37.7	39.2	46.9	49.5	38.3	69.5	19.9
15	40.3	41.0	33.4	34.4	38.5	40.1	37.7	28.5	29.5	27.0	26.1	26.6	23.8	21.3	20.4	22.3	23.8	26.8	46.1	57.0	71.3	72.1	81.8	87.8	39.9	87.8	20.4
16	88.4	90.1	91.7	92.9	94.0	91.6	77.5	65.4	45.9	42.4	41.9	37.6	32.3	30.7	28.9	27.6	25.5	24.3	25.0	28.7	38.4	46.8	56.6	60.9	53.5	94.0	24.3
17	61.1	67.0	69.8	68.4	70.8	73.4	62.9	40.1	29.0	23.8	22.1	20.9	20.1	17.0	14.5	13.2	14.3	16.9	18.9	27.2	33.8	40.1	46.7	57.3	38.7	73.4	13.2
18	63.0	68.4	71.3	75.0	77.8	79.8	63.7	48.4	34.2	28.2	23.1	21.0	18.9	15.5	15.9	16.3	15.8	15.8	17.8	25.0	33.9	34.5	39.9	51.1	39.8	79.8	15.5
19	56.7	62.6	60.3	64.3	80.4	85.3	76.3	58.7	37.0	30.5	26.3	22.4	18.7	16.3	14.0	16.2	17.3	20.7	23.1	31.7	35.2	37.3	40.0	44.6	40.7	85.3	14.0
20	52.1	51.4	47.8	48.9	51.7	63.2	56.2	48.8	26.3	22.6	17.5	12.6	10.0	10.5	9.9	8.3	6.6	9.0	17.2	21.0	27.5	31.1	43.3	48.4	30.9	63.2	6.6
21	52.3	48.9	62.6	67.3	67.4	68.5	65.5	46.1	30.0	27.2	23.9	19.6	16.2	13.9	14.8	14.9	14.4	13.9	14.9	20.3	27.2	34.3	47.6	54.0	36.1	68.5	13.9
22	60.7	67.1	70.0	74.0	75.4	73.9	61.0	44.6	28.4	23.8	21.4	19.7	19.6	19.9	19.4	18.4	18.5	19.9	21.5	27.6	38.9	49.7	53.2	64.4	41.3	75.4	18.4
23	70.8	71.5	74.1	77.5	80.1	76.4	66.7	49.5	35.2	26.8	22.7	19.9	18.3	17.3	14.8	11.2	10.2	10.6	12.3	21.4	32.5	39.1	43.1	54.2	39.8	80.1	10.2
24	61.8	65.0	71.0	72.3	77.8	75.4	63.1	52.7	42.0	37.7	30.5	25.8	22.7	20.7	19.6	15.8	14.9	17.0	16.5	25.6	34.0	48.0	51.0	61.1	42.6	77.8	14.9
25	58.1	67.8	66.5	69.7	74.4	77.4	66.4	56.1	48.9	40.1	37.4	33.0	30.3	28.0	26.9	27.9	26.9	29.2	33.6	39.8	46.8	52.2	59.6	71.9	48.7	77.4	26.9
26	74.2	78.3	81.1	83.9	85.9	85.6	74.1	59.9	42.7	37.0	31.4	19.8	19.8	19.4	20.8	16.1	17.4	27.4	34.0	37.3	42.7	53.9	59.7	61.6	48.5	85.9	16.1
27	67.1	70.8	74.3	72.3	76.8	76.1	67.9	53.0	47.3	44.3	40.0	30.1	24.8	22.7	25.9	22.7	20.1	20.7	25.9	31.1	37.5	43.1	48.3	59.4	45.9	76.8	20.1
28	66.5	73.5	79.7	82.2	84.2	82.7	75.8	56.1	37.5	27.7	24.2	23.0	20.8	17.0	13.2	13.4	13.6	19.1	22.0	31.0	35.1	37.2	44.7	52.4	43.0	84.2	13.2
29	55.3	54.4	60.2	64.8	70.0	73.7	68.4	54.9	36.3	26.8	21.6	20.9	17.0	16.7	14.7	13.7	12.7	14.2	16.5	22.8	32.3	44.2	48.4	53.4	38.1	73.7	12.7
30	66.9	69.2	74.6	77.2	83.8	80.1	67.9	49.5	35.6	24.8	21.5	16.1	14.9	14.7	13.2	12.3	12.6	15.6	15.4	18.5	27.2	38.1	43.9	47.3	39.2	83.8	12.3
31	58.1	60.2	68.4	65.9	68.0	70.4	61.2	40.4	25.8	17.2	16.4	16.0	13.1	11.3	10.4	10.6	10.8	11.4	17.2	24.0	30.0	36.5	43.3	49.8	34.8	70.4	10.4
Avg	66.7	70.2	72.4	75.3	77.7	77.8	68.3	53.0	39.3	31.5	28.3	25.3	23.2	21.5	20.2	20.0	20.5	22.2	26.2	33.3	41.9	48.6	55.0	60.7	45.0	81.4	17.5
Max	89.9	91.2	91.9	92.9	94.0	91.7	80.7	70.0	58.6	50.6	46.5	41.8	37.7	29.3	26.7	25.4	24.4	23.1	25.2	40.3	45.1	50.2	51.2	60.7	63.7	94.0	31.7
Min	40.3	41.0	33.4	34.4	38.5	40.1	37.7	28.5	25.8	17.2	16.4	12.6	10.0	10.5	9.9	8.3	6.6	9.0	12.3	18.5	26.9	31.1	39.9	42.9	30.9	63.2	6.6

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
August 2017

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	56.7	63.7	67.4	69.9	73.6	74.4	66.3	49.5	38.2	28.1	25.6	21.3	19.9	15.8	13.9	15.1	13.8	16.3	23.0	29.2	36.7	44.7	51.2	60.0	40.6	74.4	13.8
2	67.9	72.7	79.7	81.7	84.0	79.9	77.9	66.9	63.5	57.3	54.0	50.9	46.1	44.3	46.1	45.9	50.5	53.6	57.7	64.7	69.3	71.4	74.6	70.7	63.8	84.0	44.3
3	73.0	77.6	86.8	91.0	92.7	93.1	83.5	66.7	58.7	52.2	46.8	43.5	37.5	32.6	30.1	29.9	25.1	23.0	22.3	37.3	45.3	50.7	56.2	59.3	54.8	93.1	22.3
4	64.6	72.4	80.5	85.2	87.5	87.8	76.4	61.6	44.5	32.1	30.4	25.8	24.5	24.9	24.0	24.2	31.2	37.6	50.3	59.2	61.6	65.2	72.4	78.6	54.3	87.8	24.0
5	77.5	78.3	83.5	84.4	82.9	85.4	83.5	71.3	66.5	62.5	59.5	60.5	57.9	57.3	57.4	53.4	55.6	57.1	59.3	61.6	68.5	78.7	83.5	88.1	69.8	88.1	53.4
6	89.1	91.6	92.1	92.6	92.6	92.7	86.3	68.7	50.9	43.5	40.0	36.4	34.2	33.1	32.1	32.1	31.4	31.6	33.1	37.2	51.0	56.2	57.3	58.8	56.9	92.7	31.4
7	61.0	70.3	78.2	83.8	88.8	88.2	79.1	63.3	49.6	38.8	32.8	29.0	22.6	18.2	15.6	17.2	20.0	19.5	25.1	27.2	36.7	50.3	56.1	63.4	47.3	88.8	15.6
8	64.9	66.8	65.7	66.6	72.7	78.5	73.6	57.2	45.3	45.5	37.5	29.2	29.6	30.1	30.7	37.4	39.0	39.4	45.9	55.6	63.0	69.9	74.6	79.3	54.1	79.3	29.2
9	83.4	86.7	90.5	92.0	93.6	93.6	90.9	76.4	58.4	46.2	43.3	37.7	30.9	27.0	31.4	45.2	69.2	61.0	58.0	66.9	73.5	74.4	72.6	79.4	65.9	93.6	27.0
10	82.3	83.4	84.2	82.3	81.4	84.4	79.4	66.1	41.5	32.5	25.2	23.9	22.3	19.7	17.4	19.2	19.6	23.2	30.3	35.9	45.1	49.2	53.9	60.6	48.5	84.4	17.4
11	70.0	79.2	83.2	87.2	88.3	87.2	88.9	76.0	54.3	31.6	26.7	25.8	25.5	19.5	17.3	18.5	21.1	30.0	34.5	34.0	47.1	70.4	83.1	87.4	53.6	88.9	17.3
12	88.0	84.8	86.8	85.7	86.5	82.5	80.6	76.6	66.6	54.7	38.7	30.1	25.5	22.9	21.3	17.8	15.6	17.9	29.7	36.2	46.3	49.7	48.5	42.0	51.5	88.0	15.6
13	48.2	48.6	51.6	55.1	59.0	62.4	65.2	59.7	43.6	31.8	29.7	29.1	27.4	25.5	26.3	30.1	62.2	67.2	65.1	67.1	66.0	64.1	66.8	74.3	51.1	74.3	25.5
14	80.9	84.5	88.7	89.5	90.4	90.0	89.5	87.1	80.4	64.6	53.8	41.0	36.9	34.7	32.0	27.6	27.7	28.4	29.1	40.6	53.7	57.4	62.8	68.1	60.0	90.4	27.6
15	73.8	78.5	81.3	83.7	85.1	87.0	82.1	64.7	47.2	34.0	29.5	25.0	21.2	16.2	14.2	13.0	12.9	12.8	13.0	26.1	34.2	40.0	54.6	62.0	45.5	87.0	12.8
16	67.1	72.9	77.9	82.4	84.4	85.1	76.4	58.4	36.2	24.8	20.3	17.9	12.5	12.4	16.8	15.2	15.2	16.5	19.5	27.2	37.0	42.7	50.6	58.5	42.8	85.1	12.4
17	61.7	66.1	69.0	71.9	73.1	73.7	74.5	59.1	37.8	32.0	29.4	26.6	23.3	21.8	19.8	19.7	20.0	21.2	24.6	28.4	40.0	49.0	52.0	61.7	44.0	74.5	19.7
18	67.6	69.2	74.7	79.2	80.0	81.7	78.7	65.5	46.9	27.5	22.8	19.2	14.2	9.6	10.4	11.5	9.7	9.0	13.0	20.2	28.2	36.7	41.4	46.9	40.2	81.7	9.0
19	48.5	49.2	55.5	55.4	49.6	30.9	24.0	23.7	22.5	22.9	23.5	18.9	16.8	17.3	15.3	14.8	19.1	23.5	27.0	30.9	33.2	41.1	50.4	56.3	32.1	56.3	14.8
20	63.7	69.2	74.9	77.4	79.6	81.2	77.7	64.7	53.3	36.2	28.3	23.5	20.1	16.7	16.3	19.5	18.8	16.1	21.0	28.1	36.5	41.2	43.2	50.5	44.1	81.2	16.1
21	56.7	64.0	65.0	68.2	74.3	75.5	70.2	49.3	33.9	30.5	32.9	30.4	25.8	23.6	22.9	20.4	19.9	20.0	25.0	33.9	38.9	46.2	52.6	60.6	43.4	75.5	19.9
22	63.9	68.9	69.6	74.2	76.2	78.9	72.7	56.7	35.6	24.2	22.2	19.4	17.7	14.9	14.0	12.1	11.6	12.5	15.0	27.8	35.1	42.2	50.1	54.0	40.4	78.9	11.6
23	59.9	63.5	66.8	71.2	73.6	75.3	72.6	57.3	42.2	25.7	17.8	16.2	16.1	15.2	13.9	14.4	14.0	16.0	18.3	25.9	32.8	34.0	39.2	40.0	38.4	75.3	13.9
24	45.1	49.8	51.5	54.0	57.3	60.5	52.3	58.2	46.4	30.2	27.1	26.4	28.4	24.3	35.8	68.3	70.5	65.1	75.4	84.0	88.3	89.3	92.7	92.4	57.2	92.7	24.3
25	92.3	92.3	93.2	93.3	94.0	94.8	94.3	89.4	73.4	46.2	37.8	31.5	29.7	25.1	24.2	23.4	22.5	21.0	23.7	35.4	47.7	54.8	58.0	63.2	56.7	94.8	21.0
26	66.7	68.9	72.5	76.6	77.3	81.3	78.5	59.9	38.0	19.7	16.5	10.1	7.9	8.1	6.5	6.6	8.5	12.0	18.7	29.6	34.7	45.1	47.9	47.6	39.1	81.3	6.5
27	53.6	55.7	60.0	65.0	67.1	71.7	65.8	54.9	38.2	21.5	15.3	13.2	11.6	9.8	9.2	8.6	7.5	8.0	10.9	25.7	30.6	33.1	45.8	48.6	34.6	71.7	7.5
28	53.4	57.4	60.4	61.7	65.2	67.6	66.8	52.9	33.8	20.0	12.2	12.0	9.5	7.8	7.2	5.9	4.7	9.8	16.0	23.1	31.8	36.7	47.5	50.7	33.9	67.6	4.7
29	53.1	51.0	51.9	51.8	53.8	55.5	42.6	37.4	35.2	29.8	19.6	15.4	14.9	13.7	13.2	14.2	16.2	19.4	23.7	26.1	31.1	34.9	40.0	47.1	33.0	55.5	13.2
30	44.5	45.3	52.3	53.2	51.8	54.7	55.9	45.0	34.2	23.0	17.6	15.9	15.5	14.2	13.5	13.2	12.7	10.9	17.5	22.7	31.2	40.5	48.2	57.2	32.9	57.2	10.9
31	62.7	64.8	66.8	65.3	69.4	70.6	68.5	67.1	45.9	32.1	27.0	23.1	20.2	19.9	17.0	18.0	18.8	20.6	24.4	29.0	30.6	28.4	38.1	47.0	40.6	70.6	17.0
Avg	65.9	69.3	73.0	75.2	77.0	77.6	73.4	61.7	47.2	35.5	30.4	26.7	24.1	21.8	21.5	23.0	25.3	26.5	30.6	38.0	45.3	51.2	57.0	61.8	47.5	80.5	19.3
Max	92.3	92.3	93.2	93.3	94.0	94.8	94.3	89.4	80.4	64.6	59.5	60.5	57.9	57.3	57.4	68.3	70.5	67.2	75.4	84.0	88.3	89.3	92.7	92.4	69.8	94.8	53.4
Min	44.5	45.3	51.5	51.8	49.6	30.9	24.0	23.7	22.5	19.7	12.2	10.1	7.9	7.8	6.5	5.9	4.7	8.0	10.9	20.2	28.2	28.4	38.1	40.0	32.1	55.5	4.7

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
September 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	52.7	58.3	64.0	69.4	73.7	76.8	76.1	68.9	48.6	34.8	30.2	26.7	23.8	22.7	22.0	20.2	19.6	20.6	22.9	28.0	36.0	45.3	52.5	60.2	43.9	76.8	19.6
2	66.0	69.8	74.4	75.5	79.6	81.8	78.3	62.5	42.8	25.6	21.5	17.9	15.4	13.1	10.1	9.7	9.5	10.0	13.2	20.2	33.0	39.4	44.8	50.7	40.2	81.8	9.5
3	53.0	59.6	60.5	61.9	63.4	62.1	66.1	64.6	53.5	34.8	23.2	17.7	12.7	10.9	8.1	6.5	5.2	6.9	9.3	16.2	23.8	28.6	33.6	37.0	34.1	66.1	5.2
4	40.8	50.4	54.3	60.3	71.1	74.8	76.7	73.2	56.7	45.1	39.2	37.4	35.8	34.5	35.2	35.3	35.8	36.3	38.4	42.6	42.7	42.6	50.3	60.7	48.8	76.7	34.5
5	64.5	68.5	70.7	74.1	76.5	79.5	73.9	59.9	38.2	35.0	31.9	24.3	18.2	13.1	10.8	12.0	14.4	16.9	23.3	28.9	38.9	42.3	44.9	51.0	42.2	79.5	10.8
6	55.9	60.5	66.5	67.8	73.2	76.0	74.9	65.6	46.1	31.6	23.4	21.4	19.2	16.1	13.3	10.9	10.8	14.6	20.3	28.9	37.6	45.9	49.2	56.8	41.1	76.0	10.8
7	60.9	61.6	66.0	68.9	71.6	74.7	72.3	50.3	29.3	17.6	10.7	10.2	10.7	9.3	8.4	7.7	7.6	10.9	15.1	18.0	24.1	33.6	34.8	38.5	33.9	74.7	7.6
8	44.7	49.6	52.8	56.1	56.4	59.7	59.6	49.1	38.4	24.4	12.5	10.4	9.8	9.6	10.5	11.6	13.3	17.8	17.4	21.8	28.3	30.5	35.9	42.4	31.8	59.7	9.6
9	51.5	53.4	58.3	64.0	68.7	71.9	74.5	63.5	44.2	32.1	26.6	24.5	22.2	19.8	19.6	21.6	21.2	27.8	37.5	42.3	58.9	64.8	72.7	76.3	46.6	76.3	19.6
10	78.2	80.8	85.3	88.1	87.8	88.9	89.4	85.0	61.0	41.5	37.0	32.7	29.0	26.9	25.4	24.9	27.2	30.9	37.0	44.1	55.5	62.0	68.5	70.8	56.6	89.4	24.9
11	76.1	80.3	80.7	82.8	85.7	87.4	86.1	73.2	52.0	30.6	25.2	22.3	17.1	15.5	13.4	11.4	11.1	13.5	20.1	32.9	38.4	44.5	52.0	56.5	46.2	87.4	11.1
12	62.5	64.4	67.9	72.1	72.8	76.3	74.8	58.7	37.9	21.4	14.9	11.1	12.2	12.2	11.6	11.7	12.2	14.3	22.9	31.7	34.2	36.4	36.5	39.9	37.9	76.3	11.1
13	43.4	43.6	40.1	43.6	51.5	51.9	55.9	52.8	51.0	47.1	37.7	35.8	30.2	28.5	28.2	24.7	26.5	38.4	42.0	48.9	52.4	56.6	62.8	65.7	44.1	65.7	24.7
14	71.4	87.0	91.4	92.7	93.1	93.9	93.1	94.1	93.0	87.0	87.0	90.4	90.5	90.2	90.5	88.2	84.1	82.4	85.2	86.7	87.1	87.6	88.1	87.3	88.4	94.1	71.4
15	87.6	86.8	86.7	91.2	91.3	90.1	90.1	89.0	86.6	79.8	78.4	75.5	74.4	75.9	74.8	80.8	84.8	87.1	89.5	91.6	90.7	91.8	91.6	91.4	85.7	91.8	74.4
16	92.3	92.2	88.7	87.7	92.2	92.6	92.9	92.9	88.0	80.3	82.3	81.1	75.3	70.9	66.6	68.6	65.1	62.8	70.2	84.8	90.0	90.9	92.1	92.2	83.0	92.9	62.8
17	91.3	90.7	90.6	90.4	90.7	91.0	91.3	92.3	86.6	67.7	59.3	53.1	45.5	41.2	40.7	38.4	40.6	44.9	60.6	69.1	78.2	81.7	85.5	87.9	71.2	92.3	38.4
18	89.7	90.4	89.0	87.6	84.2	82.0	78.8	80.2	76.4	56.2	42.4	40.4	36.1	40.8	43.6	51.3	67.1	85.5	87.3	85.8	87.7	87.6	88.2	91.1	72.9	91.1	36.1
19	91.6	88.5	87.7	83.4	85.1	87.6	84.6	85.0	77.0	66.7	60.1	53.8	49.6	50.6	42.9	41.1	77.1	84.3	84.3	88.1	88.6	88.8	87.6	86.5	75.9	91.6	41.1
20	81.4	78.4	76.2	77.1	80.6	74.1	71.4	68.6	Au	Au	Au	Au	85.5	85.0	82.7	66.6	71.2	83.4	80.0	82.5	78.0	76.6	86.3	88.2	78.7	88.2	66.6
21	87.7	87.5	87.8	87.6	88.0	88.3	89.0	88.2	84.9	68.8	52.0	46.5	41.3	38.9	39.3	42.1	45.3	52.8	64.8	69.6	68.6	71.1	70.1	80.9	68.4	89.0	38.9
22	89.9	92.0	92.7	93.4	92.1	89.4	81.3	80.5	80.3	84.4	82.3	76.4	80.3	88.6	83.9	83.6	85.1	86.3	87.4	89.4	89.1	89.5	89.2	89.0	86.5	93.4	76.4
23	88.1	87.1	87.2	87.9	89.1	88.6	88.4	86.3	81.3	81.2	82.9	81.7	70.7	64.5	62.4	63.4	62.2	59.3	67.1	77.3	80.0	83.7	84.3	85.5	78.8	89.1	59.3
24	88.6	89.2	90.2	89.7	89.7	89.1	88.4	82.7	71.2	56.2	44.1	42.4	47.0	45.9	43.9	43.1	43.7	50.0	61.5	70.1	81.7	84.5	85.5	88.0	69.4	90.2	42.4
25	89.6	89.6	89.6	89.5	89.5	88.7	87.9	81.4	75.6	58.6	59.1	56.8	54.8	44.0	43.3	46.5	48.8	57.7	66.7	72.6	77.9	79.7	83.4	86.3	71.6	89.6	43.3
26	85.2	86.9	87.1	87.4	87.5	88.3	88.6	89.0	79.6	69.6	65.2	54.9	51.5	46.7	47.8	49.1	66.2	77.8	85.9	87.0	88.6	90.4	90.3	92.6	76.8	92.6	46.7
27	92.3	92.6	92.8	93.0	92.8	91.9	91.8	91.7	81.8	60.0	46.1	47.9	40.4	30.9	29.2	28.9	27.7	31.4	48.1	61.9	67.1	75.9	81.3	85.1	65.9	93.0	27.7
28	88.8	89.8	89.9	89.8	91.1	89.7	89.7	82.6	68.1	43.7	30.7	27.5	26.5	23.2	21.9	23.3	25.6	30.0	37.1	42.6	46.6	53.1	58.6	63.7	55.6	91.1	21.9
29	72.8	81.5	82.5	85.1	86.9	89.3	90.4	81.9	69.5	40.3	32.7	29.3	27.8	26.7	26.2	25.4	26.7	30.5	48.2	56.3	66.2	74.6	76.9	77.2	58.5	90.4	25.4
30	81.9	81.2	83.4	85.2	89.3	89.6	88.9	83.3	72.7	52.0	47.8	45.1	46.0	62.7	69.1	68.3	73.3	72.1	72.9	69.2	64.0	60.8	63.4	66.9	70.4	89.6	45.1
Avg	74.0	76.4	77.8	79.4	81.5	82.2	81.5	75.9	64.6	50.8	44.4	41.2	40.0	38.6	37.5	37.2	40.3	44.6	50.5	56.3	61.1	64.7	68.0	71.5	60.1	84.5	33.9
Max	92.3	92.6	92.8	93.4	93.1	93.9	93.1	94.1	93.0	87.0	87.0	90.4	90.5	90.2	90.5	88.2	85.1	87.1	89.5	91.6	90.7	91.8	92.1	92.6	88.4	94.1	76.4
Min	40.8	43.6	40.1	43.6	51.5	51.9	55.9	49.1	29.3	17.6	10.7	10.2	9.8	9.3	8.1	6.5	5.2	6.9	9.3	16.2	23.8	28.6	33.6	37.0	31.8	59.7	5.2

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APPENDIX B: PERFORMANCE AUDIT REPORTS
THIRD QUARTER 2017



PRELIMINARY METEOROLOGICAL AUDIT REPORT

Client : Tintina Resources
 SITE : Black Butte DATE : 09/20/17

Audit Start Time : 8:50 MST Audit End Time : 12:00 MST

Temperature

Audit Device : Control Company Digital Thermometer
 Model Number : 4000 Serial Number : 140251289
 Last certified : 04/28/17
 Sensor Make : Climatronics
 Model Number : 100093 Serial Number Upper: P12535 Serial Number Lower: P12535

Temperature bath results as is

	9m	9m	2m	2m	9m - 2m
Audit Value	DAS Value	DAS Diff.	DAS Value	DAS Diff.	DAS Diff.
°C	°C	°C	°C	°C	°C
-10.10	-9.81	0.29	-9.60	0.50	0.21
20.00	19.60	-0.40	19.50	-0.50	-0.10
50.00	49.30	-0.70	49.00	-1.00	-0.30

Wind Direction

Alignment Audit Device :	Nextar	Linearity Check from DAS (as found)						
Model Number :	X3-T	Setpoint	Clockwise	Counter-CW	Diff CW	Diff CCW		
Linearity Audit Device :	Climatronics							
Model Number :	101966	Serial Number :	72	0	0.4	0.5	0.4	0.5
Sensor height :	10 Meter			30	31.5	32.0	1.5	2.0
Sensor Make :	Climatronics			60	62.0	62.0	2.0	2.0
Model Number :	102083	Serial Number :	1849	90	91.7	91.8	1.7	1.8
				120	121.4	121.8	1.4	1.8
				150	151.3	151.4	1.3	1.4
				180	181.1	181.0	1.1	1.0
				210	210.7	210.7	0.7	0.7
				240	240.3	241.0	0.3	1.0
				270	270.0	270.0	0.0	0.0
Crossarm Orientation :	N-S			300	300.9	299.9	0.9	-0.1
Magnetic Declination :	12			330	330.6	330.6	0.6	0.6
Measured Degrees :	1						Max Diff	2.0
Sensor response aligned with crossarm (as found) :	0.4							2.0
Sensor response aligned with crossarm (as left) :	0.0							

Linearity Check from DAS (as left)					
Setpoint	Clockwise	Counter-CW	Diff CW	Diff CCW	
0	0.1	0.1	0.1	0.1	
90	90.7	90.6	0.7	0.6	
180	180.0	180.0	0.0	0.0	
270	270.3	270.7	0.3	0.7	
			Max Diff	0.7	0.7

Wind Speed

Audit Device : RMYoung
 Model Number : 18811 Serial Number : CA02929
 Last certified : 4/21/17
 Sensor height : 10 Meter
 Sensor Make : Climatronics
 Model Number : 102083 Serial Number : 1849

Synchronous motor checks

Known Value	Audit Value	DAS	
		Station Value	DAS Diff.
RPM	MPS	MPS	MPS
0	0.2	0.2	0.0
300	6.7	6.8	0.1
600	13.1	13.2	0.1
990	21.4	21.7	0.3

Relative Humidity

Audit Device : Control company Hygrometer
 Model Number : 4185 Serial Number : 61644981
 Last certified : 4/28/17
 Sensor height : 10 Meter
 Sensor Make : Met One
 Model Number : 083E-0-35 Serial Number : P18245

Audit RH %RH	Audit Station RH %RH	Audit Diff. %RH
79.5	82.9	3.4

Barometric Pressure

Audit Device : Delta Cal
 Model Number : Delta Cal Serial Number : 999
 Last certified : 05/17/17
 Sensor Make : Climatronics
 Model Number : 102663-G0 Serial Number : 42017

Audit Value In Hg	Station Value In Hg	Audit Diff. In Hg
23.94	23.99	0.05

Solar Radiation

Audit Device : Li Cor
 Model Number : LI-200 Serial Number : PY82228
 Last certified : 05/21/15 uA/m² : 98.51
 Sensor Make : Met One
 Model Number : 096-1 Serial Number : PY69829

Audit Value w/m2	DAS	
	Station Value w/m2	DAS Diff. %
60	64	6.7

Precipitation

Audit Device : Fisher Scientific
 Model Number : S32814A Serial Number : 250 ml
 Last certified : NA
 Sensor Make : Climatronics
 Model Number : 100097-1-G0-H0 Serial Number : N3939
 Opening : 8 Inch
 Bucket Tip : 0.254 MM
 Bucket Tip Volume : 8.24 ML
 Level checked : OK
 Wind Screen in place : OK

Known Value ML	Known Value Bucket Tips	Station Value Bucket Tips	% Diff
250.0	26	28	7.7
250.0	28	28	7.7

Signature Site Operator : _____

Signature Auditor : _____

Note: These preliminary results are subject to appropriate changes following verification of audit equipment, procedures, and calculations.

**APPENDIX C: EVAPORATION AND PRECIPITATION
SUMMARY, THIRD QUARTER 2017**

EVAPORATION AND PRECIPITATION SUMMARY FOR TINTINA SITE

(All values in inches)

DATE	TIME	EVAPORATION AS-FOUND	EVAPORATION AS-LEFT	PRECIPITATION (MANUAL)	PRECIPITATION (AUTOMATED)	TOTAL EVAPORATION	NET EVAPORATION
6/30/2017	0900		2.865				
7/12/2017	1130	1.000	3.500	0.08	0.05	1.945	1.865
7/14/2017	0935	3.144	3.144	0.23	0.10	0.586	0.356
7/19/2017	1000	1.576	3.500	0.04	0.04	1.608	1.568
7/20/2017	1200	3.230	3.230	0.00	0.00	0.270	0.270
7/25/2017	1456	1.596	3.500	0.00	0.00	1.634	1.634
7/26/2017	1330	3.360	3.360	0.00	0.00	0.140	0.140
7/31/2017	1400	1.874	3.500	0.00	0.00	1.486	1.486
TOTAL PRECIPITATION FOR JUNE 30 - JULY 31				0.35	0.19		
TOTAL EVAPORATION FOR JUNE 30 - JULY 31						7.67	7.67

EVAPORATION AND PRECIPITATION SUMMARY FOR TINTINA SITE

(All values in inches)

DATE	TIME	EVAPORATION AS-FOUND	EVAPORATION AS-LEFT	PRECIPITATION (MANUAL)	PRECIPITATION (AUTOMATED)	TOTAL EVAPORATION	NET EVAPORATION
7/31/2017	1400		3.500				
8/3/2017	0920	2.888	2.888	0.00	0.00	0.612	0.612
8/7/2017	0940	2.018	2.018	0.00	0.00	0.870	0.870
8/9/2017	1130	1.500	3.500	0.00	0.00	0.518	0.518
8/18/2017	1000	1.900	3.500	0.10	0.11	1.700	1.600
8/22/2017	1015	2.662	2.662	0.00	0.00	0.838	0.838
8/31/2017	1200	1.098	3.500	0.04	0.06	1.604	1.564
TOTAL FOR JULY 31 - AUGUST 31				0.14	0.17	6.14	6.00

EVAPORATION AND PRECIPITATION SUMMARY FOR TINTINA SITE

(All values in inches)

DATE	TIME	EVAPORATION AS-FOUND	EVAPORATION AS-LEFT	PRECIPITATION (MANUAL)	PRECIPITATION (AUTOMATED)	TOTAL EVAPORATION	NET EVAPORATION
8/31/2017	1200		3.500				
9/13/2017	0900	1.096	3.500	0.00	0.00	2.404	2.404
9/15/2017	1100	3.779	3.500	0.86	0.81	0.581	-0.279
9/19/2017	0900	3.500	3.500	0.22	0.18	0.220	0.000
9/25/2017	0930	3.417	3.417	0.24	0.16	0.323	0.083
TOTAL FOR AUGUST 31 - SEPTEMBER 25				1.32	1.15	3.53	2.21

**TINTINA RESOURCES, INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
Fourth Quarter 2017**

Prepared for:

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February 15, 2018

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: Jeffrey S. Bell

Signature: 

Title: Senior Field Technician

Date: 2/9/18

Reviewer: Steven R. Heck

Signature: 

Title: Meteorologist

Date: 2/15/18

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APPENDICES

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

1.0 INTRODUCTION

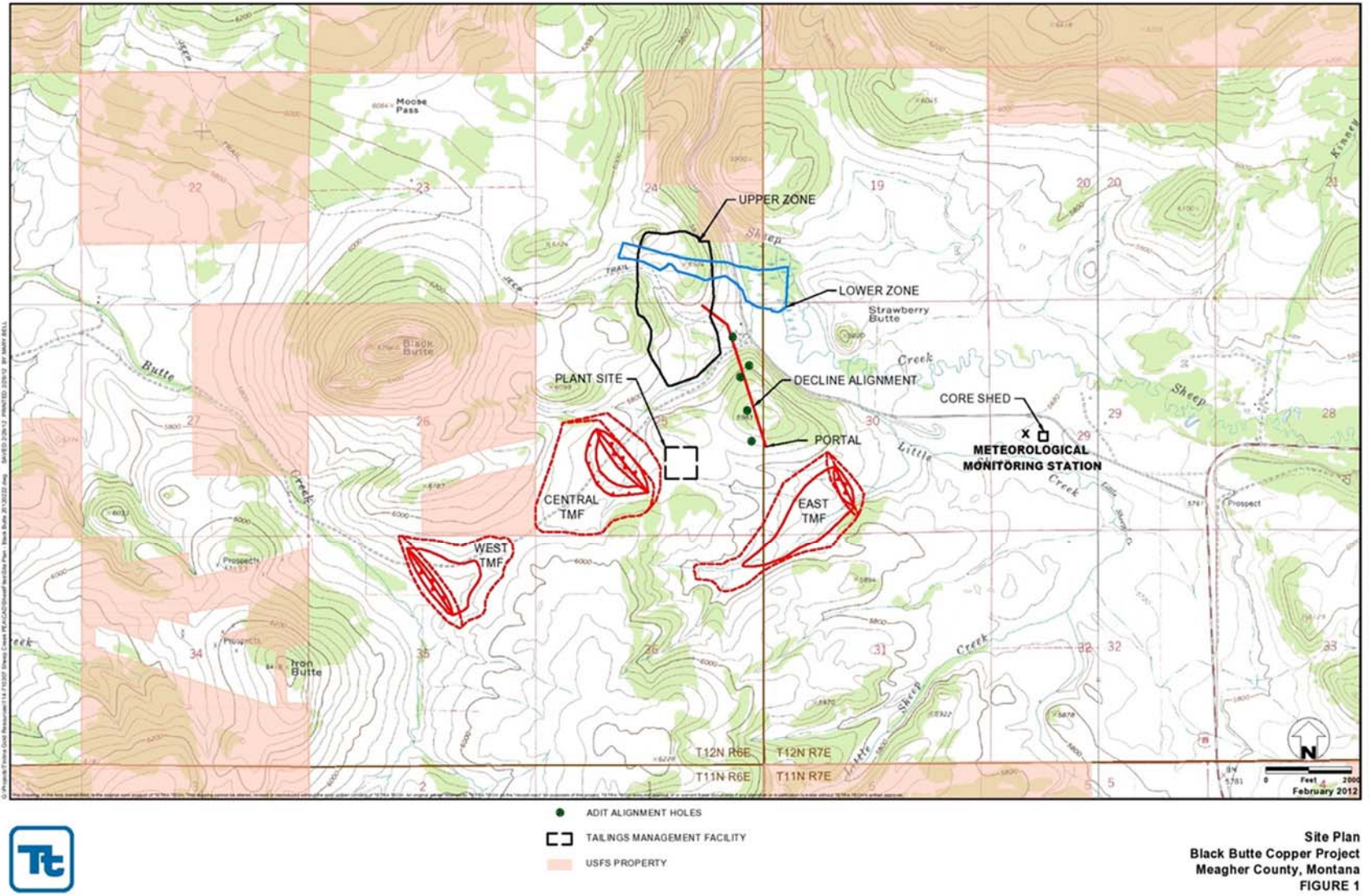
Tintina Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately characterize 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 location of the monitoring site.

This report presents the data collected during the fourth quarter (October through December) of 2017. 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.

Figure 1. Monitoring Site Location



2.0 MONITORING SYSTEM OPERATIONS

The installation of the monitoring meteorological system equipment took place in April 2012, soon after the equipment was received from the manufacturers. The installation and calibration of the equipment required about two weeks to complete. All meteorological sensors were in full operation and producing valid data by April 30, 2012.

Steve Heck of Bison conducted performance audits of the meteorological system on December 6, 2017, and made any necessary calibration adjustments to the meteorological system following the audits. The Bison report of the audits is presented in Appendix B.

Manual measurements of evaporation and precipitation were recorded by Tintina's on-site personnel two to three times per week. Operation of the evaporation pan during this quarter was limited, ending at the start of October due to frequent subfreezing temperatures. The manual measurement sheets had not been received at the time of this report. However, problems with drifting of the precipitation gauge were limited to the last two days of December.

3.0 CALIBRATION DATA

As discussed in Section 4.0, the system's as-found condition was audited on December 6, 2017. No calibration adjustments were made to the system.

4.0 PERFORMANCE AUDIT DATA

Steve Heck of Bison conducted performance audits of the meteorological system on December 6, 2017. No calibration adjustments were necessary. The Bison report of the audits is presented in Appendix B.

5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the fourth quarter of 2017 are given in Tables 1 and 2. In these tables, the number of possible data values during each month of the quarter is given, together with the number of valid readings and the number of hours spent on quality assurance activities (such as calibrations, performance audits, and maintenance on the sensors). The quality assurance hours are added to the number of hours of valid data to compute the net percentage data recovery.

During the fourth quarter the net percentage data recovery was 99.8 percent for all parameters at the site. The only data losses were for precipitation on December 30 and 31, when false positive readings were noted due to drifting snow. The hourly precipitation values for those dates were set to zero in Appendix A, based on contemporary data from other regional monitoring stations that showed no precipitation.

Table 1. Monthly Data Completeness

October 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
Temperature 9 Meters	744	744	100.0	0	100.0
Temperature 2 Meters	744	744	100.0	0	100.0
Temperature Delta T	744	744	100.0	0	100.0
Solar Radiation	744	744	100.0	0	100.0
Barometric Pressure	744	744	100.0	0	100.0
Relative Humidity	744	744	100.0	0	100.0
Precipitation	744	744	100.0	0	100.0
Total	7,440	7,440	100.0	0	100.0

Table 1. Monthly Data Completeness (Continued)

November 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	720	100.0	0	100.0
Wind Direction	720	720	100.0	0	100.0
Standard Deviation	720	720	100.0	0	100.0
Temperature 9 Meters	720	720	100.0	0	100.0
Temperature 2 Meters	720	720	100.0	0	100.0
Temperature Delta T	720	720	100.0	0	100.0
Solar Radiation	720	720	100.0	0	100.0
Barometric Pressure	720	720	100.0	0	100.0
Relative Humidity	720	720	100.0	0	100.0
Precipitation	720	720	100.0	0	100.0
Total	7,200	7,200	100.0	0	100.0

Table 1. Monthly Data Completeness (Continued)

December 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	741	99.6	3	100.0
Wind Direction	744	741	99.6	3	100.0
Standard Deviation	744	741	99.6	3	100.0
Temperature 9 Meters	744	741	99.6	3	100.0
Temperature 2 Meters	744	741	99.6	3	100.0
Temperature Delta T	744	741	99.6	3	100.0
Solar Radiation	744	741	99.6	3	100.0
Barometric Pressure	744	741	99.6	3	100.0
Relative Humidity	744	741	99.6	3	100.0
Precipitation	744	693	93.1	3	93.5
Total	7,440	7,362	99.0	30	99.4

Table 2. Quarterly Data Completeness

Fourth Quarter 2017					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,208	2,205	99.9	3	100.0
Wind Direction	2,208	2,205	99.9	3	100.0
Standard Deviation	2,208	2,205	99.9	3	100.0
Temperature 9 Meters	2,208	2,205	99.9	3	100.0
Temperature 2 Meters	2,208	2,205	99.9	3	100.0
Temperature Delta T	2,208	2,205	99.9	3	100.0
Solar Radiation	2,208	2,205	99.9	3	100.0
Barometric Pressure	2,208	2,205	99.9	3	100.0
Relative Humidity	2,208	2,205	99.9	3	100.0
Precipitation	2,208	2,157	97.7	3	97.8
Total	22,080	22,002	99.6	30	99.8

6.0 MONITORING DATA

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

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

Table 3. Missing Data Codes

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

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

October 2017																		
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	1.3	0.5	1.6	1.3	0.8	0.8	2.0	1.2	0.5	0.0	0.1	0.0	0.1	0.1	0.7	0.5	11.8
	1.1 - 2.0	0.5	0.5	0.8	1.5	3.4	5.5	6.2	2.6	1.1	0.4	0.3	0.8	1.3	0.7	1.2	0.0	26.7
	2.1 - 3.0	0.0	0.3	0.1	0.1	1.5	1.6	0.4	0.8	0.4	0.0	0.4	0.8	0.8	1.7	1.7	0.3	11.0
	3.1 - 4.0	0.1	0.0	0.0	0.0	0.4	0.1	0.0	0.3	0.3	0.0	0.3	0.7	2.4	1.5	0.4	0.9	7.4
	4.1 - 5.0	0.7	0.1	0.0	0.0	0.1	0.0	0.1	0.4	1.2	0.7	0.1	0.8	3.0	1.9	1.2	0.7	11.0
	5.1 - 6.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.5	0.1	0.5	4.0	2.0	0.8	1.5	11.2
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.9	0.7	2.7	0.9	1.1	0.9	7.7
	7.1 - 8.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.4	1.3	1.2	0.5	0.4	4.7
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.7	2.2	0.1	0.4	0.1	3.8
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.2	0.1	0.1	0.0	1.9
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.1	0.0	0.1	0.0	1.3
	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	0.3	0.0	0.1	0.0	0.0	0.4
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	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	0.3	0.0	0.0	0.0	0.3
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	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	3.2	1.7	2.6	3.0	6.2	8.1	8.7	5.6	4.4	2.3	3.1	5.9	21.0	10.5	8.3	5.4	100.0	
Average Speed	2.6	2.3	1.1	1.1	1.7	1.7	1.4	2.0	3.4	5.2	5.6	5.4	6.1	4.8	4.3	4.9	3.8	

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

November 2017																		
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	1.3	0.8	0.4	0.7	1.4	2.8	2.6	2.9	2.4	0.4	0.6	0.3	0.7	0.7	0.7	1.7	20.3
	1.1 - 2.0	0.1	0.6	0.4	1.4	3.6	6.0	5.7	4.2	1.0	0.8	0.4	0.4	1.5	1.3	1.4	1.1	29.9
	2.1 - 3.0	0.1	0.0	0.1	0.1	1.5	2.5	1.8	1.7	0.4	0.3	0.1	1.1	1.4	1.7	1.4	0.3	14.6
	3.1 - 4.0	0.1	0.1	0.0	0.0	0.7	1.0	0.3	2.2	0.8	0.0	0.1	0.8	1.0	0.4	1.1	0.3	9.0
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.6	0.3	0.1	1.5	1.1	0.1	0.3	0.3	1.4	1.8	0.4	0.0	7.9
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.3	0.3	0.3	0.3	2.2	0.8	0.0	0.0	5.1
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.4	0.3	0.4	3.1	0.8	0.0	0.0	5.6
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.1	1.4	1.0	0.0	0.0	3.5
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	1.4	0.3	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	0.0	0.1	0.7	0.6	0.0	0.0	1.4
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	1.7	1.5	1.0	2.2	7.9	12.5	10.7	13.6	6.3	2.8	2.9	4.2	15.1	9.3	5.0	3.3	100.0	
Average Speed	1.1	1.2	1.2	1.3	2.0	1.8	1.6	2.4	2.4	3.6	4.4	4.1	5.4	4.5	2.3	1.3	2.9	

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

December 2017																		
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	2.3	3.2	3.6	3.0	3.8	4.0	4.0	3.5	1.2	0.7	0.5	0.3	1.2	0.5	1.9	1.8	35.6
	1.1 - 2.0	0.9	2.6	3.2	2.4	2.8	4.0	2.7	1.3	0.5	0.5	0.4	0.3	1.9	2.4	3.0	1.3	30.5
	2.1 - 3.0	0.1	0.1	0.0	0.5	0.8	0.3	0.3	0.9	0.1	0.0	0.0	0.7	2.3	2.6	2.6	0.3	11.6
	3.1 - 4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.1	0.1	0.0	0.7	1.8	2.4	2.3	0.0	8.2
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.1	0.1	1.9	1.2	1.3	0.1	5.9
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	1.5	1.2	0.8	0.0	3.9
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.0	0.0	0.7	0.5	0.0	0.1	2.2
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.0	1.2
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.4
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	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	0.3	0.0	0.0	0.0	0.3
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	3.4	5.9	6.9	5.9	7.4	8.4	7.3	8.1	2.4	2.2	1.2	2.0	11.9	11.3	12.0	3.6	100.0	
Average Speed	0.9	1.0	1.0	1.2	1.2	1.1	1.1	2.5	1.7	2.9	2.0	2.6	3.6	3.3	2.6	1.4	2.1	

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

Fourth Quarter 2017																		
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	1.6	1.5	1.9	1.7	2.0	2.5	2.9	2.5	1.4	0.4	0.4	0.2	0.7	0.5	1.1	1.3	22.6
	1.1 - 2.0	0.5	1.2	1.5	1.8	3.3	5.2	4.9	2.7	0.9	0.6	0.4	0.5	1.6	1.5	1.9	0.8	29.0
	2.1 - 3.0	0.1	0.1	0.1	0.3	1.3	1.5	0.8	1.1	0.3	0.1	0.2	0.9	1.5	2.0	1.9	0.3	12.4
	3.1 - 4.0	0.1	0.0	0.0	0.0	0.4	0.4	0.2	1.0	0.4	0.0	0.1	0.7	1.7	1.5	1.3	0.4	8.2
	4.1 - 5.0	0.2	0.0	0.0	0.0	0.2	0.1	0.1	0.7	0.9	0.4	0.2	0.4	2.1	1.6	1.0	0.3	8.3
	5.1 - 6.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.3	0.2	0.3	2.6	1.4	0.5	0.5	6.8
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.4	0.4	2.1	0.8	0.4	0.4	5.1
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.2	0.2	0.9	0.9	0.2	0.1	3.1
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	1.3	0.1	0.2	0.0	2.2
	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	0.0	0.7	0.2	0.0	0.0	1.1
	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	0.6	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	0.1	0.0	0.0	0.0	0.0	0.1
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.8	3.1	3.5	3.7	7.2	9.6	8.9	9.1	4.4	2.4	2.4	4.0	16.0	10.4	8.5	4.1	100.0	
Average Speed	1.6	1.3	1.1	1.2	1.7	1.5	1.4	2.4	2.6	3.9	4.5	4.5	5.3	4.2	3.1	2.9	2.9	

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

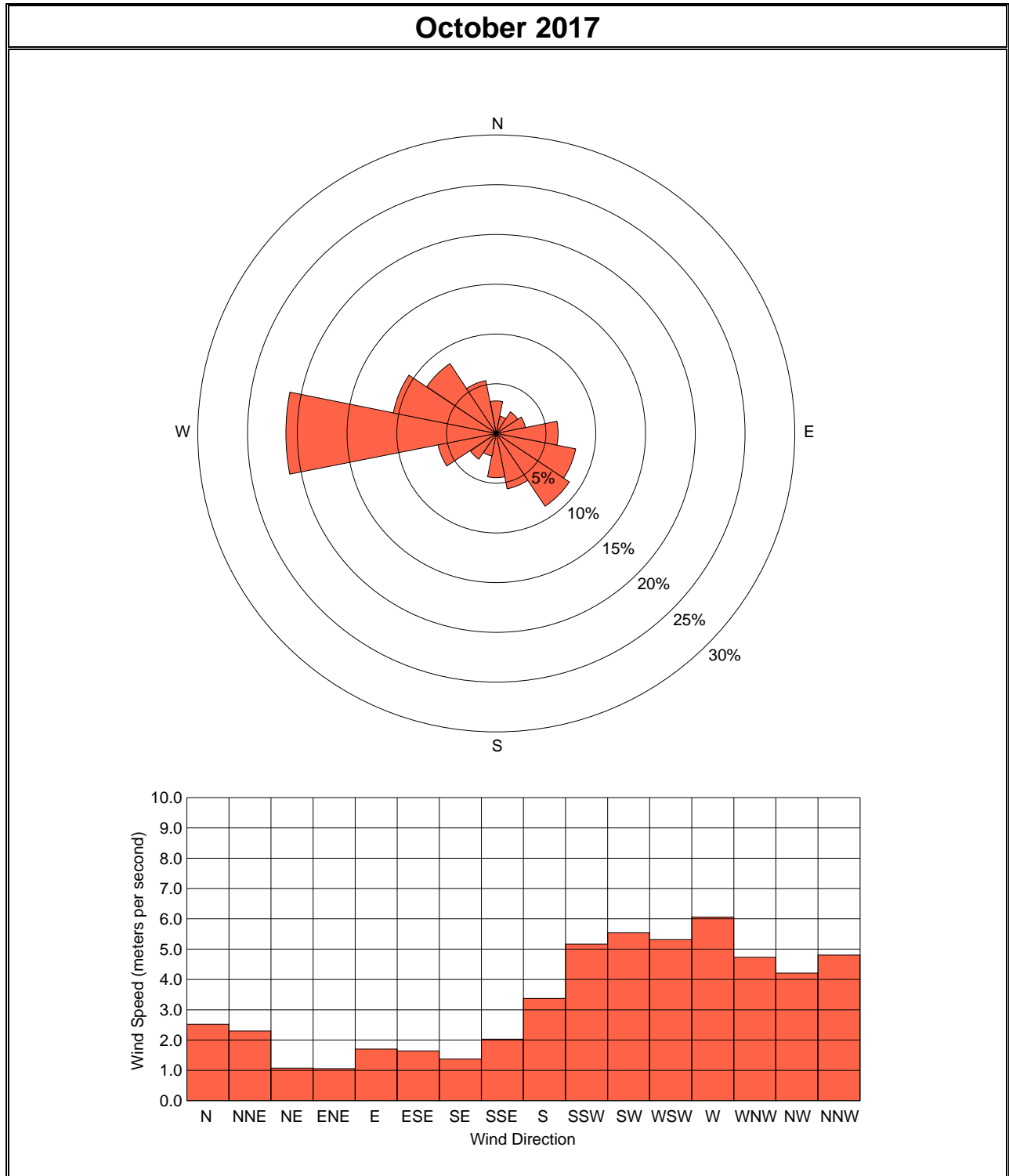


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

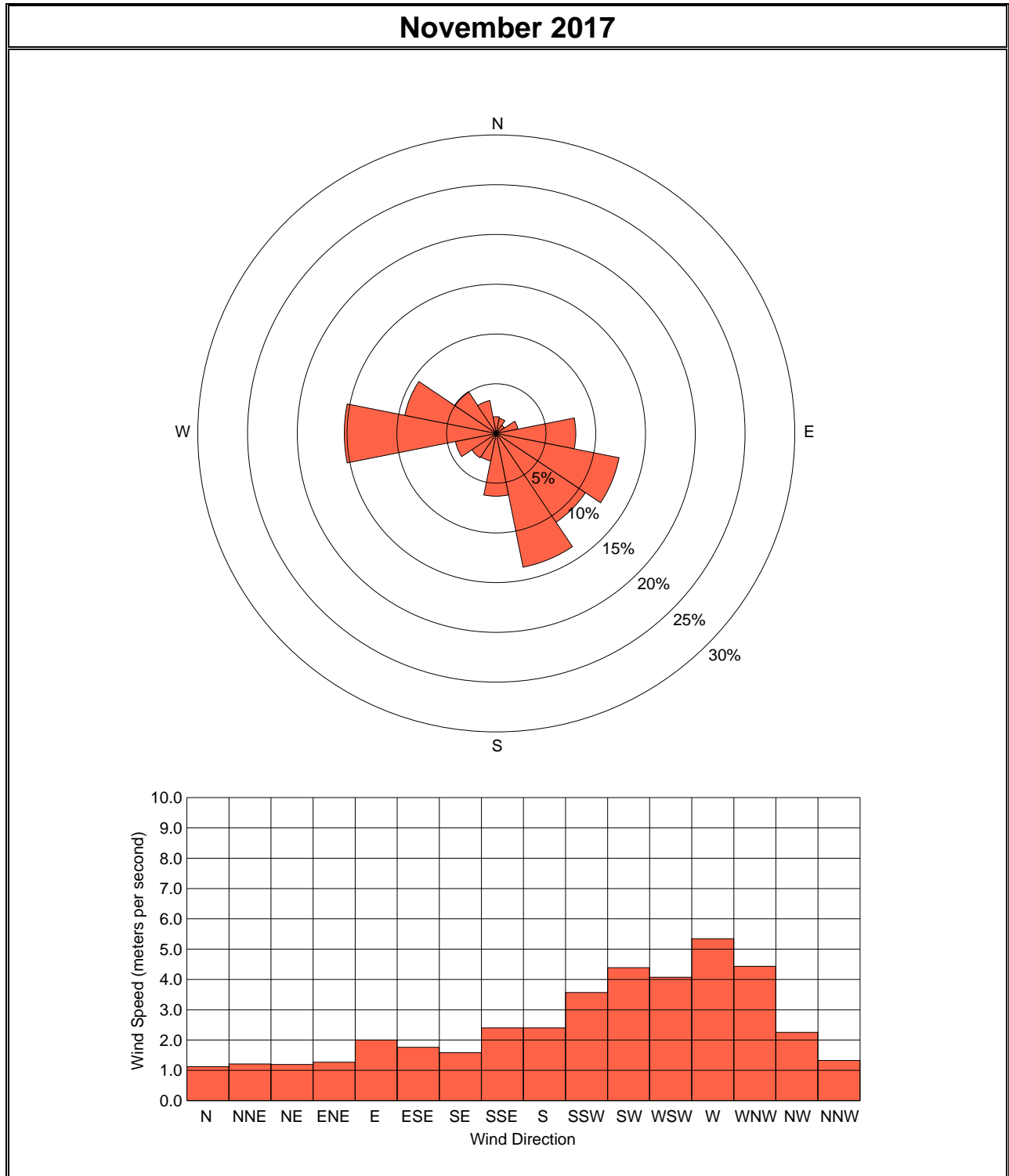


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

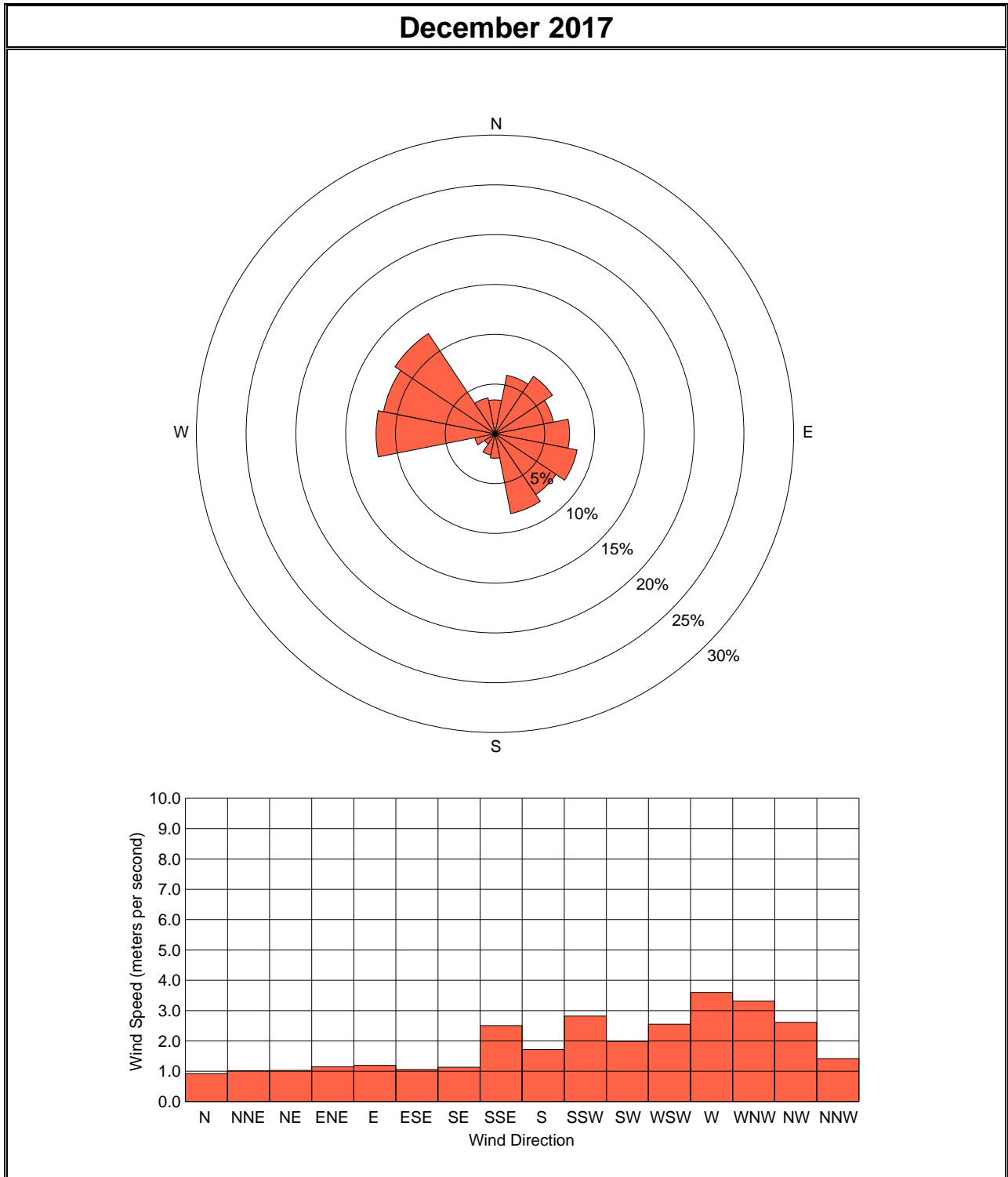
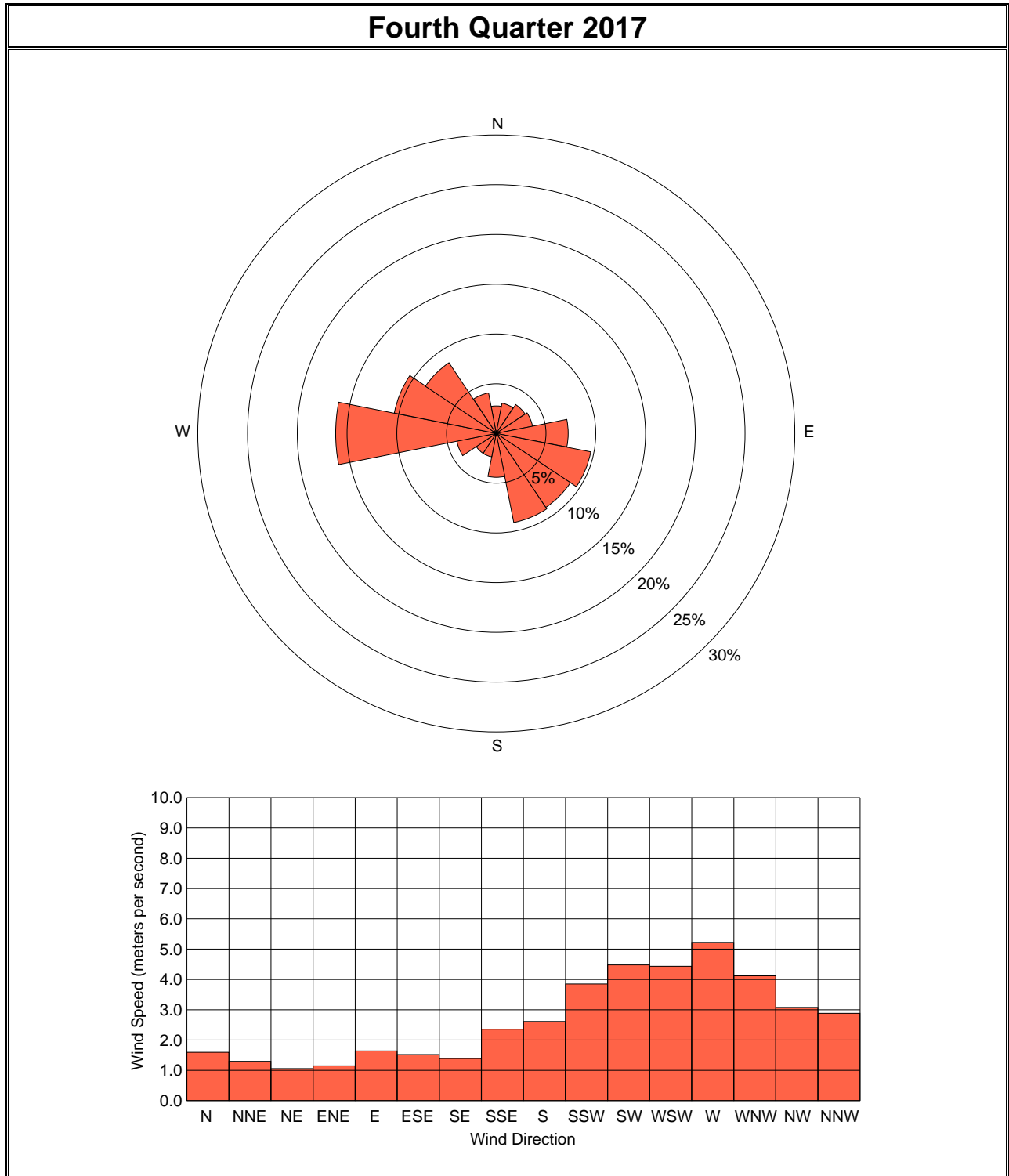


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, FOURTH QUARTER 2017**

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
October 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.5	2.7	2.1	2.1	1.2	1.1	1.0	0.7	0.8	2.3	3.0	3.1	4.2	3.8	6.1	5.3	4.9	4.1	3.2	2.8	3.0	2.6	2.6	2.3	2.8	6.1	0.7
2	2.9	3.4	4.9	4.3	6.8	6.4	6.0	7.7	7.6	7.3	7.9	8.1	8.3	7.7	8.3	6.6	6.4	6.2	5.9	6.8	6.3	5.0	4.9	3.8	6.2	8.3	2.9
3	4.6	4.3	5.1	5.0	4.6	4.6	4.5	5.9	6.0	5.2	5.2	5.4	4.9	3.6	3.9	3.7	1.8	1.3	1.1	1.3	1.0	1.1	1.3	1.3	3.6	6.0	1.0
4	0.8	1.4	1.2	1.0	1.1	1.7	1.1	0.8	1.6	3.0	1.7	3.5	3.1	4.5	4.1	3.0	3.0	2.9	2.1	2.3	1.2	0.8	0.9	0.6	2.0	4.5	0.6
5	0.8	1.1	0.8	0.7	0.9	1.1	1.1	0.7	0.8	1.1	1.6	3.8	3.4	3.8	3.6	2.8	2.1	2.1	1.6	1.5	1.9	2.3	1.2	1.2	1.8	3.8	0.7
6	1.1	1.1	0.9	1.2	1.0	1.0	1.0	0.7	0.8	3.6	5.3	6.9	6.7	5.7	6.0	3.8	2.2	1.9	1.5	1.1	2.3	1.9	5.1	6.3	2.9	6.9	0.7
7	4.4	5.2	4.7	4.2	3.8	2.6	2.0	6.5	11.5	10.3	10.7	9.5	8.4	9.9	6.7	8.1	8.3	9.7	5.5	4.8	3.8	4.3	1.8	1.4	6.2	11.5	1.4
8	2.1	1.9	0.9	1.3	1.1	1.1	0.6	0.8	1.2	5.6	5.5	5.5	5.1	7.1	5.8	4.0	5.0	4.2	1.9	1.9	1.5	1.0	0.8	1.1	2.8	7.1	0.6
9	0.9	1.3	0.9	0.7	1.3	0.7	1.0	0.7	1.7	4.7	6.3	7.4	7.0	8.0	7.7	6.6	5.7	2.3	1.5	2.8	1.9	1.6	1.5	1.3	3.1	8.0	0.7
10	1.3	1.0	1.3	1.5	1.7	1.9	1.8	1.6	1.1	3.6	5.5	5.0	4.9	5.2	4.0	6.5	5.5	2.5	2.0	2.2	1.6	1.5	1.2	1.4	2.7	6.5	1.0
11	1.7	1.3	1.1	0.8	2.3	3.0	2.5	2.3	1.2	2.5	6.6	6.9	6.5	6.0	4.9	7.1	10.3	6.9	2.3	1.4	1.6	1.6	1.1	1.0	3.5	10.3	0.8
12	1.3	1.5	1.3	1.2	1.0	1.6	1.2	0.9	0.6	1.0	6.2	6.7	7.3	5.7	5.0	5.6	3.7	2.8	1.4	1.6	2.3	1.5	2.3	2.0	2.7	7.3	0.6
13	1.4	2.1	1.4	1.0	1.0	1.2	1.0	1.0	0.8	3.1	4.6	3.9	5.0	3.2	1.0	1.2	3.9	2.1	1.1	1.0	1.5	1.6	1.0	1.7	2.0	5.0	0.8
14	1.2	0.7	1.1	0.8	1.1	1.3	1.0	1.2	3.6	6.0	8.9	10.0	10.1	9.1	9.4	8.3	6.5	5.3	4.1	5.1	6.8	6.1	5.9	4.0	4.9	10.1	0.7
15	5.0	3.1	1.7	1.4	2.1	2.1	2.1	1.6	1.3	5.7	5.6	6.6	4.9	5.7	6.3	5.9	4.3	3.8	1.9	2.3	1.3	1.5	1.5	1.4	3.3	6.6	1.3
16	1.3	0.9	1.1	0.8	1.2	1.9	1.9	2.0	3.7	4.7	5.9	7.4	8.2	8.5	7.0	7.8	5.1	2.4	1.5	3.2	2.5	3.2	2.7	2.5	3.6	8.5	0.8
17	1.8	1.7	1.8	1.9	1.6	1.9	1.7	1.8	1.6	4.1	6.3	6.9	10.6	6.9	9.6	9.8	8.5	8.2	6.2	4.3	6.1	6.1	8.6	8.9	5.3	10.6	1.6
18	8.6	10.7	10.0	8.3	5.4	3.9	3.0	1.4	3.2	2.3	2.9	3.9	5.8	6.5	7.6	6.4	5.8	3.2	1.3	1.5	1.2	1.0	1.7	2.8	4.5	10.7	1.0
19	2.7	2.6	4.6	1.7	1.8	3.8	4.4	2.2	5.0	5.3	5.7	6.7	7.8	8.5	7.2	8.1	7.1	5.5	4.3	5.8	4.4	1.5	1.1	1.5	4.6	8.5	1.1
20	1.2	2.4	4.6	3.0	2.0	1.5	4.3	5.3	4.4	2.7	2.1	4.9	5.4	11.3	7.5	6.3	5.1	6.3	5.5	7.8	5.7	6.0	6.1	5.7	4.9	11.3	1.2
21	5.3	4.4	4.1	5.5	3.4	5.0	4.6	4.7	6.2	7.7	6.4	7.4	7.6	9.0	9.9	8.2	5.7	3.6	2.3	2.1	4.3	5.0	4.4	5.3	5.5	9.9	2.1
22	4.6	3.7	4.3	5.5	7.1	6.3	7.5	9.5	7.0	11.6	12.7	12.2	12.9	12.9	15.5	13.7	13.8	12.7	8.8	8.8	7.9	6.5	8.2	5.5	9.1	15.5	3.7
23	6.0	4.4	4.1	3.2	1.9	3.3	3.2	3.9	6.2	5.8	6.8	7.5	8.0	8.7	7.3	6.4	5.1	4.5	2.2	1.5	1.6	1.7	1.6	1.4	4.4	8.7	1.4
24	1.2	1.6	1.2	1.2	1.3	1.4	1.0	1.2	1.3	1.4	1.8	4.3	4.6	5.6	5.3	5.0	4.5	1.9	2.2	3.2	2.1	1.5	1.4	1.2	2.4	5.6	1.0
25	1.3	1.5	1.5	1.4	1.3	1.3	1.3	1.0	1.2	1.1	4.9	5.1	10.7	10.4	10.4	8.5	9.6	5.3	7.7	6.1	4.4	5.2	9.0	5.9	4.8	10.7	1.0
26	5.7	5.2	5.8	6.1	6.1	5.7	4.6	3.1	2.4	2.2	2.5	2.0	1.6	2.7	2.6	2.2	3.0	1.7	1.6	1.1	0.6	0.8	0.5	0.6	2.9	6.1	0.5
27	0.9	0.8	0.8	0.8	0.8	0.6	0.5	0.6	0.5	0.7	1.9	2.7	4.2	4.9	4.5	4.4	4.7	2.1	0.8	1.4	1.2	1.8	1.0	1.1	1.8	4.9	0.5
28	1.2	0.7	0.9	1.1	0.7	0.6	0.9	0.4	0.8	0.9	2.1	2.3	3.4	4.0	4.7	4.9	3.7	2.1	2.3	1.7	1.4	1.2	1.3	1.1	1.9	4.9	0.4
29	1.7	1.6	1.3	2.5	3.2	4.2	4.4	4.8	5.2	5.7	4.3	6.3	5.5	6.0	7.6	7.9	6.6	4.8	4.2	5.8	6.1	5.9	5.6	5.8	4.9	7.9	1.3
30	3.7	5.8	4.8	6.1	5.0	7.0	4.9	3.6	3.0	1.5	1.8	1.6	2.6	2.6	1.8	1.8	2.2	1.1	1.1	1.2	1.5	1.4	1.2	1.0	2.8	7.0	1.0
31	0.8	0.6	0.5	0.6	0.5	0.8	1.1	1.1	0.7	3.3	5.8	9.4	10.8	9.9	8.3	8.6	7.7	7.5	7.8	5.7	5.3	7.4	5.5	3.9	4.7	10.8	0.5
Avg	2.5	2.6	2.6	2.5	2.4	2.6	2.5	2.6	3.0	4.1	5.1	5.9	6.4	6.7	6.4	6.1	5.5	4.2	3.1	3.2	3.0	2.9	3.0	2.7	3.8	8.1	1.1
Max	8.6	10.7	10.0	8.3	7.1	7.0	7.5	9.5	11.5	11.6	12.7	12.2	12.9	12.9	15.5	13.7	13.8	12.7	8.8	8.8	7.9	7.4	9.0	8.9	9.1	15.5	3.7
Min	0.8	0.6	0.5	0.6	0.5	0.6	0.5	0.4	0.5	0.7	1.6	1.6	1.6	2.6	1.0	1.2	1.8	1.1	0.8	1.0	0.6	0.8	0.5	0.6	1.8	3.8	0.4

A-1

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
November 2017

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	4.6	4.6	4.3	4.1	4.5	3.0	3.3	2.6	2.8	1.9	4.0	3.2	4.1	3.5	4.1	3.9	3.4	3.2	3.0	2.1	1.3	1.7	1.4	0.8	3.1	4.6	0.8
2	0.7	1.3	0.7	0.7	1.0	0.5	0.5	0.6	0.6	0.5	1.3	6.1	5.4	4.1	4.8	4.2	4.5	4.6	3.1	3.4	3.6	2.3	1.4	0.8	2.4	6.1	0.5
3	0.8	1.5	3.1	2.7	0.9	2.5	1.4	1.0	1.1	1.0	3.3	4.7	4.1	3.5	2.5	4.1	4.6	2.4	0.9	1.4	1.6	2.4	2.4	4.0	2.4	4.7	0.8
4	1.1	0.6	0.7	0.7	0.9	1.0	0.8	0.4	0.4	1.0	0.8	0.6	0.9	3.5	2.5	0.8	1.3	1.3	1.6	1.5	1.3	0.9	1.2	1.1	1.1	3.5	0.4
5	0.9	1.0	0.6	0.7	1.3	0.8	0.8	1.2	0.6	0.6	0.6	1.1	0.6	2.2	0.7	0.6	3.2	3.8	2.9	2.7	2.5	2.2	2.3	2.8	1.5	3.8	0.6
6	2.6	2.1	1.2	2.3	2.5	2.4	1.2	1.7	0.9	0.4	0.7	0.9	0.6	0.9	0.7	0.5	0.6	0.5	0.5	0.7	0.8	0.7	0.5	0.5	1.1	2.6	0.4
7	0.6	0.4	0.6	0.6	0.4	0.5	0.4	0.3	0.4	0.4	0.3	0.6	0.6	0.5	1.0	1.6	1.5	1.9	2.0	2.1	1.5	1.2	1.4	1.2	0.9	2.1	0.3
8	1.0	1.0	0.9	1.2	0.8	0.9	0.9	1.0	1.5	0.7	1.0	0.9	1.4	0.9	0.6	0.5	0.4	1.2	2.5	1.9	1.2	3.8	3.4	3.4	1.4	3.8	0.4
9	3.6	3.6	4.9	4.4	3.0	3.4	2.5	2.8	3.3	4.1	2.1	2.6	1.5	1.3	1.2	2.6	1.8	1.9	1.7	1.5	1.5	1.7	4.7	1.8	2.6	4.9	1.2
10	1.2	2.0	1.8	1.5	4.1	2.4	3.9	2.4	2.0	3.0	2.0	1.0	3.4	3.8	1.6	1.2	1.0	1.2	1.2	1.1	1.3	1.2	1.2	1.0	1.9	4.1	1.0
11	1.0	1.1	0.7	0.8	0.8	1.3	0.6	0.7	0.7	0.6	0.5	1.1	5.3	5.6	4.6	3.8	2.3	1.1	0.7	1.1	1.3	1.1	1.5	1.1	1.6	5.6	0.5
12	1.2	0.7	0.9	1.0	0.9	0.9	0.6	0.8	0.7	0.6	0.4	0.4	0.6	0.5	1.0	1.3	1.1	1.7	2.3	1.8	2.7	2.3	2.2	1.8	1.2	2.7	0.4
13	2.4	1.4	1.2	0.9	1.0	0.8	1.0	0.8	1.2	1.5	1.2	1.5	3.6	4.1	2.3	3.1	1.0	1.3	2.7	1.1	1.1	1.9	7.2	7.3	2.2	7.3	0.8
14	1.9	1.5	1.8	3.6	1.9	1.5	1.6	3.9	6.3	6.8	7.0	6.3	8.2	7.6	7.7	6.8	4.9	2.5	2.4	1.5	1.9	1.6	1.5	1.5	3.8	8.2	1.5
15	1.5	1.8	1.0	1.2	1.5	1.1	1.1	1.1	1.2	0.8	0.9	2.8	3.7	5.6	3.5	2.4	1.0	0.9	1.2	1.3	1.3	1.8	2.0	4.7	1.9	5.6	0.8
16	4.3	5.1	2.0	4.6	2.2	2.8	6.1	5.0	7.3	7.5	6.9	9.9	7.1	6.4	6.2	5.8	3.6	3.0	3.0	4.1	3.1	2.0	1.3	1.2	4.6	9.9	1.2
17	1.7	1.5	2.4	1.9	1.2	1.2	1.4	1.4	1.4	3.1	3.2	4.8	5.8	7.1	8.0	6.8	6.6	6.2	6.6	5.9	5.9	5.0	5.3	4.6	4.1	8.0	1.2
18	6.1	7.0	5.6	5.4	3.3	6.3	6.7	5.9	7.8	5.7	7.3	7.8	8.7	8.5	6.0	4.0	3.8	4.6	1.8	1.6	1.3	2.1	1.7	1.2	5.0	8.7	1.2
19	1.0	1.4	1.1	1.3	1.2	1.5	1.9	1.6	1.2	1.3	1.4	1.3	1.0	1.4	1.7	3.0	4.1	1.9	1.4	1.8	1.7	2.1	3.7	3.4	1.8	4.1	1.0
20	3.4	4.2	3.9	2.4	2.5	2.7	2.2	3.8	4.9	2.8	1.7	1.3	5.3	6.1	4.4	2.8	1.3	1.1	0.6	0.6	0.6	0.6	2.7	2.5	2.7	6.1	0.6
21	2.0	1.2	1.1	0.7	0.7	0.6	0.7	0.9	0.9	0.9	1.0	0.7	0.6	0.9	1.2	1.7	1.9	1.7	3.7	3.3	2.7	1.6	3.0	4.2	1.6	4.2	0.6
22	2.1	1.6	2.4	2.0	1.7	4.3	1.4	1.8	2.1	2.9	2.6	3.3	4.5	3.0	2.9	2.5	3.5	3.3	2.2	2.0	1.9	1.1	1.1	2.5	2.4	4.5	1.1
23	2.6	2.7	2.2	4.1	2.5	3.9	1.5	2.4	5.9	8.5	8.8	7.8	4.3	6.3	8.0	8.7	6.2	6.3	6.2	4.4	3.5	6.4	7.7	8.9	5.4	8.9	1.5
24	10.0	11.0	9.4	8.2	5.5	4.1	5.0	3.0	3.1	6.2	6.5	6.1	6.7	9.4	9.4	8.3	9.7	5.1	2.5	1.3	1.9	2.0	2.0	1.6	5.8	11.0	1.3
25	2.7	2.3	2.9	2.9	2.2	3.4	2.9	2.1	1.4	1.2	1.1	1.3	1.9	2.3	1.4	1.0	1.2	1.9	2.2	1.8	1.4	2.6	1.4	1.4	2.0	3.4	1.0
26	1.9	2.1	3.4	6.1	4.2	3.4	2.3	1.2	1.7	2.0	3.1	3.8	6.7	5.9	7.1	5.1	2.9	2.0	5.1	4.2	5.3	5.4	5.4	6.3	4.0	7.1	1.2
27	5.6	7.3	8.1	6.0	6.2	6.4	4.6	5.2	5.0	8.1	6.8	7.7	9.0	10.8	8.3	8.7	6.4	5.6	5.9	5.2	6.3	5.6	6.6	7.0	6.8	10.8	4.6
28	5.5	4.4	5.3	5.5	2.0	1.1	1.3	1.6	1.6	3.1	2.7	3.4	2.8	4.3	4.4	5.2	2.7	1.6	2.0	3.1	4.0	4.4	5.7	4.6	3.4	5.7	1.1
29	7.2	7.4	4.6	6.4	8.1	6.8	7.9	10.5	9.5	9.1	8.0	7.1	9.7	9.7	8.5	7.4	9.0	8.0	5.0	4.6	2.6	1.5	1.9	1.1	6.7	10.5	1.1
30	1.3	1.6	2.1	2.4	1.3	1.2	1.4	1.0	1.2	0.8	0.8	3.2	3.5	1.4	2.8	2.0	2.2	2.9	1.8	1.7	1.5	1.7	1.5	1.2	1.8	3.5	0.8
Avg	2.8	2.8	2.7	2.9	2.3	2.4	2.3	2.3	2.6	2.9	2.9	3.4	4.1	4.4	4.0	3.7	3.3	2.8	2.6	2.4	2.3	2.4	2.8	2.9	2.9	5.9	1.0
Max	10.0	11.0	9.4	8.2	8.1	6.8	7.9	10.5	9.5	9.1	8.8	9.9	9.7	10.8	9.4	8.7	9.7	8.0	6.6	5.9	6.3	6.4	7.7	8.9	6.8	11.0	4.6
Min	0.6	0.4	0.6	0.6	0.4	0.5	0.4	0.3	0.4	0.4	0.3	0.4	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.9	2.1	0.3

A-2

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
December 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.1	1.1	0.9	3.3	6.3	5.8	3.6	2.6	3.6	4.7	4.1	2.9	3.9	3.3	3.6	2.1	1.2	2.6	2.5	2.0	1.6	1.9	0.9	0.8	2.8	6.3	0.8
2	1.5	1.0	1.0	1.3	1.4	1.1	1.1	0.8	1.0	0.9	0.9	1.1	3.3	2.3	1.5	0.8	1.8	1.1	1.1	1.0	0.9	1.1	1.9	2.2	1.3	3.3	0.8
3	1.9	1.5	1.5	1.6	1.3	1.3	0.9	1.1	0.9	0.7	3.0	2.2	3.3	3.1	5.1	4.5	4.5	3.7	4.2	5.2	4.9	3.8	3.8	4.8	2.9	5.2	0.7
4	1.7	1.4	2.3	1.3	0.8	1.4	0.7	0.4	0.3	0.4	0.5	3.6	5.5	5.0	3.7	4.7	5.1	3.8	3.4	1.5	0.8	0.7	0.8	1.3	2.1	5.5	0.3
5	1.3	3.1	3.8	2.6	2.2	1.8	1.8	1.5	1.4	1.5	3.6	3.7	6.4	7.2	4.0	2.2	1.3	1.5	1.2	0.8	2.8	1.6	1.3	0.8	2.5	7.2	0.8
6	0.6	2.1	2.9	4.5	3.4	1.6	2.3	0.8	1.4	2.5	4.3	4.9	Au	Au	Au	4.7	2.2	1.1	1.3	0.9	0.9	1.3	1.3	0.9	2.2	4.9	0.6
7	1.3	1.0	0.7	0.9	0.8	0.7	0.4	0.5	0.5	0.5	0.6	0.7	1.3	1.2	2.4	2.2	1.2	1.5	1.4	1.4	1.2	1.3	1.4	1.5	1.1	2.4	0.4
8	1.3	1.4	1.3	1.4	0.9	0.8	0.7	0.6	0.7	0.8	0.7	0.5	0.7	1.2	1.3	2.5	2.5	1.6	1.6	1.4	1.4	1.0	0.5	0.6	1.1	2.5	0.5
9	0.5	0.4	0.4	0.3	0.5	0.5	0.7	0.5	0.6	0.6	0.4	0.5	0.8	0.9	1.3	1.4	1.7	1.6	1.3	1.1	1.0	1.1	1.2	1.3	0.9	1.7	0.3
10	1.5	1.5	1.4	1.7	1.3	1.1	1.4	1.4	1.6	1.3	1.0	1.0	1.7	1.3	1.2	1.9	2.0	1.9	1.3	0.9	0.9	1.1	1.2	0.9	1.4	2.0	0.9
11	0.9	0.7	0.9	1.0	0.5	0.5	0.6	0.5	0.4	0.7	0.4	0.7	0.8	0.4	0.7	1.5	1.9	1.8	1.4	2.1	1.3	1.1	1.3	1.4	1.0	2.1	0.4
12	1.3	1.4	1.3	1.2	1.4	1.0	1.1	0.9	1.0	1.3	0.8	0.8	2.5	4.5	3.1	3.4	6.0	3.9	5.2	2.1	2.3	1.7	2.5	1.8	2.2	6.0	0.8
13	1.3	1.3	1.0	0.8	0.9	0.7	0.5	0.9	0.7	1.0	1.3	0.7	0.6	0.5	1.1	2.1	2.1	1.7	1.1	0.9	0.5	1.8	0.9	1.9	1.1	2.1	0.5
14	4.2	5.7	4.5	3.8	2.9	2.0	1.4	1.1	1.1	0.5	0.6	0.8	0.7	0.9	1.2	2.4	1.4	1.6	1.1	1.0	0.8	0.7	0.8	1.1	1.8	5.7	0.5
15	0.9	1.3	0.9	1.0	0.9	0.7	0.6	0.6	0.7	0.7	0.7	0.9	0.9	1.0	1.2	0.7	1.2	1.5	6.0	6.5	5.7	3.4	1.7	1.5	1.7	6.5	0.6
16	1.2	2.4	1.8	0.9	0.9	1.2	1.9	1.3	1.9	1.4	2.3	2.7	4.6	3.6	3.8	4.1	1.5	1.1	1.3	1.0	0.8	0.8	0.8	0.7	1.8	4.6	0.7
17	0.7	0.9	0.8	0.6	0.6	1.1	1.0	1.2	2.0	4.1	3.5	3.5	4.2	5.4	3.3	3.0	3.8	2.3	2.8	1.8	1.4	1.7	1.2	2.0	2.2	5.4	0.6
18	2.3	7.3	6.0	5.9	5.0	4.7	2.3	5.5	5.6	4.6	6.8	10.2	9.2	9.0	8.5	7.0	10.6	7.7	6.5	5.7	2.3	1.2	1.0	0.9	5.7	10.6	0.9
19	1.1	1.0	0.8	1.2	2.7	3.9	4.3	2.4	2.9	2.6	3.8	3.9	3.3	3.4	2.9	2.9	3.6	3.2	1.9	1.3	2.1	1.7	4.2	4.4	2.7	4.4	0.8
20	1.7	3.8	6.7	4.2	4.9	2.9	5.7	8.6	6.7	6.1	5.1	5.9	5.3	5.1	5.4	4.9	5.0	3.8	1.5	1.8	2.3	0.7	1.2	1.6	4.2	8.6	0.7
21	0.9	0.8	1.1	0.7	1.1	0.5	0.6	0.5	0.9	0.9	0.8	0.7	1.5	3.2	3.2	1.2	1.3	2.4	1.3	2.0	1.6	1.0	1.2	4.2	1.4	4.2	0.5
22	2.9	2.6	3.4	3.1	2.8	3.4	4.5	5.4	4.4	3.8	4.3	3.1	3.1	3.1	2.9	2.9	2.7	1.6	1.2	0.9	1.5	1.3	1.6	2.2	2.9	5.4	0.9
23	1.0	1.0	1.2	1.2	1.5	2.1	1.2	1.1	1.1	1.0	1.1	0.5	1.0	4.3	4.4	3.0	1.2	1.1	1.5	0.9	0.9	0.9	0.9	1.0	1.5	4.4	0.5
24	0.7	0.8	0.6	0.8	0.4	0.4	0.5	0.6	0.6	0.6	0.4	0.4	0.5	0.7	0.6	0.6	1.1	1.3	0.7	0.8	0.7	1.1	0.6	0.5	0.7	1.3	0.4
25	0.5	0.4	0.4	0.4	0.8	0.7	0.7	0.5	0.5	0.4	0.7	1.0	2.8	2.7	2.2	1.8	1.6	2.1	1.5	1.7	2.4	1.7	1.3	0.7	1.2	2.8	0.4
26	0.9	0.9	0.5	0.5	0.7	0.7	0.5	0.7	0.3	0.8	0.6	0.5	0.8	1.2	1.6	1.5	2.1	1.5	1.1	1.2	0.8	0.6	1.0	1.0	0.9	2.1	0.3
27	1.0	0.8	0.8	1.0	0.8	0.9	0.7	0.9	1.6	1.2	3.6	6.0	7.0	5.4	4.7	7.2	6.6	4.8	2.5	1.6	1.7	2.3	1.8	1.8	2.8	7.2	0.7
28	4.4	4.2	3.3	3.7	2.2	1.1	0.7	1.0	0.9	0.7	0.9	1.3	0.8	2.4	3.8	3.3	2.9	2.3	2.2	2.2	1.3	0.8	0.8	1.0	2.0	4.4	0.7
29	1.5	4.6	5.5	2.7	3.1	3.7	3.7	3.1	1.7	1.4	2.2	2.4	2.2	2.3	2.9	2.4	2.5	4.7	5.2	6.9	7.3	6.6	7.0	7.7	3.9	7.7	1.4
30	7.6	7.2	7.2	6.6	6.9	4.9	2.0	1.1	1.1	1.4	1.0	1.0	1.0	2.6	5.6	1.5	2.3	5.4	4.3	2.0	3.0	3.2	2.2	1.3	3.4	7.6	1.0
31	0.7	0.6	0.8	1.0	0.6	1.0	0.5	0.5	0.5	0.6	0.4	0.9	0.4	0.6	0.7	0.6	1.2	1.1	1.0	0.8	0.5	0.9	0.7	0.5	0.7	1.2	0.4
Avg	1.6	2.1	2.1	2.0	2.0	1.7	1.6	1.6	1.6	1.6	1.9	2.2	2.7	2.9	2.9	2.7	2.8	2.5	2.3	2.0	1.9	1.6	1.6	1.8	2.1	4.7	0.6
Max	7.6	7.3	7.2	6.6	6.9	5.8	5.7	8.6	6.7	6.1	6.8	10.2	9.2	9.0	8.5	7.2	10.6	7.7	6.5	6.9	7.3	6.6	7.0	7.7	5.7	10.6	1.4
Min	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.6	0.6	1.1	1.1	0.7	0.8	0.5	0.6	0.5	0.5	0.7	1.2	0.3

A-3

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
October 2017

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	277	43	83	94	100	95	101	324	43	32	335	345	324	311	323	322	325	276	271	299	320	304	286	311	338
2	311	304	311	315	312	316	303	317	312	306	316	307	310	300	306	303	301	305	302	312	305	301	298	287	307
3	286	277	287	285	282	286	284	283	298	296	301	303	319	273	252	279	280	272	267	127	126	133	175	139	274
4	146	189	133	145	324	102	58	125	300	317	325	317	283	312	317	292	308	308	295	313	281	92	318	343	314
5	33	139	353	346	322	125	130	45	358	316	278	342	299	281	303	282	263	249	264	124	107	99	133	135	332
6	156	144	163	149	153	149	150	179	75	269	238	269	265	262	270	279	284	107	113	91	91	110	262	264	185
7	263	263	256	244	257	264	298	290	284	266	263	273	254	272	290	269	280	281	282	293	292	286	325	80	276
8	287	96	21	84	147	95	61	7	111	326	316	353	355	22	13	343	17	342	303	264	270	134	63	112	20
9	87	137	170	124	149	303	147	161	146	252	261	261	258	261	265	264	262	263	304	91	107	98	127	97	189
10	148	178	185	157	128	144	147	176	157	149	163	179	198	185	226	185	192	173	120	130	114	164	139	124	161
11	150	139	182	134	119	110	123	114	31	109	176	215	253	264	290	292	321	319	328	74	122	118	121	132	138
12	137	150	130	125	103	116	111	139	13	318	266	257	253	266	242	274	249	252	171	128	87	47	89	122	156
13	131	110	61	136	308	134	134	140	166	158	181	191	181	253	262	102	344	290	184	78	146	71	114	163	146
14	87	42	64	145	247	255	229	162	273	263	275	265	267	267	267	270	277	282	267	264	275	273	278	270	264
15	269	249	194	130	65	119	97	110	103	268	275	276	263	272	268	265	248	231	142	117	115	108	139	147	187
16	149	72	66	5	118	96	141	124	274	286	269	271	265	264	275	271	268	238	109	105	107	92	86	100	142
17	133	142	143	109	129	143	156	112	92	163	225	224	221	222	230	236	247	239	231	267	272	263	266	266	202
18	266	281	284	279	276	264	265	302	260	293	289	264	241	242	245	258	271	260	236	135	97	50	108	157	261
19	147	161	174	212	124	89	91	256	210	193	178	189	196	200	195	208	200	188	185	181	178	211	62	165	179
20	349	145	140	114	108	118	157	155	148	162	165	183	161	253	264	262	271	267	272	276	273	269	267	271	210
21	273	281	267	269	267	273	271	281	279	269	259	266	251	255	261	256	256	269	222	174	192	212	211	213	253
22	181	171	189	202	217	224	235	233	234	249	247	256	265	272	274	268	276	277	268	275	271	271	280	279	248
23	276	273	289	275	308	299	297	303	290	287	287	287	288	284	286	290	297	268	247	248	161	125	81	126	280
24	85	109	73	84	92	101	6	74	14	86	357	254	262	255	263	265	280	314	114	97	127	94	104	113	79
25	122	95	116	135	167	189	146	148	352	14	233	229	269	273	272	274	308	322	329	339	352	341	331	335	298
26	335	330	327	325	337	327	328	333	13	304	233	250	304	155	248	226	189	111	121	130	88	37	56	28	333
27	75	83	332	70	50	123	109	353	360	191	351	289	278	287	288	278	262	309	112	71	114	46	52	45	24
28	37	52	50	112	129	73	143	74	92	6	310	289	268	275	268	271	294	90	109	103	93	88	91	64	68
29	52	118	146	311	342	354	351	354	356	353	337	333	326	332	327	329	333	331	309	326	335	333	333	340	341
30	2	328	319	336	335	335	359	340	319	244	255	281	276	285	307	291	273	226	142	107	94	52	18	61	322
31	44	49	356	10	147	119	112	125	339	289	280	271	268	267	274	280	282	301	288	295	289	286	298	301	300
Prev	109	129	129	125	131	124	128	121	341	281	269	268	267	268	274	273	278	274	240	125	125	81	66	117	262

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
November 2017

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	291	294	285	289	292	290	320	334	312	303	6	328	316	313	322	321	313	332	343	318	347	134	67	36	321
2	85	132	179	310	140	275	80	118	352	345	92	155	152	147	148	144	154	151	154	152	155	171	302	329	141
3	331	329	312	283	344	312	307	351	329	31	151	169	262	313	313	310	301	293	183	111	316	293	307	296	309
4	213	341	102	193	120	143	121	79	30	121	134	61	291	273	280	231	201	143	96	131	148	95	108	152	134
5	163	162	131	147	150	163	163	171	202	169	321	4	357	326	1	118	316	307	306	287	290	279	295	293	252
6	296	286	297	275	278	289	282	273	274	291	330	110	133	120	184	118	15	106	344	82	119	114	141	190	257
7	151	171	133	152	138	149	153	155	169	141	112	170	74	352	331	142	128	112	122	117	113	126	154	139	135
8	235	142	144	116	166	101	28	149	121	226	102	124	207	89	175	59	309	83	104	131	190	149	157	151	137
9	158	156	160	161	147	167	130	157	152	169	144	167	68	125	119	119	118	114	153	161	121	152	298	28	141
10	135	86	136	99	88	102	86	357	126	79	243	285	254	271	268	160	334	150	91	336	137	286	136	36	110
11	166	87	46	125	349	136	189	97	131	92	248	330	260	262	269	263	237	164	165	147	122	151	152	148	161
12	160	170	160	149	135	167	178	149	180	193	182	6	322	341	102	108	103	127	131	151	126	141	142	130	144
13	123	123	150	172	146	158	161	168	135	151	122	110	183	181	165	169	270	155	184	322	265	284	289	285	172
14	164	170	180	134	115	129	217	277	264	260	282	279	271	272	267	271	273	211	239	220	124	87	116	116	215
15	129	154	172	115	126	161	160	160	146	139	4	164	160	165	156	148	111	346	96	144	123	60	131	154	137
16	168	144	142	153	128	162	167	184	188	192	206	286	292	293	265	270	264	252	240	282	276	258	324	224	225
17	97	119	108	95	114	323	42	124	148	252	287	280	283	287	284	283	279	291	287	279	293	282	282	264	280
18	269	266	266	267	246	280	277	273	284	273	267	267	265	260	271	252	250	285	154	113	136	113	105	88	255
19	81	97	42	51	125	82	75	71	166	16	78	97	269	116	123	158	178	141	72	108	119	90	120	215	104
20	161	211	182	163	189	262	50	291	284	253	293	269	232	207	179	151	107	317	302	280	6	64	304	295	247
21	273	274	208	71	238	136	170	103	123	137	104	26	316	303	31	79	78	111	87	119	122	137	104	107	110
22	84	114	263	339	319	99	83	148	161	118	123	238	255	275	107	113	107	102	136	86	80	70	107	110	111
23	87	91	77	95	124	111	120	271	245	236	224	214	217	238	241	246	231	239	238	242	267	278	272	266	225
24	281	281	282	268	272	270	275	307	13	280	277	263	279	284	279	286	284	277	197	126	196	101	112	281	273
25	101	95	326	89	103	97	102	96	124	105	310	328	333	272	15	16	154	110	103	120	78	89	186	87	86
26	133	122	108	88	104	101	91	323	142	81	156	184	209	206	223	226	250	182	183	186	186	165	165	178	161
27	200	207	222	257	273	290	290	291	284	279	281	278	269	278	276	270	271	279	285	269	279	282	281	280	271
28	273	261	272	277	262	195	304	165	135	138	147	155	146	147	158	160	130	111	110	95	108	87	156	190	160
29	201	215	219	233	268	269	265	274	276	278	275	270	255	262	258	272	284	288	272	260	229	278	297	266	262
30	174	104	130	145	131	133	141	121	133	216	331	169	175	91	271	298	252	258	254	87	264	96	102	87	152
Prev	165	155	170	152	154	162	139	161	173	191	223	233	254	260	245	199	242	180	163	147	153	127	151	180	180

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
December 2017

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	117	124	122	279	276	271	267	252	249	258	266	265	262	255	277	292	34	272	86	110	122	96	157	278	247
2	129	107	4	116	132	121	85	102	10	82	309	11	251	259	280	121	126	165	129	48	17	93	74	71	89
3	95	104	106	123	112	90	116	142	166	16	303	303	292	317	314	314	325	319	311	322	337	309	316	304	341
4	22	215	336	244	309	295	352	133	111	273	204	293	286	290	270	260	261	286	292	189	189	127	99	143	260
5	321	307	277	272	284	315	267	296	342	341	302	297	297	291	295	309	298	141	196	31	77	65	78	137	308
6	338	303	309	320	308	161	158	324	297	277	261	263	Au	Au	Au	289	302	193	195	135	96	114	105	42	280
7	118	76	46	73	77	145	107	22	68	73	129	83	307	329	312	258	149	121	91	63	53	59	36	17	69
8	25	21	28	36	12	305	354	348	330	91	101	167	323	27	28	85	70	45	34	344	24	65	13	119	30
9	113	72	101	123	50	80	79	9	49	73	107	136	168	8	53	57	73	48	30	32	30	11	17	39	62
10	62	46	30	81	75	41	98	96	118	117	78	76	106	46	18	76	56	59	78	63	46	40	93	17	67
11	51	42	32	128	48	111	119	121	44	117	160	95	116	46	302	52	96	36	9	65	36	31	41	64	68
12	70	86	108	92	114	99	136	47	64	135	325	41	148	280	306	311	301	303	292	29	79	327	79	130	59
13	53	77	99	21	54	48	72	136	82	124	333	79	3	65	306	315	291	318	279	119	66	291	316	325	30
14	274	273	304	301	294	288	113	115	131	332	98	333	66	19	135	145	111	121	138	100	112	356	28	67	69
15	81	108	95	142	160	122	178	130	166	261	163	17	152	87	358	42	313	185	269	272	284	317	292	226	161
16	268	320	323	242	159	295	314	311	306	297	315	305	303	297	254	260	332	144	139	134	152	146	149	78	277
17	125	133	166	175	119	114	299	325	273	281	313	292	272	269	294	299	307	294	292	310	19	12	125	142	287
18	97	211	210	216	196	219	155	260	260	265	262	275	271	270	265	266	279	289	301	305	268	203	140	135	244
19	280	285	100	145	147	158	161	163	152	146	141	141	171	168	172	158	161	152	103	88	84	122	170	189	150
20	160	206	193	195	198	122	282	318	330	267	280	279	290	292	314	316	292	286	312	266	316	340	88	151	275
21	155	103	103	134	144	243	196	104	148	150	91	308	335	301	298	308	326	349	22	83	91	45	341	293	58
22	288	308	311	309	313	319	316	317	308	312	296	260	261	256	248	258	277	263	282	220	282	249	295	279	285
23	277	262	291	322	358	312	268	152	71	76	165	15	308	281	272	271	223	190	13	124	93	80	25	40	322
24	50	360	66	89	21	146	69	329	9	334	90	135	326	45	112	356	115	79	49	7	19	54	122	179	54
25	133	159	53	360	89	113	29	51	67	113	267	276	261	268	269	265	171	285	270	299	315	316	319	341	312
26	5	347	314	25	264	28	350	177	131	153	38	321	71	52	43	46	105	44	57	7	122	346	135	23	39
27	127	306	55	152	296	55	304	232	92	90	307	281	284	296	292	288	290	299	316	262	286	301	307	317	300
28	267	272	291	288	318	358	103	153	229	330	271	30	133	256	262	279	272	269	276	269	276	213	132	165	266
29	296	289	278	280	263	264	262	286	270	291	303	310	318	290	302	310	290	184	163	161	162	160	158	157	264
30	158	160	162	163	161	165	154	149	168	94	179	357	150	296	292	302	345	314	314	322	314	309	304	331	237
31	230	360	174	156	18	147	345	207	126	150	31	142	189	212	27	177	108	104	101	112	92	51	153	115	126
Prev	81	22	46	145	57	110	93	121	80	71	285	325	275	305	301	301	314	281	346	45	47	30	73	80	2

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
October 2017

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

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
November 2017

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

A-8

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
December 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	75	53	77	32	11	10	11	21	14	11	12	16	13	13	22	37	65	49	59	50	32	54	93	89	38	93	10
2	66	84	98	46	45	51	68	47	82	97	76	48	20	27	48	60	26	24	20	92	97	69	34	33	57	98	20
3	16	21	27	18	17	17	31	36	32	76	22	14	12	13	10	8	13	9	8	8	11	11	14	11	19	76	8
4	55	58	64	83	64	66	56	59	63	55	79	12	7	9	11	10	8	21	8	60	75	55	62	34	45	83	7
5	55	22	16	18	21	27	27	59	75	46	25	18	10	9	13	12	97	31	90	87	22	39	41	94	40	97	9
6	42	10	7	9	64	37	17	88	32	28	13	10	Au	Au	Au	6	39	25	45	44	53	29	28	59	33	88	6
7	26	53	48	40	47	37	95	63	77	85	56	81	50	77	12	54	49	69	40	48	46	43	48	32	53	95	12
8	46	38	40	51	39	75	66	66	60	76	81	94	86	45	41	44	47	41	45	57	52	55	60	89	58	94	38
9	80	44	56	80	75	72	67	82	52	85	76	68	84	57	70	49	28	40	43	40	40	39	61	69	61	85	28
10	66	73	78	75	61	71	60	71	73	61	100	85	86	92	62	39	61	27	40	50	57	70	39	50	64	100	27
11	62	47	77	48	73	48	50	37	96	71	70	82	72	58	60	68	40	26	38	49	35	43	52	66	57	96	26
12	75	44	51	48	61	95	83	80	71	67	93	88	102	25	25	16	11	22	16	58	47	88	75	81	59	102	11
13	88	33	54	73	54	51	92	85	95	68	95	62	68	89	27	36	24	39	72	43	73	42	50	17	60	95	17
14	17	10	10	11	20	44	34	62	27	82	74	90	70	28	51	10	71	28	44	54	78	73	71	96	48	96	10
15	93	64	79	56	68	83	91	82	71	91	63	94	66	78	79	81	54	94	11	16	13	19	75	44	65	94	11
16	55	14	16	56	53	42	12	18	15	28	13	11	10	9	9	6	79	50	31	53	71	69	66	73	36	79	6
17	64	56	61	66	68	40	50	86	67	21	28	29	19	17	34	27	19	21	25	38	48	62	52	36	43	86	17
18	35	37	13	11	14	19	35	39	10	12	13	11	11	11	10	10	11	12	7	10	21	66	52	37	21	66	7
19	28	22	62	21	8	7	4	10	6	14	9	9	18	17	9	11	9	14	17	40	28	36	18	12	18	62	4
20	75	11	9	16	15	49	40	9	22	7	14	14	11	10	8	17	27	10	64	43	19	47	92	10	27	92	7
21	60	93	53	62	39	90	74	87	94	70	93	70	40	16	29	45	42	17	25	18	16	32	71	10	52	94	10
22	11	12	11	16	11	8	5	6	8	6	5	20	19	17	11	8	27	17	34	85	32	14	22	17	18	85	5
23	23	23	30	51	35	13	38	55	49	60	64	91	56	9	10	18	45	60	70	82	62	49	34	32	44	91	9
24	57	62	56	55	92	85	62	90	83	76	86	56	90	50	79	70	37	45	74	85	57	76	56	66	69	92	37
25	79	89	91	89	71	86	87	93	85	78	68	34	8	7	9	6	39	35	14	14	10	8	14	40	48	93	6
26	34	40	43	59	77	51	58	80	81	72	91	78	67	25	18	23	43	50	38	69	65	74	87	98	59	98	18
27	76	99	99	68	67	81	86	79	32	90	14	11	10	9	11	10	12	11	18	51	65	33	18	29	45	99	9
28	10	10	12	12	17	27	88	33	58	53	47	56	77	36	15	11	12	16	13	17	24	65	83	76	36	88	10
29	28	20	25	29	11	10	13	21	25	27	16	6	10	23	25	10	51	38	6	5	6	5	5	5	18	51	5
30	4	5	5	6	4	6	36	57	94	59	74	86	99	68	22	67	38	6	8	20	8	11	12	16	34	99	4
31	67	68	50	31	81	50	55	87	73	53	74	21	86	91	60	79	27	26	53	66	66	74	51	80	61	91	21
Avg	51	42	46	43	45	47	51	58	56	56	53	47	46	35	30	31	37	31	35	47	43	47	50	48	45	89	13
Max	93	99	99	89	92	95	95	93	96	97	100	94	102	92	79	81	97	94	90	92	97	88	93	98	69	102	38
Min	4	5	5	6	4	6	4	6	6	6	5	6	7	7	8	6	8	6	6	5	6	5	5	5	18	51	4

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
October 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	2.7	1.3	0.6	-0.9	-2.9	-3.5	-3.8	-3.0	-0.7	1.7	3.0	2.0	3.1	4.7	4.3	4.7	3.5	2.0	0.4	0.6	0.5	0.9	0.4	0.5	0.9	4.7	-3.8
2	0.6	0.5	0.4	0.0	-0.4	-0.8	-1.1	-1.3	-0.9	-1.2	-1.4	-1.6	-1.5	-2.1	-2.9	-3.4	-3.9	-4.5	-5.0	-5.4	-5.5	-5.4	-5.4	-5.3	-2.4	0.6	-5.5
3	-5.2	-5.2	-5.1	-5.1	-5.3	-5.5	-5.6	-5.5	-5.4	-5.6	-5.6	-5.5	-4.9	-4.0	-3.2	-3.1	-2.7	-2.9	-4.1	-5.8	-7.3	-7.9	-8.7	-9.4	-5.4	-2.7	-9.4
4	-9.5	-10.2	-10.0	-10.1	-10.4	-9.0	-8.9	-7.9	-4.7	-0.6	2.4	3.9	4.0	3.8	4.9	4.3	3.3	2.5	1.8	1.5	1.3	1.4	1.2	0.9	-1.8	4.9	-10.4
5	0.9	0.6	0.6	0.6	0.7	0.7	0.0	-0.8	1.7	4.2	5.4	5.9	6.5	6.5	7.1	7.1	6.9	6.6	4.6	2.1	0.8	0.3	-0.4	-1.0	2.8	7.1	-1.0
6	-1.7	-2.3	-3.1	-4.3	-4.6	-5.4	-5.5	-4.7	-1.3	4.7	7.2	8.7	9.8	10.5	11.0	10.7	11.3	9.0	5.8	4.9	7.1	7.7	10.5	10.6	4.0	11.3	-5.5
7	10.4	10.5	9.9	9.6	9.1	8.5	8.0	8.2	8.8	9.1	9.2	7.5	7.5	7.7	4.8	4.9	5.3	4.9	3.7	2.6	1.5	1.7	0.4	-2.0	6.3	10.5	-2.0
8	-2.9	-3.0	-4.0	-4.5	-5.6	-5.8	-6.5	-6.6	-2.2	1.5	2.7	2.7	2.4	1.9	1.8	1.6	0.8	0.4	-0.4	-0.8	-2.0	-3.4	-5.4	-6.6	-1.8	2.7	-6.6
9	-7.5	-7.5	-6.0	-5.9	-6.6	-5.6	-5.8	-5.3	-1.4	1.9	3.2	4.0	5.0	5.6	6.2	6.4	6.3	5.3	4.2	0.5	-2.5	-3.3	-5.0	-5.6	-0.8	6.4	-7.5
10	-5.7	-5.8	-6.3	-6.1	-6.6	-5.9	-6.5	-4.6	-0.7	5.9	8.2	9.4	10.4	10.8	11.5	12.1	11.8	10.3	6.3	2.3	2.6	0.7	0.1	-1.5	2.2	12.1	-6.6
11	-3.2	-3.7	-4.3	-4.3	-3.9	-2.7	-2.7	-1.7	3.1	7.7	10.1	11.5	11.2	11.2	10.2	9.9	5.8	2.5	0.6	0.5	-0.3	-0.3	-0.5	-1.5	2.3	11.5	-4.3
12	-3.1	-4.8	-6.3	-7.6	-8.6	-9.6	-10.2	-9.3	-6.0	-1.7	0.5	1.3	1.9	1.4	2.2	2.0	1.8	1.3	-1.5	-3.6	-4.1	-4.5	-3.7	-4.2	-3.2	2.2	-10.2
13	-3.8	-3.6	-2.4	-2.5	-2.5	-2.7	-3.3	-3.3	-2.0	0.4	1.6	2.0	1.6	-0.4	-0.7	-0.2	-0.6	-1.6	-3.6	-4.4	-6.0	-5.5	-5.0	-6.7	-2.3	2.0	-6.7
14	-5.5	-5.3	-4.5	-3.8	-3.5	-3.5	-3.9	-4.1	-2.5	-1.9	-1.0	0.0	0.9	1.9	2.4	2.7	2.5	1.7	1.4	1.6	1.4	1.1	1.0	0.4	-0.9	2.7	-5.5
15	0.4	0.2	-0.2	-0.1	-0.5	-3.5	-5.2	-4.6	0.3	4.6	5.6	7.3	8.6	9.4	10.5	11.0	11.0	9.7	4.8	2.7	-0.1	-2.1	-1.9	-2.7	2.7	11.0	-5.2
16	-2.9	-2.1	-2.5	-2.1	-2.0	-2.0	-0.9	2.8	7.7	9.6	10.9	12.1	12.9	13.7	14.3	14.3	13.9	11.4	6.6	3.6	1.7	0.3	-0.5	-1.4	5.0	14.3	-2.9
17	-1.8	-2.8	-2.5	-2.7	-3.8	-3.7	-3.2	-3.1	2.4	11.3	13.6	15.4	15.8	15.4	16.8	17.7	17.0	16.0	14.8	12.9	12.0	11.0	10.6	10.4	7.9	17.7	-3.8
18	9.8	9.5	8.9	8.4	7.6	6.5	6.4	6.4	7.6	8.8	9.6	11.1	12.5	13.5	14.3	13.9	13.1	12.2	10.3	6.4	6.6	6.2	8.5	9.4	9.5	14.3	6.2
19	10.0	9.2	10.0	9.6	9.1	8.7	8.5	9.9	12.7	14.9	16.7	17.6	18.4	18.6	18.9	18.5	17.8	16.5	13.3	14.6	13.4	10.5	8.8	7.8	13.1	18.9	7.8
20	7.3	7.6	9.0	6.7	4.9	5.3	6.1	7.0	9.0	11.3	11.6	12.7	12.5	7.9	3.1	1.7	0.4	0.3	0.5	0.7	0.7	0.7	0.4	0.2	5.3	12.7	0.2
21	-0.1	-0.4	-0.4	-0.4	-0.6	-0.4	-0.6	-0.5	0.3	0.9	1.2	1.8	2.4	3.3	3.5	3.4	2.9	2.4	1.8	1.4	2.9	3.2	3.1	3.8	1.5	3.8	-0.6
22	3.7	3.9	4.8	6.3	7.2	7.1	7.2	7.7	8.5	9.1	9.5	10.2	10.3	10.3	9.8	7.8	7.1	5.8	4.5	4.0	3.4	2.9	3.3	2.9	6.6	10.3	2.9
23	2.6	2.0	1.7	1.2	0.6	1.3	0.3	0.9	2.7	3.7	5.0	5.9	6.6	7.1	7.3	7.1	6.6	4.7	2.4	1.0	0.2	-2.2	-4.0	-4.8	2.5	7.3	-4.8
24	-5.6	-5.7	-6.3	-6.1	-6.7	-7.0	-7.2	-6.8	-3.4	3.5	6.9	9.3	10.1	11.1	11.6	12.0	12.2	11.0	6.4	3.2	0.8	-1.2	-2.9	-3.9	1.5	12.2	-7.2
25	-5.0	-5.5	-5.3	-5.9	-6.5	-6.5	-7.0	-6.8	-3.1	5.4	14.4	15.2	15.8	14.7	14.9	14.8	13.2	10.5	9.1	7.1	4.3	2.8	1.1	-0.5	3.8	15.8	-7.0
26	-2.0	-2.6	-2.9	-3.2	-3.6	-4.4	-4.6	-4.6	-4.5	-4.3	-3.9	-3.1	-1.9	0.0	0.9	1.2	0.7	-0.9	-1.0	-1.3	-1.9	-1.8	-2.3	-3.7	-2.3	1.2	-4.6
27	-5.6	-6.6	-7.7	-7.9	-8.5	-8.5	-9.0	-8.6	-5.7	-2.1	2.3	4.3	6.9	7.5	8.2	7.5	7.1	6.3	4.9	3.3	2.1	-0.1	-0.9	-2.2	-0.5	8.2	-9.0
28	-2.1	-2.6	-3.1	-4.7	-5.3	-5.3	-5.6	-6.0	-3.4	2.0	8.0	10.0	11.2	12.5	13.8	13.9	12.7	9.7	5.7	2.3	0.3	-0.9	-1.6	-2.2	2.5	13.9	-6.0
29	-2.6	-2.2	-2.2	0.5	4.3	3.6	2.9	2.1	0.8	0.0	-0.2	-0.6	-0.6	-1.2	-1.2	-1.5	-1.9	-2.2	-2.4	-2.5	-2.9	-2.9	-3.1	-3.4	-0.8	4.3	-3.4
30	-4.0	-4.4	-4.8	-4.8	-5.2	-5.5	-6.0	-6.4	-6.2	-5.8	-4.8	-3.4	-2.1	-1.2	-0.2	0.0	-0.6	-2.4	-4.6	-6.7	-7.9	-8.9	-10.3	-10.8	-4.9	0.0	-10.8
31	-11.2	-11.3	-11.1	-11.7	-11.5	-10.6	-10.1	-11.2	-8.8	-1.7	0.8	1.9	1.9	2.2	2.3	2.8	2.3	0.7	0.1	-0.4	-0.4	-0.6	-0.8	-0.8	-3.6	2.8	-11.7
Avg	-1.4	-1.7	-1.8	-2.0	-2.3	-2.4	-2.7	-2.3	0.1	3.1	4.9	5.8	6.4	6.6	6.7	6.6	6.1	4.8	2.9	1.6	0.7	0.0	-0.4	-1.1	1.6	7.9	-4.7
Max	10.4	10.5	10.0	9.6	9.1	8.7	8.5	9.9	12.7	14.9	16.7	17.6	18.4	18.6	18.9	18.5	17.8	16.5	14.8	14.6	13.4	11.0	10.6	10.6	13.1	18.9	7.8
Min	-11.2	-11.3	-11.1	-11.7	-11.5	-10.6	-10.2	-11.2	-8.8	-5.8	-5.6	-5.5	-4.9	-4.0	-3.2	-3.4	-3.9	-4.5	-5.0	-6.7	-7.9	-8.9	-10.3	-10.8	-5.4	-2.7	-11.7

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
November 2017

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	-0.6	-0.4	-0.4	-0.4	-0.4	-0.9	-1.6	-2.5	-2.7	-2.7	-3.1	-3.8	-4.0	-4.1	-4.0	-4.5	-5.0	-5.3	-5.8	-7.1	-9.5	-10.6	-13.6	-14.5	-4.5	-0.4	-14.5
2	-15.6	-16.9	-15.9	-14.4	-13.1	-12.3	-12.0	-11.5	-11.2	-9.9	-7.3	-5.1	-5.0	-4.9	-4.7	-4.8	-5.2	-5.5	-5.6	-5.6	-5.7	-5.8	-6.1	-6.2	-8.8	-4.7	-16.9
3	-6.5	-7.8	-8.6	-9.2	-9.2	-9.4	-9.2	-9.3	-9.2	-8.2	-5.2	-4.1	-5.4	-7.3	-7.1	-7.6	-9.6	-11.8	-11.4	-10.6	-9.9	-9.3	-9.3	-11.1	-8.6	-4.1	-11.8
4	-11.1	-10.8	-10.6	-10.3	-11.0	-12.7	-15.6	-17.5	-18.2	-16.5	-14.9	-10.3	-6.9	-5.4	-5.4	-5.8	-6.6	-7.4	-8.5	-8.5	-8.6	-8.3	-8.6	-8.7	-10.3	-5.4	-18.2
5	-8.7	-8.6	-8.8	-9.4	-9.5	-8.9	-9.3	-10.7	-11.6	-11.6	-9.9	-7.1	-5.2	-5.5	-5.5	-5.5	-8.6	-11.0	-11.6	-12.8	-13.3	-14.1	-14.5	-15.2	-9.9	-5.2	-15.2
6	-15.7	-16.0	-15.6	-15.7	-16.2	-16.3	-16.2	-16.2	-15.9	-15.3	-14.3	-13.5	-12.5	-11.6	-11.5	-12.6	-14.2	-17.3	-18.3	-18.7	-20.3	-21.3	-22.0	-16.0	-11.5	-22.0	
7	-22.0	-23.3	-22.9	-23.6	-23.4	-23.5	-23.8	-24.0	-22.7	-21.1	-17.9	-14.8	-12.1	-9.4	-7.6	-6.8	-9.1	-10.0	-12.6	-11.9	-13.3	-13.4	-14.2	-14.6	-16.6	-6.8	-24.0
8	-13.5	-12.8	-12.3	-12.2	-11.2	-10.3	-9.6	-9.3	-8.0	-7.6	-6.9	-5.7	-4.1	-3.5	-3.5	-3.2	-3.8	-5.3	-5.1	-4.6	-4.7	-4.9	-5.1	-5.0	-7.2	-3.2	-13.5
9	-4.6	-4.5	-4.9	-4.7	-4.6	-3.9	-4.0	-3.3	-3.2	-3.0	-3.0	-1.8	-1.2	0.1	1.1	1.7	1.2	-0.8	-1.6	-2.6	-2.3	-2.7	0.0	-0.4	-2.2	1.7	-4.9
10	-1.6	-1.9	-2.4	-2.9	-2.9	-3.8	-3.2	-2.7	-3.8	-2.3	-1.5	0.8	2.2	2.6	2.2	1.5	1.0	-0.5	-2.0	-2.0	-2.2	-2.3	-2.0	-2.7	-1.3	2.6	-3.8
11	-2.4	-2.7	-3.4	-3.9	-4.7	-5.7	-6.9	-6.7	-6.8	-6.2	-4.8	-2.0	0.8	1.2	1.1	1.0	-0.1	-2.8	-4.0	-5.7	-7.8	-9.4	-11.1	-11.1	-4.3	1.2	-11.1
12	-11.2	-12.0	-11.5	-10.9	-10.3	-10.3	-10.6	-10.7	-10.5	-9.5	-7.8	-6.4	-4.9	-3.3	-0.7	1.2	-0.2	-2.0	-3.0	-3.9	-3.4	-3.7	-3.7	-4.0	-6.4	1.2	-12.0
13	-5.6	-6.6	-7.8	-9.4	-10.3	-11.0	-11.7	-11.8	-10.1	-6.3	-4.4	1.4	6.2	6.9	5.9	5.3	3.5	2.7	1.3	1.4	2.6	2.2	2.7	1.2	-2.2	6.9	-11.8
14	0.2	-0.4	0.3	-0.6	-0.9	-2.2	-2.2	-0.3	0.0	0.0	-0.1	0.0	0.1	0.0	-0.2	-0.2	-0.6	-2.4	-2.7	-5.2	-7.5	-9.1	-10.6	-11.0	-2.3	0.3	-11.0
15	-11.8	-11.8	-11.7	-12.5	-12.0	-11.7	-12.0	-13.2	-12.2	-10.9	-8.6	-2.2	1.8	2.1	1.9	1.4	0.3	-1.4	-2.9	-4.2	-5.1	-1.8	0.3	2.9	-5.6	2.9	-13.2
16	3.7	3.3	2.5	3.9	3.4	3.3	4.1	4.0	4.5	5.0	5.0	1.2	0.3	0.4	1.5	1.5	1.0	0.2	0.0	-0.5	-1.2	-3.0	-3.4	-4.7	1.5	5.0	-4.7
17	-4.8	-4.9	-5.1	-5.5	-6.6	-7.5	-8.5	-9.5	-8.1	-4.2	-1.9	-1.5	-1.1	-0.8	-1.0	-1.4	-2.0	-2.6	-2.9	-3.2	-3.8	-4.0	-4.1	-4.3	-4.1	-0.8	-9.5
18	-4.3	-4.3	-4.3	-3.8	-3.8	-3.4	-3.4	-3.3	-3.0	-2.7	-2.0	-1.7	-1.3	-1.1	-1.2	-1.4	-1.7	-1.6	-3.2	-4.9	-7.1	-8.6	-10.0	-11.5	-3.9	-1.1	-11.5
19	-12.3	-11.7	-11.6	-11.0	-10.2	-9.7	-8.4	-8.0	-8.1	-7.5	-5.9	-3.7	-1.5	0.9	0.8	1.5	2.8	1.0	-0.2	-2.5	-3.6	-1.5	2.0	4.0	-4.4	4.0	-12.3
20	1.8	2.0	2.8	2.3	3.4	3.7	3.0	3.2	3.8	4.1	3.8	3.3	4.5	3.4	2.0	0.5	0.4	0.3	0.1	0.3	0.4	0.5	0.5	-0.1	2.1	4.5	-0.1
21	-1.8	-2.7	-2.9	-3.2	-3.1	-2.8	-2.9	-3.6	-5.3	-6.0	-5.1	-3.2	-2.0	-0.5	0.0	-0.3	0.0	0.0	0.3	0.7	1.2	1.3	1.8	2.1	-1.6	2.1	-6.0
22	1.8	1.9	4.1	5.9	4.3	3.5	2.9	2.9	3.3	4.0	4.2	6.1	7.6	8.1	6.2	4.9	4.2	3.7	3.5	3.1	2.6	2.4	2.3	3.0	4.0	8.1	1.8
23	2.4	1.8	1.8	3.5	4.2	4.4	5.7	7.3	9.9	10.9	11.2	10.9	11.2	12.3	12.5	12.7	11.7	11.3	11.1	10.3	8.4	6.4	5.3	5.2	8.0	12.7	1.8
24	4.7	3.4	3.1	2.4	1.4	0.4	0.1	-0.6	-0.9	0.7	1.1	1.2	1.6	2.4	2.5	2.4	2.2	1.1	-0.3	-0.3	-0.2	-1.4	-3.0	-2.6	0.9	4.7	-3.0
25	-2.3	-2.7	-1.0	-3.9	-4.7	-5.9	-5.8	-6.7	-7.8	-6.5	-4.2	-1.0	1.8	3.2	3.1	2.8	0.9	-1.0	-2.0	-1.6	-1.9	-0.6	0.1	-0.1	-2.0	3.2	-7.8
26	0.9	1.4	1.4	1.8	1.9	0.7	0.0	-1.0	0.8	1.9	8.1	10.7	11.9	12.4	13.2	12.6	11.6	8.0	9.7	10.9	11.4	9.5	9.6	10.1	6.6	13.2	-1.0
27	10.1	9.9	9.7	8.0	4.5	3.1	2.6	2.2	2.1	1.9	1.6	1.5	1.3	1.4	1.4	0.5	-0.2	-1.1	-1.5	-2.1	-2.3	-2.7	-2.9	-3.1	1.9	10.1	-3.1
28	-3.3	-3.9	-3.8	-3.6	-4.2	-4.4	-3.9	-5.6	-6.7	-3.8	-1.6	-0.1	1.1	1.8	2.5	2.2	0.6	-0.6	-1.1	-0.7	-0.2	-1.8	1.7	1.9	-1.6	2.5	-6.7
29	2.3	1.4	0.4	0.2	-0.8	-1.4	-2.0	-1.8	-1.7	-1.9	-1.4	-0.7	-0.4	-0.4	-0.3	-0.6	-1.3	-1.7	-2.3	-2.8	-3.2	-3.5	-3.5	-4.2	-1.3	2.3	-4.2
30	-4.9	-5.8	-8.4	-9.0	-9.5	-9.4	-9.8	-9.8	-10.3	-7.3	-4.2	0.0	0.6	1.0	1.2	0.6	0.0	-0.5	-1.1	-1.7	-2.7	-4.4	-5.5	-6.4	-4.5	1.2	-10.3
Avg	-4.6	-4.9	-4.9	-5.1	-5.3	-5.6	-5.8	-6.0	-5.8	-4.8	-3.4	-1.7	-0.5	0.1	0.2	0.0	-0.8	-2.0	-2.8	-3.2	-3.7	-4.2	-4.2	-4.4	-3.5	1.6	-9.4
Max	10.1	9.9	9.7	8.0	4.5	4.4	5.7	7.3	9.9	10.9	11.2	10.9	11.9	12.4	13.2	12.7	11.7	11.3	11.1	10.9	11.4	9.5	9.6	10.1	8.0	13.2	1.8
Min	-22.0	-23.3	-22.9	-23.6	-23.4	-23.5	-23.8	-24.0	-22.7	-21.1	-17.9	-14.8	-13.5	-12.5	-11.6	-11.5	-12.6	-14.2	-17.3	-18.3	-18.7	-20.3	-21.3	-22.0	-16.6	-11.5	-24.0

A-11

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
December 2017

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-6.1	-5.3	-4.2	-1.5	-0.2	-0.7	-1.4	-2.0	-0.8	-0.2	0.1	0.3	0.6	0.7	0.9	1.3	0.3	-0.9	-3.3	-4.5	-5.6	-5.9	-6.3	-7.0	-2.2	1.3	-7.0
2	-7.4	-7.8	-9.1	-9.3	-9.9	-10.7	-10.5	-10.8	-10.9	-8.9	-6.3	-2.7	2.0	2.3	2.2	2.0	0.5	-0.8	-1.4	-2.7	-2.8	-2.3	-1.0	-0.5	-4.5	2.3	-10.9
3	-0.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-1.2	-0.9	-1.0	-0.8	-0.7	-0.7	-1.2	-1.3	-1.7	-2.0	-2.6	-2.9	-3.7	-4.7	-5.3	-5.8	-6.4	-2.0	-0.7	-6.4
4	-8.3	-10.3	-9.8	-10.3	-9.4	-9.3	-9.3	-9.3	-9.2	-9.0	-8.5	-7.6	-7.4	-7.3	-7.2	-7.0	-7.1	-7.5	-8.1	-11.2	-13.7	-14.1	-14.4	-13.7	-9.5	-7.0	-14.4
5	-11.6	-8.5	-7.9	-7.7	-7.6	-7.5	-7.5	-7.3	-7.3	-7.0	-6.4	-6.1	-5.8	-5.4	-5.3	-5.5	-6.2	-7.3	-10.6	-12.4	-12.9	-14.9	-15.7	-17.3	-8.8	-5.3	-17.3
6	-16.7	-12.2	-9.2	-8.7	-9.1	-10.6	-12.1	-12.6	-13.0	-9.8	-6.4	-5.8	AZ	Au	Au	-3.7	-5.3	-6.0	-6.8	-7.8	-8.5	-8.9	-9.5	-10.1	-9.2	-3.7	-16.7
7	-11.1	-12.5	-12.7	-14.1	-15.2	-15.9	-16.7	-16.6	-16.5	-15.5	-13.3	-10.6	-5.7	-2.9	-1.4	-1.6	-3.5	-6.5	-9.9	-11.3	-12.1	-12.8	-12.2	-12.0	-10.9	-1.4	-16.7
8	-12.0	-12.2	-13.1	-12.6	-13.4	-13.3	-13.0	-13.9	-13.0	-12.3	-11.2	-8.5	-6.0	-0.8	0.5	-1.7	-4.4	-6.8	-7.8	-9.2	-10.8	-12.4	-13.5	-14.1	-9.8	0.5	-14.1
9	-15.2	-15.0	-15.9	-16.3	-16.5	-16.7	-16.8	-16.0	-16.5	-14.7	-12.6	-9.8	-7.1	-0.8	-1.1	-3.3	-4.7	-6.1	-8.4	-9.8	-11.4	-12.1	-11.9	-12.3	-11.3	-0.8	-16.8
10	-13.3	-13.2	-12.6	-13.0	-13.1	-13.3	-13.5	-13.2	-12.4	-11.0	-8.3	-6.4	-4.4	0.1	3.0	1.0	-2.2	-5.3	-7.5	-9.0	-9.9	-10.4	-11.5	-12.2	-8.8	3.0	-13.5
11	-12.6	-12.9	-13.0	-13.1	-13.5	-13.5	-13.0	-14.2	-13.5	-12.3	-10.2	-7.4	-3.4	-0.6	0.4	0.0	-2.5	-3.7	-4.4	-5.4	-7.1	-7.8	-9.5	-9.8	-8.5	0.4	-14.2
12	-9.7	-9.9	-10.2	-11.3	-11.7	-12.1	-12.4	-13.1	-13.2	-11.9	-9.3	-5.8	0.6	6.0	5.1	4.6	5.0	3.9	3.6	1.4	-0.6	-3.0	-4.0	-5.6	-4.7	6.0	-13.2
13	-7.8	-9.8	-11.6	-12.5	-11.9	-13.1	-12.8	-12.1	-10.9	-8.8	-5.8	-3.9	-3.5	-2.7	-2.3	-2.1	-2.9	-2.7	-4.4	-6.4	-6.6	-6.6	-5.9	-7.5	-7.3	-2.1	-13.1
14	-4.4	-3.5	-3.3	-3.4	-6.4	-8.0	-9.8	-11.1	-12.6	-13.0	-10.7	-8.7	-4.1	-2.3	-1.5	-2.2	-4.3	-7.5	-8.9	-10.2	-11.2	-12.1	-12.1	-12.0	-7.6	-1.5	-13.0
15	-12.9	-12.6	-12.9	-13.2	-13.2	-12.9	-13.5	-12.6	-11.6	-10.8	-8.7	-7.6	-6.2	-4.9	-3.6	-2.2	-2.0	-1.9	1.2	0.5	-0.6	-1.1	-1.6	-1.5	-6.9	1.2	-13.5
16	-1.8	-2.1	-2.2	-2.5	-2.6	-2.8	-2.7	-2.9	-3.0	-3.0	-3.1	-2.9	-2.7	-3.0	-4.0	-4.6	-6.9	-8.9	-10.1	-11.9	-14.1	-15.3	-15.4	-16.4	-6.0	-1.8	-16.4
17	-18.5	-19.4	-20.3	-20.9	-20.8	-17.6	-11.5	-10.2	-8.4	-7.0	-6.4	-5.7	-4.9	-4.4	-4.6	-4.3	-4.3	-4.0	-3.6	-3.6	-3.8	-3.4	-3.5	-3.8	-9.0	-3.4	-20.9
18	-3.2	-0.7	0.2	0.5	0.4	0.9	0.5	1.5	1.8	2.0	2.6	3.0	2.8	2.7	2.6	2.6	2.7	1.8	0.1	-0.3	-1.4	-2.1	-1.8	-1.7	0.7	3.0	-3.2
19	-1.0	-0.8	-1.1	-1.3	-1.3	-2.1	-3.0	-3.6	-3.5	-2.9	-2.2	-1.6	-0.2	-0.1	0.0	-0.1	-0.1	0.0	0.1	0.5	0.2	0.6	0.5	0.8	-0.9	0.8	-3.6
20	1.1	1.7	2.1	1.6	1.4	0.5	-4.6	-6.6	-6.6	-10.1	-10.8	-11.8	-12.1	-12.9	-12.9	-13.5	-14.4	-15.0	-15.2	-15.3	-15.5	-15.8	-17.3	-19.4	-9.2	2.1	-19.4
21	-21.9	-23.9	-23.9	-25.3	-24.4	-24.2	-24.0	-24.0	-22.5	-19.7	-17.2	-14.6	-10.7	-8.1	-7.9	-8.0	-8.3	-8.6	-9.1	-9.1	-8.8	-8.5	-8.4	-7.3	-15.4	-7.3	-25.3
22	-7.4	-7.9	-8.5	-9.4	-10.2	-11.0	-11.7	-13.0	-13.5	-13.7	-13.5	-14.2	-14.5	-14.8	-15.0	-15.4	-15.8	-16.2	-16.4	-16.4	-16.5	-16.7	-16.8	-17.0	-13.6	-7.4	-17.0
23	-17.2	-17.4	-17.4	-17.9	-17.9	-18.1	-19.0	-21.6	-24.9	-25.1	-25.4	-22.2	-18.3	-16.2	-15.8	-15.9	-17.7	-18.8	-18.0	-20.9	-23.6	-25.9	-26.9	-26.9	-20.4	-15.8	-26.9
24	-28.3	-28.6	-29.4	-30.2	-30.8	-30.6	-30.2	-31.3	-30.7	-29.4	-26.9	-24.0	-21.1	-16.0	-14.2	-15.2	-17.7	-21.1	-21.8	-23.1	-24.2	-25.1	-25.8	-26.2	-25.1	-14.2	-31.3
25	-25.8	-25.8	-25.7	-24.8	-23.3	-22.4	-21.5	-20.6	-19.9	-19.4	-18.3	-17.2	-17.2	-17.0	-16.8	-16.7	-17.2	-17.9	-18.6	-18.7	-19.4	-19.7	-19.7	-19.8	-20.1	-16.7	-25.8
26	-19.8	-19.9	-19.7	-19.5	-19.3	-19.1	-19.4	-22.0	-23.7	-23.2	-21.5	-19.6	-16.8	-13.9	-12.4	-12.3	-15.5	-18.2	-19.1	-18.3	-16.9	-17.2	-17.2	-17.1	-18.4	-12.3	-23.7
27	-16.7	-16.2	-15.6	-14.3	-14.0	-13.0	-12.5	-12.0	-11.1	-8.5	-6.4	-5.2	-5.0	-5.2	-5.2	-4.8	-5.2	-5.7	-6.5	-7.1	-7.4	-6.9	-6.9	-7.0	-9.1	-4.8	-16.7
28	-6.3	-6.3	-6.5	-6.1	-7.0	-7.2	-6.6	-6.6	-6.6	-6.1	-5.5	-4.6	-3.5	-1.9	-1.0	-0.8	-0.9	-1.1	-1.1	-1.2	-1.5	-2.5	-2.9	-2.6	-4.0	-0.8	-7.2
29	-2.2	-6.2	-15.1	-17.7	-18.4	-19.8	-20.6	-20.9	-20.9	-20.5	-20.4	-20.4	-20.1	-19.5	-19.9	-20.0	-20.2	-20.5	-20.8	-21.2	-21.8	-21.7	-21.8	-22.1	-18.9	-2.2	-22.1
30	-22.0	-21.7	-21.3	-21.2	-21.3	-21.1	-20.6	-20.0	-20.0	-20.2	-18.7	-16.4	-14.0	-9.5	-11.9	-13.9	-14.8	-20.7	-23.8	-24.0	-23.9	-24.3	-24.1	-23.7	-19.7	-9.5	-24.3
31	-22.9	-22.1	-22.2	-23.2	-22.7	-22.7	-21.9	-20.8	-20.0	-19.2	-18.4	-17.9	-16.3	-14.5	-12.5	-11.8	-12.3	-15.2	-16.3	-17.7	-19.0	-20.3	-20.8	-20.4	-18.8	-11.8	-23.2
Avg	-11.7	-11.7	-12.0	-12.3	-12.4	-12.5	-12.7	-12.9	-12.8	-12.0	-10.7	-9.2	-7.5	-5.8	-5.4	-5.7	-6.8	-8.1	-9.0	-10.0	-10.8	-11.4	-11.7	-12.0	-10.3	-3.5	-16.4
Max	1.1	1.7	2.1	1.6	1.4	0.9	0.5	1.5	1.8	2.0	2.6	3.0	2.8	6.0	5.1	4.6	5.0	3.9	3.6	1.4	0.2	0.6	0.5	0.8	0.7	6.0	-3.2
Min	-28.3	-28.6	-29.4	-30.2	-30.8	-30.6	-30.2	-31.3	-30.7	-29.4	-26.9	-24.0	-21.1	-19.5	-19.9	-20.0	-20.2	-21.1	-23.8	-24.0	-24.2	-25.9	-26.9	-26.9	-25.1	-16.7	-31.3

A-12

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
October 2017

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	2.1	0.4	-0.1	-2.3	-3.7	-4.5	-4.5	-2.8	-0.4	1.9	3.5	2.3	3.6	5.3	4.7	5.3	3.7	2.1	0.3	0.7	0.2	0.5	0.4	0.5	0.8	5.3	-4.5
2	0.5	0.4	0.4	0.0	-0.4	-0.8	-1.1	-1.1	-0.5	-0.5	-0.8	-0.9	-0.8	-1.3	-2.4	-3.0	-3.7	-4.4	-4.8	-5.2	-5.4	-5.3	-5.3	-5.2	-2.1	0.5	-5.4
3	-5.1	-5.1	-5.1	-5.0	-5.2	-5.4	-5.5	-5.4	-5.2	-5.3	-5.1	-5.0	-4.4	-3.5	-2.7	-2.6	-2.4	-2.9	-4.7	-6.6	-7.9	-8.4	-9.7	-10.4	-5.4	-2.4	-10.4
4	-10.5	-10.9	-11.0	-11.2	-11.5	-10.1	-9.7	-8.3	-4.4	-0.1	2.9	4.6	4.5	4.6	5.7	4.6	3.6	2.6	1.9	1.5	1.4	1.6	1.2	0.9	-1.9	5.7	-11.5
5	0.8	0.5	0.7	0.7	0.7	0.6	-0.5	-0.9	2.1	4.6	5.9	6.7	7.3	7.3	7.9	7.6	7.1	6.7	4.1	1.3	0.4	0.1	-1.1	-2.1	2.9	7.9	-2.1
6	-2.7	-3.6	-4.9	-5.8	-6.0	-6.2	-6.3	-5.1	-1.0	5.4	8.0	9.6	10.8	11.3	11.4	10.9	11.2	8.0	5.1	3.6	3.2	4.9	9.7	10.1	3.4	11.4	-6.3
7	9.9	10.2	9.5	9.2	8.5	7.8	7.6	8.1	8.8	9.3	9.5	7.4	7.6	8.1	4.9	5.1	5.4	4.7	3.4	2.0	0.6	1.4	-0.6	-2.9	6.1	10.2	-2.9
8	-4.0	-3.4	-4.8	-5.4	-6.6	-6.6	-7.6	-7.1	-1.8	1.7	3.4	3.1	2.8	2.3	2.5	2.1	1.1	0.5	-0.6	-0.9	-2.4	-4.5	-6.7	-7.9	-2.1	3.4	-7.9
9	-8.6	-7.8	-5.9	-6.1	-7.0	-5.6	-6.2	-5.7	-1.3	2.5	4.1	5.0	6.0	6.6	7.1	7.1	6.7	5.0	3.0	-0.5	-3.3	-4.4	-6.8	-7.1	-1.0	7.1	-8.6
10	-7.8	-7.8	-8.3	-8.2	-8.1	-7.8	-7.9	-5.3	-0.6	6.3	8.7	9.9	10.8	11.0	11.9	12.6	11.8	9.4	4.4	0.5	0.8	-0.9	-2.2	-4.0	1.2	12.6	-8.3
11	-5.4	-5.8	-6.6	-6.6	-5.9	-3.8	-3.5	-2.5	3.2	7.8	10.3	12.2	12.0	12.0	10.7	10.3	6.0	2.6	0.6	0.5	-0.4	-0.4	-0.8	-1.9	1.9	12.2	-6.6
12	-4.2	-6.9	-7.8	-9.2	-10.3	-11.3	-11.8	-10.0	-5.6	-1.4	1.1	2.1	2.7	2.2	2.8	2.4	2.0	0.6	-2.5	-4.9	-4.4	-4.8	-3.8	-4.3	-3.6	2.8	-11.8
13	-4.1	-3.6	-2.5	-2.6	-2.8	-2.9	-3.9	-3.5	-1.9	0.7	2.0	2.4	2.2	-0.1	-0.5	0.0	-0.4	-2.0	-4.7	-5.4	-7.6	-6.3	-6.4	-7.9	-2.6	2.4	-7.9
14	-6.0	-5.2	-4.5	-3.9	-3.7	-3.4	-4.3	-4.8	-2.5	-1.9	-0.9	0.4	1.4	2.5	3.0	3.1	2.7	1.3	1.0	1.4	1.3	1.0	0.7	0.0	-0.9	3.1	-6.0
15	0.1	-0.2	-1.1	-0.6	-2.4	-4.5	-5.7	-4.9	0.6	5.1	6.1	8.1	9.4	10.3	11.2	11.5	11.2	7.5	3.7	2.0	-1.7	-3.4	-3.9	-4.6	2.2	11.5	-5.7
16	-4.5	-3.5	-3.4	-2.8	-2.8	-3.3	-2.7	1.2	7.4	10.0	11.6	12.9	13.7	14.5	14.9	14.7	13.8	9.8	5.2	2.9	0.9	-0.4	-1.3	-2.5	4.4	14.9	-4.5
17	-3.2	-5.1	-5.2	-4.1	-5.3	-6.0	-5.7	-4.9	2.1	11.7	14.1	16.2	16.7	15.8	17.0	18.0	16.9	15.6	14.2	11.9	11.4	10.5	10.4	10.2	7.2	18.0	-6.0
18	9.5	9.2	8.7	8.2	7.2	5.6	5.7	6.0	8.1	9.2	10.0	11.9	13.3	14.1	14.9	14.1	13.0	11.5	8.3	4.7	4.5	4.2	5.8	7.1	8.9	14.9	4.2
19	8.6	7.3	8.7	8.4	8.0	7.2	7.2	8.9	12.6	15.3	17.4	18.6	19.5	19.5	19.6	18.6	17.6	15.3	10.0	13.2	11.7	9.0	6.5	5.7	12.3	19.6	5.7
20	4.5	4.6	7.2	5.4	3.2	3.8	4.8	6.1	8.4	11.1	11.2	12.9	12.5	8.4	3.6	1.8	0.5	0.3	0.4	0.5	0.6	0.6	0.4	0.0	4.7	12.9	0.0
21	-0.4	-0.7	-0.8	-0.8	-1.1	-0.8	-0.9	-0.7	0.3	1.1	1.5	2.2	2.9	4.0	4.2	3.8	2.8	1.8	1.0	0.9	2.8	3.1	3.0	3.7	1.4	4.2	-1.1
22	3.6	3.8	4.7	6.2	7.1	7.1	7.1	7.8	8.7	9.3	9.8	10.8	11.0	10.9	10.1	7.9	7.2	5.7	4.3	3.8	3.1	2.6	3.0	2.7	6.6	11.0	2.6
23	2.5	1.2	0.5	-0.1	-0.2	0.6	-0.8	0.3	2.8	4.2	5.7	6.7	7.5	8.0	8.0	7.5	6.6	3.5	1.5	0.1	-1.9	-4.0	-5.2	-6.3	2.0	8.0	-6.3
24	-7.1	-6.8	-7.6	-7.7	-8.2	-8.5	-8.4	-8.1	-3.3	3.7	7.5	10.1	10.9	11.9	12.3	12.5	12.3	10.1	5.2	2.9	-0.2	-3.3	-4.8	-5.6	0.8	12.5	-8.5
25	-6.9	-7.0	-7.1	-7.5	-8.7	-8.8	-9.0	-8.6	-3.1	5.5	14.9	16.0	16.5	14.8	14.9	14.8	13.0	10.2	8.8	6.9	4.1	2.7	1.1	-0.5	3.2	16.5	-9.0
26	-1.9	-2.5	-2.9	-3.2	-3.5	-4.3	-4.5	-4.5	-4.2	-3.9	-3.5	-2.5	-1.3	0.6	1.6	1.7	0.7	-1.2	-1.1	-1.7	-2.2	-2.0	-2.6	-4.7	-2.2	1.7	-4.7
27	-7.3	-7.8	-9.0	-8.8	-9.5	-9.3	-10.0	-9.1	-5.5	-1.9	2.7	5.0	7.8	8.2	8.6	7.7	7.1	5.9	4.2	3.0	1.2	-0.7	-1.8	-3.1	-0.9	8.6	-10.0
28	-2.8	-3.4	-4.4	-6.1	-6.6	-6.7	-7.3	-7.1	-3.4	2.4	8.6	10.6	12.0	13.3	14.4	14.2	12.4	8.5	4.8	1.0	-0.8	-2.4	-3.6	-3.5	1.8	14.4	-7.3
29	-3.5	-3.9	-3.4	-1.2	4.0	3.5	2.8	2.1	0.9	0.2	0.0	-0.3	-0.2	-0.9	-1.0	-1.4	-1.8	-2.2	-2.4	-2.6	-3.0	-2.9	-3.1	-3.4	-1.0	4.0	-3.9
30	-3.9	-4.4	-4.7	-4.8	-5.1	-5.4	-6.0	-6.3	-5.9	-5.3	-4.2	-2.9	-1.4	-0.5	0.3	0.4	-0.7	-3.5	-6.2	-8.0	-9.6	-10.6	-11.3	-12.0	-5.1	0.4	-12.0
31	-11.9	-12.2	-11.8	-12.7	-12.0	-10.8	-10.7	-11.9	-8.7	-1.5	1.3	2.4	2.3	2.6	2.5	2.9	2.3	0.7	0.1	-0.3	-0.4	-0.6	-0.7	-0.7	-3.7	2.9	-12.7
Avg	-2.2	-2.6	-2.7	-2.9	-3.2	-3.2	-3.5	-2.8	0.2	3.5	5.4	6.4	7.1	7.2	7.2	7.0	6.1	4.3	2.2	0.9	-0.1	-0.7	-1.3	-1.9	1.3	8.3	-5.8
Max	9.9	10.2	9.5	9.2	8.5	7.8	7.6	8.9	12.6	15.3	17.4	18.6	19.5	19.5	19.6	18.6	17.6	15.6	14.2	13.2	11.7	10.5	10.4	10.2	12.3	19.6	5.7
Min	-11.9	-12.2	-11.8	-12.7	-12.0	-11.3	-11.8	-11.9	-8.7	-5.3	-5.1	-5.0	-4.4	-3.5	-2.7	-3.0	-3.7	-4.4	-6.2	-8.0	-9.6	-10.6	-11.3	-12.0	-5.4	-2.4	-12.7

A-13

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
November 2017

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	-0.5	-0.4	-0.3	-0.3	-0.3	-0.8	-1.6	-2.4	-2.6	-2.7	-3.0	-3.7	-3.9	-4.0	-3.9	-4.6	-5.5	-5.5	-5.9	-7.9	-10.1	-11.9	-14.6	-15.7	-4.7	-0.3	-15.7
2	-17.3	-18.9	-16.8	-14.7	-13.2	-12.3	-12.0	-11.8	-11.3	-9.9	-7.4	-5.1	-5.0	-4.8	-4.7	-4.7	-5.1	-5.4	-5.6	-5.6	-5.7	-5.8	-6.0	-6.2	-9.0	-4.7	-18.9
3	-6.5	-8.0	-8.6	-9.1	-9.1	-9.3	-9.2	-9.2	-9.0	-8.1	-5.2	-4.1	-5.4	-7.2	-7.0	-7.4	-9.5	-11.7	-11.2	-10.5	-9.8	-9.2	-9.2	-10.9	-8.5	-4.1	-11.7
4	-11.0	-10.7	-10.7	-10.5	-11.8	-14.9	-18.3	-19.6	-20.2	-18.6	-16.5	-12.5	-7.1	-5.8	-6.2	-6.3	-7.4	-8.3	-9.0	-9.0	-9.0	-8.7	-8.9	-9.2	-11.3	-5.8	-20.2
5	-9.2	-9.1	-9.2	-10.2	-9.9	-9.2	-9.9	-12.8	-13.4	-12.8	-10.7	-8.2	-5.7	-5.4	-5.3	-5.6	-8.6	-10.9	-11.6	-12.7	-13.2	-14.0	-14.3	-15.1	-10.3	-5.3	-15.1
6	-15.6	-15.8	-15.4	-15.5	-16.1	-16.2	-16.1	-16.2	-16.1	-15.7	-15.1	-14.0	-13.2	-12.7	-12.3	-13.0	-14.3	-17.5	-18.8	-20.8	-21.7	-23.2	-23.5	-24.5	-16.8	-12.3	-24.5
7	-24.8	-25.8	-26.0	-25.7	-26.2	-26.6	-27.1	-26.6	-25.2	-23.2	-19.4	-16.4	-13.5	-10.5	-8.8	-9.0	-11.1	-12.5	-14.6	-13.4	-14.9	-14.8	-15.8	-15.7	-18.6	-8.8	-27.1
8	-14.6	-13.4	-12.9	-12.5	-11.7	-10.7	-9.8	-9.4	-8.1	-7.7	-6.9	-5.9	-4.4	-3.4	-3.5	-3.4	-5.0	-6.5	-5.4	-4.8	-4.9	-5.0	-5.1	-5.1	-7.5	-3.4	-14.6
9	-4.7	-4.5	-4.9	-4.7	-4.6	-3.9	-4.0	-3.4	-3.3	-3.1	-2.9	-1.8	-0.9	0.2	1.1	1.6	0.6	-1.7	-2.6	-3.9	-3.4	-3.7	-0.1	-0.5	-2.5	1.6	-4.9
10	-2.3	-2.9	-2.8	-3.5	-3.5	-4.3	-3.7	-3.7	-4.7	-3.3	-2.1	0.7	2.1	2.4	1.5	0.7	0.5	-1.2	-2.5	-2.5	-2.6	-2.8	-2.3	-2.8	-1.9	2.4	-4.7
11	-2.9	-2.8	-3.7	-4.6	-5.5	-6.7	-7.8	-7.9	-7.3	-6.4	-5.2	-2.7	0.6	1.1	0.8	0.6	-1.4	-4.0	-5.3	-7.7	-10.3	-12.1	-13.4	-13.5	-5.3	1.1	-13.5
12	-13.6	-14.0	-14.1	-13.4	-12.2	-12.5	-13.0	-12.8	-12.0	-10.9	-8.5	-7.4	-5.8	-3.9	-2.8	0.2	-1.3	-3.1	-4.4	-5.5	-4.5	-4.5	-4.7	-5.3	-7.9	0.2	-14.1
13	-6.8	-8.5	-10.3	-11.8	-12.5	-13.2	-13.7	-13.9	-12.5	-8.4	-5.8	-1.4	4.8	5.8	5.3	4.1	2.2	1.3	0.1	-0.5	1.2	0.5	2.2	1.0	-3.8	5.8	-13.9
14	0.1	-0.8	0.0	-0.8	-1.1	-2.8	-2.9	-0.7	-0.2	-0.2	-0.3	-0.2	0.0	0.0	-0.2	-0.4	-1.2	-4.0	-4.2	-7.0	-9.1	-9.9	-12.0	-12.4	-2.9	0.1	-12.4
15	-13.4	-14.0	-14.2	-14.4	-13.7	-14.1	-14.7	-15.5	-14.7	-12.8	-10.0	-4.3	1.3	1.4	1.0	0.3	-0.6	-3.1	-5.3	-6.2	-6.9	-4.5	-0.9	2.1	-7.4	2.1	-15.5
16	2.9	2.8	1.9	3.5	3.0	2.8	3.5	3.3	4.0	4.6	4.6	1.2	0.4	0.4	1.3	1.3	0.5	-0.7	-0.8	-1.3	-2.4	-4.4	-5.0	-6.2	0.9	4.6	-6.2
17	-5.6	-5.6	-5.6	-6.4	-7.6	-8.6	-9.5	-10.5	-8.6	-4.8	-2.0	-1.6	-1.2	-0.9	-1.3	-1.6	-2.4	-2.9	-3.2	-3.5	-4.3	-4.5	-4.5	-4.7	-4.6	-0.9	-10.5
18	-4.8	-4.7	-4.8	-4.0	-4.0	-3.5	-3.5	-3.4	-3.1	-2.9	-2.1	-1.9	-1.5	-1.3	-1.4	-1.8	-2.2	-2.4	-4.2	-5.8	-8.4	-9.7	-11.1	-13.0	-4.4	-1.3	-13.0
19	-13.3	-12.5	-12.3	-11.6	-11.4	-10.9	-9.5	-9.0	-9.0	-8.2	-6.8	-4.9	-1.9	0.7	0.0	0.3	1.2	-0.2	-2.1	-4.3	-5.3	-3.2	0.7	3.2	-5.4	3.2	-13.3
20	0.0	-0.5	-0.1	0.6	2.0	3.0	1.8	2.2	3.2	3.7	3.4	2.9	4.2	3.2	1.9	0.5	0.4	0.3	0.2	0.3	0.4	0.0	-0.3	-0.4	1.4	4.2	-0.5
21	-1.9	-2.6	-2.9	-3.6	-3.2	-2.8	-3.0	-4.5	-6.8	-7.2	-5.7	-3.7	-2.4	-1.2	-0.7	-0.5	-0.2	0.0	0.3	0.7	1.2	1.2	1.7	1.9	-1.9	1.9	-7.2
22	1.6	1.5	3.1	5.0	3.2	3.1	2.5	2.2	2.3	3.4	3.6	4.9	6.0	6.5	5.1	4.2	3.8	3.4	3.1	2.8	2.2	1.9	1.6	2.1	3.3	6.5	1.5
23	1.4	1.5	1.4	2.4	3.2	3.4	4.0	5.8	8.8	9.7	9.7	9.3	9.8	11.1	11.2	11.3	10.4	10.2	9.9	9.0	7.2	5.8	4.9	4.8	6.9	11.3	1.4
24	4.4	3.2	2.8	2.0	1.0	-0.4	-0.7	-2.1	-1.5	0.4	1.0	1.2	1.5	2.3	2.2	2.0	1.7	0.4	-1.1	-1.6	-1.0	-2.8	-4.2	-3.7	0.3	4.4	-4.2
25	-3.4	-4.1	-2.2	-4.8	-6.0	-6.5	-6.2	-7.3	-8.3	-6.9	-4.3	-1.2	1.9	3.2	2.9	2.2	0.0	-1.6	-2.3	-2.0	-2.1	-0.9	-0.2	-0.8	-2.5	3.2	-8.3
26	0.3	0.8	0.3	1.6	1.6	0.3	-0.8	-2.4	-1.4	0.3	6.7	9.7	10.8	10.6	11.9	11.0	9.7	6.4	8.1	9.2	9.8	7.6	8.1	9.0	5.4	11.9	-2.4
27	9.0	9.1	9.1	7.4	4.2	2.9	2.3	2.0	1.9	1.7	1.5	1.5	1.3	1.4	1.4	0.4	-0.5	-1.6	-1.9	-2.6	-2.6	-3.0	-3.2	-3.4	1.6	9.1	-3.4
28	-3.6	-4.3	-4.2	-4.0	-4.7	-4.9	-4.4	-6.2	-6.9	-3.5	-1.3	0.4	1.6	2.2	2.8	2.0	0.4	-1.4	-2.4	-1.4	-0.9	-2.0	1.3	1.6	-1.8	2.8	-6.9
29	2.1	1.2	0.4	0.1	-0.8	-1.5	-2.0	-1.8	-1.8	-1.9	-1.4	-0.5	0.0	-0.1	-0.1	-0.6	-1.6	-2.0	-2.6	-3.1	-3.6	-3.8	-4.0	-5.3	-1.4	2.1	-5.3
30	-6.1	-6.7	-8.9	-9.4	-9.9	-9.8	-10.4	-10.3	-10.4	-7.1	-4.0	0.5	1.0	1.3	1.2	0.2	-0.4	-1.1	-1.5	-2.3	-3.4	-5.2	-6.0	-7.2	-4.8	1.3	-10.4
Avg	-5.3	-5.7	-5.7	-5.8	-6.0	-6.4	-6.7	-6.9	-6.6	-5.4	-3.9	-2.3	-0.8	-0.2	-0.2	-0.5	-1.6	-2.9	-3.6	-4.1	-4.6	-5.1	-5.0	-5.2	-4.2	1.1	-10.5
Max	9.0	9.1	9.1	7.4	4.2	3.4	4.0	5.8	8.8	9.7	9.7	9.7	10.8	11.1	11.9	11.3	10.4	10.2	9.9	9.2	9.8	7.6	8.1	9.0	6.9	11.9	1.5
Min	-24.8	-25.8	-26.0	-25.7	-26.2	-26.6	-27.1	-26.6	-25.2	-23.2	-19.4	-16.4	-13.5	-12.7	-12.3	-13.0	-14.3	-17.5	-18.8	-20.8	-21.7	-23.2	-23.5	-24.5	-18.6	-12.3	-27.1

A-14

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
December 2017

Day	<< Hour >>																								Avg	Max	Min	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1	-6.3	-5.3	-4.6	-1.8	-0.5	-1.0	-2.0	-2.5	-1.0	-0.2	0.1	0.5	0.9	0.9	1.0	1.2	-0.3	-2.8	-4.0	-5.1	-6.2	-6.3	-7.2	-7.9	-2.5	1.2	-7.9	
2	-8.6	-8.8	-10.1	-10.1	-11.0	-11.8	-11.0	-11.4	-11.2	-8.8	-6.1	-2.3	2.2	2.5	2.2	1.8	0.2	-1.9	-2.4	-3.7	-3.5	-2.8	-1.5	-0.6	-4.9	2.5	-11.8	
3	-0.8	-0.8	-0.7	-0.6	-0.6	-0.6	-0.7	-1.6	-1.1	-0.9	-0.7	-0.7	-0.8	-1.1	-1.4	-1.9	-2.1	-2.8	-3.0	-4.1	-5.0	-5.5	-5.9	-6.8	-2.1	-0.6	-6.8	
4	-9.4	-12.0	-10.8	-11.1	-9.4	-9.3	-9.3	-9.3	-9.1	-8.9	-8.4	-7.5	-7.3	-7.2	-7.1	-7.0	-7.1	-7.5	-8.7	-12.7	-15.3	-15.1	-15.7	-15.5	-10.0	-7.0	-15.7	
5	-12.8	-8.6	-7.9	-7.6	-7.6	-7.5	-7.5	-7.3	-7.3	-7.1	-6.4	-6.2	-5.9	-5.7	-5.6	-6.4	-7.0	-9.0	-12.1	-13.8	-14.3	-15.9	-17.0	-18.9	-9.4	-5.6	-18.9	
6	-18.0	-14.0	-10.1	-9.6	-10.2	-11.4	-13.7	-15.1	-14.6	-11.3	-7.8	-6.2	Au	Au	Au	-4.9	-6.4	-6.8	-7.5	-9.0	-9.3	-9.5	-9.8	-10.7	-10.3	-4.9	-18.0	
7	-12.2	-13.4	-13.1	-15.2	-16.4	-17.5	-17.6	-17.7	-17.8	-16.7	-13.7	-11.6	-7.7	-3.0	-2.3	-2.8	-4.6	-8.0	-11.3	-12.5	-13.8	-14.3	-13.9	-13.4	-12.1	-2.3	-17.8	
8	-13.4	-13.2	-14.3	-13.9	-15.3	-14.8	-15.4	-16.3	-15.5	-13.9	-12.2	-9.2	-6.9	-3.4	-0.1	-2.3	-5.2	-7.8	-9.3	-10.7	-12.4	-13.8	-15.0	-16.1	-11.3	-0.1	-16.3	
9	-17.2	-17.3	-18.2	-18.1	-18.6	-18.6	-18.9	-18.2	-18.2	-16.9	-13.8	-10.7	-8.0	-5.4	-3.3	-4.2	-5.7	-7.3	-10.3	-12.0	-13.5	-13.5	-14.1	-14.8	-13.2	-3.3	-18.9	
10	-15.2	-14.8	-14.2	-14.6	-14.8	-15.2	-15.3	-15.3	-13.8	-12.1	-9.8	-7.5	-5.3	-1.2	2.2	-0.6	-4.1	-6.3	-8.8	-10.3	-11.6	-12.6	-13.4	-13.9	-10.4	2.2	-15.3	
11	-14.0	-14.8	-15.0	-15.8	-15.6	-15.6	-15.4	-15.8	-15.5	-13.4	-11.2	-8.4	-4.3	-1.7	-0.2	-0.6	-3.5	-4.5	-5.7	-6.6	-8.4	-10.0	-11.3	-11.5	-9.9	-0.2	-15.8	
12	-11.5	-11.6	-12.3	-13.3	-13.3	-14.0	-14.5	-15.0	-15.8	-15.8	-13.8	-10.9	-6.8	-0.9	4.6	3.7	3.3	3.8	2.9	2.5	0.2	-1.7	-4.5	-5.7	-7.1	-6.4	4.6	-15.8
13	-9.5	-11.0	-13.2	-13.8	-13.8	-14.7	-14.3	-13.5	-11.7	-8.9	-6.3	-4.0	-3.4	-2.6	-2.2	-2.3	-3.6	-3.5	-5.6	-7.9	-7.7	-8.5	-8.1	-9.1	-8.3	-2.2	-14.7	
14	-5.9	-4.9	-4.1	-5.0	-8.3	-9.5	-11.0	-12.8	-14.1	-13.6	-10.9	-8.7	-4.2	-1.9	-1.5	-2.5	-5.0	-8.6	-10.3	-11.6	-12.7	-13.6	-13.3	-13.6	-8.7	-1.5	-14.1	
15	-14.5	-14.1	-14.4	-14.7	-14.6	-14.3	-15.1	-13.6	-12.4	-11.4	-9.3	-8.2	-7.2	-6.3	-4.8	-3.3	-3.0	-3.1	0.7	0.2	-0.7	-1.2	-1.9	-1.8	-7.9	0.7	-15.1	
16	-1.8	-2.2	-2.3	-2.6	-2.6	-2.8	-2.7	-2.8	-3.1	-3.0	-3.0	-2.8	-2.7	-3.4	-4.2	-5.4	-7.8	-10.7	-11.3	-13.9	-16.2	-17.5	-18.3	-19.0	-6.8	-1.8	-19.0	
17	-20.9	-21.7	-22.7	-23.5	-23.3	-19.4	-12.4	-10.9	-9.3	-7.4	-6.5	-5.7	-5.0	-4.5	-4.6	-4.4	-4.7	-4.4	-4.1	-4.0	-4.0	-3.6	-4.1	-4.0	-9.8	-3.6	-23.5	
18	-3.2	-0.8	0.1	0.4	0.3	0.7	0.2	1.3	1.7	1.9	2.4	2.7	2.5	2.6	2.5	2.4	2.4	1.6	0.0	-0.4	-1.4	-2.1	-1.9	-1.8	0.6	2.7	-3.2	
19	-1.1	-0.9	-1.2	-1.4	-1.4	-2.2	-3.0	-3.5	-3.5	-2.8	-2.1	-1.4	-0.2	0.0	0.1	0.0	-0.1	0.0	0.1	0.3	0.1	0.5	0.4	0.6	-0.9	0.6	-3.5	
20	1.0	1.4	1.8	1.4	1.2	0.4	-4.6	-6.6	-6.7	-10.2	-10.7	-11.7	-12.0	-12.8	-12.8	-13.4	-14.3	-14.9	-15.0	-15.2	-15.5	-16.0	-18.2	-21.2	-9.4	1.8	-21.2	
21	-23.4	-25.4	-25.8	-26.6	-26.1	-25.6	-25.5	-25.5	-23.0	-20.1	-17.5	-14.7	-11.0	-8.0	-7.8	-7.9	-8.5	-9.2	-9.3	-9.0	-8.7	-8.5	-8.4	-7.2	-15.9	-7.2	-26.6	
22	-7.4	-8.2	-8.7	-9.5	-10.4	-11.6	-12.0	-14.0	-14.4	-14.1	-13.5	-14.1	-14.4	-14.6	-14.8	-15.3	-15.7	-16.2	-16.3	-16.3	-16.5	-16.7	-16.8	-17.0	-13.7	-7.4	-17.0	
23	-17.1	-17.4	-17.5	-18.1	-18.0	-18.3	-19.6	-23.6	-25.7	-26.1	-26.2	-23.4	-18.4	-16.6	-16.3	-17.2	-18.5	-20.9	-19.2	-22.7	-25.5	-27.6	-28.5	-28.4	-21.3	-16.3	-28.5	
24	-29.9	-30.3	-31.0	-31.7	-31.9	-32.5	-32.0	-33.0	-32.6	-31.2	-28.4	-25.8	-22.9	-18.0	-16.3	-17.0	-19.6	-22.4	-23.6	-24.9	-25.9	-26.8	-27.9	-27.6	-26.8	-16.3	-33.0	
25	-26.4	-26.7	-26.4	-24.9	-23.5	-22.4	-21.4	-20.6	-19.8	-19.3	-18.3	-17.1	-16.9	-16.9	-16.7	-16.7	-17.2	-17.8	-18.6	-18.6	-19.3	-19.6	-19.6	-19.7	-20.2	-16.7	-26.7	
26	-19.7	-19.8	-19.6	-19.4	-19.2	-19.0	-19.7	-23.7	-24.7	-23.7	-21.8	-20.3	-18.2	-14.6	-12.2	-12.6	-16.1	-19.2	-20.1	-18.9	-18.2	-18.2	-18.2	-18.2	-19.0	-12.2	-24.7	
27	-17.6	-16.8	-16.0	-14.4	-13.9	-13.2	-12.7	-12.6	-11.5	-9.0	-6.5	-5.3	-5.1	-5.2	-5.2	-4.9	-5.3	-5.8	-7.0	-7.5	-7.7	-7.2	-7.3	-7.2	-9.4	-4.9	-17.6	
28	-6.6	-6.6	-6.6	-6.3	-7.4	-7.5	-7.1	-7.0	-7.1	-6.5	-5.7	-4.5	-3.5	-1.9	-1.1	-0.9	-1.0	-1.2	-1.3	-1.6	-2.1	-2.8	-3.2	-2.9	-4.3	-0.9	-7.5	
29	-2.3	-6.2	-14.8	-17.5	-18.1	-19.6	-20.4	-20.7	-20.7	-20.3	-20.2	-20.2	-19.9	-19.3	-19.7	-19.8	-20.0	-20.3	-20.7	-21.0	-21.7	-21.6	-21.7	-21.8	-18.7	-2.3	-21.8	
30	-21.8	-21.4	-21.0	-21.0	-21.1	-20.8	-20.4	-19.8	-20.0	-20.5	-18.7	-16.3	-14.5	-10.2	-12.0	-13.8	-14.7	-20.8	-23.9	-23.8	-23.7	-24.2	-24.0	-23.5	-19.7	-10.2	-24.2	
31	-22.7	-22.0	-22.6	-23.5	-22.7	-23.1	-21.8	-20.7	-19.8	-19.2	-18.4	-18.0	-16.9	-15.4	-14.0	-13.6	-14.3	-16.6	-18.0	-19.7	-20.8	-22.6	-23.1	-22.3	-19.7	-13.6	-23.5	
Avg	-12.6	-12.6	-12.8	-13.0	-13.2	-13.3	-13.5	-13.9	-13.5	-12.6	-11.0	-9.6	-7.9	-6.3	-5.8	-6.2	-7.4	-8.9	-9.8	-10.9	-11.7	-12.3	-12.7	-13.0	-11.0	-4.0	-17.6	
Max	1.0	1.4	1.8	1.4	1.2	0.7	0.2	1.3	1.7	1.9	2.4	2.7	2.5	4.6	3.7	3.3	3.8	2.9	2.5	0.3	0.1	0.5	0.4	0.6	0.6	4.6	-3.2	
Min	-29.9	-30.3	-31.0	-31.7	-31.9	-32.5	-32.0	-33.0	-32.6	-31.2	-28.4	-25.8	-22.9	-19.3	-19.7	-19.8	-20.0	-22.4	-23.9	-24.9	-25.9	-27.6	-28.5	-28.4	-26.8	-16.7	-33.0	

A-15

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
October 2017

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	0.63	0.84	0.73	1.35	0.84	1.01	0.70	-0.18	-0.30	-0.29	-0.55	-0.32	-0.49	-0.62	-0.36	-0.56	-0.23	-0.13	0.15	-0.04	0.29	0.34	-0.07	0.00	0.11	1.35	-0.62
2	0.08	0.10	0.05	0.00	0.00	-0.01	-0.02	-0.13	-0.37	-0.64	-0.64	-0.67	-0.71	-0.72	-0.43	-0.32	-0.26	-0.18	-0.15	-0.14	-0.12	-0.09	-0.09	-0.06	-0.23	0.10	-0.72
3	-0.05	-0.06	-0.06	-0.05	-0.09	-0.07	-0.07	-0.15	-0.20	-0.28	-0.45	-0.43	-0.45	-0.52	-0.47	-0.46	-0.36	-0.03	0.64	0.78	0.61	0.54	1.02	1.00	0.01	1.02	-0.52
4	1.01	0.77	1.07	1.12	1.13	1.03	0.83	0.34	-0.36	-0.58	-0.51	-0.64	-0.49	-0.77	-0.79	-0.30	-0.36	-0.13	-0.05	-0.05	-0.07	-0.11	0.00	0.01	0.09	1.13	-0.79
5	0.09	0.07	-0.12	-0.11	-0.07	0.09	0.55	0.05	-0.38	-0.44	-0.52	-0.73	-0.79	-0.77	-0.80	-0.51	-0.20	-0.01	0.49	0.86	0.37	0.16	0.69	1.11	-0.04	1.11	-0.80
6	1.02	1.29	1.74	1.51	1.47	0.78	0.78	0.33	-0.27	-0.72	-0.79	-0.92	-1.01	-0.76	-0.43	-0.14	0.09	1.00	0.74	1.26	3.93	2.84	0.84	0.51	0.63	3.93	-1.01
7	0.46	0.32	0.32	0.39	0.63	0.72	0.41	0.13	0.00	-0.15	-0.24	0.09	-0.09	-0.39	-0.12	-0.18	-0.07	0.14	0.28	0.55	0.89	0.30	1.04	0.97	0.27	1.04	-0.39
8	1.16	0.47	0.86	0.85	1.06	0.75	1.05	0.50	-0.39	-0.18	-0.66	-0.40	-0.37	-0.42	-0.62	-0.54	-0.31	-0.10	0.15	0.15	0.44	1.08	1.26	1.22	0.29	1.26	-0.66
9	1.18	0.30	-0.16	0.21	0.41	0.01	0.35	0.43	-0.14	-0.59	-0.87	-1.02	-1.03	-1.01	-0.89	-0.72	-0.34	0.33	1.21	1.01	0.82	1.09	1.79	1.45	0.16	1.79	-1.03
10	2.09	2.07	2.00	2.04	1.46	1.89	1.42	0.67	-0.07	-0.34	-0.51	-0.48	-0.38	-0.25	-0.35	-0.48	0.06	0.92	1.88	1.80	1.87	1.60	2.32	2.54	0.99	2.54	-0.51
11	2.18	2.11	2.28	2.26	2.03	1.04	0.89	0.74	-0.09	-0.08	-0.23	-0.69	-0.83	-0.78	-0.47	-0.37	-0.19	-0.10	0.02	0.00	0.08	0.10	0.28	0.40	0.44	2.28	-0.83
12	1.09	2.11	1.53	1.67	1.69	1.76	1.55	0.58	-0.41	-0.24	-0.56	-0.84	-0.85	-0.73	-0.59	-0.37	-0.14	0.63	1.01	1.22	0.32	0.30	0.14	0.13	0.46	2.11	-0.85
13	0.31	0.07	0.08	0.09	0.23	0.25	0.61	0.20	-0.13	-0.27	-0.39	-0.43	-0.67	-0.25	-0.16	-0.26	-0.19	0.45	1.04	0.95	1.65	0.83	1.40	1.19	0.27	1.65	-0.67
14	0.49	-0.06	-0.01	0.14	0.17	-0.07	0.38	0.71	-0.04	0.02	-0.11	-0.39	-0.52	-0.64	-0.58	-0.44	-0.15	0.33	0.36	0.16	0.13	0.18	0.28	0.47	0.03	0.71	-0.64
15	0.38	0.46	0.83	0.56	1.88	1.02	0.48	0.26	-0.27	-0.51	-0.46	-0.84	-0.80	-0.88	-0.75	-0.52	-0.16	2.18	1.10	0.62	1.58	1.34	2.02	1.86	0.47	2.18	-0.88
16	1.67	1.36	0.91	0.70	0.80	1.30	1.85	1.59	0.29	-0.38	-0.67	-0.76	-0.81	-0.77	-0.64	-0.36	0.03	1.54	1.39	0.67	0.78	0.75	0.88	1.10	0.55	1.85	-0.81
17	1.37	2.32	2.68	1.41	1.54	2.23	2.48	1.78	0.31	-0.34	-0.52	-0.76	-0.82	-0.33	-0.21	-0.26	0.12	0.40	0.61	0.98	0.60	0.46	0.27	0.21	0.69	2.68	-0.82
18	0.25	0.23	0.22	0.23	0.41	0.86	0.63	0.32	-0.40	-0.46	-0.42	-0.73	-0.74	-0.62	-0.54	-0.25	0.03	0.68	1.92	1.71	2.10	1.98	2.72	2.23	0.52	2.72	-0.74
19	1.41	1.97	1.26	1.17	1.13	1.50	1.29	0.99	0.13	-0.35	-0.72	-0.99	-1.09	-0.82	-0.71	-0.09	0.20	1.16	3.26	1.37	1.64	1.56	2.24	2.01	0.81	3.26	-1.09
20	2.80	3.02	1.79	1.31	1.71	1.49	1.30	0.89	0.57	0.27	0.34	-0.14	0.00	-0.43	-0.45	-0.12	-0.05	0.04	0.07	0.14	0.06	0.04	0.07	0.23	0.62	3.02	-0.45
21	0.28	0.34	0.41	0.37	0.52	0.40	0.32	0.21	-0.05	-0.20	-0.29	-0.39	-0.52	-0.73	-0.68	-0.40	0.13	0.59	0.83	0.52	0.12	0.09	0.11	0.10	0.09	0.83	-0.73
22	0.07	0.07	0.12	0.12	0.07	0.05	0.09	-0.02	-0.20	-0.18	-0.29	-0.63	-0.67	-0.61	-0.37	-0.14	-0.09	0.11	0.20	0.17	0.28	0.34	0.27	0.27	-0.04	0.34	-0.67
23	0.13	0.85	1.13	1.35	0.82	0.69	1.19	0.58	-0.11	-0.46	-0.72	-0.75	-0.82	-0.84	-0.72	-0.43	-0.02	1.21	0.94	0.85	2.12	1.85	1.28	1.57	0.49	2.12	-0.84
24	1.48	1.03	1.32	1.62	1.47	1.48	1.23	1.26	-0.07	-0.21	-0.53	-0.77	-0.83	-0.84	-0.71	-0.48	-0.15	0.96	1.14	0.36	0.97	2.04	1.87	1.72	0.64	2.04	-0.84
25	1.87	1.49	1.77	1.63	2.24	2.31	2.06	1.85	0.00	-0.16	-0.51	-0.73	-0.62	-0.10	-0.07	0.06	0.16	0.25	0.27	0.20	0.13	0.09	0.08	-0.01	0.59	2.31	-0.73
26	-0.05	-0.07	-0.06	-0.06	-0.07	-0.12	-0.11	-0.13	-0.26	-0.41	-0.44	-0.55	-0.60	-0.59	-0.66	-0.51	-0.03	0.32	0.08	0.32	0.36	0.17	0.33	0.98	-0.09	0.98	-0.66
27	1.70	1.25	1.27	0.83	0.92	0.83	0.96	0.50	-0.27	-0.27	-0.36	-0.61	-0.84	-0.62	-0.38	-0.21	-0.01	0.40	0.72	0.35	0.91	0.61	0.88	0.90	0.39	1.70	-0.84
28	0.71	0.78	1.26	1.39	1.21	1.46	1.73	1.12	-0.04	-0.41	-0.56	-0.62	-0.76	-0.77	-0.60	-0.30	0.27	1.26	0.82	1.22	1.16	1.49	2.03	1.30	0.63	2.03	-0.77
29	0.93	1.68	1.21	1.80	0.31	0.08	0.06	0.00	-0.09	-0.20	-0.25	-0.30	-0.33	-0.25	-0.17	-0.14	-0.07	0.01	-0.02	0.09	0.08	0.03	-0.01	0.00	0.19	1.80	-0.33
30	-0.05	-0.03	-0.04	-0.05	-0.07	-0.05	-0.07	-0.08	-0.33	-0.45	-0.56	-0.56	-0.73	-0.71	-0.60	-0.47	0.08	1.10	1.55	1.24	1.70	1.68	1.00	1.27	0.20	1.70	-0.73
31	0.78	0.91	0.71	0.94	0.46	0.21	0.57	0.74	-0.21	-0.21	-0.45	-0.55	-0.38	-0.37	-0.18	-0.05	0.05	0.03	0.00	-0.03	-0.03	-0.04	-0.05	-0.06	0.12	0.94	-0.55
Avg	0.89	0.91	0.87	0.86	0.85	0.80	0.82	0.52	-0.13	-0.31	-0.47	-0.60	-0.65	-0.61	-0.50	-0.33	-0.07	0.50	0.73	0.62	0.83	0.76	0.87	0.86	0.33	1.76	-0.73
Max	2.80	3.02	2.68	2.26	2.24	2.31	2.48	1.85	0.57	0.27	0.34	0.09	0.00	-0.10	-0.07	0.06	0.27	2.18	3.26	1.80	3.93	2.84	2.72	2.54	0.99	3.93	-0.33
Min	-0.05	-0.07	-0.16	-0.11	-0.09	-0.12	-0.11	-0.18	-0.41	-0.72	-0.87	-1.02	-1.09	-1.01	-0.89	-0.72	-0.36	-0.18	-0.15	-0.14	-0.12	-0.11	-0.09	-0.06	-0.23	0.10	-1.09

A-16

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
November 2017

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	-0.05	-0.03	-0.05	-0.05	-0.05	-0.02	-0.05	-0.03	-0.03	-0.01	-0.05	-0.10	-0.10	-0.08	-0.09	0.10	0.45	0.12	0.04	0.83	0.68	1.25	0.98	1.23	0.20	1.25	-0.10
2	1.70	2.01	0.87	0.27	0.18	-0.01	0.04	0.30	0.14	0.02	0.18	0.03	-0.08	-0.10	-0.08	-0.06	-0.05	-0.03	0.00	-0.01	0.00	-0.03	-0.04	0.00	0.22	2.01	-0.10
3	0.04	0.18	0.02	-0.06	-0.08	-0.12	-0.13	-0.09	-0.16	-0.12	-0.04	-0.01	-0.07	-0.10	-0.11	-0.12	-0.15	-0.13	-0.14	-0.11	-0.12	-0.09	-0.12	-0.13	-0.08	0.18	-0.16
4	-0.10	-0.08	0.12	0.25	0.83	2.13	2.72	2.10	1.96	2.11	1.56	2.22	0.13	0.39	0.72	0.54	0.82	0.90	0.44	0.45	0.38	0.37	0.29	0.50	0.91	2.72	-0.10
5	0.47	0.49	0.35	0.72	0.42	0.37	0.65	2.23	1.78	1.17	0.84	1.12	0.44	-0.08	-0.26	0.05	-0.06	-0.04	-0.10	-0.11	-0.09	-0.13	-0.16	-0.15	0.41	2.23	-0.26
6	-0.12	-0.17	-0.15	-0.15	-0.15	-0.14	-0.11	-0.06	-0.08	-0.19	-0.28	-0.30	-0.29	0.16	0.65	1.46	1.63	3.25	1.55	2.52	2.95	2.85	2.23	2.53	0.82	3.25	-0.30
7	2.84	2.50	3.08	2.14	2.71	3.18	3.25	2.65	2.54	2.14	1.45	1.66	1.26	1.10	1.21	2.18	2.03	2.43	2.07	1.45	1.63	1.38	1.61	1.08	2.07	3.25	1.08
8	1.12	0.63	0.58	0.37	0.51	0.39	0.19	0.18	0.10	0.13	-0.04	0.25	0.26	-0.10	0.04	0.26	1.14	1.17	0.31	0.24	0.20	0.12	0.07	0.11	0.34	1.17	-0.10
9	0.11	0.03	0.00	0.00	0.05	0.02	0.01	0.09	0.07	0.04	-0.08	0.07	-0.23	-0.14	-0.03	0.15	0.62	0.89	1.00	1.36	1.04	1.09	0.11	0.16	0.27	1.36	-0.23
10	0.70	1.00	0.40	0.72	0.63	0.55	0.46	0.95	0.93	0.97	0.64	0.09	0.07	0.19	0.62	0.73	0.50	0.78	0.56	0.56	0.36	0.50	0.39	0.16	0.56	1.00	0.07
11	0.48	0.09	0.34	0.74	0.78	0.95	0.96	1.18	0.57	0.16	0.33	0.66	0.24	0.09	0.27	0.42	1.26	1.19	1.33	1.93	2.58	2.62	2.23	2.47	0.99	2.62	0.09
12	2.40	1.96	2.58	2.48	1.75	2.11	2.35	2.15	1.55	1.35	0.68	1.02	0.87	0.59	2.16	1.05	1.11	1.15	1.33	1.60	1.13	0.81	0.96	1.27	1.52	2.58	0.59
13	1.22	1.87	2.42	2.41	2.12	2.18	1.98	2.16	2.39	2.09	1.35	2.82	1.35	1.10	0.62	1.16	1.31	1.38	1.19	1.96	1.44	1.69	0.47	0.16	1.62	2.82	0.16
14	0.06	0.38	0.30	0.17	0.26	0.51	0.68	0.36	0.23	0.17	0.13	0.14	0.14	0.10	0.08	0.21	0.64	1.55	1.49	1.73	1.65	0.88	1.33	1.49	0.61	1.73	0.06
15	1.68	2.22	2.39	1.86	1.74	2.37	2.75	2.40	2.45	1.89	1.41	2.14	0.45	0.72	0.90	1.02	1.04	1.74	2.42	1.95	1.87	2.69	1.25	0.87	1.76	2.75	0.45
16	0.83	0.45	0.59	0.42	0.43	0.51	0.51	0.64	0.49	0.41	0.43	0.00	-0.03	0.02	0.20	0.28	0.57	0.98	0.86	0.81	1.20	1.44	1.61	1.53	0.63	1.61	-0.03
17	0.83	0.68	0.57	0.88	1.00	1.12	1.00	1.07	0.50	0.58	0.01	0.11	0.16	0.16	0.30	0.28	0.36	0.28	0.26	0.28	0.57	0.60	0.46	0.42	0.52	1.12	0.01
18	0.42	0.40	0.43	0.20	0.22	0.11	0.07	0.08	0.13	0.25	0.18	0.17	0.20	0.20	0.16	0.38	0.46	0.76	1.00	0.90	1.26	1.08	1.05	1.49	0.48	1.49	0.07
19	1.00	0.78	0.79	0.70	1.15	1.22	1.07	1.04	0.90	0.66	0.84	1.16	0.39	0.16	0.88	1.19	1.66	1.30	1.88	1.71	1.72	1.77	1.24	0.82	1.08	1.88	0.16
20	1.84	2.53	2.93	1.68	1.42	0.77	1.21	1.09	0.56	0.43	0.40	0.37	0.29	0.23	0.10	-0.02	-0.04	-0.02	-0.05	-0.03	0.06	0.49	0.84	0.33	0.73	2.93	-0.05
21	0.07	-0.11	0.05	0.41	0.13	0.03	0.11	0.90	1.50	1.21	0.68	0.52	0.38	0.75	0.75	0.26	0.17	0.03	-0.02	-0.03	0.06	0.07	0.18	0.12	0.34	1.50	-0.11
22	0.25	0.39	1.05	0.91	1.06	0.37	0.45	0.71	0.97	0.51	0.61	1.16	1.63	1.59	1.12	0.61	0.45	0.31	0.42	0.37	0.38	0.55	0.69	0.89	0.73	1.63	0.25
23	0.99	0.26	0.37	1.17	1.01	1.00	1.70	1.57	1.07	1.24	1.45	1.56	1.42	1.18	1.29	1.40	1.35	1.11	1.17	1.31	1.17	0.63	0.42	0.42	1.09	1.70	0.26
24	0.39	0.24	0.33	0.35	0.43	0.89	0.88	1.48	0.54	0.30	0.07	0.00	0.07	0.17	0.30	0.43	0.52	0.75	0.77	1.29	0.84	1.44	1.11	1.10	0.61	1.48	0.00
25	1.04	1.48	1.17	0.93	1.36	0.56	0.39	0.63	0.52	0.41	0.15	0.12	-0.13	0.07	0.22	0.63	1.01	0.62	0.34	0.38	0.23	0.30	0.41	0.69	0.56	1.48	-0.13
26	0.60	0.60	1.11	0.24	0.29	0.42	0.71	1.42	2.34	1.52	1.39	1.01	1.13	1.83	1.28	1.59	1.90	1.60	1.64	1.68	1.57	1.88	1.47	1.17	1.27	2.34	0.24
27	1.12	0.81	0.61	0.64	0.34	0.21	0.26	0.20	0.19	0.15	0.06	0.02	-0.06	-0.03	-0.03	0.14	0.31	0.48	0.39	0.46	0.34	0.33	0.30	0.32	0.32	1.12	-0.06
28	0.33	0.47	0.41	0.32	0.50	0.52	0.48	0.69	0.20	-0.28	-0.37	-0.49	-0.41	-0.42	-0.26	0.20	0.26	0.74	1.34	0.67	0.69	0.24	0.36	0.31	0.27	1.34	-0.49
29	0.24	0.14	0.09	0.08	0.00	0.04	0.00	0.05	0.04	0.03	-0.02	-0.24	-0.38	-0.28	-0.19	0.02	0.25	0.27	0.36	0.28	0.36	0.35	0.51	1.07	0.13	1.07	-0.38
30	1.21	0.90	0.46	0.52	0.44	0.34	0.58	0.48	0.08	-0.23	-0.21	-0.47	-0.39	-0.32	0.03	0.34	0.44	0.61	0.48	0.62	0.75	0.83	0.51	0.78	0.37	1.21	-0.47
Avg	0.79	0.77	0.81	0.71	0.72	0.75	0.84	0.95	0.82	0.64	0.46	0.56	0.29	0.31	0.43	0.56	0.73	0.87	0.81	0.90	0.90	0.93	0.76	0.77	0.71	1.83	0.01
Max	2.84	2.53	3.08	2.48	2.71	3.18	3.25	2.65	2.54	2.14	1.56	2.82	1.63	1.83	2.16	2.18	2.03	3.25	2.42	2.52	2.95	2.85	2.23	2.53	2.07	3.25	1.08
Min	-0.12	-0.17	-0.15	-0.15	-0.15	-0.14	-0.13	-0.09	-0.16	-0.28	-0.37	-0.49	-0.41	-0.42	-0.26	-0.12	-0.15	-0.13	-0.14	-0.11	-0.12	-0.13	-0.16	-0.15	-0.08	0.18	-0.49

A-17

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
December 2017

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	0.17	0.01	0.32	0.39	0.24	0.34	0.61	0.56	0.15	0.00	-0.08	-0.21	-0.24	-0.20	-0.06	0.09	0.56	1.86	0.65	0.56	0.65	0.39	0.92	0.95	0.36	1.86	-0.24
2	1.23	1.03	1.09	0.84	1.15	1.07	0.59	0.64	0.37	-0.04	-0.21	-0.31	-0.16	-0.19	-0.03	0.22	0.32	1.04	0.96	1.00	0.73	0.50	0.50	0.14	0.52	1.23	-0.31
3	-0.03	0.02	0.02	-0.08	-0.07	-0.05	-0.01	0.38	0.18	-0.07	-0.08	-0.01	0.02	-0.07	0.05	0.16	0.11	0.24	0.18	0.40	0.26	0.17	0.08	0.37	0.09	0.40	-0.08
4	1.08	1.66	1.00	0.79	0.08	0.08	0.04	-0.03	-0.04	-0.09	-0.10	-0.10	-0.08	-0.06	-0.06	0.00	0.05	0.08	0.60	1.51	1.56	0.96	1.37	1.77	0.50	1.77	-0.10
5	1.17	0.14	-0.01	-0.03	-0.03	0.00	0.00	-0.05	-0.01	0.07	0.05	0.09	0.19	0.22	0.32	0.91	0.74	1.71	1.46	1.47	1.33	0.97	1.33	1.64	0.57	1.71	-0.05
6	1.39	1.72	0.86	0.93	1.10	0.87	1.66	2.47	1.60	1.55	1.34	0.41	Au	Au	Au	1.25	1.10	0.81	0.65	1.18	0.83	0.46	0.34	0.59	1.10	2.47	0.34
7	1.08	0.92	0.52	1.16	1.25	1.52	0.93	1.19	1.34	1.21	0.45	1.02	1.97	0.13	0.87	1.16	1.14	1.46	1.49	1.20	1.67	1.60	1.80	1.43	1.19	1.97	0.13
8	1.40	1.10	1.12	1.31	1.87	1.55	2.39	2.36	2.42	1.61	1.00	0.73	0.82	2.60	0.69	0.63	0.72	1.02	1.44	1.42	1.63	1.43	1.50	2.00	1.45	2.60	0.63
9	2.01	2.32	2.30	1.76	2.07	1.88	2.15	2.26	1.66	2.15	1.14	0.93	0.88	4.61	2.18	0.85	0.97	1.24	1.89	2.13	2.08	1.43	2.18	2.43	1.90	4.61	0.85
10	1.88	1.63	1.60	1.62	1.69	1.76	1.84	2.14	1.39	1.18	1.52	1.12	0.90	1.35	0.88	1.65	1.90	1.02	1.35	1.32	1.67	2.15	1.89	1.70	1.55	2.15	0.88
11	1.36	1.93	1.98	2.66	2.09	2.08	2.44	1.62	1.93	1.07	1.00	0.98	0.97	1.14	0.69	0.67	1.02	0.88	1.27	1.26	1.24	2.22	1.76	1.66	1.50	2.66	0.67
12	1.85	1.73	2.07	2.09	2.28	2.38	2.55	2.68	2.57	1.96	1.60	1.03	1.58	1.41	1.36	1.32	1.21	1.02	1.03	1.18	1.13	1.41	1.64	1.54	1.69	2.68	1.02
13	1.69	1.22	1.51	1.32	1.91	1.59	1.54	1.32	0.78	0.16	0.45	0.09	-0.12	-0.12	-0.07	0.20	0.71	0.76	1.16	1.44	1.15	1.94	2.15	1.63	1.02	2.15	-0.12
14	1.47	1.42	0.88	1.52	1.89	1.46	1.20	1.68	1.43	0.63	0.19	0.02	0.10	-0.43	0.01	0.29	0.70	1.11	1.47	1.34	1.37	1.45	1.20	1.56	1.00	1.89	-0.43
15	1.66	1.56	1.57	1.49	1.36	1.40	1.66	1.03	0.77	0.63	0.62	0.57	0.95	1.41	1.29	1.07	0.99	1.23	0.49	0.27	0.07	0.08	0.31	0.30	0.95	1.66	0.07
16	0.00	0.13	0.07	0.15	0.01	0.05	0.00	0.01	0.05	-0.03	-0.07	-0.08	0.02	0.37	0.25	0.71	0.93	1.86	1.18	2.01	2.12	2.25	2.94	2.58	0.73	2.94	-0.08
17	2.35	2.34	2.33	2.65	2.48	1.86	0.93	0.73	0.94	0.40	0.14	0.02	0.05	0.04	0.02	0.08	0.41	0.37	0.47	0.38	0.21	0.19	0.64	0.20	0.84	2.65	0.02
18	0.03	0.14	0.09	0.09	0.13	0.16	0.30	0.18	0.14	0.12	0.15	0.26	0.22	0.20	0.19	0.17	0.30	0.16	0.07	0.08	0.05	0.08	0.05	0.16	0.15	0.30	0.03
19	0.05	0.06	0.12	0.06	0.08	0.04	0.01	-0.02	-0.05	-0.10	-0.11	-0.13	-0.08	-0.08	-0.06	-0.06	0.00	0.01	0.01	0.16	0.06	0.14	0.14	0.11	0.01	0.16	-0.13
20	0.17	0.28	0.32	0.27	0.19	0.14	-0.02	-0.02	0.02	0.07	-0.07	-0.12	-0.12	-0.12	-0.11	-0.11	-0.10	-0.12	-0.13	-0.07	0.04	0.22	0.90	1.81	0.14	1.81	-0.13
21	1.55	1.50	1.90	1.32	1.68	1.27	1.46	1.51	0.50	0.33	0.22	0.12	0.31	-0.04	-0.07	-0.02	0.23	0.56	0.18	-0.07	-0.10	-0.02	-0.02	-0.05	0.59	1.90	-0.10
22	-0.03	0.30	0.22	0.09	0.22	0.58	0.29	1.02	0.93	0.33	0.01	-0.08	-0.10	-0.18	-0.16	-0.08	-0.08	0.03	-0.02	-0.03	0.00	-0.02	-0.01	-0.02	0.13	1.02	-0.18
23	-0.08	0.00	0.06	0.25	0.09	0.26	0.53	2.01	0.79	0.96	0.72	1.27	0.11	0.37	0.51	1.25	0.85	2.07	1.25	1.83	1.90	1.63	1.62	1.51	0.91	2.07	-0.08
24	1.55	1.78	1.56	1.51	1.12	1.83	1.85	1.78	1.88	1.82	1.48	1.85	1.74	2.08	2.06	1.82	1.94	1.29	1.86	1.76	1.70	1.61	2.16	1.54	1.73	2.16	1.12
25	0.65	0.88	0.70	0.07	0.13	-0.06	-0.08	-0.09	-0.09	-0.10	-0.08	-0.17	-0.22	-0.11	-0.02	0.10	0.04	-0.05	-0.05	-0.07	-0.09	-0.08	-0.07	-0.10	0.04	0.88	-0.22
26	-0.09	-0.12	-0.11	-0.10	-0.09	-0.05	0.35	1.65	1.00	0.42	0.28	0.68	1.35	0.64	-0.16	0.36	0.63	1.01	1.01	0.58	1.23	0.95	1.02	1.13	0.57	1.65	-0.16
27	0.88	0.67	0.41	0.13	-0.03	0.22	0.27	0.53	0.37	0.51	0.13	0.07	0.08	0.02	0.03	0.12	0.11	0.10	0.47	0.39	0.35	0.33	0.38	0.24	0.28	0.88	-0.03
28	0.24	0.33	0.16	0.19	0.39	0.23	0.45	0.38	0.50	0.41	0.17	-0.12	0.08	0.04	0.09	0.11	0.17	0.20	0.18	0.35	0.54	0.30	0.29	0.29	0.25	0.54	-0.12
29	0.02	-0.07	-0.23	-0.24	-0.28	-0.28	-0.26	-0.20	-0.21	-0.17	-0.18	-0.16	-0.18	-0.21	-0.19	-0.17	-0.15	-0.17	-0.18	-0.18	-0.16	-0.22	-0.22	-0.26	-0.19	0.02	-0.28
30	-0.22	-0.22	-0.24	-0.22	-0.24	-0.23	-0.20	-0.18	0.03	0.28	0.07	-0.09	0.51	0.70	0.05	-0.10	-0.11	0.03	0.15	-0.11	-0.20	-0.17	-0.19	-0.16	-0.04	0.70	-0.24
31	-0.16	-0.15	0.38	0.29	-0.06	0.45	-0.13	-0.13	-0.13	-0.09	-0.02	0.15	0.61	0.96	1.43	1.79	2.05	1.43	1.65	1.93	1.77	2.33	2.29	1.94	0.86	2.33	-0.16
Avg	0.85	0.85	0.79	0.78	0.80	0.79	0.82	0.95	0.75	0.55	0.38	0.32	0.41	0.55	0.40	0.53	0.63	0.78	0.78	0.86	0.86	0.86	1.00	0.99	0.72	1.74	0.08
Max	2.35	2.34	2.33	2.66	2.48	2.38	2.55	2.68	2.57	2.15	1.60	1.85	1.97	4.61	2.18	1.82	2.05	2.07	1.89	2.13	2.12	2.33	2.94	2.58	1.90	4.61	1.12
Min	-0.22	-0.22	-0.24	-0.24	-0.28	-0.28	-0.26	-0.20	-0.21	-0.17	-0.21	-0.31	-0.24	-0.43	-0.19	-0.17	-0.15	-0.17	-0.18	-0.18	-0.20	-0.22	-0.22	-0.26	-0.19	0.02	-0.43

A-18

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
October 2017

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	19	84	181	121	284	149	328	430	147	259	57	13	0	0	0	0	0	0	86	430	0
2	0	0	0	0	0	0	7	115	252	318	348	322	349	306	129	72	41	9	0	0	0	0	0	0	95	349	0
3	0	0	0	0	0	0	12	65	105	119	275	233	296	352	453	218	187	32	1	0	0	0	0	0	98	453	0
4	0	0	0	0	0	0	13	171	326	477	590	510	324	411	423	82	113	27	0	0	0	0	0	0	144	590	0
5	0	0	0	0	0	0	8	95	324	310	434	340	449	342	362	161	98	18	0	0	0	0	0	0	123	449	0
6	0	0	0	0	0	0	6	74	294	469	563	640	655	437	267	125	130	20	0	0	0	0	0	0	153	655	0
7	0	0	0	0	0	0	3	33	72	167	170	71	170	260	138	224	128	31	0	0	0	0	0	0	61	260	0
8	0	0	0	0	0	0	5	136	309	198	459	188	199	223	358	235	127	27	0	0	0	0	0	0	103	459	0
9	0	0	0	0	0	0	5	64	252	475	579	634	617	593	487	350	189	19	0	0	0	0	0	0	178	634	0
10	0	0	0	0	0	0	9	88	254	354	343	307	278	205	310	297	126	26	0	0	0	0	0	0	108	354	0
11	0	0	0	0	0	0	6	104	234	202	247	493	558	439	235	218	55	2	0	0	0	0	0	0	116	558	0
12	0	0	0	0	0	0	4	58	208	244	482	526	444	343	251	156	63	19	0	0	0	0	0	0	117	526	0
13	0	0	0	0	0	0	6	53	83	144	135	161	240	55	125	221	86	25	0	0	0	0	0	0	56	240	0
14	0	0	0	0	0	0	4	36	162	144	334	583	618	572	465	321	154	6	0	0	0	0	0	0	142	618	0
15	0	0	0	0	0	0	3	83	271	432	347	604	593	544	448	314	156	16	0	0	0	0	0	0	159	604	0
16	0	0	0	0	0	0	5	85	269	419	524	587	596	550	450	313	150	15	0	0	0	0	0	0	165	596	0
17	0	0	0	0	0	0	2	77	266	421	467	596	584	273	275	284	113	10	0	0	0	0	0	0	140	596	0
18	0	0	0	0	0	0	2	82	281	306	263	488	413	366	323	168	72	11	0	0	0	0	0	0	116	488	0
19	0	0	0	0	0	0	2	53	179	384	546	636	686	490	449	169	87	9	0	0	0	0	0	0	154	686	0
20	0	0	0	0	0	0	1	24	94	76	68	130	72	247	135	30	15	2	0	0	0	0	0	0	37	247	0
21	0	0	0	0	0	0	1	39	195	260	264	252	297	482	429	247	45	3	0	0	0	0	0	0	105	482	0
22	0	0	0	0	0	0	2	64	127	136	248	467	461	427	267	86	117	4	0	0	0	0	0	0	100	467	0
23	0	0	0	0	0	0	1	60	232	371	495	485	520	513	415	255	115	5	0	0	0	0	0	0	144	520	0
24	0	0	0	0	0	0	1	63	246	323	465	510	495	474	362	271	162	11	0	0	0	0	0	0	141	510	0
25	0	0	0	0	0	0	1	68	258	381	491	569	474	154	131	47	12	0	0	0	0	0	0	0	108	569	0
26	0	0	0	0	0	0	0	16	69	127	216	473	538	496	395	259	86	3	0	0	0	0	0	0	112	538	0
27	0	0	0	0	0	0	2	49	201	237	203	375	485	267	148	77	27	1	0	0	0	0	0	0	86	485	0
28	0	0	0	0	0	0	1	48	224	351	458	516	522	472	375	244	81	3	0	0	0	0	0	0	137	522	0
29	0	0	0	0	0	0	0	5	31	70	82	102	123	82	83	50	19	1	0	0	0	0	0	0	27	123	0
30	0	0	0	0	0	0	0	17	117	325	462	522	526	471	388	255	65	1	0	0	0	0	0	0	131	526	0
31	0	0	0	0	0	0	0	29	222	220	322	375	194	200	63	20	4	0	0	0	0	0	0	0	69	375	0
Avg	0	0	0	0	0	0	4	66	204	277	360	414	423	370	300	194	93	12	0	0	0	0	0	0	113	481	0
Max	0	0	0	0	0	0	19	171	326	477	590	640	686	593	487	350	189	32	1	0	0	0	0	0	178	686	0
Min	0	0	0	0	0	0	0	5	31	70	68	71	72	55	63	20	4	0	0	0	0	0	0	0	27	123	0

A-19

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
November 2017

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	9	45	108	144	249	266	262	267	132	31	1	0	0	0	0	0	0	63	267	0
2	0	0	0	0	0	0	0	9	42	90	126	259	265	208	138	77	21	0	0	0	0	0	0	0	51	265	0
3	0	0	0	0	0	0	0	4	28	51	100	111	105	155	89	67	17	0	0	0	0	0	0	0	30	155	0
4	0	0	0	0	0	0	0	25	155	279	388	471	512	459	312	225	52	0	0	0	0	0	0	0	120	512	0
5	0	0	0	0	0	0	0	42	175	306	456	322	294	238	169	92	34	0	0	0	0	0	0	0	89	456	0
6	0	0	0	0	0	0	0	11	53	149	238	364	482	442	342	207	56	1	0	0	0	0	0	0	98	482	0
7	0	0	0	0	0	0	0	18	167	325	422	485	500	450	350	212	42	0	0	0	0	0	0	0	124	500	0
8	0	0	0	0	0	0	0	7	59	106	145	182	194	128	174	94	22	0	0	0	0	0	0	0	46	194	0
9	0	0	0	0	0	0	0	3	32	107	165	183	169	245	204	154	47	0	0	0	0	0	0	0	55	245	0
10	0	0	0	0	0	0	0	18	151	166	383	632	602	572	183	86	21	0	0	0	0	0	0	0	117	632	0
11	0	0	0	0	0	0	0	6	51	97	173	267	310	383	303	184	34	0	0	0	0	0	0	0	75	383	0
12	0	0	0	0	0	0	0	10	69	145	210	198	213	226	210	142	25	0	0	0	0	0	0	0	60	226	0
13	0	0	0	0	0	0	0	10	155	312	395	450	458	408	312	114	21	0	0	0	0	0	0	0	110	458	0
14	0	0	0	0	0	0	0	7	51	116	142	199	255	207	335	186	35	0	0	0	0	0	0	0	64	335	0
15	0	0	0	0	0	0	0	15	86	147	224	303	307	209	155	91	22	0	0	0	0	0	0	0	65	307	0
16	0	0	0	0	0	0	0	6	33	113	75	95	118	141	174	54	14	0	0	0	0	0	0	0	34	174	0
17	0	0	0	0	0	0	0	4	51	96	305	221	218	206	118	52	25	0	0	0	0	0	0	0	54	305	0
18	0	0	0	0	0	0	0	3	63	231	366	341	408	289	179	85	18	0	0	0	0	0	0	0	83	408	0
19	0	0	0	0	0	0	0	3	33	73	116	271	435	217	126	174	29	0	0	0	0	0	0	0	62	435	0
20	0	0	0	0	0	0	0	2	37	50	46	74	79	69	55	21	2	0	0	0	0	0	0	0	18	79	0
21	0	0	0	0	0	0	0	3	46	118	180	227	415	361	146	31	3	0	0	0	0	0	0	0	64	415	0
22	0	0	0	0	0	0	0	1	18	37	64	65	70	73	59	77	19	0	0	0	0	0	0	0	20	77	0
23	0	0	0	0	0	0	0	4	71	241	325	124	226	389	154	194	20	0	0	0	0	0	0	0	73	389	0
24	0	0	0	0	0	0	0	4	100	238	375	293	384	388	267	121	24	0	0	0	0	0	0	0	91	388	0
25	0	0	0	0	0	0	0	5	58	161	235	223	329	265	145	71	10	0	0	0	0	0	0	0	63	329	0
26	0	0	0	0	0	0	0	3	46	127	227	152	136	92	148	19	4	0	0	0	0	0	0	0	40	227	0
27	0	0	0	0	0	0	0	1	18	50	133	192	317	376	280	102	20	0	0	0	0	0	0	0	62	376	0
28	0	0	0	0	0	0	0	2	85	223	323	384	394	343	261	113	17	0	0	0	0	0	0	0	89	394	0
29	0	0	0	0	0	0	0	0	23	66	196	390	484	375	261	137	14	0	0	0	0	0	0	0	81	484	0
30	0	0	0	0	0	0	0	2	76	235	293	362	264	219	72	17	2	0	0	0	0	0	0	0	64	362	0
Avg	0	0	0	0	0	0	0	8	69	152	232	270	307	280	200	111	23	0	0	0	0	0	0	0	69	342	0
Max	0	0	0	0	0	0	0	42	175	325	456	632	602	572	350	225	56	1	0	0	0	0	0	0	124	632	0
Min	0	0	0	0	0	0	0	0	18	37	46	65	70	69	55	17	2	0	0	0	0	0	0	0	18	77	0

A-20

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
December 2017

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	2	19	64	91	125	157	121	116	107	11	0	0	0	0	0	0	0	34	157	0
2	0	0	0	0	0	0	0	2	54	115	208	272	216	174	103	55	5	0	0	0	0	0	0	0	50	272	0
3	0	0	0	0	0	0	0	0	3	11	14	18	15	19	17	12	1	0	0	0	0	0	0	0	5	19	0
4	0	0	0	0	0	0	0	0	6	21	36	46	55	46	32	22	26	0	0	0	0	0	0	0	12	55	0
5	0	0	0	0	0	0	0	0	21	78	140	189	416	409	276	171	16	0	0	0	0	0	0	0	72	416	0
6	0	0	0	0	0	0	0	1	35	161	300	355	Au	Au	Au	131	9	0	0	0	0	0	0	0	47	355	0
7	0	0	0	0	0	0	0	0	37	190	295	286	276	291	238	124	13	0	0	0	0	0	0	0	73	295	0
8	0	0	0	0	0	0	0	0	38	166	288	344	385	346	260	135	12	0	0	0	0	0	0	0	82	385	0
9	0	0	0	0	0	0	0	2	40	157	250	339	343	234	165	75	14	0	0	0	0	0	0	0	67	343	0
10	0	0	0	0	0	0	0	1	48	118	183	188	206	192	211	50	5	0	0	0	0	0	0	0	50	211	0
11	0	0	0	0	0	0	0	0	22	92	191	320	384	326	243	98	9	0	0	0	0	0	0	0	70	384	0
12	0	0	0	0	0	0	0	1	46	202	315	319	427	223	127	31	1	0	0	0	0	0	0	0	71	427	0
13	0	0	0	0	0	0	0	0	11	41	73	68	85	101	115	54	12	0	0	0	0	0	0	0	23	115	0
14	0	0	0	0	0	0	0	2	34	182	272	316	383	332	248	121	13	0	0	0	0	0	0	0	79	383	0
15	0	0	0	0	0	0	0	0	6	29	63	79	87	99	70	36	9	0	0	0	0	0	0	0	20	99	0
16	0	0	0	0	0	0	0	0	9	30	46	70	83	105	148	117	16	0	0	0	0	0	0	0	26	148	0
17	0	0	0	0	0	0	0	1	14	89	116	158	249	370	140	46	7	0	0	0	0	0	0	0	50	370	0
18	0	0	0	0	0	0	0	0	11	41	81	77	75	65	53	21	3	0	0	0	0	0	0	0	18	81	0
19	0	0	0	0	0	0	0	0	8	40	63	104	117	76	65	39	6	0	0	0	0	0	0	0	22	117	0
20	0	0	0	0	0	0	0	0	10	50	101	129	131	111	95	47	7	0	0	0	0	0	0	0	28	131	0
21	0	0	0	0	0	0	0	0	15	60	127	158	176	159	114	50	8	0	0	0	0	0	0	0	36	176	0
22	0	0	0	0	0	0	0	0	15	68	97	131	130	112	71	44	6	0	0	0	0	0	0	0	28	131	0
23	0	0	0	0	0	0	0	0	21	79	121	153	172	163	260	280	43	0	0	0	0	0	0	0	54	280	0
24	0	0	0	0	0	0	0	0	22	64	103	189	315	398	390	255	30	0	0	0	0	0	0	0	74	398	0
25	0	0	0	0	0	0	0	0	7	22	59	72	68	50	43	24	3	0	0	0	0	0	0	0	15	72	0
26	0	0	0	0	0	0	0	0	5	26	52	95	122	125	110	76	14	0	0	0	0	0	0	0	26	125	0
27	0	0	0	0	0	0	0	0	3	24	30	55	48	33	27	54	7	0	0	0	0	0	0	0	12	55	0
28	0	0	0	0	0	0	0	0	12	60	111	143	184	154	74	42	8	0	0	0	0	0	0	0	33	184	0
29	0	0	0	0	0	0	0	0	9	50	96	125	170	118	107	51	8	0	0	0	0	0	0	0	31	170	0
30	0	0	0	0	0	0	0	0	9	119	178	156	234	371	349	200	32	0	0	0	0	0	0	0	69	371	0
31	0	0	0	0	0	0	0	0	16	97	202	330	391	351	277	133	28	0	0	0	0	0	0	0	76	391	0
Avg	0	0	0	0	0	0	0	0	20	82	139	174	203	189	151	87	12	0	0	0	0	0	0	0	44	230	0
Max	0	0	0	0	0	0	0	2	54	202	315	355	427	409	390	280	43	0	0	0	0	0	0	0	82	427	0
Min	0	0	0	0	0	0	0	0	3	11	14	18	15	19	17	12	1	0	0	0	0	0	0	0	5	19	0

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
October 2017

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	24.18	24.18	24.17	24.17	24.16	24.15	24.15	24.17	24.18	24.18	24.18	24.17	24.17	24.16	24.16	24.17	24.18	24.19	24.20	24.21	24.21	24.22	24.22	24.23	24.18	24.23	24.15
2	24.23	24.23	24.23	24.23	24.23	24.23	24.23	24.23	24.24	24.26	24.26	24.26	24.27	24.28	24.29	24.30	24.31	24.32	24.33	24.33	24.34	24.35	24.36	24.36	24.28	24.36	24.23
3	24.37	24.39	24.40	24.42	24.44	24.46	24.48	24.50	24.53	24.55	24.55	24.56	24.57	24.58	24.58	24.58	24.58	24.57	24.56	24.58	24.58	24.58	24.58	24.57	24.52	24.58	24.37
4	24.57	24.55	24.53	24.52	24.51	24.50	24.49	24.47	24.47	24.47	24.46	24.44	24.44	24.43	24.43	24.45	24.46	24.47	24.48	24.49	24.50	24.49	24.49	24.49	24.48	24.57	24.43
5	24.49	24.49	24.50	24.49	24.49	24.48	24.48	24.48	24.49	24.49	24.48	24.46	24.45	24.44	24.44	24.43	24.42	24.41	24.41	24.40	24.39	24.38	24.37	24.35	24.45	24.50	24.35
6	24.34	24.33	24.32	24.31	24.31	24.30	24.29	24.28	24.30	24.29	24.28	24.27	24.26	24.23	24.22	24.21	24.19	24.17	24.15	24.14	24.13	24.11	24.09	24.07	24.23	24.34	24.07
7	24.05	24.04	24.03	24.02	24.01	24.01	24.00	24.00	23.98	23.98	23.99	24.00	24.01	24.00	24.01	24.02	24.03	24.05	24.08	24.08	24.09	24.09	24.09	24.10	24.03	24.10	23.98
8	24.09	24.10	24.10	24.11	24.12	24.14	24.15	24.17	24.19	24.20	24.22	24.24	24.26	24.28	24.31	24.33	24.36	24.39	24.41	24.42	24.43	24.44	24.46	24.47	24.27	24.47	24.09
9	24.48	24.48	24.46	24.46	24.47	24.46	24.47	24.46	24.46	24.46	24.45	24.45	24.44	24.44	24.43	24.43	24.44	24.44	24.44	24.43	24.44	24.44	24.46	24.45	24.45	24.48	24.43
10	24.45	24.45	24.44	24.42	24.41	24.39	24.38	24.36	24.36	24.35	24.33	24.30	24.28	24.26	24.24	24.22	24.20	24.20	24.20	24.19	24.19	24.19	24.19	24.18	24.30	24.45	24.18
11	24.18	24.18	24.18	24.18	24.16	24.15	24.13	24.13	24.13	24.13	24.11	24.11	24.10	24.10	24.10	24.10	24.14	24.19	24.21	24.21	24.21	24.20	24.21	24.20	24.16	24.21	24.10
12	24.20	24.21	24.22	24.22	24.23	24.23	24.25	24.26	24.28	24.28	24.28	24.29	24.29	24.28	24.28	24.29	24.29	24.28	24.27	24.27	24.27	24.28	24.28	24.27	24.26	24.29	24.20
13	24.26	24.25	24.25	24.24	24.23	24.23	24.22	24.23	24.23	24.24	24.24	24.24	24.23	24.24	24.25	24.26	24.27	24.29	24.30	24.32	24.34	24.35	24.35	24.36	24.27	24.36	24.22
14	24.37	24.38	24.39	24.41	24.43	24.45	24.47	24.47	24.49	24.49	24.49	24.49	24.48	24.48	24.48	24.49	24.49	24.49	24.51	24.51	24.53	24.53	24.54	24.54	24.47	24.54	24.37
15	24.56	24.57	24.58	24.58	24.59	24.59	24.60	24.61	24.63	24.62	24.61	24.60	24.59	24.56	24.55	24.54	24.53	24.52	24.51	24.51	24.50	24.49	24.48	24.47	24.56	24.63	24.47
16	24.47	24.46	24.46	24.46	24.45	24.46	24.46	24.48	24.52	24.53	24.52	24.51	24.50	24.48	24.47	24.46	24.45	24.44	24.44	24.44	24.44	24.43	24.43	24.42	24.47	24.53	24.42
17	24.42	24.41	24.41	24.39	24.39	24.38	24.37	24.37	24.37	24.34	24.31	24.28	24.24	24.21	24.18	24.16	24.14	24.13	24.15	24.17	24.20	24.23	24.22	24.24	24.28	24.42	24.13
18	24.26	24.26	24.29	24.29	24.30	24.30	24.31	24.32	24.34	24.33	24.32	24.31	24.29	24.27	24.26	24.25	24.25	24.25	24.23	24.21	24.21	24.20	24.20	24.19	24.27	24.34	24.19
19	24.18	24.18	24.17	24.17	24.17	24.16	24.15	24.15	24.15	24.15	24.13	24.13	24.11	24.08	24.06	24.05	24.03	24.02	24.01	24.00	23.99	23.98	23.97	23.95	24.09	24.18	23.95
20	23.92	23.89	23.87	23.85	23.84	23.82	23.79	23.78	23.77	23.76	23.76	23.76	23.74	23.76	23.82	23.87	23.91	23.93	23.94	23.95	23.99	24.00	24.02	24.04	23.87	24.04	23.74
21	24.06	24.08	24.09	24.10	24.13	24.15	24.16	24.18	24.20	24.21	24.22	24.22	24.22	24.21	24.21	24.21	24.21	24.22	24.23	24.22	24.21	24.22	24.22	24.21	24.18	24.23	24.06
22	24.20	24.18	24.17	24.16	24.16	24.16	24.15	24.14	24.16	24.16	24.16	24.17	24.17	24.18	24.20	24.25	24.29	24.33	24.36	24.41	24.43	24.45	24.47	24.50	24.25	24.50	24.14
23	24.52	24.54	24.56	24.57	24.59	24.61	24.62	24.65	24.69	24.71	24.73	24.74	24.74	24.75	24.76	24.76	24.77	24.77	24.78	24.79	24.78	24.78	24.79	24.79	24.70	24.79	24.52
24	24.79	24.79	24.78	24.78	24.78	24.78	24.78	24.78	24.78	24.78	24.77	24.75	24.73	24.71	24.69	24.67	24.66	24.65	24.64	24.63	24.62	24.60	24.59	24.56	24.71	24.79	24.56
25	24.54	24.52	24.50	24.47	24.44	24.40	24.37	24.34	24.32	24.30	24.26	24.24	24.20	24.17	24.18	24.18	24.20	24.22	24.23	24.24	24.28	24.32	24.36	24.39	24.32	24.54	24.17
26	24.43	24.46	24.49	24.51	24.54	24.56	24.57	24.59	24.60	24.62	24.62	24.62	24.60	24.57	24.57	24.56	24.53	24.53	24.53	24.52	24.52	24.52	24.51	24.50	24.54	24.62	24.43
27	24.51	24.51	24.51	24.50	24.51	24.51	24.51	24.51	24.52	24.53	24.52	24.52	24.50	24.50	24.50	24.50	24.51	24.51	24.50	24.49	24.48	24.47	24.48	24.48	24.50	24.53	24.47
28	24.47	24.47	24.47	24.48	24.48	24.48	24.48	24.48	24.48	24.48	24.47	24.45	24.42	24.39	24.37	24.35	24.34	24.32	24.31	24.29	24.27	24.26	24.25	24.25	24.40	24.48	24.25
29	24.24	24.24	24.26	24.27	24.31	24.33	24.35	24.38	24.40	24.42	24.44	24.45	24.44	24.44	24.45	24.46	24.48	24.49	24.50	24.50	24.52	24.52	24.53	24.53	24.41	24.53	24.24
30	24.54	24.54	24.54	24.54	24.54	24.53	24.54	24.53	24.52	24.51	24.48	24.46	24.44	24.41	24.39	24.37	24.35	24.33	24.33	24.32	24.31	24.31	24.30	24.30	24.43	24.54	24.30
31	24.28	24.27	24.25	24.24	24.22	24.19	24.16	24.13	24.10	24.07	24.04	24.01	23.97	23.96	23.94	23.92	23.92	23.92	23.91	23.90	23.90	23.89	23.88	23.87	24.04	24.28	23.87
Avg	24.34	24.34	24.34	24.34	24.34	24.34	24.34	24.34	24.35	24.35	24.34	24.34	24.33	24.32	24.32	24.32	24.32	24.32	24.33	24.33	24.33	24.33	24.34	24.33	24.33	24.43	24.23
Max	24.79	24.79	24.78	24.78	24.78	24.78	24.78	24.78	24.78	24.78	24.77	24.75	24.74	24.75	24.76	24.76	24.77	24.77	24.78	24.79	24.78	24.78	24.79	24.79	24.71	24.79	24.56
Min	23.92	23.89	23.87	23.85	23.84	23.82	23.79	23.78	23.77	23.76	23.76	23.76	23.74	23.76	23.82	23.87	23.91	23.92	23.91	23.90	23.90	23.89	23.88	23.87	23.87	24.04	23.74

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
November 2017

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

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
December 2017

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	24.25	24.25	24.25	24.25	24.25	24.25	24.26	24.26	24.26	24.28	24.30	24.29	24.27	24.26	24.25	24.25	24.24	24.24	24.23	24.23	24.24	24.25	24.24	24.24	24.25	24.30	24.23	
2	24.24	24.23	24.23	24.23	24.22	24.23	24.22	24.22	24.23	24.23	24.23	24.23	24.21	24.20	24.18	24.17	24.16	24.15	24.14	24.12	24.10	24.10	24.08	24.07	24.18	24.24	24.07	
3	24.05	24.03	24.02	24.00	23.98	23.96	23.95	23.94	23.92	23.92	23.92	23.92	23.92	23.94	23.94	23.97	24.00	24.02	24.04	24.05	24.07	24.13	24.17	24.20	24.00	24.20	23.92	
4	24.21	24.23	24.25	24.26	24.28	24.29	24.30	24.32	24.33	24.34	24.35	24.35	24.34	24.34	24.35	24.36	24.36	24.38	24.38	24.39	24.41	24.42	24.42	24.41	24.34	24.42	24.21	
5	24.42	24.42	24.44	24.44	24.46	24.48	24.49	24.50	24.50	24.50	24.51	24.50	24.50	24.51	24.51	24.52	24.55	24.56	24.59	24.62	24.63	24.65	24.66	24.66	24.67	24.53	24.67	24.42
6	24.67	24.67	24.69	24.69	24.70	24.70	24.72	24.73	24.74	24.74	24.76	24.75	Au	Au	Au	24.72	24.72	24.72	24.72	24.71	24.71	24.71	24.71	24.70	24.69	24.71	24.76	24.67
7	24.68	24.69	24.69	24.69	24.68	24.68	24.69	24.69	24.70	24.70	24.69	24.68	24.67	24.67	24.67	24.67	24.67	24.68	24.69	24.69	24.71	24.71	24.71	24.71	24.69	24.71	24.67	24.67
8	24.71	24.70	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.68	24.68	24.67	24.66	24.64	24.64	24.63	24.62	24.63	24.62	24.63	24.63	24.63	24.63	24.64	24.65	24.66	24.71	24.62
9	24.65	24.65	24.65	24.65	24.64	24.63	24.64	24.64	24.65	24.65	24.64	24.64	24.63	24.62	24.61	24.61	24.62	24.63	24.65	24.66	24.66	24.67	24.67	24.68	24.64	24.68	24.61	24.61
10	24.68	24.68	24.68	24.67	24.66	24.66	24.67	24.67	24.66	24.66	24.66	24.66	24.63	24.62	24.62	24.60	24.61	24.62	24.64	24.65	24.65	24.66	24.67	24.68	24.65	24.68	24.60	24.60
11	24.68	24.67	24.67	24.67	24.67	24.67	24.68	24.69	24.69	24.69	24.68	24.68	24.68	24.67	24.66	24.66	24.64	24.63	24.64	24.65	24.65	24.65	24.65	24.65	24.64	24.66	24.69	24.63
12	24.63	24.62	24.63	24.61	24.60	24.59	24.58	24.57	24.56	24.55	24.55	24.52	24.51	24.48	24.48	24.47	24.48	24.47	24.46	24.46	24.45	24.46	24.47	24.48	24.48	24.53	24.63	24.45
13	24.48	24.48	24.49	24.48	24.48	24.47	24.46	24.46	24.44	24.45	24.46	24.46	24.46	24.45	24.45	24.45	24.47	24.49	24.51	24.53	24.53	24.54	24.54	24.54	24.48	24.54	24.44	24.44
14	24.54	24.53	24.55	24.55	24.56	24.57	24.57	24.58	24.59	24.57	24.57	24.55	24.52	24.50	24.48	24.45	24.43	24.43	24.43	24.43	24.42	24.41	24.40	24.39	24.50	24.59	24.39	24.39
15	24.38	24.35	24.34	24.32	24.31	24.29	24.28	24.27	24.25	24.24	24.23	24.20	24.17	24.13	24.10	24.09	24.07	24.08	24.09	24.10	24.10	24.11	24.12	24.12	24.20	24.38	24.07	24.07
16	24.12	24.12	24.13	24.12	24.12	24.13	24.14	24.15	24.16	24.18	24.19	24.20	24.20	24.20	24.21	24.21	24.23	24.26	24.27	24.27	24.27	24.26	24.26	24.25	24.19	24.27	24.12	24.12
17	24.23	24.22	24.20	24.18	24.18	24.18	24.18	24.18	24.17	24.17	24.17	24.17	24.16	24.15	24.15	24.16	24.16	24.17	24.17	24.17	24.16	24.14	24.12	24.11	24.17	24.23	24.11	24.11
18	24.09	24.08	24.08	24.06	24.06	24.06	24.06	24.06	24.07	24.07	24.08	24.09	24.09	24.09	24.09	24.10	24.12	24.14	24.16	24.17	24.18	24.19	24.20	24.20	24.11	24.20	24.06	24.06
19	24.20	24.20	24.19	24.18	24.17	24.16	24.15	24.14	24.14	24.14	24.12	24.10	24.08	24.06	24.06	24.05	24.03	24.02	24.00	24.00	23.99	23.97	23.97	23.96	24.09	24.20	23.96	23.96
20	23.93	23.91	23.90	23.89	23.87	23.87	23.89	23.93	23.96	24.00	24.05	24.06	24.08	24.11	24.15	24.19	24.21	24.24	24.26	24.28	24.30	24.31	24.32	24.31	24.08	24.32	23.87	23.87
21	24.30	24.30	24.30	24.30	24.29	24.29	24.30	24.30	24.31	24.32	24.31	24.29	24.26	24.23	24.23	24.22	24.22	24.23	24.23	24.23	24.22	24.22	24.22	24.22	24.26	24.32	24.22	24.22
22	24.22	24.21	24.22	24.23	24.24	24.25	24.26	24.27	24.28	24.29	24.30	24.29	24.28	24.27	24.26	24.26	24.27	24.28	24.29	24.28	24.28	24.29	24.29	24.29	24.27	24.30	24.21	24.21
23	24.29	24.29	24.29	24.29	24.28	24.28	24.28	24.27	24.29	24.32	24.34	24.33	24.32	24.32	24.33	24.34	24.35	24.35	24.36	24.35	24.34	24.34	24.34	24.36	24.32	24.36	24.27	24.27
24	24.36	24.36	24.35	24.35	24.36	24.36	24.35	24.34	24.35	24.35	24.39	24.39	24.38	24.35	24.32	24.30	24.28	24.29	24.28	24.28	24.28	24.27	24.27	24.26	24.32	24.39	24.26	24.26
25	24.26	24.24	24.24	24.24	24.23	24.22	24.22	24.22	24.23	24.24	24.26	24.27	24.27	24.26	24.26	24.27	24.28	24.30	24.31	24.32	24.33	24.34	24.35	24.34	24.27	24.35	24.22	24.22
26	24.34	24.34	24.34	24.34	24.34	24.33	24.33	24.32	24.33	24.34	24.36	24.34	24.33	24.32	24.32	24.31	24.32	24.32	24.32	24.32	24.31	24.30	24.30	24.28	24.32	24.36	24.28	24.28
27	24.27	24.26	24.26	24.25	24.24	24.22	24.22	24.22	24.21	24.22	24.22	24.21	24.20	24.19	24.20	24.20	24.22	24.25	24.26	24.26	24.25	24.26	24.27	24.28	24.23	24.28	24.19	24.19
28	24.29	24.29	24.30	24.31	24.31	24.30	24.30	24.30	24.29	24.28	24.28	24.27	24.25	24.24	24.23	24.22	24.22	24.21	24.19	24.16	24.14	24.12	24.11	24.11	24.24	24.31	24.11	24.11
29	24.10	24.11	24.16	24.20	24.21	24.23	24.26	24.28	24.31	24.33	24.35	24.36	24.34	24.33	24.33	24.33	24.34	24.34	24.32	24.31	24.30	24.29	24.28	24.27	24.28	24.36	24.10	24.10
30	24.25	24.22	24.20	24.17	24.14	24.11	24.10	24.10	24.10	24.12	24.14	24.14	24.13	24.14	24.17	24.21	24.24	24.27	24.28	24.30	24.33	24.35	24.36	24.38	24.21	24.38	24.10	24.10
31	24.38	24.38	24.39	24.39	24.39	24.39	24.41	24.41	24.42	24.44	24.44	24.43	24.40	24.40	24.40	24.40	24.42	24.43	24.43	24.43	24.42	24.41	24.40	24.41	24.41	24.44	24.38	24.38
Avg	24.35	24.35	24.35	24.35	24.34	24.34	24.34	24.35	24.35	24.36	24.36	24.36	24.33	24.32	24.32	24.32	24.33	24.34	24.35	24.35	24.36	24.36	24.36	24.36	24.35	24.43	24.27	24.27
Max	24.71	24.70	24.69	24.69	24.70	24.70	24.72	24.73	24.74	24.74	24.76	24.75	24.68	24.67	24.67	24.72	24.72	24.72	24.72	24.71	24.71	24.71	24.71	24.71	24.71	24.76	24.67	24.67
Min	23.93	23.91	23.90	23.89	23.87	23.87	23.89	23.93	23.92	23.92	23.92	23.92	23.92	23.94	23.94	23.97	24.00	24.02	24.00	24.00	23.99	23.97	23.97	23.96	24.00	24.20	23.87	23.87

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
October 2017

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	71.2	76.8	77.9	82.7	86.2	88.0	88.1	83.3	79.9	82.9	73.0	84.3	79.6	67.2	66.0	59.0	68.6	82.0	90.9	91.5	91.0	86.5	90.2	91.1	80.7	91.5	59.0
2	87.9	86.9	84.0	84.6	78.6	80.0	78.4	76.3	72.8	75.3	74.5	74.6	72.2	72.8	74.5	77.3	78.0	79.2	79.2	80.7	82.4	82.5	84.4	84.3	79.2	87.9	72.2
3	82.8	84.1	83.7	82.3	85.5	85.3	84.7	83.1	80.7	83.2	82.3	81.3	75.5	70.8	68.5	68.4	65.4	68.6	76.8	83.8	85.8	86.0	86.6	86.3	80.1	86.6	65.4
4	86.2	85.9	86.0	85.4	84.9	86.3	86.4	82.7	78.1	77.0	66.8	68.6	69.6	71.6	67.6	71.0	74.1	78.5	83.8	86.0	87.7	86.7	88.2	90.1	80.4	90.1	66.8
5	90.3	91.2	90.6	91.2	91.6	91.5	91.3	91.3	78.9	67.9	64.1	64.8	62.4	63.7	60.2	61.4	63.6	66.5	76.4	83.7	86.5	86.7	89.3	90.6	79.0	91.6	60.2
6	91.8	91.5	91.4	89.8	89.3	89.1	89.0	90.1	90.7	71.2	55.7	48.7	45.2	41.4	38.3	36.3	34.0	44.3	57.2	65.8	67.2	60.7	40.9	37.2	64.9	91.8	34.0
7	37.4	36.4	37.4	37.1	37.2	38.1	40.2	41.0	40.2	40.8	41.1	54.9	53.6	53.6	77.6	77.2	67.0	53.9	53.2	57.3	64.0	61.7	69.8	77.0	52.0	77.6	36.4
8	82.3	80.4	83.5	86.0	85.6	86.9	86.3	82.7	70.3	58.5	49.8	49.1	51.2	55.8	56.1	57.4	61.7	63.0	68.9	72.4	82.2	87.3	87.2	86.8	72.1	87.3	49.1
9	86.8	87.1	86.8	86.5	87.1	87.1	86.9	86.4	79.9	57.0	49.5	46.4	44.3	41.9	39.8	41.4	40.8	43.8	48.4	61.9	71.2	74.1	80.1	82.0	66.5	87.1	39.8
10	83.2	84.6	84.9	85.4	85.1	84.2	82.7	80.8	69.0	42.0	29.5	26.3	23.8	23.2	18.8	18.3	20.3	24.0	35.4	47.8	48.3	52.9	58.7	63.1	53.0	85.4	18.3
11	67.6	68.2	71.7	72.0	73.2	70.1	69.2	68.8	57.7	39.4	27.3	24.3	26.0	25.8	28.4	32.0	54.1	72.2	89.4	83.8	86.3	86.7	85.8	87.0	61.1	89.4	24.3
12	87.5	87.2	88.6	87.2	86.4	85.6	84.7	86.0	80.5	74.3	67.1	57.1	48.4	55.3	46.1	50.5	49.6	53.2	60.7	70.9	75.7	78.1	75.9	77.7	71.4	88.6	46.1
13	77.9	77.8	75.0	76.3	77.9	78.9	80.2	79.7	76.0	66.0	60.0	57.0	64.9	84.7	88.3	82.8	84.4	85.1	88.7	89.3	88.9	88.8	88.7	88.1	79.4	89.3	57.0
14	89.0	89.2	89.5	90.2	90.4	90.3	89.5	88.3	78.8	68.4	60.6	56.0	52.6	46.8	44.1	43.0	43.2	46.6	48.0	45.9	46.6	48.5	49.8	53.2	64.5	90.4	43.0
15	55.1	57.9	60.5	59.7	64.9	72.4	77.3	75.5	59.7	52.4	51.3	47.2	43.5	41.0	38.6	37.7	37.9	47.1	60.5	67.0	77.4	82.9	85.3	85.0	59.9	85.3	37.7
16	86.0	84.6	85.8	84.4	84.6	83.7	81.0	66.0	42.7	30.2	27.0	24.2	22.9	22.0	20.7	19.7	21.5	28.5	39.6	49.8	56.7	63.1	66.3	70.4	52.6	86.0	19.7
17	71.4	77.6	77.0	75.5	79.0	79.5	79.8	77.0	62.8	28.4	21.8	18.1	16.6	18.1	16.6	15.3	16.7	18.7	20.6	24.8	28.3	31.7	32.8	34.4	42.6	79.8	15.3
18	37.6	40.1	43.9	45.9	49.1	54.4	54.9	54.0	46.4	40.6	34.6	28.8	23.8	21.1	21.6	27.4	31.2	36.8	43.9	56.8	57.7	59.0	51.9	46.2	42.0	59.0	21.1
19	41.3	43.8	38.7	37.0	36.1	37.1	37.3	32.5	25.1	20.2	16.5	14.0	12.3	11.5	11.7	12.5	13.3	16.0	24.7	18.1	18.8	23.2	28.0	30.7	25.0	43.8	11.5
20	34.3	34.8	28.6	31.9	38.5	39.2	39.0	36.3	34.2	30.6	34.3	34.2	36.0	52.0	71.2	76.9	87.7	84.4	78.6	71.7	72.4	71.0	71.6	67.3	52.4	87.7	28.6
21	66.5	67.2	67.5	67.6	68.2	67.6	68.2	68.5	62.8	57.9	55.5	47.8	45.0	39.1	37.1	39.1	43.2	46.6	50.5	53.8	49.5	52.0	57.8	55.8	55.6	68.5	37.1
22	57.2	57.8	56.8	54.7	53.4	54.3	55.6	54.7	52.7	51.6	50.7	48.5	47.7	43.2	38.8	42.2	38.7	42.6	47.5	50.5	52.0	53.9	51.6	51.7	50.4	57.8	38.7
23	58.1	62.4	61.6	64.8	68.4	65.7	69.1	65.0	56.0	50.1	42.6	37.6	32.7	30.5	30.2	31.0	33.5	43.8	54.3	59.7	66.3	72.2	77.7	80.5	54.7	80.5	30.2
24	82.6	82.9	84.5	84.7	85.5	85.0	85.1	83.6	76.4	57.1	43.0	38.4	36.4	34.5	34.8	34.0	32.7	35.9	49.3	58.1	65.4	74.4	78.2	80.9	62.6	85.5	32.7
25	81.6	82.5	81.5	83.2	83.6	83.8	83.3	81.5	73.9	53.4	16.8	15.1	14.7	18.4	21.4	23.6	34.3	53.0	63.3	73.9	79.8	80.8	74.1	72.2	59.6	83.8	14.7
26	70.7	70.6	70.7	70.3	68.3	76.3	77.9	77.7	72.9	70.6	69.3	60.1	56.7	51.4	45.9	47.6	54.6	64.7	67.0	68.8	72.7	73.6	76.2	80.4	67.3	80.4	45.9
27	83.5	84.3	85.4	84.6	85.7	84.8	84.5	83.9	73.4	72.6	59.9	50.9	39.2	41.3	41.3	47.9	51.6	55.0	60.8	66.1	70.1	76.0	79.8	82.4	68.5	85.7	39.2
28	81.6	84.2	84.4	86.4	87.6	87.8	88.3	87.7	79.6	71.1	46.9	40.8	38.1	35.5	32.0	30.3	34.5	44.7	56.1	66.8	73.8	79.0	82.2	83.2	65.9	88.3	30.3
29	82.3	83.9	82.9	81.5	73.9	73.5	71.7	70.3	68.8	68.4	65.3	61.9	62.6	70.3	58.5	55.7	57.5	60.2	64.5	66.0	68.6	64.8	63.7	63.4	68.3	83.9	55.7
30	66.1	63.3	68.0	60.0	64.9	63.2	67.0	67.1	64.7	59.2	55.7	49.2	49.7	46.9	37.9	39.3	43.6	55.2	63.6	71.0	74.7	75.9	79.3	78.6	61.0	79.3	37.9
31	79.7	80.1	80.3	80.5	81.6	81.3	80.2	81.3	76.4	50.4	35.9	35.1	41.0	48.3	55.6	54.3	58.6	79.4	87.6	91.3	90.6	90.2	91.8	92.6	71.8	92.6	35.1
Avg	72.8	73.7	73.8	73.9	74.6	75.2	75.4	73.6	66.5	57.1	49.3	46.6	44.8	45.2	44.8	45.5	48.3	54.0	60.9	65.6	69.0	70.7	71.7	72.6	62.7	82.7	38.8
Max	91.8	91.5	91.4	91.2	91.6	91.5	91.3	91.3	90.7	83.2	82.3	84.3	79.6	84.7	88.3	82.8	87.7	85.1	90.9	91.5	91.0	90.2	91.8	92.6	80.7	92.6	72.2
Min	34.3	34.8	28.6	31.9	36.1	37.1	37.3	32.5	25.1	20.2	16.5	14.0	12.3	11.5	11.7	12.5	13.3	16.0	20.6	18.1	18.8	23.2	28.0	30.7	25.0	43.8	11.5

A-25

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
November 2017

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	92.2	91.5	91.9	92.3	92.1	91.4	91.0	88.1	88.9	88.5	77.7	75.8	78.5	73.6	74.4	78.1	80.2	74.5	73.7	78.3	84.2	85.2	83.5	83.4	83.7	92.3	73.6
2	81.8	80.0	80.6	81.3	82.4	83.0	83.4	83.5	83.1	81.4	75.2	77.4	78.8	79.7	80.1	80.0	82.5	81.8	81.3	80.5	80.8	81.0	85.4	87.3	81.3	87.3	75.2
3	87.2	87.0	87.0	86.5	85.9	85.7	85.8	85.7	85.6	85.2	83.6	80.1	82.2	85.6	86.2	86.2	83.8	82.4	83.6	84.3	85.1	85.1	85.4	83.7	85.0	87.2	80.1
4	84.3	84.3	84.4	84.4	83.9	82.2	79.0	78.4	77.9	76.8	73.5	74.7	67.3	68.1	67.4	65.8	73.9	80.1	82.9	84.4	83.9	83.9	83.9	84.3	78.7	84.4	65.8
5	84.1	84.6	84.6	85.1	85.2	85.4	85.3	84.9	80.7	75.2	63.2	62.3	64.3	77.6	79.4	80.5	83.0	82.8	82.0	81.4	80.4	80.0	79.8	78.3	79.6	85.4	62.3
6	78.2	77.4	77.5	78.2	78.5	77.9	78.5	77.8	76.9	71.1	61.1	61.0	55.2	56.3	49.4	64.6	72.8	82.1	80.3	78.6	77.7	75.4	74.8	74.0	72.3	82.1	49.4
7	73.6	72.8	72.5	72.5	72.0	71.8	71.6	71.9	73.7	74.4	77.5	75.7	71.0	65.2	58.3	61.9	76.4	82.4	83.2	83.3	81.9	81.8	81.0	81.0	74.5	83.3	58.3
8	81.7	82.2	82.5	82.8	83.3	83.9	84.4	84.4	83.8	79.4	77.6	76.3	76.6	73.1	72.6	72.5	80.3	84.3	82.3	81.8	78.9	79.6	78.9	78.4	80.1	84.4	72.5
9	76.9	76.4	77.8	77.4	78.2	75.1	78.2	72.2	71.9	70.3	69.8	69.4	65.1	68.1	68.3	66.3	64.0	78.3	82.7	86.9	85.7	86.4	84.5	82.6	75.5	86.9	64.0
10	86.7	86.5	83.4	85.3	84.6	81.4	80.1	75.1	70.5	69.3	59.4	40.6	44.2	46.9	51.9	60.6	67.8	80.6	83.3	85.2	85.6	86.5	86.4	87.1	73.7	87.1	40.6
11	88.3	88.1	89.1	89.7	89.7	88.9	87.6	87.6	87.8	88.3	87.8	79.6	72.7	68.2	65.1	62.4	68.4	82.0	85.6	88.5	86.5	84.5	83.1	82.4	82.6	89.7	62.4
12	82.5	81.9	82.0	82.6	83.4	83.1	82.7	82.8	84.2	85.5	88.9	86.0	82.3	77.6	72.4	61.4	70.7	81.0	84.5	87.2	85.2	85.8	86.1	86.4	81.9	88.9	61.4
13	86.6	87.6	86.2	84.6	83.8	83.2	82.4	82.3	85.5	88.7	84.8	61.1	44.9	43.4	43.2	54.9	69.0	71.2	72.2	76.1	66.4	69.2	67.2	73.4	72.8	88.7	43.2
14	75.0	78.7	69.1	78.9	78.2	82.6	81.1	69.9	66.8	67.6	62.3	57.6	61.5	62.6	65.3	62.5	60.8	67.3	66.8	72.2	79.4	81.8	84.9	84.7	71.6	84.9	57.6
15	84.6	83.6	82.5	82.4	82.6	82.6	81.8	80.8	81.6	82.9	81.3	63.0	46.9	47.7	50.6	54.5	58.3	69.3	75.5	77.9	79.3	75.2	67.8	62.8	72.3	84.6	46.9
16	62.1	65.2	76.9	66.2	67.6	69.5	69.7	68.1	66.0	64.2	64.1	77.0	74.6	72.1	59.3	55.5	58.3	59.4	58.6	59.9	62.4	66.7	69.6	74.5	66.1	77.0	55.5
17	75.6	75.3	76.2	76.6	79.6	81.7	83.2	85.2	82.1	71.6	60.0	55.1	53.8	51.5	50.6	54.0	57.6	59.0	58.5	57.8	57.8	57.2	59.2	61.9	65.9	85.2	50.6
18	62.5	63.9	65.6	64.6	63.5	60.9	63.9	62.2	59.3	57.7	56.9	57.6	56.0	55.4	54.5	56.1	57.4	56.4	62.9	69.3	74.3	77.1	79.8	80.8	63.3	80.8	54.5
19	83.0	82.0	80.1	80.0	79.4	78.5	76.5	75.5	75.1	73.8	69.6	62.1	46.6	43.5	49.4	48.9	39.1	42.9	50.2	59.4	62.8	57.4	44.4	33.9	62.3	83.0	33.9
20	42.6	42.9	40.3	40.1	37.4	37.7	44.4	51.4	55.6	56.3	59.5	63.0	56.0	71.1	82.7	91.6	92.5	92.8	93.0	93.1	93.2	93.2	93.2	92.0	67.3	93.2	37.4
21	90.3	89.7	88.6	89.0	89.4	89.1	89.1	89.9	88.9	87.1	82.4	74.2	67.7	65.8	73.6	84.0	86.2	88.2	87.6	86.7	86.0	87.2	87.0	87.3	84.8	90.3	65.8
22	89.2	89.5	85.6	76.4	86.2	87.4	87.8	89.3	88.8	86.9	84.5	79.9	74.2	71.5	81.1	84.6	87.2	88.6	88.4	88.7	90.0	90.5	91.2	89.7	85.7	91.2	71.5
23	90.5	89.7	89.4	86.3	81.6	80.2	75.1	66.4	52.0	48.4	48.1	50.8	50.2	45.9	44.0	41.0	43.6	44.0	44.1	47.5	59.5	78.1	83.2	77.7	63.2	90.5	41.0
24	75.8	77.5	65.9	58.9	58.9	61.9	59.8	63.1	60.0	52.9	52.5	53.7	52.0	47.1	48.5	49.2	50.0	56.2	61.5	64.0	62.2	66.6	71.5	68.8	59.9	77.5	47.1
25	64.6	65.8	54.0	66.5	71.5	73.7	72.7	76.6	78.0	72.2	66.2	59.0	42.7	29.1	33.9	34.9	48.5	56.5	60.8	59.9	65.5	63.0	61.0	69.9	60.3	78.0	29.1
26	68.2	66.1	69.4	66.5	68.7	73.3	75.6	80.3	75.5	68.2	44.9	35.5	33.7	35.4	32.8	35.8	39.8	53.2	47.7	42.2	41.0	49.7	48.6	44.8	54.0	80.3	32.8
27	46.3	48.6	51.0	58.7	69.6	61.7	60.3	58.0	56.8	55.6	53.7	45.6	46.0	43.2	43.2	44.3	46.5	50.9	50.1	53.7	54.8	56.3	55.3	56.9	52.8	69.6	43.2
28	59.0	61.6	61.8	61.8	64.2	63.8	60.4	65.5	67.1	58.7	49.5	43.9	38.4	37.0	34.4	36.7	43.5	47.8	51.1	48.6	47.6	53.2	42.0	40.7	51.6	67.1	34.4
29	39.3	47.2	57.3	62.7	73.8	71.1	71.8	61.0	58.3	56.5	53.6	51.4	50.9	51.2	50.1	50.4	50.4	53.3	56.5	56.2	58.7	59.8	59.2	62.3	56.8	73.8	39.3
30	66.0	66.6	75.2	76.6	77.7	79.3	81.3	81.2	80.0	65.6	60.5	39.1	36.5	34.7	33.4	39.5	41.5	46.5	48.9	52.1	55.4	63.7	66.1	72.2	60.0	81.3	33.4
Avg	75.3	75.8	75.6	75.8	77.1	76.9	76.8	76.0	74.7	72.0	67.7	62.9	59.0	58.3	58.5	60.6	64.5	69.2	70.7	72.2	73.1	74.7	74.1	74.1	70.7	83.9	52.8
Max	92.2	91.5	91.9	92.3	92.1	91.4	91.0	89.9	88.9	88.7	88.9	86.0	82.3	85.6	86.2	91.6	92.5	92.8	93.0	93.1	93.2	93.2	93.2	92.0	85.7	93.2	80.1
Min	39.3	42.9	40.3	40.1	37.4	37.7	44.4	51.4	52.0	48.4	44.9	35.5	33.7	29.1	32.8	34.9	39.1	42.9	44.1	42.2	41.0	49.7	42.0	33.9	51.6	67.1	29.1

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
December 2017

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	72.9	71.2	71.8	63.9	59.9	62.8	66.3	69.4	64.3	60.0	58.4	57.2	54.4	53.9	54.3	51.4	55.5	62.6	67.8	70.7	74.4	75.3	78.2	81.0	64.9	81.0	51.4
2	82.7	83.1	83.2	83.2	83.6	83.3	83.4	83.3	82.2	80.6	77.7	72.6	50.3	48.5	50.2	51.1	59.7	67.8	70.6	76.1	78.4	77.6	75.9	81.4	73.6	83.6	48.5
3	89.0	90.9	91.5	92.0	92.1	92.1	92.1	91.9	92.1	91.2	91.1	91.3	88.7	88.2	83.7	80.2	75.9	78.5	77.0	77.0	77.3	75.2	76.9	74.7	85.4	92.1	74.7
4	80.1	83.5	84.8	86.2	85.8	85.3	85.3	85.3	85.0	82.6	80.4	82.4	80.5	80.2	80.5	77.7	75.4	75.1	74.9	80.8	83.5	82.3	82.1	83.2	81.8	86.2	74.9
5	82.2	78.6	78.5	79.1	78.6	78.5	78.6	78.0	77.8	75.3	74.3	73.7	73.6	73.1	71.6	70.5	77.6	80.6	84.1	85.0	83.1	80.9	80.7	79.4	78.1	85.0	70.5
6	80.2	83.8	84.0	83.7	82.3	82.9	82.6	82.5	81.3	73.9	65.4	64.3	Au	Au	Au	58.2	63.4	72.0	78.2	81.1	81.6	82.6	82.6	84.2	77.7	84.2	58.2
7	84.9	84.4	84.2	83.2	82.7	81.8	80.8	80.1	79.8	75.2	70.8	65.5	61.2	53.1	55.4	60.5	67.4	78.1	82.7	84.8	83.2	83.3	83.6	83.9	76.3	84.9	53.1
8	82.7	83.1	82.2	82.5	80.7	81.5	80.8	80.4	81.5	79.6	77.3	71.1	63.8	54.0	44.8	63.2	74.9	81.1	83.7	85.7	83.7	84.0	82.7	82.1	77.0	85.7	44.8
9	80.7	80.5	79.1	79.1	79.3	78.9	79.2	79.3	79.3	76.8	76.2	69.5	65.1	58.9	62.5	69.2	75.5	79.7	82.7	84.0	84.3	84.6	82.9	82.0	77.1	84.6	58.9
10	81.8	81.6	81.7	80.7	81.2	81.1	81.3	81.2	80.8	79.5	74.9	70.1	69.7	60.1	36.7	52.8	65.0	70.0	78.0	81.7	82.8	83.4	83.4	84.3	75.2	84.3	36.7
11	84.1	82.4	83.5	82.4	82.1	81.9	81.8	80.9	81.0	79.9	73.4	63.8	57.6	45.7	44.7	55.2	68.9	71.4	70.5	72.5	77.5	79.3	79.8	81.2	73.4	84.1	44.7
12	79.9	80.4	81.0	80.8	81.9	82.5	81.9	81.4	78.4	70.6	61.5	58.0	46.4	29.3	28.7	30.3	31.3	36.9	36.2	44.0	53.6	60.1	63.9	65.3	60.2	82.5	28.7
13	70.0	75.3	79.3	80.9	82.5	81.8	81.9	81.6	80.8	79.0	74.8	79.7	81.0	78.1	82.8	84.0	89.3	91.3	89.3	87.7	87.5	87.3	87.4	87.1	82.5	91.3	70.0
14	85.0	79.9	77.6	78.3	84.8	87.3	85.1	84.3	83.0	79.3	71.1	64.8	59.7	50.9	54.9	66.0	74.2	81.5	84.6	85.7	85.1	83.8	84.0	82.9	77.2	87.3	50.9
15	82.2	82.4	81.9	81.7	81.6	81.8	81.4	82.3	82.8	83.3	84.2	83.9	82.6	80.1	75.7	72.9	70.7	72.5	58.4	62.8	80.7	85.3	87.8	86.3	79.4	87.8	58.4
16	86.1	88.6	90.4	90.8	90.6	91.0	91.3	91.2	91.0	89.9	88.1	85.7	76.3	71.4	74.8	73.8	79.5	85.1	84.2	84.8	81.9	80.0	78.8	78.3	84.3	91.3	71.4
17	76.1	75.9	75.0	74.1	74.4	78.5	83.6	82.1	76.1	67.1	66.5	66.0	66.3	66.9	68.1	69.2	71.0	70.7	72.4	74.7	78.2	78.5	79.0	81.7	73.8	83.6	66.0
18	79.6	75.0	72.0	71.0	71.7	71.2	74.4	70.5	71.1	70.8	68.4	65.5	65.2	64.9	66.1	66.4	65.0	67.3	74.4	77.9	84.7	89.0	90.5	90.6	73.5	90.6	64.9
19	91.4	91.7	91.7	91.9	89.4	86.8	85.2	86.0	87.4	86.3	85.4	86.9	87.3	89.4	90.2	89.4	90.2	90.0	87.8	84.6	84.2	81.7	83.7	79.0	87.4	91.9	79.0
20	72.8	66.5	63.2	65.1	68.2	73.5	82.3	75.6	69.3	79.2	77.7	77.0	75.7	75.4	74.0	74.0	76.3	76.9	78.4	77.6	78.4	78.9	79.2	78.9	74.8	82.3	63.2
21	76.8	74.7	74.6	72.7	73.0	72.3	72.2	72.6	74.2	76.2	77.9	77.6	76.1	72.8	72.6	72.3	75.3	78.1	82.0	84.6	85.3	85.7	85.7	84.6	77.1	85.7	72.2
22	84.3	83.8	82.7	81.3	80.1	75.2	74.4	73.6	73.9	76.8	74.1	74.1	74.3	76.4	75.9	76.3	77.7	77.9	78.1	78.8	78.7	78.3	78.5	78.0	77.6	84.3	73.6
23	78.1	77.8	78.0	77.1	76.5	76.1	76.2	76.3	73.4	66.7	66.4	63.6	63.2	66.5	65.1	65.4	73.2	78.5	76.6	77.5	75.1	72.7	71.6	71.1	72.6	78.5	63.2
24	69.9	69.4	68.2	67.5	67.2	66.6	67.2	65.9	67.0	65.9	68.5	69.1	69.7	63.3	54.6	56.7	72.6	78.2	77.7	75.2	73.4	72.8	70.8	70.6	68.7	78.2	54.6
25	71.4	70.9	71.0	72.2	73.3	74.2	75.0	75.7	76.3	76.7	77.2	73.2	71.8	72.0	72.3	73.8	75.7	76.8	76.1	76.1	76.0	75.7	75.8	75.9	74.4	77.2	70.9
26	75.6	75.9	75.7	75.8	75.9	75.9	75.7	76.0	74.3	72.7	71.0	63.1	63.2	58.5	59.4	62.5	75.1	79.9	78.5	78.9	78.5	78.1	78.0	78.4	73.2	79.9	58.5
27	78.6	79.2	79.6	80.7	81.1	81.9	82.1	82.2	82.7	80.7	76.5	72.6	72.4	75.9	74.6	68.0	68.3	67.7	73.2	74.0	74.2	72.8	74.7	78.4	76.3	82.7	67.7
28	80.9	80.7	81.2	80.4	81.9	82.5	82.5	83.0	83.4	81.8	79.1	75.5	71.8	72.3	70.9	69.9	69.9	71.6	73.3	75.8	78.8	82.6	85.0	85.2	78.3	85.2	69.9
29	86.4	84.7	78.4	76.5	76.1	74.7	73.9	73.7	73.8	74.4	74.5	74.6	74.3	74.3	74.9	75.1	75.3	73.8	73.9	73.3	73.2	71.5	71.0	70.5	75.1	86.4	70.5
30	70.4	69.2	68.2	69.0	70.4	72.8	74.6	75.0	74.2	69.0	65.2	66.5	63.1	63.3	72.3	69.3	73.6	74.5	73.5	73.5	73.2	72.3	71.6	71.4	70.7	75.0	63.1
31	71.2	71.7	71.7	72.8	72.7	73.2	72.7	71.9	70.9	75.7	69.8	74.0	71.6	65.3	61.6	69.3	79.5	81.7	80.6	79.2	77.9	76.0	75.2	75.1	73.4	81.7	61.6
Avg	79.6	79.3	78.9	78.6	78.8	79.0	79.5	79.1	78.4	76.7	74.1	72.0	69.2	66.1	65.1	66.9	71.7	75.1	76.1	77.6	79.0	79.1	79.4	79.6	75.8	84.5	61.1
Max	91.4	91.7	91.7	92.0	92.1	92.1	92.1	91.9	92.1	91.2	91.1	91.3	88.7	89.4	90.2	89.4	90.2	91.3	89.3	87.7	87.5	89.0	90.5	90.6	87.4	92.1	79.0
Min	69.9	66.5	63.2	63.9	59.9	62.8	66.3	65.9	64.3	60.0	58.4	57.2	46.4	29.3	28.7	30.3	31.3	36.9	36.2	44.0	53.6	60.1	63.9	65.3	60.2	75.0	28.7

APPENDIX B: PERFORMANCE AUDIT REPORTS
FOURTH QUARTER 2017



BISON ENGINEERING, INC.

Bison Engineering

Preliminary Meteorological Parameters Audit Form

Audit Dates: 12/06/2017 Tower Lowered : 12:00 MST Tower Back Up : 14:50 MST
 Client: Tintina Resources
 Site: Black Butte
 AUDITOR: Steve Heck PRECEDING CALIBRATION BY: Jeff Bell

Temperature

Audit Device: Control Company - digital thermometer Model 4000
 Meter S/N: 91255639 Temperature Sensor: Climatronics 100093
 Last certified: 08/22/2017 S/N P12535 (Upper), S/N P12535 (Lower) - Matched Set

Temperature bath results

	9m	9m	2m	2m	9m - 2m
Audit Value	DAS Value	DAS Diff.	DAS Value	DAS Diff.	DAS Diff.
°C	°C	°C	°C	°C	°C
0.00	0.09	0.09	0.15	0.15	-0.06
16.99	16.89	-0.10	16.95	-0.04	-0.06
34.56	34.73	0.17	34.71	0.15	0.02

Wind Direction

Sensor height: 9 Meter
 Sensor (Make/model number): Climatronics/ 102083
 Serial Number : P1336C
 Crossarm orientation (from Garmin GPS): 0.3 / 180.3
GPS location at sensor:
 N 46 deg 46.374 min, W 110 deg 52.886 min
GPS location at sighting point:
 N 46 deg 46.313 min, W 110 deg 52.886 min
 Sensor response aligned with crossarm (as found): 181.4
 Sensor response aligned with crossarm (as left): 180.7

Setpoint	Linearity Check from DAS			
	Clockwise	Counter-CW	Diff CW	Diff CCW
0	0.3	0.3	0.3	0.3
30	31.2	31.4	1.2	1.4
60	61.4	61.3	1.4	1.3
90	91.5	91.5	1.5	1.5
120	121.2	121.2	1.2	1.2
150	151.1	151.1	1.1	1.1
180	180.9	180.9	0.9	0.9
210	210.4	210.4	0.4	0.4
240	240.4	240.3	0.4	0.3
270	269.7	270.0	-0.3	0.0
300	299.6	299.6	-0.4	-0.4
330	329.9	330.3	-0.1	0.3
		Max Diff	1.5	1.5

Linearity Audit Device: Climatronics 101966, SN 70
 Threshold Torque: 0.08 oz.-in.
 (Waters Model 366-1 torque watch)

Wind Speed

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

Synchronous motor checks

Known Value	Known Value	DAS Value	DAS Diff.
RPM	m/s	m/s	m/s
0	0.22	0.22	0.00
300	6.66	6.65	-0.01
600	13.09	13.09	0.00

Threshold Torque: 0.004 oz.-in.
 (Waters Model 366-3 torque watch)

Solar Radiation

Audit Device: Eppley Pyranometer, SN 16166F3 (certified by Eppley October 2017)

Time (MST)	CTS Value (W/m2)	Site Value (W/m2)	Diff. (%)	Diff. (% FS)
1430	257	275	7.0	1.4
1435	159	159	0.0	0.0
1442	244	261	7.0	1.3
1451	200	213	6.5	1.0

Relative Humidity

Site Sensor: Met One 083E-0-35
Sensor Height: 2 meters
Reference Std: Assmann Psychrometer, thermometer calibrations checked March 2017

Ref Dry-Bulb: -4.1 deg C BP = 24.78 in. Hg
Ref Wet-Bulb: -6.2 deg C
Ref RH: 59.9 %RH
Station RH: 55.7 %RH
Diff: -4.2 %RH

Barometric Pressure

Audit Device: Wallace & Tiernan Model FA185260, S/N LL03297.
Checked against Bison Mercury barometer (Butte) November 2017

Audit Value: 24.78 in Hg
Station Value: 24.72 in Hg
Diff: -0.06 in Hg


Precipitation

Rain Gauge = Met One Model 375
Level checked OK
Wind Screen in place
8" opening
Precip audit performed during hour ending at 1500 MST

559 ml water added
Calibration is 8.24 ml per tip
Known audit value is $559 / 8.24 = 67.8$ tips (so 67 full tips expected)

Unit registered 68 tips
% difference from expected = 1.5%

Signature Site Operator : _____

Signature Auditor : 

**SANDFIRE RESOURCES AMERICA INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
First Quarter 2018**

Prepared for:

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May 31, 2018

CERTIFICATION OF DATA INTEGRITY

Bison Engineering, Inc., certifies the data in this report is an accurate summary of the meteorological conditions measured at the Black Butte Copper Project 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: Jeffrey S. Bell

Signature: 

Title: Senior Field Technician

Date: 5-25-18

Reviewer: Steven R. Heck

Signature: 

Title: Meteorologist

Date: 5/31/18

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APPENDICES

- Appendix A: Meteorological Data
- Appendix B: Audit/Calibration Reports

1.0 INTRODUCTION

Sandfire Resources America Inc. (SRA) established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at nine meters and two 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. (Bison), of Helena and Billings. Figure 1 shows a site map for the Black Butte Copper Project, including the location of the original meteorological monitoring site.

This report presents the data collected during the first quarter (January through March) of 2018. 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.

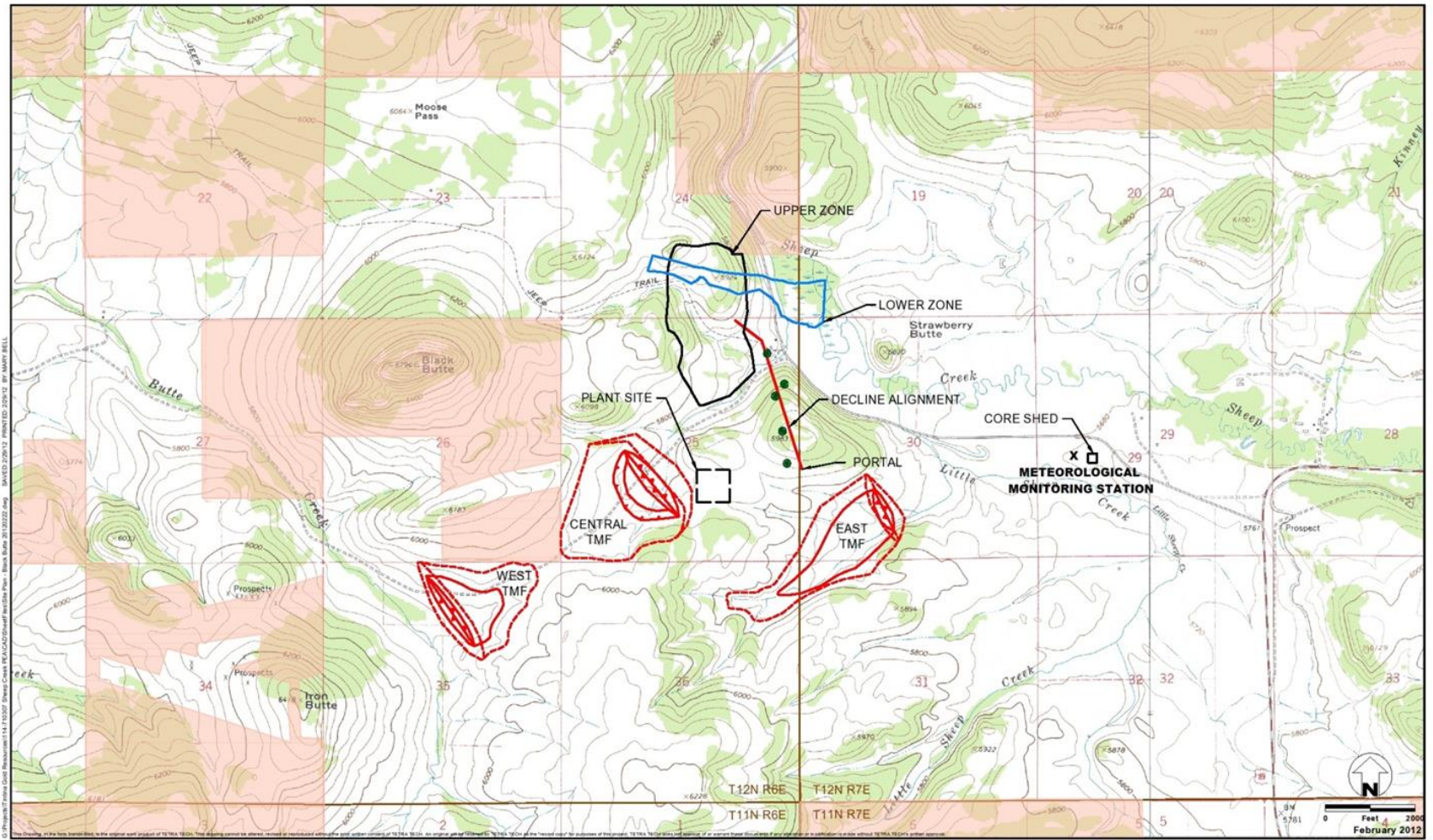
On June 23, 2015, an evaporation pan and manual precipitation gauge were installed adjacent to the existing meteorological system. The evaporation data will be used for hydrological/water balance studies. The manual rain gauge was installed to provide a backup data source for the existing automatic rain gauge, which has experienced occasional mechanical problems. Also, the automatic rain gauge was sometimes unreliable for measuring frozen precipitation due to drifting snow.

In late 2017, SRA notified Bison of their plan to construct a new building in close proximity to the existing meteorological tower. This had potential to affect the wind data being collected at the 10-meter level. Therefore, the tower was relocated approximately 295 feet to the west-southwest of the original location as shown in Figure 2. Its geographic coordinates are:

N 46° 46.350'
W 110° 52.949'

A photo of the new tower is shown in Figure 3. The sequence of tower relocation activities is discussed in Section 2.0.

Figure 1. Monitoring Site Location



- ADIT ALIGNMENT HOLES
- TAILINGS MANAGEMENT FACILITY
- USFS PROPERTY

Site Plan
 Black Butte Copper Project
 Meagher County, Montana
FIGURE 1

Figure 2. New Meteorological Tower Location

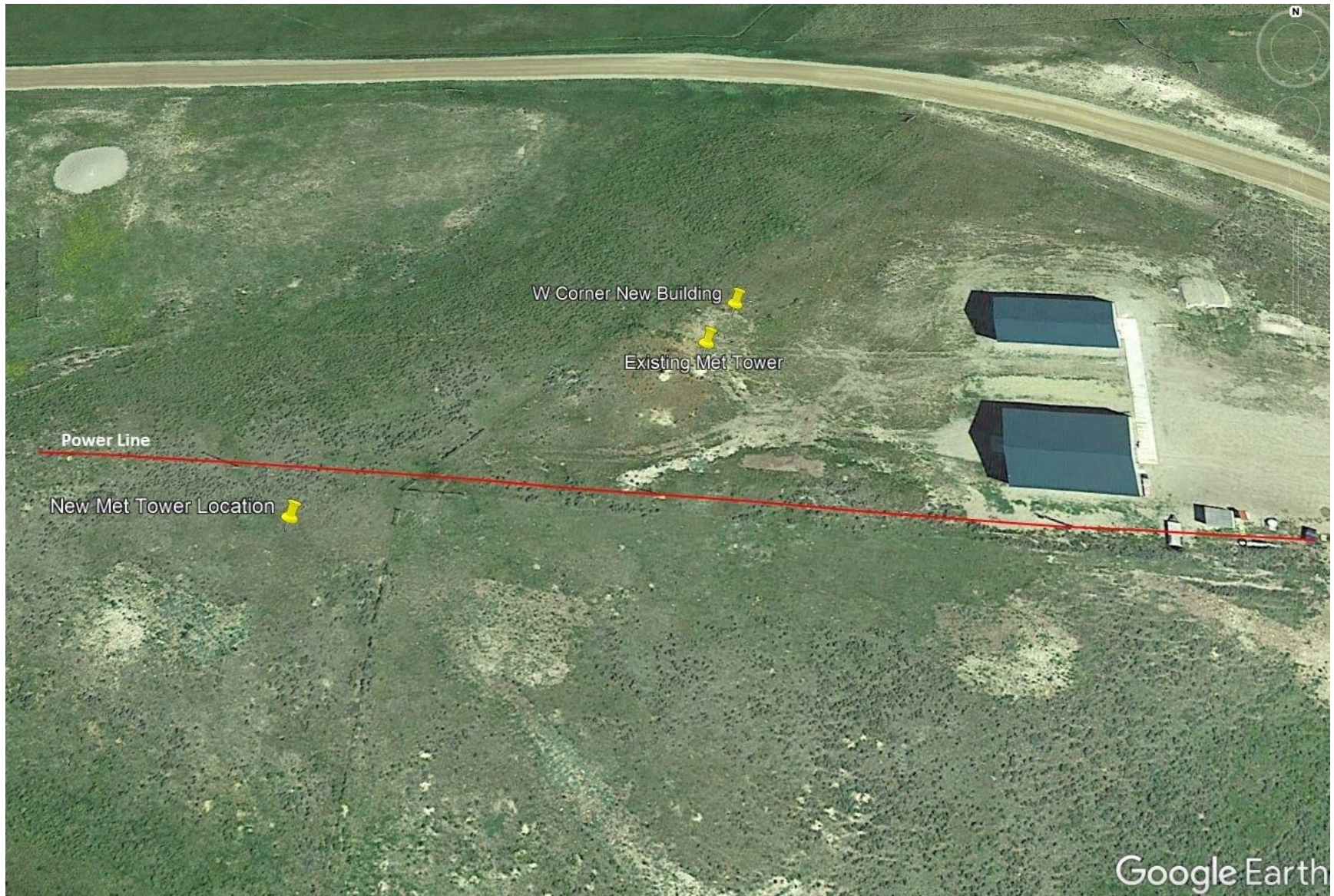


Figure 3. Photo of Meteorological Tower at New Location



2.0 MONITORING SYSTEM OPERATIONS

The original meteorological monitoring system began collecting data on April 30, 2012. Data were collected continuously at that location until February 6, 2018 at 1400 MST.

The existing meteorological tower was relocated approximately 300 feet to the southwest of the original location as depicted in Figure 2. All instruments except the automatic rain gauge were operational starting March 7 at 1800 MST; the rain gauge became operational on March 8 at 1500 MST. The tower relocation activities are summarized below:

- Following the quarterly audit/calibration conducted on December 6, 2017, Bison surveyed potential tower locations for further evaluation.
- On December 14, 2017, Bison visited the site to select the new final tower location, and to identify tower base and guy anchor excavation locations. SRA excavated suitable holes under the direction of Bison on that same day.
- SRA offered to pour concrete in the excavations in conjunction with construction of the new building foundation. Initially this was expected to occur in early January, but the onset of cold snowy weather delayed concrete pouring activities.
- At the end of January SRA advised Bison that they would be able to pour concrete for the tower construction during the following week. On February 6 and 7, 2018, Bison disassembled the existing tower and instrumentation and directed concrete pouring in the excavated holes (to secure the new tower guy anchors and tower base).
- The last valid data were collected from the old tower on February 6, 2018, at 1400 MST.
- The poured concrete required an extended curing period because of very cold, snowy conditions during the remainder of February. The remaining tower sections and instrumentation were installed on March 7-8, 2018, after the concrete had set. The meteorological system was back in operation beginning March 7 at 1800 MST, except the automatic rain gauge was not operational until March 8 at 1500 MST.

In the past, the automatic rain gauge had experienced problems with drifting snow during winter months because snow often accumulated to depths exceeding the gauge and wind screen height. To prevent this problem in the future the relocated rain gauge was installed several feet above ground level as shown in Figure 4.

Figure 4. Photo of Rain Gauge at New Location



Steve Heck of Bison conducted a startup audit/calibration of the meteorological system on March 7, 2018. It was necessary to re-establish the orientation of the wind direction sensor with respect to true north when it was mounted on the tower. Otherwise, no adjustments were made to any of the meteorological instruments; they were left in their as-found condition. The same instruments used at the original monitoring location are being used at the new tower location. The Bison report of the startup audit/calibration is presented in Appendix B.

The evaporation pan was not operated during the first quarter of 2018 due to deep snow cover and persistent subfreezing temperatures.

3.0 PERFORMANCE AUDIT DATA

Steve Heck of Bison conducted a startup audit/calibration of the meteorological system on March 7 and 8, 2018, as discussed in Section 3.0; results are documented in Appendix B. No adjustments were made to any of the instruments, other than establishing the correct orientation of the wind sensor crossarm at the new tower location; the results presented herein represent the as-found condition of the instruments. The Bison report of the audit/calibration is presented in Appendix B.

The next audit was performed on May 22, 2018, and will be documented in the second quarter monitoring report, scheduled for submittal in July 2018.

4.0 CALIBRATION DATA

As discussed in Section 3.0, the as-found condition of the monitoring instruments was checked on March 7-8, 2018. It was necessary to re-establish the north-south orientation of the wind sensor crossarm after the tower was re-assembled in its new location. Otherwise, no adjustments were made to any of the monitoring instruments.

5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the first quarter of 2018 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 11.0 percent for precipitation and 52.9 percent for all other parameters at the site. Several factors contributed to data losses during the first quarter of 2018:

- In late December 2017 the automatic rain gauge was drifted over by heavy snow and wind. These conditions persisted through January and February 2018. All precipitation data collected from January 1 onward (until the gauge was relocated on March 8) were invalidated due to the drifting problem.
- Because of tower relocation activities, no data were collected from February 6, 2018, at 1500 MST through March 7, 2018, at 1600 MST.
- At the original tower site data were remotely downloaded via a phone modem that was hardwired to the main core shed building. However, the new tower is located approximately 500 feet from the phone connection of that building and Bison was advised that this was too great a distance to communicate over a phone modem cable. In response, Bison procured the necessary equipment to establish cellular modem communications at the new tower and made plans to install the equipment in conjunction with the Quarter 2, 2018 audit.
- On May 22, 2018 Jeff Bell of Bison performed the second quarter audit and downloaded the meteorological data. During subsequent review, it was discovered that the battery charging system ran properly until March 11, when the 12-volt battery that supplies power to the datalogger and meteorological instruments failed to recharge. The battery continued to slowly degrade, until the station stopped functioning beginning on March 18 at 1400 MST. No additional data were collected during the first quarter of 2018.
- On May 9, 2018, brief, intermittent periods of data collection resumed for unknown reasons. By coincidence the system was working at the time of the May 22 audit, so the problem was not detected until the downloaded data file was examined on May 24. I.e. there was no indication of a power problem at the time of the audit, so it was not investigated.
- The reason for this problem is currently under investigation. It may have been caused by loss of AC power, failure of the battery charging equipment or some combination of both.

- The new cellular modem system was also installed on May 22, but successful communications were not established at that time (although a marginal signal was detected). The system includes a directional antenna that was installed near the top of the 10-meter tower; it likely needs to be reoriented to obtain a better signal. This could not be accomplished at the time of the audit due to imminent rain and lightning activity that would have created unsafe working conditions. SRA personnel will attempt to reorient the antenna in the near future, as the modem itself includes an LED that will indicate when a satisfactory connection has been established.

Table 1. Monthly Data Completeness

January 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	741	99.6	0	99.6
Standard Deviation	744	741	99.6	0	99.6
Temperature 9 Meters	744	744	100.0	0	100.0
Temperature 2 Meters	744	744	100.0	0	100.0
Temperature Delta T	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
Total	7,440	6,690	89.9	0	90.0

Table 1. Monthly Data Completeness (Continued)

February 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	672	134	19.9	0	19.9
Wind Direction	672	134	19.9	0	19.9
Standard Deviation	672	134	19.9	0	19.9
Temperature 9 Meters	672	134	19.9	0	19.9
Temperature 2 Meters	672	134	19.9	0	19.9
Temperature Delta T	672	134	19.9	0	19.9
Solar Radiation	672	134	19.9	0	19.9
Barometric Pressure	672	134	19.9	0	19.9
Relative Humidity	672	134	19.9	0	19.9
Precipitation	672	0	0.0	0	0.0
Total	6,720	1,206	17.9	0	17.9

Table 1. Monthly Data Completeness (Continued)

March 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	259	34.8	5	35.5
Wind Direction	744	259	34.8	5	35.5
Standard Deviation	744	259	34.8	5	35.5
Temperature 9 Meters	744	259	34.8	5	35.5
Temperature 2 Meters	744	259	34.8	5	35.5
Temperature Delta T	744	259	34.8	5	35.5
Solar Radiation	744	259	34.8	5	35.5
Barometric Pressure	744	259	34.8	5	35.5
Relative Humidity	744	259	34.8	5	35.5
Precipitation	744	237	31.9	2	32.1
Total	7,440	2,568	34.5	47	35.1

Table 2. Quarterly Data Completeness

First Quarter 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,160	1,137	52.6	5	52.9
Wind Direction	2,160	1,134	52.5	5	52.7
Standard Deviation	2,160	1,134	52.5	5	52.7
Temperature 9 Meters	2,160	1,137	52.6	5	52.9
Temperature 2 Meters	2,160	1,137	52.6	5	52.9
Temperature Delta T	2,160	1,137	52.6	5	52.9
Solar Radiation	2,160	1,137	52.6	5	52.9
Barometric Pressure	2,160	1,137	52.6	5	52.9
Relative Humidity	2,160	1,137	52.6	5	52.9
Precipitation	2,160	237	11.0	2	11.1
Total	21,600	10,464	48.4	47	48.7

6.0 MONITORING DATA

The hourly data values collected at the monitoring site are given in the data tables in Appendix A. Each of these tables presents data for one month 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 5 through 8. In the wind rose figures, the length of each “petal” of the rose is proportional to the percentage of time the wind blew from that direction. On the bottom of each figure is a histogram showing the average wind speed from each of the cardinal wind directions.

Table 3. Missing Data Codes

Mnemonic Code	Description	Equivalent EPA Null Value Reason Code
Sc	Scheduled but not collected	9972
Ti	Sample time out of limits	9973
Fi	Filter damage	9976
Op	Voided by operator	9978
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 2018																		
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	2.8	0.7	3.1	2.7	2.0	2.8	6.7	6.5	2.0	1.2	0.3	0.3	0.5	0.7	1.1	1.7	35.1
	1.1 - 2.0	0.5	0.8	0.5	2.2	2.6	3.4	4.2	1.5	1.6	0.4	0.7	0.3	0.8	0.4	0.8	0.8	21.4
	2.1 - 3.0	0.0	0.0	0.0	0.1	0.8	2.3	2.4	0.5	0.4	0.1	0.3	1.1	1.7	1.1	1.2	0.1	12.2
	3.1 - 4.0	0.1	0.0	0.0	0.1	0.7	1.3	0.9	1.3	0.5	0.3	0.3	0.5	2.6	2.0	0.8	0.1	11.7
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.8	0.3	0.1	0.4	2.7	1.2	0.3	0.1	6.3
	5.1 - 6.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.4	0.1	0.3	1.6	0.8	0.1	0.0	4.3
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.1	0.3	1.5	0.5	0.0	0.0	3.5
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3	0.3	0.1	0.8	0.4	0.0	0.0	2.3
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.0	0.7
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.5	0.1	0.0	0.0	1.5
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.5	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	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	3.6	1.5	3.6	5.1	6.2	9.8	14.5	11.0	6.0	4.2	2.3	3.5	13.4	7.9	4.3	3.0		100.0
Average Speed	1.1	1.0	0.8	1.1	1.7	1.7	1.5	1.8	2.4	4.5	3.7	3.9	4.7	4.5	2.2	1.3		2.5

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

February 2018																		
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	2.2	1.5	3.0	5.2	1.5	3.0	3.0	1.5	1.5	0.0	0.7	1.5	1.5	2.2	6.0	3.0	37.3
	1.1 - 2.0	0.7	0.0	0.0	0.7	3.0	0.7	1.5	1.5	0.0	0.0	0.7	1.5	0.7	0.7	2.2	1.5	15.7
	2.1 - 3.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	2.2	3.0	2.2	0.7	10.4
	3.1 - 4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	5.2	1.5	0.7	0.0	8.2
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.7	4.5	0.0	0.0	11.2
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	4.5	1.5	0.0	0.0	6.7
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.7	0.7	0.0	4.5
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.7	0.0	0.0	2.2
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.0	0.0	0.0	3.7
	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	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	3.0	1.5	3.0	6.7	4.5	3.7	4.5	3.0	1.5	0.0	1.5	9.0	23.1	17.9	11.9	5.2	100.0	
Average Speed	0.7	0.8	0.8	0.9	1.2	1.0	0.9	1.1	0.8	---	0.9	3.2	4.6	4.4	1.7	1.2	2.7	

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

March 2018																		
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	1.2	1.9	0.0	1.9	3.9	3.5	1.9	0.8	0.4	0.0	0.8	0.0	1.2	0.0	0.4	17.8
	1.1 - 2.0	0.4	0.8	0.8	1.5	3.5	8.9	8.9	5.4	1.5	0.8	0.4	0.4	1.9	1.2	0.8	0.4	37.5
	2.1 - 3.0	0.0	0.4	0.0	0.8	1.5	1.5	2.7	3.1	0.0	0.0	0.8	0.4	1.2	1.2	0.0	0.0	13.5
	3.1 - 4.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	4.2	1.9	0.4	0.8	1.5	3.1	0.4	0.4	0.0	13.9
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.4	0.8	0.0	0.4	0.8	1.5	0.0	0.0	5.0
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	1.2	0.0	1.5	0.8	0.0	0.0	0.0	5.0
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.8	0.4	0.4	0.0	0.0	3.5
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.4	0.0	0.0	0.0	2.3
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.8	0.4	0.0	0.0	1.5
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																	0.0	
Total	0.4	2.3	2.7	2.3	6.9	14.7	16.2	16.2	5.4	3.5	4.2	7.7	9.3	6.2	1.2	0.8	100.0	
Average Speed	1.1	1.2	1.0	1.8	1.5	1.5	1.6	2.5	2.9	3.7	4.9	4.8	4.0	3.2	2.1	0.9	2.6	

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

First Quarter 2018																		
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	2.1	0.9	2.8	2.4	1.9	3.1	5.5	4.8	1.7	0.9	0.3	0.5	0.5	1.0	1.4	1.6	31.4
	1.1 - 2.0	0.5	0.7	0.5	1.8	2.8	4.3	4.9	2.4	1.4	0.4	0.6	0.4	1.1	0.6	1.0	0.8	24.4
	2.1 - 3.0	0.0	0.1	0.0	0.4	0.9	1.8	2.2	1.1	0.3	0.1	0.4	1.0	1.7	1.3	1.1	0.2	12.3
	3.1 - 4.0	0.1	0.0	0.0	0.1	0.4	1.0	0.8	1.8	0.8	0.3	0.4	0.8	3.0	1.6	0.7	0.1	11.8
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.2	0.6	0.4	0.1	0.7	2.4	1.7	0.2	0.1	6.6
	5.1 - 6.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.5	0.1	0.6	1.8	0.7	0.1	0.0	4.7
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.5	0.4	1.4	0.5	0.1	0.0	3.6
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.5	0.8	0.4	0.0	0.0	2.3
	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	0.1	0.5	0.5	0.0	0.0	1.2
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.4	0.1	0.0	0.0	1.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.4	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	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.8	1.7	3.3	4.7	6.2	10.2	13.7	11.3	5.4	3.5	2.6	5.1	13.6	8.7	4.5	2.7		100.0
Average Speed	1.0	1.1	0.9	1.2	1.6	1.6	1.5	2.0	2.5	4.3	4.0	4.1	4.6	4.3	2.1	1.2		2.5

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

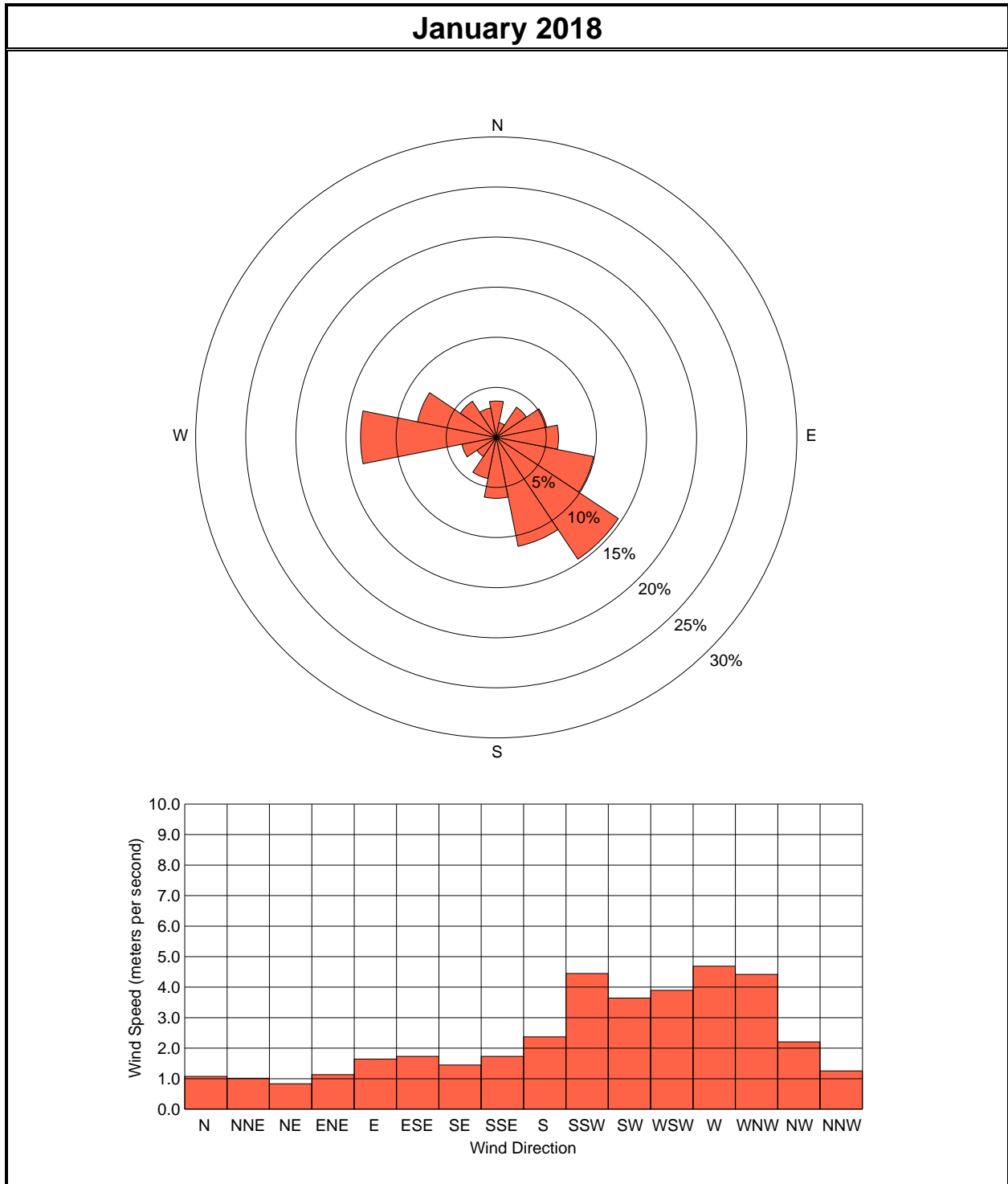


Figure 6. Monthly Wind Rose, Black Butte Copper Project Met Tower

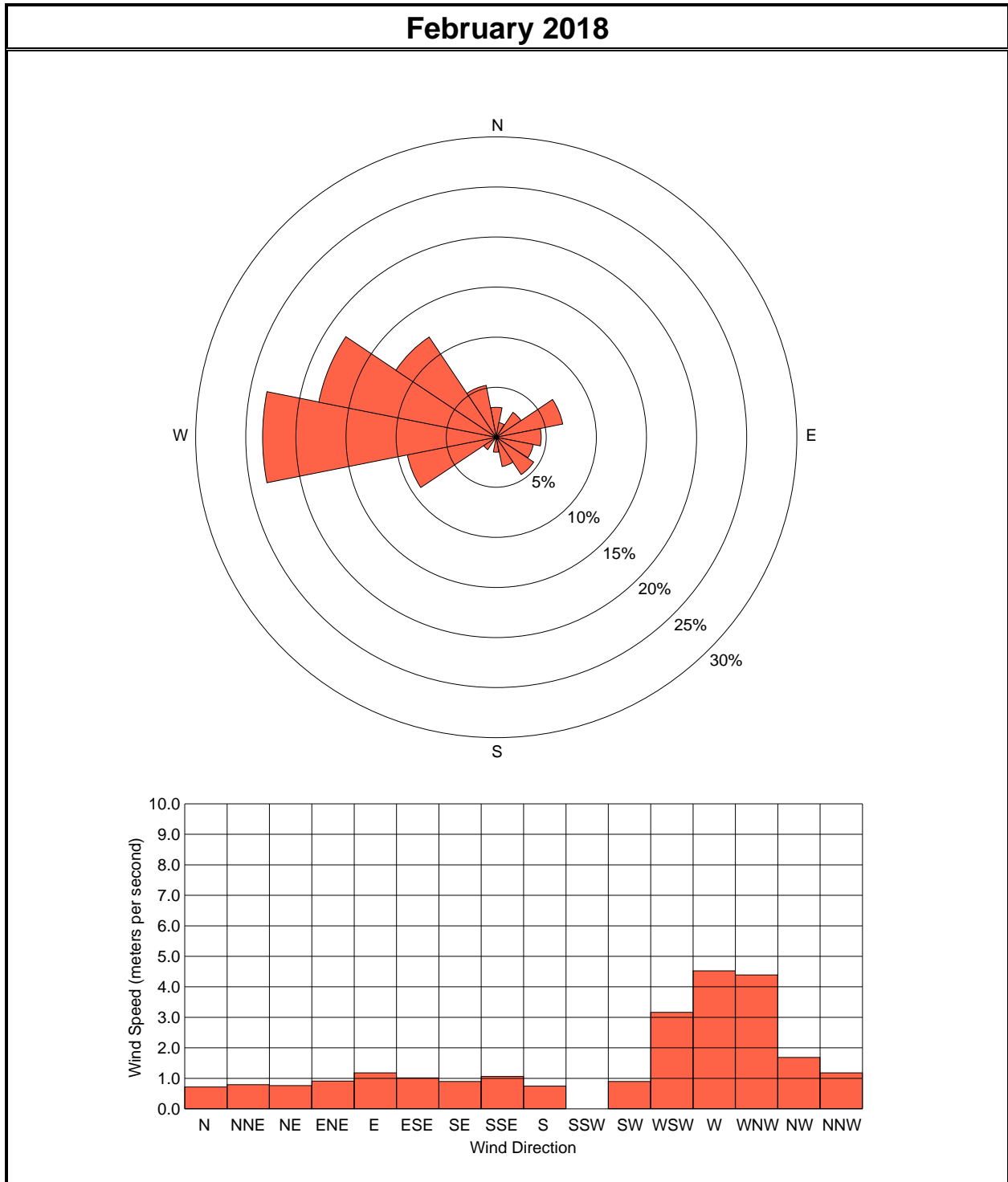


Figure 7. Monthly Wind Rose, Black Butte Copper Project Met Tower

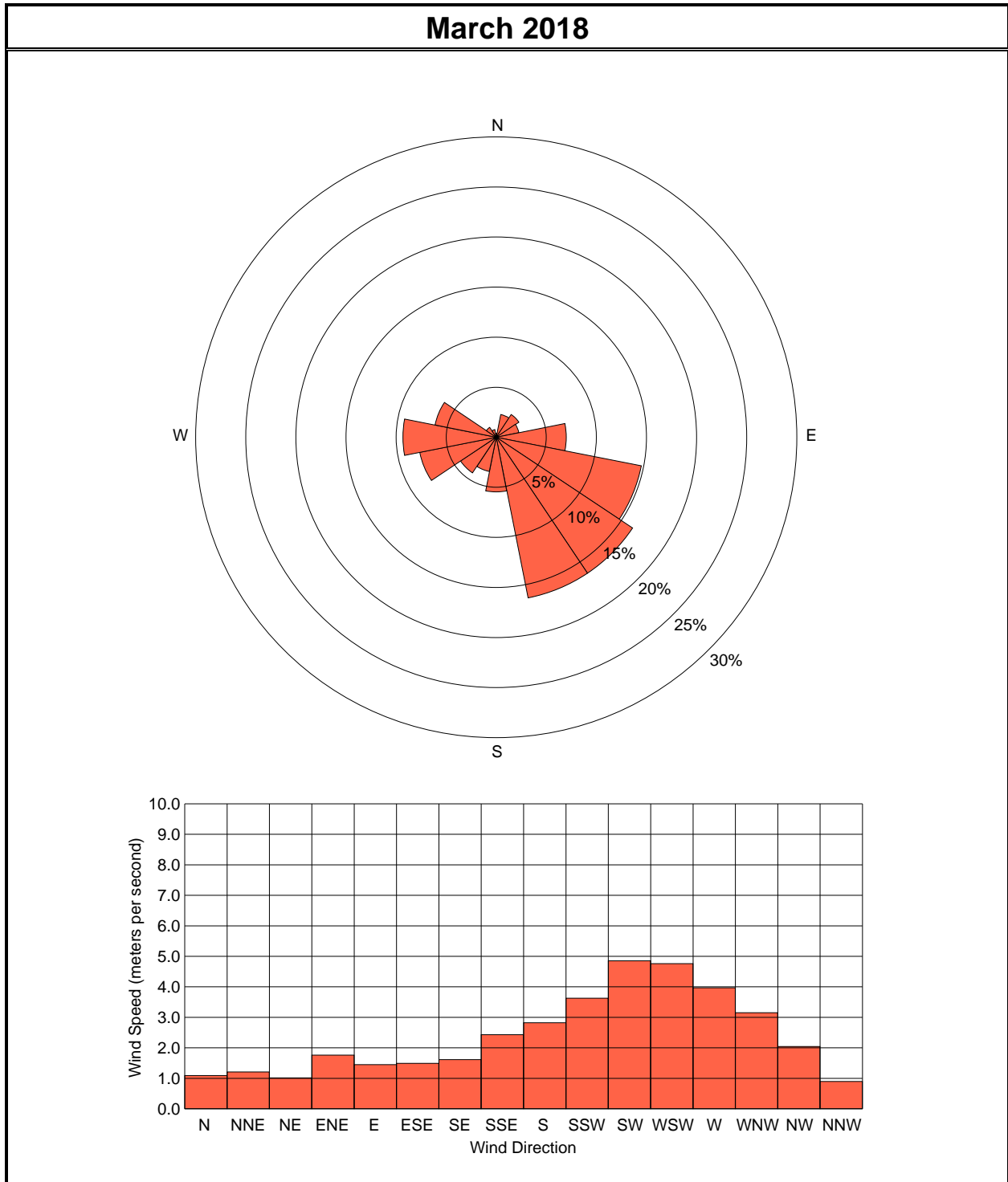
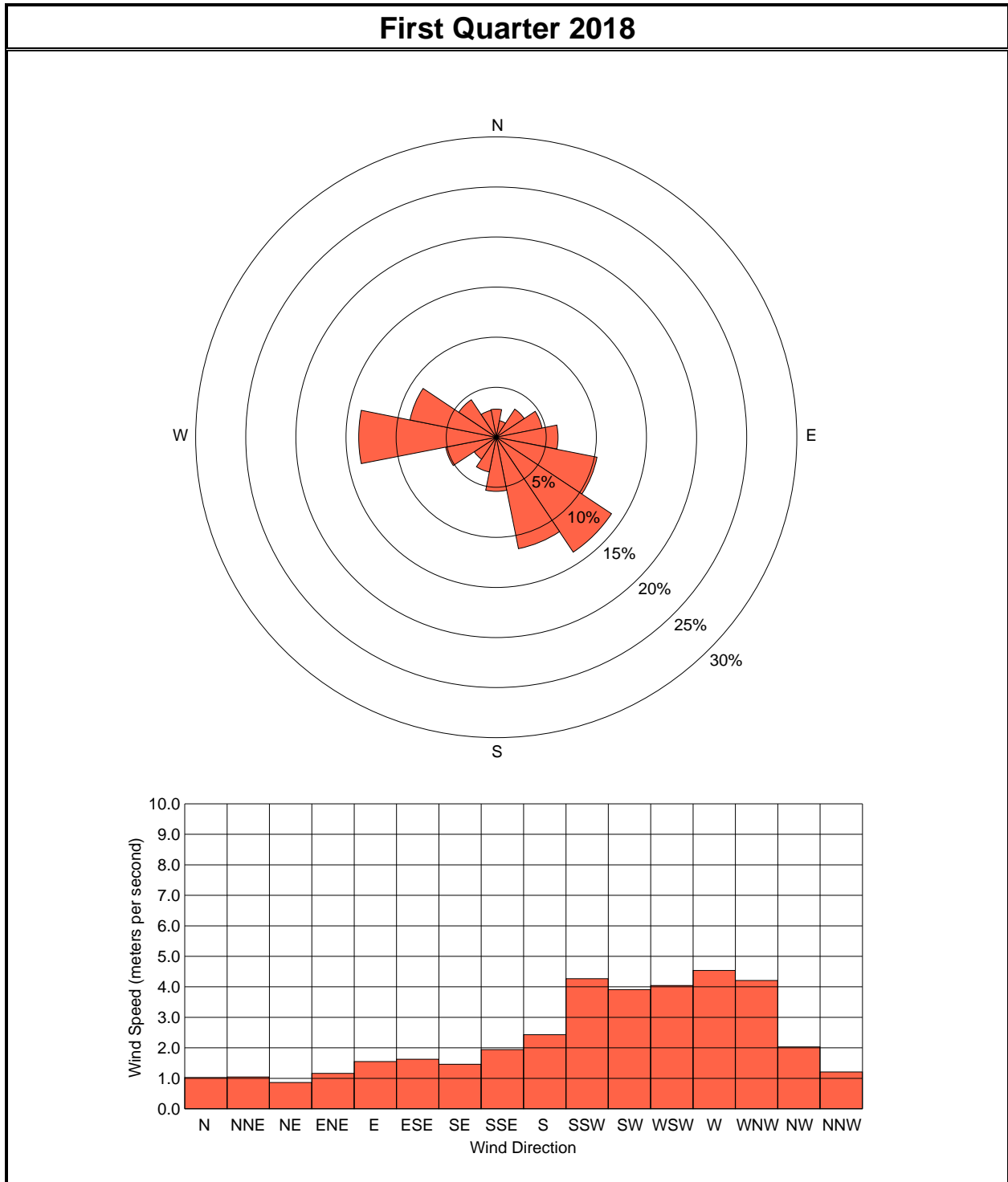


Figure 8. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, FIRST QUARTER 2018**

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
January 2018

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	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.3	1.1	1.3	1.0	1.1	0.9	1.4	1.1	0.9	0.9	0.9	0.7	0.6	0.7	1.4	0.3
2	0.6	0.5	0.5	0.6	0.5	0.5	0.6	0.7	0.5	0.6	0.6	0.4	0.5	0.6	0.7	0.7	1.1	1.3	1.1	1.4	1.5	1.4	1.0	1.1	0.8	1.5	0.4
3	1.1	0.8	0.6	0.4	0.5	0.4	0.9	0.6	0.6	0.7	0.5	0.7	0.6	0.5	1.7	1.2	1.0	0.9	0.7	0.8	0.9	0.8	0.7	0.4	0.7	1.7	0.4
4	0.4	0.4	0.3	0.4	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.5	0.4	0.8	0.7	0.8	0.8	0.8	0.6	0.5	0.6	0.5	0.8	0.2
5	0.8	1.1	0.4	0.6	0.5	0.7	0.8	0.5	1.0	0.7	1.0	0.8	0.7	1.0	1.1	0.7	0.8	1.3	1.3	0.7	0.9	0.9	1.3	1.1	0.9	1.3	0.4
6	0.9	1.2	1.5	0.7	0.9	1.0	0.9	0.6	0.9	3.3	6.3	10.0	8.5	8.1	8.8	6.6	5.7	5.3	3.3	2.9	0.9	0.8	0.7	1.0	3.4	10.0	0.6
7	2.2	3.8	2.9	3.7	5.1	3.0	2.6	3.4	4.7	3.2	6.0	7.9	7.5	9.6	5.7	3.9	2.5	2.4	1.8	1.5	2.4	1.7	1.3	1.5	3.8	9.6	1.3
8	1.5	1.4	1.6	1.9	1.4	1.6	1.9	1.5	1.7	1.5	1.6	1.2	1.5	4.6	3.7	3.3	2.9	3.1	3.4	2.8	2.4	3.3	2.9	2.9	2.3	4.6	1.2
9	2.6	1.8	2.3	1.4	1.7	2.6	3.2	2.9	3.4	7.4	5.5	5.1	6.9	4.7	4.5	2.0	3.7	3.0	2.3	2.9	3.2	1.4	1.2	2.0	3.2	7.4	1.2
10	2.9	3.2	4.0	4.7	3.7	4.2	2.1	2.4	3.6	3.7	3.0	3.5	2.6	0.7	2.1	1.4	1.0	0.9	1.1	0.9	1.0	0.6	0.7	0.7	2.3	4.7	0.6
11	0.7	0.7	0.9	0.7	0.8	1.9	1.3	0.5	1.0	0.8	0.8	1.1	1.2	3.0	3.9	3.2	2.4	2.2	2.2	2.3	2.4	2.0	2.0	1.8	1.7	3.9	0.5
12	0.9	0.8	1.7	2.4	2.5	0.8	0.9	0.5	0.8	0.9	1.2	1.8	4.4	3.1	3.1	3.4	4.3	2.1	2.8	4.5	3.5	4.5	3.8	1.5	2.3	4.5	0.5
13	1.2	1.9	5.0	4.9	5.9	5.8	5.7	4.2	4.9	6.8	6.3	7.3	6.1	7.1	7.4	6.2	4.3	2.2	1.7	1.4	1.0	1.1	0.8	0.6	4.2	7.4	0.6
14	0.6	0.4	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.6	2.3	3.6	4.7	4.8	2.7	3.4	3.2	5.7	4.0	3.2	3.1	1.9	5.7	0.3
15	3.7	4.2	2.7	1.4	1.7	1.3	1.9	1.7	1.2	1.1	0.8	0.7	0.7	0.8	0.6	0.5	0.5	1.7	1.1	1.1	0.8	0.8	0.5	0.3	1.3	4.2	0.3
16	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.7	0.6	0.6	0.5	0.6	0.5	0.9	0.8	1.1	1.1	1.4	1.6	1.5	1.3	1.2	1.2	0.8	0.8	1.6	0.3
17	0.6	0.8	0.6	0.9	0.9	0.7	0.8	0.6	0.7	0.5	0.6	0.4	0.5	3.2	4.4	3.2	1.9	2.5	2.9	1.5	1.3	1.4	1.6	2.8	1.5	4.4	0.4
18	2.0	2.6	3.9	3.2	2.6	3.4	3.8	3.7	1.8	2.6	3.7	7.9	9.9	10.0	9.1	9.9	6.3	3.4	4.6	2.5	0.8	1.2	1.4	0.3	4.2	10.0	0.3
19	0.6	1.0	0.6	0.8	0.3	0.5	0.5	0.3	0.7	0.6	0.5	0.2	1.7	2.6	2.6	3.8	3.9	3.4	3.6	1.7	1.6	2.4	1.8	1.6	1.6	3.9	0.2
20	0.9	1.7	0.9	1.0	1.3	0.9	0.6	0.5	0.4	0.4	0.4	1.0	1.8	4.9	3.8	3.2	3.3	1.4	2.4	1.3	1.0	0.9	0.7	0.6	1.5	4.9	0.4
21	0.7	0.6	0.5	0.7	0.7	0.4	0.5	0.4	0.4	0.5	0.4	0.8	0.8	1.1	0.9	1.4	0.7	1.5	2.1	2.4	2.4	2.7	2.2	2.5	1.1	2.7	0.4
22	1.6	1.1	1.3	1.5	2.2	1.4	1.2	1.2	1.3	1.2	0.8	1.0	3.1	2.3	1.9	2.7	1.4	3.6	2.6	1.9	1.7	1.6	1.3	1.2	1.7	3.6	0.8
23	1.6	3.7	2.3	2.2	1.5	1.3	1.6	1.8	1.4	0.7	0.9	2.5	6.0	6.8	4.4	2.1	2.3	2.7	3.3	3.5	3.4	2.9	2.5	1.8	2.6	6.8	0.7
24	3.8	3.6	3.9	1.3	5.1	3.8	3.9	5.7	4.8	3.2	3.4	3.1	5.1	4.9	6.8	4.9	3.3	3.6	7.6	10.3	10.3	9.6	6.4	4.8	5.1	10.3	1.3
25	2.9	3.8	2.6	1.9	2.5	5.3	5.2	7.2	7.0	6.2	7.6	6.7	3.2	4.4	4.7	5.8	3.3	3.8	3.4	2.3	3.9	2.7	2.2	2.2	4.2	7.6	1.9
26	1.8	1.8	1.5	4.2	5.2	4.9	5.4	4.1	3.5	1.4	1.4	4.3	6.1	6.0	6.4	5.8	5.2	7.6	4.6	4.3	6.1	6.2	4.4	3.8	4.4	7.6	1.4
27	4.5	4.0	2.5	1.8	2.2	1.0	1.2	0.6	1.1	1.0	0.6	1.2	4.4	4.9	4.0	4.7	4.0	2.4	1.3	2.1	2.7	1.5	1.0	4.6	2.5	4.9	0.6
28	5.9	6.7	6.5	7.8	8.4	5.1	4.1	2.0	0.9	1.0	1.7	1.4	2.1	3.8	3.0	1.0	0.5	0.6	1.2	1.0	0.8	1.0	0.7	0.7	2.8	8.4	0.5
29	1.5	1.0	2.0	1.5	1.3	1.3	1.4	0.9	0.9	0.9	0.9	0.7	1.1	1.4	2.0	2.5	3.8	2.9	2.4	3.7	3.0	3.9	5.9	6.6	2.2	6.6	0.7
30	5.2	6.3	7.8	5.7	7.2	5.1	7.5	10.4	9.1	9.9	9.8	10.8	10.3	10.9	10.5	9.6	10.8	7.0	6.3	3.9	2.5	3.2	2.6	3.5	7.3	10.9	2.5
31	3.6	2.6	1.5	4.3	4.7	4.6	4.8	5.4	6.4	4.3	4.9	6.4	7.2	8.0	8.4	5.9	5.6	2.3	1.4	1.1	1.4	1.0	0.5	0.6	4.0	8.4	0.5
Avg	1.9	2.1	2.1	2.1	2.4	2.1	2.2	2.1	2.1	2.2	2.3	2.9	3.4	4.0	3.9	3.4	3.0	2.6	2.6	2.4	2.3	2.2	1.9	1.9	2.5	5.5	0.7
Max	5.9	6.7	7.8	7.8	8.4	5.8	7.5	10.4	9.1	9.9	9.8	10.8	10.3	10.9	10.5	9.9	10.8	7.6	7.6	10.3	10.3	9.6	6.4	6.6	7.3	10.9	2.5
Min	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.5	0.4	0.5	0.6	0.7	0.7	0.8	0.6	0.5	0.3	0.5	0.8	0.2

A-1

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
February 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0.8	1.1	1.5	0.8	0.6	0.5	0.6	0.6	0.8	0.8	1.1	0.9	1.2	3.0	2.0	1.2	0.7	1.1	1.6	3.3	3.3	4.3	2.5	1.6	1.5	4.3	0.5
2	1.9	2.1	1.7	1.6	1.0	1.7	0.9	0.8	0.5	1.2	1.0	4.2	4.4	4.8	6.6	4.0	1.9	0.8	2.7	6.4	7.5	5.4	5.8	6.4	3.1	7.5	0.5
3	8.7	8.1	8.1	8.1	7.5	5.7	6.0	6.6	8.3	6.2	5.9	4.9	3.7	4.0	4.5	4.5	3.3	3.8	3.0	3.3	4.0	6.6	4.6	3.9	5.6	8.7	3.0
4	3.6	2.2	0.6	1.1	0.8	1.0	0.7	0.6	0.6	0.7	0.6	0.4	0.7	0.9	0.9	0.7	0.7	0.6	0.5	0.9	4.4	5.8	5.8	7.8	1.8	7.8	0.4
5	5.1	4.1	4.6	2.9	2.2	2.2	1.6	0.7	2.2	2.2	1.5	1.2	0.9	2.9	2.7	0.9	0.5	1.6	1.2	0.7	0.8	0.5	1.0	0.7	1.9	5.1	0.5
6	0.6	0.8	0.5	0.6	0.8	0.7	0.5	0.9	2.7	4.5	4.5	5.3	5.0	4.4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	2.3	5.3	0.5
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
Avg	3.4	3.1	2.8	2.5	2.2	2.0	1.7	1.7	2.5	2.6	2.4	2.8	2.6	3.3	3.3	2.3	1.4	1.6	1.8	2.9	4.0	4.5	3.9	4.1	2.7	6.4	0.9
Max	8.7	8.1	8.1	8.1	7.5	5.7	6.0	6.6	8.3	6.2	5.9	5.3	5.0	4.8	6.6	4.5	3.3	3.8	3.0	6.4	7.5	6.6	5.8	7.8	5.6	8.7	3.0
Min	0.6	0.8	0.5	0.6	0.6	0.5	0.5	0.6	0.5	0.7	0.6	0.4	0.7	0.9	0.9	0.7	0.5	0.6	0.5	0.7	0.8	0.5	1.0	0.7	1.5	4.3	0.4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	Ca	Ca	Ca	0.9	0.8	1.6	1.3	1.2	0.8	1.1	1.1	1.6	0.8	
8	1.1	1.3	1.3	1.6	2.4	2.7	2.3	1.8	2.2	3.7	3.7	3.8	5.3	5.5	6.1	7.1	6.2	3.9	4.6	6.3	3.5	1.9	1.1	1.0	3.4	7.1	1.0	
9	1.1	5.1	4.9	3.1	6.6	6.4	5.7	5.4	7.3	8.5	7.7	7.4	7.8	7.0	7.0	5.3	8.9	8.6	7.4	8.2	6.1	4.4	4.2	4.3	6.2	8.9	1.1	
10	3.6	4.3	3.0	1.1	1.0	0.8	1.1	1.4	0.6	0.9	1.2	3.6	2.6	0.9	3.2	2.4	2.6	1.0	1.3	1.3	1.9	2.1	1.9	1.6	1.9	4.3	0.6	
11	1.8	1.5	1.3	1.3	1.1	1.0	1.1	0.8	0.5	0.5	0.7	0.9	0.7	1.2	1.8	2.0	1.3	1.3	1.1	0.9	0.8	0.8	0.9	0.9	1.1	2.0	0.5	
12	0.7	0.9	0.8	0.5	0.7	1.0	1.0	1.0	1.2	0.6	0.7	0.8	3.5	3.5	3.7	3.8	3.1	1.6	1.0	2.8	2.1	1.6	1.6	1.1	1.6	3.8	0.5	
13	1.9	1.0	1.6	1.7	1.9	2.0	1.6	1.9	1.2	0.7	0.5	1.8	4.0	3.5	4.5	3.9	3.3	2.1	2.2	3.9	2.0	2.2	1.4	1.7	2.2	4.5	0.5	
14	2.1	1.3	1.4	1.2	1.3	1.2	1.5	1.4	1.3	0.7	1.3	3.8	5.7	3.9	5.8	4.9	4.4	2.1	1.4	0.8	1.7	1.3	1.2	2.1	2.2	5.8	0.7	
15	1.8	1.8	2.6	2.5	2.4	3.6	0.9	2.4	3.5	4.7	5.1	4.6	4.9	6.1	5.8	5.3	3.9	4.0	1.9	1.8	2.0	1.3	1.9	1.4	3.2	6.1	0.9	
16	1.5	0.7	1.7	1.6	1.2	1.1	1.1	1.2	0.7	0.8	1.0	1.4	3.1	1.8	3.3	2.1	3.3	2.3	0.9	1.1	1.8	1.3	1.3	2.4	1.6	3.3	0.7	
17	2.2	1.7	1.7	2.2	1.5	1.3	1.1	0.8	1.1	1.1	1.9	3.9	4.9	5.1	5.7	3.4	3.0	3.7	3.8	3.7	2.8	2.0	2.6	1.4	2.6	5.7	0.8	
18	3.0	1.8	1.1	2.1	2.7	2.7	2.2	3.2	Pw	4.0	3.2	1.3	2.3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	2.5	4.0	1.1	
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	1.9	1.9	1.9	1.7	2.1	2.2	1.8	1.9	2.0	2.4	2.5	3.0	4.1	3.9	4.7	4.0	4.0	2.9	2.4	2.9	2.4	1.8	1.7	1.7	2.6	4.8	0.8	
Max	3.6	5.1	4.9	3.1	6.6	6.4	5.7	5.4	7.3	8.5	7.7	7.4	7.8	7.0	7.0	7.1	8.9	8.6	7.4	8.2	6.1	4.4	4.2	4.3	6.2	8.9	1.1	
Min	0.7	0.7	0.8	0.5	0.7	0.8	0.9	0.8	0.5	0.5	0.5	0.8	0.7	0.9	1.8	2.0	1.3	0.9	0.8	0.8	0.8	0.8	0.9	1.1	1.6	0.5		

A-3

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
January 2018

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	158	55	163	125	198	136	133	43	344	144	193	95	321	314	11	139	131	111	75	29	348	352	9	17	81
2	45	61	358	56	2	340	53	68	61	164	173	54	84	54	291	314	87	25	25	39	61	78	62	131	51
3	139	163	156	164	139	140	147	127	148	158	262	71	42	315	332	320	109	204	85	111	154	108	138	187	139
4	165	162	185	163	163	139	150	171	162	172	165	165	113	155	150	244	164	125	142	130	137	137	169	174	157
5	19	132	138	88	105	91	160	172	124	153	120	101	145	119	112	99	147	90	102	115	203	126	138	147	124
6	203	1	100	84	166	158	133	325	257	272	279	256	257	261	270	268	270	298	310	292	144	67	114	352	263
7	271	271	267	284	291	281	263	270	261	259	269	271	284	281	276	261	287	266	188	155	107	125	120	128	258
8	150	179	133	135	120	123	133	87	107	147	198	122	177	237	141	132	109	103	116	137	144	126	133	133	136
9	125	143	143	115	78	107	108	110	154	148	154	192	189	169	143	192	195	191	153	168	161	310	101	187	151
10	283	276	259	263	258	280	241	269	272	287	278	300	309	297	346	335	343	296	103	303	156	207	146	99	280
11	141	76	126	54	41	55	13	329	117	221	329	155	109	139	144	141	110	99	102	98	94	99	96	103	100
12	148	320	309	318	312	35	333	18	4	45	328	339	287	321	306	297	289	311	290	285	295	274	291	291	316
13	342	281	283	297	289	290	279	276	274	266	269	269	273	282	282	284	290	320	353	89	168	75	50	144	290
14	168	215	35	135	134	54	102	171	106	157	196	113	349	326	315	315	315	313	303	292	2	356	329	288	338
15	309	329	292	278	359	72	92	105	105	152	153	77	132	338	344	57	111	138	170	171	181	164	176	135	120
16	141	139	132	140	158	124	166	143	167	167	155	192	354	325	308	269	172	73	77	107	69	68	77	123	130
17	187	101	108	72	54	132	130	154	144	154	161	183	146	148	144	123	129	135	111	137	101	105	143	114	130
18	136	118	93	104	89	98	101	97	96	103	69	217	212	214	204	200	206	230	280	289	315	133	206	198	156
19	319	268	299	281	355	Wx	Wx	Wx	349	8	351	264	287	254	257	268	271	282	268	269	147	94	69	110	295
20	41	137	328	68	148	173	141	141	61	113	111	124	237	245	257	265	263	304	106	74	50	62	90	10	105
21	125	137	154	164	140	129	111	164	101	117	183	90	360	352	146	136	165	107	120	120	126	135	142	128	129
22	125	141	20	100	85	67	57	99	154	148	35	63	170	174	223	254	233	280	275	222	115	134	108	131	130
23	173	265	270	249	217	275	191	137	126	16	77	270	266	260	263	228	149	108	99	113	123	138	132	141	182
24	154	151	151	175	159	116	164	166	180	129	176	155	171	183	190	177	148	140	180	192	194	201	168	93	164
25	109	219	209	172	162	167	161	158	161	172	205	204	200	187	216	269	291	268	286	310	307	311	124	105	202
26	91	90	79	260	283	270	275	273	253	216	288	252	252	243	250	262	266	264	265	293	277	290	285	290	267
27	275	285	237	157	146	161	142	360	172	91	338	104	207	192	181	173	176	190	137	285	255	341	328	269	201
28	264	268	276	279	285	292	260	275	45	352	112	142	277	298	270	132	162	163	120	126	74	48	330	141	257
29	52	42	57	91	146	109	20	59	89	106	352	35	140	19	111	70	149	107	136	102	125	112	196	216	93
30	224	207	213	212	218	247	248	274	281	279	277	280	293	294	295	286	297	282	268	274	233	273	255	256	262
31	267	276	244	269	276	283	274	271	279	273	280	283	275	277	261	267	310	286	96	83	54	62	68	66	286
Prev	155	175	181	152	152	126	145	140	135	159	211	164	236	262	247	241	195	209	125	136	130	98	119	138	163

A-4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
February 2018

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	75	84	101	73	77	171	73	70	115	136	11	298	306	294	316	347	227	228	252	307	274	275	261	256	316
2	85	69	72	121	117	97	32	312	96	130	121	292	268	258	267	252	267	307	251	268	271	266	278	281	272
3	284	293	292	281	279	271	271	272	289	299	258	263	301	278	264	265	269	272	265	265	274	324	297	284	279
4	261	263	263	144	156	178	322	126	321	133	73	310	29	42	56	120	11	296	82	315	286	279	299	297	321
5	291	300	248	294	291	258	290	300	314	314	325	327	340	320	329	335	64	148	157	275	254	322	136	150	298
6	42	307	7	1	238	53	335	340	298	292	292	261	250	256	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	312
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
Prev	350	318	321	43	203	180	335	328	324	214	345	292	306	293	310	300	292	261	225	286	272	293	274	266	293

A-5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	Ca	Ca	Ca	111	43	93	88	114	27	119	87
8	135	142	135	127	101	98	106	130	135	193	180	154	194	208	229	238	236	216	208	219	161	123	156	108	163
9	76	202	198	253	230	234	254	240	249	231	241	239	240	246	273	274	281	287	278	271	290	286	282	297	256
10	301	294	300	210	198	303	339	140	29	36	303	311	302	256	261	269	262	156	118	119	116	101	107	146	263
11	130	135	133	117	135	113	122	109	141	150	143	145	335	319	279	282	242	225	188	83	13	117	127	113	136
12	34	136	132	99	98	88	51	55	139	141	106	165	272	269	274	261	257	261	145	84	103	117	129	83	120
13	123	116	111	114	120	112	147	144	160	132	152	122	180	171	159	164	152	158	138	107	134	131	148	150	139
14	140	142	157	156	155	170	153	162	162	183	107	149	153	154	187	152	145	161	310	238	104	24	178	152	156
15	277	117	253	217	32	248	302	282	260	271	280	264	256	257	251	250	260	265	284	259	75	178	83	81	261
16	98	282	66	114	149	86	106	154	116	148	170	29	177	200	253	147	159	230	98	106	128	142	125	108	134
17	72	137	56	73	67	89	131	120	11	50	280	231	177	171	161	171	167	157	164	158	159	105	162	156	134
18	144	146	129	115	135	168	133	136	Pw	149	138	101	266	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	140
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Prev	107	149	134	137	128	131	121	142	145	157	178	170	229	223	236	224	219	203	167	141	112	119	132	122	157

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
January 2018

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	90	95	60	56	85	60	75	76	96	37	80	90	46	18	90	33	91	18	37	38	53	67	86	60	64	96	18
2	65	71	78	91	75	64	70	69	72	49	53	90	73	88	83	56	43	32	35	45	42	29	45	29	60	91	29
3	22	20	31	35	76	71	62	84	82	65	87	59	50	63	29	52	56	75	96	89	63	79	73	79	62	96	20
4	87	48	86	62	38	41	46	64	60	43	88	85	73	61	71	84	61	89	66	84	69	69	77	56	67	89	38
5	84	51	88	85	63	73	61	93	69	38	72	90	94	70	89	75	64	50	58	80	83	82	74	64	73	94	38
6	88	84	100	80	43	94	80	90	84	27	18	10	9	11	11	10	10	18	12	15	88	73	64	89	50	100	9
7	17	14	15	18	18	22	40	16	18	18	17	12	10	9	13	10	27	77	68	55	32	33	80	50	29	80	9
8	36	75	54	30	38	44	27	63	59	63	75	69	95	36	10	12	19	21	20	16	16	16	16	14	39	95	10
9	30	17	17	53	83	46	34	21	71	8	14	40	14	14	9	53	12	28	37	10	7	82	95	43	35	95	7
10	40	19	9	14	12	22	30	38	19	11	21	9	11	31	31	31	31	75	73	91	72	85	61	78	38	91	9
11	65	92	96	75	49	23	39	68	63	59	60	70	35	10	6	9	15	17	17	15	12	13	12	14	39	96	6
12	88	26	11	7	33	49	21	40	85	74	25	36	12	11	17	17	14	39	38	12	22	10	18	33	31	88	7
13	52	44	10	16	14	14	11	12	11	9	10	11	13	10	8	8	17	29	46	42	80	88	85	61	29	88	8
14	90	94	84	71	62	92	85	83	56	87	50	91	90	45	17	10	7	14	29	13	25	21	9	17	52	94	7
15	10	8	32	29	63	70	47	49	57	38	54	67	54	30	46	60	92	24	24	16	29	29	76	43	44	92	8
16	81	33	41	89	55	72	25	30	30	26	23	50	72	40	37	62	81	50	43	64	87	79	71	79	55	89	23
17	83	78	83	86	89	94	68	51	24	28	38	64	88	18	10	18	27	25	22	90	85	83	66	44	57	94	10
18	28	32	31	22	15	17	29	21	73	27	61	11	9	8	10	9	12	23	11	25	53	20	39	53	27	73	8
19	16	52	43	45	15	Wx	Wx	Wx	61	72	57	27	17	20	14	9	11	9	17	64	73	40	52	39	36	73	9
20	75	27	72	92	48	72	69	31	86	90	63	67	80	10	14	15	15	61	37	34	40	64	57	78	54	92	10
21	42	61	65	85	53	52	96	83	99	94	66	77	48	51	26	9	83	51	23	20	17	16	19	18	52	99	9
22	57	51	90	79	55	65	63	83	77	68	77	79	23	22	32	24	63	23	33	54	31	43	52	58	54	90	22
23	85	14	14	42	81	49	44	17	32	71	67	52	9	9	16	32	24	26	18	20	17	15	22	74	35	85	9
24	21	10	8	64	13	18	22	8	10	52	20	18	8	15	17	15	22	28	9	7	6	10	46	14	19	64	6
25	58	49	23	40	68	11	24	6	10	16	11	11	72	25	44	9	16	14	19	32	31	32	43	37	29	72	6
26	30	55	55	23	13	10	16	11	7	76	69	17	10	15	9	14	11	10	10	17	12	10	11	17	22	76	7
27	13	11	68	37	11	65	41	95	61	88	92	61	43	14	13	13	12	17	76	73	22	51	94	12	45	95	11
28	10	10	10	10	9	14	12	59	93	98	90	83	43	10	15	62	71	67	28	50	76	74	55	70	47	98	9
29	48	52	55	69	67	37	52	49	83	76	90	61	80	65	51	41	65	32	47	28	31	26	11	11	51	90	11
30	18	13	9	8	9	13	16	12	10	10	10	11	11	11	11	11	10	11	8	14	21	31	49	10	14	49	8
31	14	25	39	16	12	18	12	10	9	12	11	10	12	14	11	13	15	39	60	38	46	41	71	64	26	71	9
Avg	50	43	48	49	44	46	44	48	54	49	51	49	42	28	28	28	35	35	36	40	43	46	53	45	43	87	13
Max	90	95	100	92	89	94	96	95	99	98	92	91	95	88	90	84	92	89	96	91	88	88	95	89	73	100	38
Min	10	8	8	7	9	10	11	6	7	8	10	9	8	8	6	8	7	9	8	7	6	10	9	10	14	49	6

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
February 2018

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	70	38	19	58	60	92	87	52	70	92	85	50	86	21	20	21	71	44	31	17	17	12	16	60	50	92	12
2	15	28	37	22	37	18	50	36	58	26	41	32	13	14	16	14	59	90	72	9	12	12	9	10	30	90	9
3	7	11	10	9	11	10	10	10	10	6	14	17	15	23	18	16	18	17	19	25	18	21	23	13	15	25	6
4	14	33	53	47	49	73	62	56	83	60	80	93	68	92	54	94	61	39	70	99	20	12	13	9	56	99	9
5	26	43	20	24	21	17	19	52	11	7	12	21	32	12	9	42	59	17	27	81	56	76	18	57	32	81	7
6	79	60	52	74	94	79	77	59	28	40	17	13	7	8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	49	94	7
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
Avg	35	36	32	39	45	48	51	44	43	39	42	38	37	28	23	37	54	41	44	46	25	27	16	30	38	80	8
Max	79	60	53	74	94	92	87	59	83	92	85	93	86	92	54	94	71	90	72	99	56	76	23	60	56	99	12
Min	7	11	10	9	11	10	10	10	10	6	12	13	7	8	9	14	18	17	19	9	12	12	9	9	15	25	6

A-8

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
March 2018

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

A-9

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
January 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-20.1	-18.7	-17.3	-16.8	-16.6	-17.6	-19.5	-20.1	-21.1	-20.5	-19.7	-17.2	-12.7	-10.5	-9.8	-9.1	-11.5	-14.6	-17.8	-19.0	-20.5	-21.3	-21.8	-22.6	-17.4	-9.1	-22.6
2	-23.6	-23.5	-23.8	-23.5	-23.1	-22.1	-21.2	-21.3	-20.7	-19.1	-17.1	-15.0	-12.5	-10.2	-9.0	-7.6	-9.2	-11.1	-11.5	-12.6	-13.1	-13.2	-14.1	-14.4	-16.4	-7.6	-23.8
3	-14.8	-14.7	-15.2	-14.6	-13.9	-13.3	-11.8	-10.5	-9.6	-8.7	-7.6	-6.0	-3.4	-2.9	-2.3	-1.6	-1.7	-2.8	-5.1	-7.5	-9.8	-10.8	-11.8	-13.7	-8.9	-1.6	-15.2
4	-13.6	-14.6	-14.9	-14.9	-15.2	-15.2	-15.3	-16.2	-16.2	-15.3	-13.2	-10.9	-8.8	-6.7	-5.4	-4.7	-5.3	-7.4	-7.9	-9.0	-8.7	-8.3	-7.7	-6.5	-10.9	-4.7	-16.2
5	-6.3	-5.6	-5.2	-4.8	-5.0	-5.7	-6.4	-6.5	-6.1	-5.2	-4.5	-3.5	-3.0	-2.5	-1.2	0.3	0.7	0.8	0.3	0.3	-0.4	-1.1	-3.0	-2.6	-3.2	0.8	-6.5
6	-3.3	-3.9	-2.6	-2.6	-3.3	-4.8	-4.7	-3.9	-3.1	0.8	1.9	2.2	2.2	2.3	2.5	2.1	1.4	0.7	-0.1	-0.9	-2.4	-3.7	-5.2	-4.1	-1.4	2.5	-5.2
7	-1.0	-0.6	-0.7	-0.7	-0.1	-0.3	-0.3	-0.5	-0.6	-0.6	-0.1	0.3	0.4	1.0	1.0	0.7	0.5	-0.1	-1.9	-2.4	-4.2	-5.6	-6.8	-8.6	-1.3	1.0	-8.6
8	-9.0	-9.0	-9.0	-8.4	-7.9	-7.7	-6.1	-5.2	-4.6	-3.4	-2.6	-2.0	0.8	3.2	2.6	2.8	0.3	-1.7	-3.0	-4.7	-5.1	-5.0	-5.8	-6.3	-4.0	3.2	-9.0
9	-5.8	-6.4	-6.8	-6.3	-6.7	-5.4	-4.8	-2.9	1.3	3.1	4.1	5.1	4.8	4.4	4.1	4.7	4.8	4.1	3.2	2.2	2.1	1.8	1.5	1.4	0.3	5.1	-6.8
10	0.0	-1.9	-4.9	-9.0	-11.8	-13.6	-14.6	-14.5	-16.6	-17.5	-17.6	-17.2	-16.0	-14.6	-14.2	-14.4	-14.0	-13.4	-12.1	-11.9	-13.3	-14.7	-16.0	-16.3	-12.9	0.0	-17.6
11	-15.1	-13.8	-11.0	-9.8	-9.3	-11.2	-11.4	-11.2	-10.8	-10.4	-9.5	-8.5	-6.2	-4.8	-4.8	-4.7	-4.6	-4.8	-4.7	-4.5	-4.4	-4.3	-4.2	-4.1	-7.8	-4.1	-15.1
12	-4.1	-4.0	-3.9	-5.8	-7.5	-7.1	-6.9	-6.6	-6.2	-4.7	-3.7	-2.7	-1.5	-1.4	-0.7	-0.5	-0.2	-0.9	-0.3	0.0	-0.1	0.4	0.2	-0.1	-2.8	0.4	-7.5
13	-0.5	-0.8	0.0	-0.5	-0.4	-0.4	-0.6	-1.0	-0.4	-0.2	0.1	0.6	0.9	1.4	1.7	1.5	0.7	-0.3	-2.0	-3.1	-6.2	-8.2	-10.0	-11.9	-1.7	1.7	-11.9
14	-13.0	-14.0	-14.0	-14.4	-14.7	-14.6	-14.2	-13.8	-13.4	-13.5	-12.0	-9.2	-4.8	-0.6	0.2	1.2	1.0	0.5	-0.3	-1.5	-1.4	-2.0	-2.5	-3.4	-7.3	1.2	-14.7
15	-3.8	-4.2	-5.7	-6.4	-6.7	-7.8	-11.3	-13.7	-16.4	-16.5	-15.1	-13.9	-12.5	-9.5	-7.6	-7.3	-9.8	-13.8	-14.5	-15.8	-17.4	-18.6	-20.8	-21.1	-12.1	-3.8	-21.1
16	-22.0	-22.2	-23.0	-23.7	-23.4	-23.2	-22.6	-21.5	-20.0	-18.4	-14.8	-12.1	-8.8	-7.3	-4.7	-2.8	-3.0	-6.3	-8.6	-9.5	-10.3	-11.2	-11.8	-12.8	-14.3	-2.8	-23.7
17	-12.9	-13.0	-13.9	-14.2	-14.6	-13.6	-13.6	-13.0	-12.5	-10.5	-9.8	-7.6	-5.6	-2.8	0.8	1.6	1.0	0.4	0.2	-0.4	-1.9	-2.2	-3.0	-3.1	-6.8	1.6	-14.6
18	-3.7	-3.6	-2.3	-2.7	-1.0	-1.7	-2.2	-1.0	0.8	1.8	3.9	7.9	7.3	6.6	6.8	6.5	5.8	4.8	3.2	2.2	1.0	0.1	0.1	-0.1	1.7	7.9	-3.7
19	-0.3	-0.4	-0.5	-0.7	-1.0	-1.4	-1.3	-2.0	-2.1	-2.3	-2.1	-1.6	-1.6	-1.6	-2.0	-2.3	-2.6	-3.4	-3.9	-5.4	-7.2	-10.3	-12.1	-11.0	-3.3	-0.3	-12.1
20	-11.0	-12.3	-11.9	-11.8	-12.7	-14.2	-15.3	-17.5	-18.9	-18.0	-16.5	-14.2	-7.6	-3.9	-3.7	-4.0	-4.4	-5.8	-10.0	-12.0	-13.1	-14.7	-16.2	-17.2	-12.0	-3.7	-18.9
21	-18.2	-19.1	-19.6	-20.1	-20.0	-20.4	-20.9	-20.9	-21.7	-19.2	-17.4	-14.9	-9.5	-7.4	-5.0	-5.9	-7.5	-10.2	-13.1	-14.2	-15.0	-14.8	-14.6	-14.6	-15.2	-5.0	-21.7
22	-14.7	-14.5	-14.5	-12.3	-10.6	-10.6	-9.5	-8.6	-7.8	-6.9	-6.8	-5.2	-3.3	-3.2	-3.1	-2.7	-3.3	-3.1	-3.5	-5.2	-7.4	-9.3	-10.7	-10.0	-7.8	-2.7	-14.7
23	-7.5	-4.9	-5.5	-5.8	-5.9	-6.7	-9.8	-12.1	-14.3	-15.0	-13.5	-7.2	-3.8	-3.4	-3.2	-3.4	-5.9	-7.4	-8.9	-9.6	-10.6	-11.8	-10.4	-8.6	-8.1	-3.2	-15.0
24	-4.8	-3.2	-2.5	-3.9	-2.6	-1.6	-1.4	-0.9	-1.4	-1.3	0.4	0.5	1.7	2.4	2.8	3.1	1.8	1.3	2.8	3.2	3.1	2.9	2.8	1.0	0.3	3.2	-4.8
25	1.2	3.3	3.3	2.2	0.5	2.3	1.2	-1.3	-1.3	0.5	2.7	1.7	1.5	0.6	-0.5	-2.0	-2.0	-2.6	-3.1	-3.6	-4.3	-5.4	-9.7	-11.2	-1.1	3.3	-11.2
26	-11.7	-10.7	-8.6	-4.7	-4.3	-4.4	-4.7	-5.3	-5.8	-5.8	-5.2	-3.9	-3.4	-3.3	-4.7	-4.9	-4.7	-5.1	-5.5	-5.6	-5.5	-5.7	-5.7	-5.6	-5.6	-3.3	-11.7
27	-5.7	-6.1	-7.4	-9.6	-11.0	-11.3	-11.6	-12.3	-13.3	-13.2	-11.7	-9.3	-3.6	-2.9	-3.0	-2.4	-2.2	-2.1	-2.6	-2.3	-2.9	-3.0	-2.7	-1.2	-6.4	-1.2	-13.3
28	-1.0	-0.8	-0.9	-1.1	-1.6	-2.4	-4.9	-7.3	-8.3	-9.3	-7.4	-6.2	-2.9	-1.5	-2.2	-3.0	-2.8	-3.0	-3.1	-3.6	-3.6	-2.9	-3.0	-2.3	-3.5	-0.8	-9.3
29	-1.3	-1.5	-1.0	-1.5	-2.6	-3.7	-3.9	-3.6	-3.6	-4.0	-2.7	-2.1	-1.0	0.9	3.2	2.8	4.8	2.4	2.4	-0.7	0.5	2.2	5.1	5.8	-0.1	5.8	-4.0
30	6.2	6.0	5.9	4.8	4.8	4.4	4.8	4.5	3.1	2.5	1.2	0.6	0.4	-0.1	-0.4	-0.6	-1.2	-2.0	-3.5	-4.4	-6.0	-5.4	-5.5	-5.6	0.6	6.2	-6.0
31	-5.3	-4.9	-5.0	-5.0	-5.2	-5.1	-5.2	-5.5	-5.5	-5.6	-5.0	-4.7	-4.2	-4.0	-4.0	-4.9	-5.4	-6.9	-9.2	-11.6	-12.2	-12.0	-12.2	-12.7	-6.7	-4.0	-12.7
Avg	-8.0	-7.9	-7.8	-8.0	-8.2	-8.4	-8.7	-8.9	-8.9	-8.3	-7.1	-5.7	-3.8	-2.7	-2.1	-2.0	-2.5	-3.7	-4.6	-5.6	-6.5	-7.0	-7.7	-7.9	-6.3	-0.5	-12.9
Max	6.2	6.0	5.9	4.8	4.8	4.4	4.8	4.5	3.1	3.1	4.1	7.9	7.3	6.6	6.8	6.5	5.8	4.8	3.2	3.2	3.1	2.9	5.1	5.8	1.7	7.9	-3.7
Min	-23.6	-23.5	-23.8	-23.7	-23.4	-23.2	-22.6	-21.5	-21.7	-20.5	-19.7	-17.2	-16.0	-14.6	-14.2	-14.4	-14.0	-14.6	-17.8	-19.0	-20.5	-21.3	-21.8	-22.6	-17.4	-9.1	-23.8

A-10

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
February 2018

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	-13.4	-13.6	-14.3	-14.9	-15.1	-14.9	-16.3	-17.6	-19.0	-17.7	-15.3	-12.3	-7.9	-4.8	-4.7	-4.7	-4.8	-4.6	-4.4	-3.4	-2.9	-2.4	-2.6	-3.3	-9.8	-2.4	-19.0
2	-4.2	-4.5	-4.6	-4.7	-4.5	-4.2	-4.3	-4.2	-3.9	-3.6	-1.5	0.9	1.6	2.3	2.8	2.9	2.9	1.5	1.6	3.0	3.1	2.5	2.4	2.1	-0.6	3.1	-4.7
3	2.0	2.1	2.4	2.6	2.5	2.4	2.7	2.5	0.9	-1.3	-5.8	-9.8	-10.7	-12.8	-14.3	-16.0	-16.5	-17.3	-17.8	-18.8	-19.1	-18.8	-19.1	-20.5	-8.3	2.7	-20.5
4	-20.7	-21.4	-21.1	-20.6	-19.5	-18.8	-18.3	-17.3	-16.4	-14.8	-13.0	-10.3	-7.7	-6.2	-4.1	-3.4	-2.9	-2.9	-2.4	-1.7	1.0	2.1	1.8	-1.8	-10.0	2.1	-21.4
5	-9.3	-12.9	-14.2	-14.2	-14.4	-14.8	-14.6	-14.3	-14.1	-13.5	-12.9	-12.1	-11.3	-11.0	-10.9	-11.0	-10.8	-10.7	-10.6	-10.6	-10.7	-10.4	-10.2	-10.0	-12.1	-9.3	-14.8
6	-9.7	-9.7	-9.2	-8.6	-8.5	-8.1	-8.5	-7.5	-6.6	-7.6	-8.7	-9.6	-11.0	-11.3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	-8.9	-6.6	-11.3
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
Avg	-9.2	-10.0	-10.2	-10.1	-9.9	-9.7	-9.9	-9.7	-9.8	-9.8	-9.5	-8.9	-7.8	-7.3	-6.2	-6.4	-6.4	-6.8	-6.7	-6.3	-5.7	-5.4	-5.5	-6.7	-8.2	-1.7	-15.3
Max	2.0	2.1	2.4	2.6	2.5	2.4	2.7	2.5	0.9	-1.3	-1.5	0.9	1.6	2.3	2.8	2.9	2.9	1.5	1.6	3.0	3.1	2.5	2.4	2.1	-0.6	3.1	-4.7
Min	-20.7	-21.4	-21.1	-20.6	-19.5	-18.8	-18.3	-17.6	-19.0	-17.7	-15.3	-12.3	-11.3	-12.8	-14.3	-16.0	-16.5	-17.3	-17.8	-18.8	-19.1	-18.8	-19.1	-20.5	-12.1	-9.3	-21.4

A-11

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	Ca	Ca	Ca	2.6	-1.5	-4.2	-5.7	-6.8	-7.6	-7.5	-4.4	2.6	-7.6	
8	-7.0	-7.1	-6.4	-4.2	-1.3	-3.0	-3.5	-3.7	-2.3	1.5	2.5	3.2	4.4	5.8	4.4	4.0	3.6	3.4	2.2	1.5	0.4	-0.5	-1.3	-1.3	-0.2	5.8	-7.1	
9	-1.7	0.2	0.7	0.7	1.9	1.8	1.6	1.5	2.0	2.5	2.8	2.4	2.5	2.4	2.3	2.0	0.7	-2.1	-2.0	-3.0	-3.5	-4.5	-4.5	-4.5	0.1	2.8	-4.5	
10	-4.7	-4.8	-4.8	-5.6	-7.4	-7.6	-7.9	-8.3	-9.0	-7.3	-4.1	-2.3	-1.5	-0.7	0.1	0.4	0.5	-0.9	-4.2	-6.0	-9.1	-9.8	-10.9	-12.0	-5.3	0.5	-12.0	
11	-13.1	-13.5	-14.4	-14.7	-15.1	-15.5	-15.9	-15.2	-13.8	-11.9	-9.2	-5.2	-0.7	1.8	4.7	4.1	3.4	2.3	0.0	-2.8	-4.3	-5.6	-7.3	-8.3	-7.1	4.7	-15.9	
12	-9.3	-9.0	-9.8	-10.0	-10.0	-10.6	-11.5	-11.6	-10.8	-8.5	-5.7	0.7	3.0	3.8	4.3	4.4	4.4	3.3	0.3	-2.5	-5.0	-6.4	-8.4	-9.7	-4.8	4.4	-11.6	
13	-10.6	-11.7	-12.2	-12.8	-13.7	-13.5	-13.2	-13.8	-12.2	-9.5	-5.8	0.8	6.7	7.4	7.6	7.9	6.8	6.3	2.5	0.0	-2.7	-3.7	-4.6	-5.6	-4.1	7.9	-13.8	
14	-5.9	-6.2	-6.7	-7.2	-7.8	-7.5	-5.6	-5.2	-4.4	-1.6	3.7	8.6	10.2	10.1	10.5	8.6	6.8	6.1	5.9	4.8	3.5	2.1	1.7	2.1	1.1	10.5	-7.8	
15	2.0	2.1	1.7	1.3	0.7	0.9	0.3	0.0	-0.3	0.1	0.2	0.4	0.5	0.4	0.6	0.9	1.2	1.0	0.3	0.1	-0.1	-1.1	-2.4	-3.2	0.3	2.1	-3.2	
16	-4.7	-5.7	-6.1	-7.3	-7.6	-7.9	-7.6	-6.7	-6.3	-5.0	-2.6	0.9	1.9	2.0	2.2	2.2	1.9	1.8	0.7	-0.7	-2.3	-3.7	-5.3	-6.4	-3.0	2.2	-7.9	
17	-7.0	-9.3	-9.0	-9.7	-10.8	-10.9	-10.9	-10.4	-9.2	-6.2	-3.5	-0.3	0.3	0.9	-0.1	-0.5	0.2	-0.3	-0.7	-0.4	-1.6	-2.3	-1.3	-2.8	-4.4	0.9	-10.9	
18	-3.1	-3.7	-3.4	-3.5	-3.4	-3.8	-4.0	-4.1	Pw	-3.4	-3.4	-2.9	-1.5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-3.3	-1.5	-4.1	
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	-5.9	-6.2	-6.4	-6.6	-6.8	-7.1	-7.1	-7.0	-6.6	-4.5	-2.3	0.6	2.3	3.4	3.7	3.4	2.9	2.1	0.3	-1.2	-2.8	-3.8	-4.7	-5.4	-2.8	3.6	-8.9	
Max	2.0	2.1	1.7	1.3	1.9	1.8	1.6	1.5	2.0	2.5	3.7	8.6	10.2	10.1	10.5	8.6	6.8	6.3	5.9	4.8	3.5	2.1	1.7	2.1	1.1	10.5	-3.2	
Min	-13.1	-13.5	-14.4	-14.7	-15.1	-15.5	-15.9	-15.2	-13.8	-11.9	-9.2	-5.2	-1.5	-0.7	-0.1	-0.5	0.2	-2.1	-4.2	-6.0	-9.1	-9.8	-10.9	-12.0	-7.1	-1.5	-15.9	

A-12

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
January 2018

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	-21.6	-19.6	-18.1	-17.8	-17.9	-20.2	-21.9	-22.5	-23.4	-22.9	-21.5	-18.5	-14.1	-10.7	-9.9	-11.0	-13.5	-16.5	-19.7	-21.1	-22.8	-23.4	-24.1	-24.6	-19.1	-9.9	-24.6
2	-25.9	-25.9	-26.3	-25.4	-26.0	-24.5	-23.9	-23.6	-22.2	-20.8	-19.3	-16.6	-13.6	-11.8	-9.9	-9.4	-10.9	-11.9	-12.6	-13.9	-14.4	-14.9	-15.6	-16.0	-18.1	-9.4	-26.3
3	-17.2	-17.3	-16.6	-16.4	-15.7	-14.3	-12.4	-11.0	-9.8	-9.2	-7.8	-6.1	-3.5	-2.8	-2.2	-2.0	-2.2	-3.8	-7.1	-9.0	-11.6	-12.8	-13.7	-15.1	-10.0	-2.0	-17.3
4	-15.5	-16.6	-16.7	-17.3	-17.7	-17.4	-17.8	-18.2	-18.2	-17.1	-15.3	-12.5	-10.0	-8.2	-6.7	-6.1	-7.8	-9.6	-10.3	-10.8	-10.8	-9.6	-8.8	-7.8	-12.8	-6.1	-18.2
5	-7.0	-6.1	-5.4	-5.3	-6.0	-7.2	-7.8	-7.8	-6.9	-5.6	-5.2	-4.3	-3.8	-3.0	-1.5	-0.1	0.0	0.4	0.3	0.1	-0.9	-1.9	-4.2	-3.6	-3.9	0.4	-7.8
6	-4.4	-4.8	-3.3	-3.3	-4.2	-6.2	-5.4	-4.6	-3.6	0.4	1.4	1.8	1.8	2.0	2.2	1.8	1.0	-0.1	-1.3	-2.5	-3.4	-5.7	-6.4	-5.8	-2.2	2.2	-6.4
7	-1.3	-0.8	-1.0	-1.3	-0.4	-0.4	-0.6	-0.8	-1.0	-1.1	-0.4	0.0	0.2	0.7	0.6	0.1	-0.2	-0.8	-3.1	-3.5	-4.7	-6.6	-8.4	-9.8	-1.9	0.7	-9.8
8	-10.8	-10.5	-10.5	-9.7	-9.2	-8.8	-6.9	-5.8	-4.9	-3.9	-3.1	-2.0	0.5	2.8	2.5	2.8	0.0	-1.9	-3.4	-5.6	-6.3	-5.8	-6.9	-7.5	-4.8	2.8	-10.8
9	-6.5	-7.8	-8.2	-7.7	-7.9	-6.0	-5.1	-3.7	0.4	2.7	3.5	4.8	4.4	4.0	3.8	4.5	4.3	3.7	2.9	1.9	1.7	1.5	1.4	1.3	-0.3	4.8	-8.2
10	0.1	-1.7	-4.8	-8.8	-11.5	-13.4	-14.4	-14.3	-16.5	-17.5	-17.3	-16.9	-15.8	-14.5	-14.1	-14.5	-14.0	-13.4	-12.1	-12.4	-14.3	-16.7	-17.9	-17.2	-13.1	0.1	-17.9
11	-15.8	-15.0	-12.1	-10.7	-10.0	-11.7	-11.7	-11.6	-10.8	-10.5	-9.5	-8.5	-6.3	-4.7	-4.8	-4.7	-4.5	-4.7	-4.6	-4.4	-4.3	-4.2	-4.1	-4.0	-8.0	-4.0	-15.8
12	-4.1	-4.0	-3.9	-5.7	-7.4	-7.0	-6.8	-6.5	-6.0	-4.7	-3.7	-2.6	-1.5	-1.4	-0.8	-0.6	-0.4	-1.2	-0.4	0.0	-0.2	0.3	0.1	-0.3	-2.9	0.3	-7.4
13	-0.8	-1.6	-0.2	-0.5	-0.4	-0.5	-0.6	-0.9	-0.4	-0.3	0.0	0.5	0.8	1.2	1.4	1.2	0.2	-1.5	-3.0	-5.3	-8.0	-10.2	-12.6	-13.8	-2.3	1.4	-13.8
14	-15.0	-16.1	-16.0	-16.7	-16.5	-16.3	-16.4	-16.3	-15.6	-15.2	-13.1	-9.7	-6.0	-0.6	0.6	1.4	0.9	0.2	-0.5	-1.7	-1.5	-2.1	-2.6	-3.4	-8.3	1.4	-16.7
15	-3.9	-4.2	-6.4	-6.7	-7.1	-8.7	-12.1	-15.1	-17.9	-18.7	-17.3	-14.5	-13.5	-10.8	-9.0	-9.1	-11.7	-16.4	-18.2	-20.0	-21.1	-22.3	-22.8	-24.2	-13.8	-3.9	-24.2
16	-24.3	-25.5	-25.7	-25.6	-26.1	-25.5	-25.5	-25.0	-23.3	-21.9	-17.8	-14.0	-10.9	-8.5	-6.2	-5.2	-4.8	-7.7	-9.9	-10.7	-11.9	-13.0	-13.6	-14.6	-16.5	-4.8	-26.1
17	-14.7	-15.2	-16.3	-16.2	-16.4	-15.6	-15.5	-14.5	-14.1	-12.2	-11.8	-9.1	-6.6	-3.9	-1.4	1.3	0.6	-0.1	-0.1	-1.3	-2.8	-3.1	-3.8	-3.6	-8.2	1.3	-16.4
18	-4.6	-4.5	-2.5	-2.9	-1.9	-2.2	-2.4	-1.4	-0.3	1.2	3.8	7.2	6.5	5.7	5.9	5.6	5.0	3.9	2.8	1.8	1.0	0.2	0.1	-0.1	1.2	7.2	-4.6
19	-0.3	-0.5	-0.5	-0.7	-1.2	-1.6	-1.5	-2.4	-2.5	-2.5	-2.3	-1.8	-1.7	-1.7	-2.2	-2.5	-3.1	-4.3	-4.7	-6.4	-8.2	-10.9	-12.7	-11.2	-3.6	-0.3	-12.7
20	-11.8	-14.3	-13.3	-13.1	-14.2	-16.5	-18.1	-19.9	-21.0	-20.2	-18.4	-15.5	-8.7	-4.4	-3.7	-4.6	-5.5	-6.8	-10.7	-12.8	-14.3	-16.1	-18.0	-19.3	-13.4	-3.7	-21.0
21	-20.3	-21.6	-22.1	-22.3	-22.1	-22.5	-22.8	-23.3	-23.6	-21.3	-19.2	-16.6	-11.6	-7.7	-6.0	-7.7	-8.6	-11.8	-15.5	-16.3	-16.4	-16.1	-16.7	-16.8	-17.0	-6.0	-23.6
22	-15.8	-15.9	-15.3	-13.1	-11.2	-11.2	-10.0	-8.8	-8.2	-7.2	-7.5	-5.9	-3.6	-3.7	-3.9	-3.5	-4.1	-4.2	-4.8	-7.1	-8.9	-10.4	-11.5	-10.6	-8.6	-3.5	-15.9
23	-8.3	-5.4	-6.2	-6.4	-6.3	-7.8	-12.3	-13.6	-16.2	-15.9	-14.8	-8.4	-4.2	-3.9	-3.6	-4.4	-7.2	-7.8	-9.2	-9.8	-11.1	-12.8	-11.2	-10.2	-9.0	-3.6	-16.2
24	-6.1	-3.7	-3.2	-4.5	-3.6	-1.7	-1.8	-1.4	-2.3	-1.5	0.1	0.1	1.1	2.0	2.2	2.0	1.1	0.6	1.9	2.2	2.0	1.8	2.2	0.9	-0.4	2.2	-6.1
25	0.9	2.1	0.5	1.1	-0.4	1.2	0.2	-2.4	-2.5	-0.4	2.2	1.4	1.5	0.6	-0.6	-2.0	-2.1	-2.8	-3.4	-4.1	-5.0	-6.1	-10.7	-11.7	-1.8	2.2	-11.7
26	-11.8	-11.0	-8.9	-5.1	-4.5	-4.7	-5.2	-5.9	-6.6	-6.4	-5.5	-4.1	-3.6	-3.4	-4.8	-5.0	-4.9	-5.3	-5.6	-6.2	-6.0	-6.1	-6.1	-6.0	-5.9	-3.4	-11.8
27	-6.1	-6.8	-8.8	-10.7	-12.1	-12.6	-12.5	-13.8	-14.5	-14.1	-12.7	-10.3	-3.9	-3.2	-3.2	-2.7	-2.5	-2.6	-3.1	-2.5	-3.0	-3.1	-2.9	-1.3	-7.0	-1.3	-14.5
28	-1.1	-1.0	-1.2	-1.5	-1.9	-3.1	-5.7	-7.9	-9.0	-10.2	-8.5	-7.0	-3.1	-1.7	-2.2	-2.9	-2.7	-3.1	-3.2	-3.9	-3.7	-3.0	-3.0	-2.4	-3.9	-1.0	-10.2
29	-1.4	-1.5	-1.1	-2.1	-3.3	-4.3	-4.5	-4.0	-4.1	-4.2	-3.1	-2.3	-1.3	0.5	2.8	2.7	4.5	2.2	1.3	-1.2	-0.6	1.6	3.7	4.7	-0.6	4.7	-4.5
30	5.4	5.3	5.2	4.0	3.9	3.4	4.1	4.1	2.9	2.3	1.0	0.3	0.1	-0.5	-0.8	-1.1	-1.7	-2.5	-4.0	-5.3	-7.6	-6.5	-6.2	-7.2	-0.1	5.4	-7.6
31	-5.9	-5.3	-5.4	-5.3	-5.6	-5.3	-5.4	-5.8	-5.6	-5.8	-5.2	-4.8	-4.4	-4.2	-4.2	-5.2	-5.5	-7.6	-9.4	-12.2	-12.9	-12.4	-13.0	-13.5	-7.1	-4.2	-13.5
Avg	-8.9	-8.9	-8.8	-9.0	-9.2	-9.4	-9.8	-10.0	-9.9	-9.2	-8.0	-6.3	-4.3	-3.1	-2.6	-2.6	-3.2	-4.4	-5.5	-6.6	-7.5	-8.1	-8.7	-8.9	-7.2	-1.0	-14.2
Max	5.4	5.3	5.2	4.0	3.9	3.4	4.1	4.1	2.9	2.7	3.8	7.2	6.5	5.7	5.9	5.6	5.0	3.9	2.9	2.2	2.0	1.8	3.7	4.7	1.2	7.2	-4.5
Min	-25.9	-25.9	-26.3	-25.6	-26.1	-25.5	-25.5	-25.0	-23.6	-22.9	-21.5	-18.5	-15.8	-14.5	-14.1	-14.5	-14.0	-16.5	-19.7	-21.1	-22.8	-23.4	-24.1	-24.6	-19.1	-9.9	-26.3

A-13

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
February 2018

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	-14.4	-14.5	-15.0	-15.8	-15.6	-15.7	-17.4	-19.2	-20.6	-19.1	-15.8	-12.3	-8.8	-5.0	-5.2	-4.8	-5.7	-5.1	-5.1	-4.0	-3.4	-2.7	-3.0	-3.5	-10.5	-2.7	-20.6
2	-4.1	-4.4	-4.5	-4.6	-4.6	-4.1	-4.2	-4.1	-3.8	-3.5	-1.6	0.8	1.6	2.1	2.6	2.7	2.7	1.3	1.4	2.8	2.9	2.3	2.1	1.7	-0.7	2.9	-4.6
3	1.7	1.8	2.1	2.4	2.3	2.2	2.5	2.4	0.8	-1.3	-5.8	-9.7	-10.5	-12.5	-14.0	-15.7	-16.2	-17.2	-17.6	-18.6	-18.9	-18.6	-18.9	-20.4	-8.2	2.5	-20.4
4	-20.5	-21.2	-20.9	-20.3	-19.3	-18.6	-18.1	-17.2	-16.2	-14.7	-12.8	-10.3	-7.5	-6.2	-4.6	-3.8	-2.9	-3.0	-2.4	-1.9	0.9	2.0	1.8	-1.8	-10.0	2.0	-21.2
5	-9.3	-12.7	-14.0	-14.0	-14.2	-14.6	-14.4	-14.2	-13.9	-13.3	-12.8	-11.9	-11.0	-10.8	-10.8	-10.8	-10.7	-10.5	-10.4	-10.4	-10.5	-10.3	-10.1	-9.9	-11.9	-9.3	-14.6
6	-9.6	-9.5	-9.2	-8.7	-8.4	-8.5	-8.7	-7.9	-7.6	-7.6	-8.6	-9.5	-10.8	-11.2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	-9.0	-7.6	-11.2
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
Avg	-9.4	-10.1	-10.3	-10.2	-10.0	-9.9	-10.0	-10.0	-10.2	-9.9	-9.6	-8.8	-7.8	-7.3	-6.4	-6.5	-6.6	-6.9	-6.8	-6.4	-5.8	-5.5	-5.6	-6.8	-8.3	-2.0	-15.4
Max	1.7	1.8	2.1	2.4	2.3	2.2	2.5	2.4	0.8	-1.3	-1.6	0.8	1.6	2.1	2.6	2.7	2.7	1.3	1.4	2.8	2.9	2.3	2.1	1.7	-0.7	2.9	-4.6
Min	-20.5	-21.2	-20.9	-20.3	-19.3	-18.6	-18.1	-19.2	-20.6	-19.1	-15.8	-12.3	-11.0	-12.5	-14.0	-15.7	-16.2	-17.2	-17.6	-18.6	-18.9	-18.6	-18.9	-20.4	-11.9	-9.3	-21.2

A-14

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	Ca	Ca	Ca	1.4	-2.2	-5.1	-7.2	-8.0	-8.6	-8.5	-5.5	1.4	-8.6	
8	-7.7	-7.9	-7.1	-4.9	-2.1	-3.8	-4.4	-4.2	-2.9	0.8	1.8	2.5	3.7	5.0	4.0	3.7	3.3	3.0	1.8	1.2	-0.1	-1.2	-2.1	-2.2	-0.8	5.0	-7.9	
9	-2.8	-0.5	0.0	0.1	1.5	1.5	1.4	1.0	1.6	2.2	2.6	2.2	2.3	2.2	2.1	1.8	0.5	-2.2	-2.0	-3.1	-3.6	-4.4	-4.5	-4.5	-0.2	2.6	-4.5	
10	-4.6	-5.0	-4.9	-7.3	-8.3	-8.4	-8.7	-8.8	-10.1	-9.6	-4.3	-2.3	-1.3	-0.5	-0.3	0.0	-1.1	-2.5	-6.7	-8.7	-11.4	-12.2	-13.1	-13.8	-6.4	0.0	-13.8	
11	-14.8	-15.5	-16.6	-17.0	-17.5	-17.6	-18.2	-17.1	-15.6	-13.4	-10.7	-6.5	-2.3	1.1	3.7	3.3	2.4	1.2	-2.0	-4.3	-5.8	-7.9	-9.5	-10.5	-8.8	3.7	-18.2	
12	-11.5	-11.1	-11.5	-11.3	-11.5	-12.2	-13.1	-13.5	-12.8	-9.9	-7.4	-0.2	2.8	3.2	3.7	3.2	2.6	2.1	-1.7	-3.4	-7.7	-9.4	-11.1	-11.8	-6.4	3.7	-13.5	
13	-13.2	-13.5	-14.9	-15.5	-16.1	-16.3	-16.3	-16.3	-14.4	-11.4	-8.0	-2.0	5.4	5.8	5.5	5.5	5.0	4.2	1.1	-1.1	-4.8	-6.5	-7.1	-8.4	-6.4	5.8	-16.3	
14	-8.5	-8.3	-9.4	-9.4	-10.0	-10.0	-8.0	-7.3	-6.1	-3.5	1.7	7.0	6.9	7.5	7.8	5.2	5.0	5.0	4.9	4.0	2.8	1.7	1.4	1.7	-0.7	7.8	-10.0	
15	1.6	1.8	1.5	1.2	0.7	0.9	0.4	0.0	-0.2	0.1	0.2	0.4	0.5	0.4	0.6	0.8	1.1	0.8	0.1	0.0	-0.2	-1.5	-2.8	-3.7	0.2	1.8	-3.7	
16	-5.5	-6.7	-7.1	-8.2	-8.5	-8.8	-8.0	-7.3	-6.8	-5.6	-2.9	1.1	1.8	1.9	1.9	1.8	1.1	1.3	0.2	-1.1	-3.1	-5.0	-7.3	-7.8	-3.7	1.9	-8.8	
17	-7.7	-10.7	-10.1	-11.0	-12.2	-12.3	-12.0	-11.6	-10.1	-7.2	-4.1	-0.8	0.0	0.8	-0.2	-0.5	0.0	-0.7	-1.2	-0.8	-2.6	-2.8	-2.1	-3.3	-5.1	0.8	-12.3	
18	-3.6	-4.4	-3.9	-3.9	-3.6	-4.5	-4.1	-4.1	Pw	-3.4	-3.3	-2.5	-1.3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-3.5	-1.3	-4.5	
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
Avg	-7.1	-7.4	-7.6	-7.9	-8.0	-8.3	-8.3	-8.1	-7.7	-5.5	-3.1	-0.1	1.7	2.7	2.9	2.5	2.0	1.2	-0.7	-2.0	-4.0	-5.2	-6.1	-6.6	-3.9	2.8	-10.2	
Max	1.6	1.8	1.5	1.2	1.5	1.5	1.4	1.0	1.6	2.2	2.6	7.0	6.9	7.5	7.8	5.5	5.0	5.0	4.9	4.0	2.8	1.7	1.4	1.7	0.2	7.8	-3.7	
Min	-14.8	-15.5	-16.6	-17.0	-17.5	-17.6	-18.2	-17.1	-15.6	-13.4	-10.7	-6.5	-2.3	-0.5	-0.3	-0.5	-1.1	-2.5	-6.7	-8.7	-11.4	-12.2	-13.1	-13.8	-8.8	-1.3	-18.2	

A-15

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
January 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.44	0.93	0.76	0.99	1.28	2.62	2.42	2.35	2.29	2.34	1.91	1.26	1.41	0.22	0.11	1.90	2.01	1.95	1.86	2.09	2.28	2.05	2.25	1.98	1.70	2.62	0.11
2	2.39	2.42	2.50	1.95	2.94	2.41	2.67	2.30	1.52	1.76	2.19	1.64	1.04	1.59	0.91	1.79	1.72	0.82	1.04	1.32	1.32	1.68	1.51	1.60	1.79	2.94	0.82
3	2.40	2.53	1.44	1.71	1.78	1.10	0.53	0.53	0.30	0.48	0.15	0.09	0.13	-0.02	-0.01	0.41	0.56	0.96	2.03	1.54	1.82	2.00	1.86	1.48	1.08	2.53	-0.02
4	1.88	2.02	1.81	2.35	2.52	2.19	2.51	1.96	2.09	1.83	2.11	1.54	1.19	1.50	1.37	1.47	2.46	2.19	2.38	1.83	2.12	1.27	1.15	1.26	1.87	2.52	1.15
5	0.66	0.52	0.24	0.52	1.05	1.47	1.43	1.25	0.82	0.44	0.69	0.71	0.74	0.54	0.34	0.40	0.72	0.42	0.05	0.29	0.50	0.82	1.17	0.97	0.70	1.47	0.05
6	1.10	0.98	0.75	0.77	0.92	1.42	0.70	0.69	0.48	0.49	0.50	0.46	0.35	0.29	0.26	0.31	0.38	0.78	1.15	1.61	0.93	1.97	1.23	1.70	0.84	1.97	0.26
7	0.33	0.22	0.34	0.58	0.21	0.17	0.25	0.31	0.42	0.41	0.37	0.22	0.22	0.27	0.32	0.63	0.76	0.71	1.26	1.13	0.54	1.05	1.67	1.15	0.56	1.67	0.17
8	1.76	1.55	1.50	1.23	1.33	1.10	0.77	0.58	0.32	0.45	0.47	0.09	0.23	0.44	0.14	0.01	0.38	0.20	0.44	0.91	1.16	0.77	1.05	1.19	0.75	1.76	0.01
9	0.68	1.39	1.40	1.35	1.29	0.62	0.31	0.78	0.87	0.47	0.61	0.33	0.45	0.42	0.28	0.29	0.57	0.39	0.21	0.31	0.41	0.28	0.12	0.12	0.58	1.40	0.12
10	-0.07	-0.21	-0.15	-0.16	-0.23	-0.16	-0.20	-0.19	-0.10	-0.03	-0.27	-0.23	-0.23	-0.14	-0.10	0.15	0.05	-0.04	-0.05	0.49	1.07	1.93	1.85	0.93	0.16	1.93	-0.27
11	0.70	1.17	1.04	0.77	0.68	0.50	0.27	0.40	0.07	0.09	0.00	0.07	0.09	-0.10	-0.04	-0.01	-0.10	-0.12	-0.11	-0.10	-0.10	-0.11	-0.11	-0.07	0.20	1.17	-0.12
12	-0.01	-0.02	0.00	-0.05	-0.07	-0.09	-0.14	-0.07	-0.12	-0.02	-0.02	-0.10	-0.03	-0.04	0.04	0.09	0.14	0.31	0.10	0.07	0.10	0.11	0.10	0.20	0.02	0.31	-0.14
13	0.31	0.76	0.18	0.00	0.00	0.01	-0.02	-0.04	0.01	0.09	0.05	0.10	0.08	0.16	0.23	0.26	0.53	1.21	0.98	2.15	1.84	2.00	2.56	1.86	0.64	2.56	-0.04
14	2.01	2.04	1.92	2.21	1.89	1.69	2.19	2.48	2.22	1.64	1.14	0.48	1.21	-0.06	-0.41	-0.15	0.10	0.23	0.22	0.21	0.09	0.10	0.09	0.00	0.98	2.48	-0.41
15	0.01	0.06	0.75	0.33	0.36	0.94	0.83	1.35	1.46	2.13	2.11	0.60	1.06	1.33	1.30	1.79	1.92	2.64	3.74	4.19	3.73	3.70	1.99	2.95	1.72	4.19	0.01
16	2.34	3.33	2.73	1.85	2.70	2.30	2.82	3.57	3.30	3.44	3.01	1.81	2.06	1.15	1.47	2.37	1.75	1.44	1.26	1.18	1.62	1.83	1.81	1.72	2.20	3.57	1.15
17	1.80	2.24	2.45	2.04	1.83	1.95	1.93	1.55	1.68	1.70	1.94	1.44	0.92	1.05	2.25	0.29	0.34	0.58	0.39	0.86	0.96	0.83	0.83	0.49	1.35	2.45	0.29
18	0.93	0.90	0.22	0.23	0.87	0.48	0.20	0.35	1.17	0.59	0.13	0.72	0.80	0.80	0.86	0.86	0.78	0.94	0.40	0.41	0.01	-0.07	0.01	-0.01	0.52	1.17	-0.07
19	0.01	0.03	-0.01	0.04	0.19	0.22	0.19	0.40	0.35	0.23	0.21	0.26	0.11	0.11	0.21	0.21	0.51	0.89	0.79	1.02	1.01	0.60	0.58	0.26	0.35	1.02	-0.01
20	0.79	1.92	1.38	1.23	1.51	2.25	2.78	2.41	2.06	2.16	1.87	1.16	1.05	0.45	0.03	0.54	1.14	0.99	0.70	0.88	1.23	1.48	1.77	2.08	1.41	2.78	0.03
21	2.23	2.44	2.48	2.28	2.16	2.16	1.96	2.42	1.97	2.10	1.80	1.70	2.19	0.37	1.00	1.76	1.01	1.63	2.38	2.08	1.42	1.30	2.09	2.14	1.88	2.48	0.37
22	1.25	1.44	0.78	0.84	0.62	0.54	0.42	0.26	0.43	0.32	0.67	0.62	0.28	0.50	0.75	0.85	0.76	1.01	1.31	1.89	1.57	1.16	0.79	0.63	0.82	1.89	0.26
23	0.81	0.55	0.67	0.61	0.43	1.09	2.45	1.42	1.81	0.96	1.44	1.20	0.44	0.46	0.45	1.00	1.35	0.46	0.24	0.16	0.44	0.95	0.82	1.64	0.91	2.45	0.16
24	1.29	0.54	0.73	0.60	0.95	0.14	0.44	0.55	0.90	0.28	0.37	0.36	0.57	0.47	0.60	1.04	0.69	0.72	0.84	1.01	1.09	1.13	0.66	0.14	0.67	1.29	0.14
25	0.33	1.24	2.75	1.09	0.98	1.15	0.97	1.14	1.21	0.94	0.49	0.33	0.07	0.06	0.09	0.01	0.09	0.18	0.23	0.47	0.71	0.72	0.96	0.53	0.70	2.75	0.01
26	0.05	0.29	0.30	0.43	0.23	0.25	0.46	0.54	0.84	0.57	0.31	0.21	0.19	0.19	0.11	0.11	0.19	0.21	0.22	0.57	0.50	0.39	0.41	0.38	0.33	0.84	0.05
27	0.36	0.65	1.49	1.09	1.11	1.32	0.91	1.45	1.19	0.95	0.99	0.98	0.30	0.26	0.24	0.25	0.35	0.53	0.52	0.16	0.14	0.09	0.17	0.17	0.65	1.49	0.09
28	0.19	0.21	0.27	0.38	0.35	0.69	0.86	0.55	0.62	0.84	1.03	0.77	0.24	0.18	0.07	-0.14	0.00	0.06	0.13	0.30	0.10	0.10	0.01	0.12	0.33	1.03	-0.14
29	0.03	0.08	0.05	0.56	0.72	0.63	0.52	0.35	0.48	0.20	0.34	0.15	0.34	0.40	0.34	0.03	0.36	0.23	1.16	0.51	1.14	0.60	1.41	1.10	0.49	1.41	0.03
30	0.82	0.67	0.73	0.82	0.84	0.99	0.68	0.34	0.26	0.18	0.23	0.31	0.27	0.44	0.48	0.51	0.57	0.54	0.52	0.96	1.66	1.08	0.77	1.67	0.68	1.67	0.18
31	0.64	0.41	0.33	0.25	0.32	0.21	0.19	0.26	0.17	0.18	0.14	0.10	0.17	0.17	0.20	0.31	0.09	0.69	0.22	0.56	0.71	0.43	0.79	0.82	0.35	0.82	0.09
Avg	0.95	1.07	1.03	0.93	1.02	1.04	1.04	1.04	1.00	0.91	0.87	0.63	0.58	0.43	0.45	0.62	0.72	0.77	0.86	1.00	1.04	1.04	1.04	1.01	0.88	1.96	0.14
Max	2.40	3.33	2.75	2.35	2.94	2.62	2.82	3.57	3.30	3.44	3.01	1.81	2.19	1.59	2.25	2.37	2.46	2.64	3.74	4.19	3.73	3.70	2.56	2.95	2.20	4.19	1.15
Min	-0.07	-0.21	-0.15	-0.16	-0.23	-0.16	-0.20	-0.19	-0.12	-0.03	-0.27	-0.23	-0.23	-0.14	-0.41	-0.15	-0.10	-0.12	-0.11	-0.10	-0.10	-0.11	-0.11	-0.07	0.02	0.31	-0.41

A-16

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
February 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.00	0.94	0.76	0.90	0.60	0.81	1.14	1.51	1.64	1.26	0.51	0.04	0.86	0.25	0.51	0.14	0.81	0.55	0.70	0.56	0.47	0.27	0.31	0.17	0.70	1.64	0.04
2	-0.06	-0.07	-0.07	-0.09	0.02	-0.11	-0.10	-0.06	-0.10	-0.12	0.10	0.01	0.05	0.14	0.19	0.21	0.24	0.19	0.25	0.19	0.22	0.17	0.26	0.41	0.08	0.41	-0.12
3	0.33	0.30	0.36	0.22	0.16	0.20	0.18	0.18	0.07	0.00	0.00	-0.10	-0.20	-0.21	-0.27	-0.29	-0.26	-0.24	-0.27	-0.24	-0.18	-0.13	-0.15	-0.12	-0.03	0.36	-0.29
4	-0.14	-0.17	-0.14	-0.17	-0.18	-0.17	-0.17	-0.15	-0.15	-0.16	-0.16	-0.06	-0.17	-0.02	0.51	0.39	0.05	0.08	0.00	0.22	0.12	0.07	0.06	0.00	-0.02	0.51	-0.18
5	-0.04	-0.16	-0.11	-0.14	-0.18	-0.18	-0.17	-0.13	-0.15	-0.15	-0.16	-0.20	-0.23	-0.18	-0.16	-0.17	-0.12	-0.17	-0.16	-0.13	-0.11	-0.12	-0.16	-0.13	-0.15	-0.04	-0.23
6	-0.13	-0.11	-0.05	0.05	0.04	0.34	0.28	0.39	0.95	0.08	-0.08	-0.10	-0.18	-0.13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	0.10	0.95	-0.18
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
Avg	0.16	0.12	0.12	0.13	0.08	0.15	0.19	0.29	0.38	0.15	0.03	-0.07	0.02	-0.02	0.16	0.06	0.14	0.08	0.10	0.12	0.10	0.05	0.06	0.07	0.11	0.64	-0.16
Max	1.00	0.94	0.76	0.90	0.60	0.81	1.14	1.51	1.64	1.26	0.51	0.04	0.86	0.25	0.51	0.39	0.81	0.55	0.70	0.56	0.47	0.27	0.31	0.41	0.70	1.64	0.04
Min	-0.14	-0.17	-0.14	-0.17	-0.18	-0.18	-0.17	-0.15	-0.15	-0.16	-0.16	-0.20	-0.23	-0.21	-0.27	-0.29	-0.26	-0.24	-0.27	-0.24	-0.18	-0.13	-0.16	-0.13	-0.15	-0.04	-0.29

A-17

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	Ca	Ca	Ca	1.18	0.68	0.92	1.55	1.22	1.01	1.00	1.08	1.55	0.68	
8	0.76	0.81	0.71	0.69	0.80	0.78	0.84	0.51	0.58	0.67	0.68	0.68	0.72	0.76	0.40	0.29	0.25	0.38	0.35	0.32	0.61	0.68	0.86	0.82	0.62	0.86	0.25	
9	1.05	0.80	0.76	0.60	0.41	0.30	0.28	0.55	0.38	0.30	0.23	0.19	0.21	0.19	0.16	0.15	0.19	0.02	0.00	0.08	0.04	-0.05	-0.05	-0.05	0.28	1.05	-0.05	
10	-0.03	0.23	0.18	1.69	0.98	0.77	0.80	0.47	1.07	2.34	0.22	-0.02	-0.21	-0.19	0.42	0.49	1.65	1.64	2.50	2.68	2.37	2.40	2.18	1.77	1.10	2.68	-0.21	
11	1.69	2.01	2.12	2.32	2.46	2.10	2.24	1.90	1.81	1.49	1.63	1.33	1.58	0.73	0.98	0.84	0.98	1.17	2.05	1.47	1.49	2.28	2.26	2.22	1.71	2.46	0.73	
12	2.16	2.20	1.65	1.29	1.53	1.56	1.57	1.96	1.91	1.40	1.73	0.97	0.22	0.53	0.64	1.18	1.79	1.22	2.07	0.92	2.69	3.07	2.70	2.03	1.62	3.07	0.22	
13	2.61	1.80	2.68	2.61	2.45	2.80	3.09	2.44	2.12	1.93	2.14	2.86	1.29	1.54	2.10	2.46	1.85	2.15	1.41	1.21	2.15	2.74	2.56	2.76	2.24	3.09	1.21	
14	2.57	2.09	2.67	2.24	2.24	2.47	2.41	2.11	1.72	1.97	2.02	1.60	3.28	2.64	2.68	3.40	1.87	1.06	0.96	0.75	0.61	0.41	0.37	0.34	1.85	3.40	0.34	
15	0.37	0.24	0.15	0.11	0.00	0.01	0.00	-0.07	-0.06	-0.02	-0.01	0.00	0.00	0.00	0.01	0.02	0.05	0.16	0.28	0.10	0.08	0.48	0.38	0.53	0.12	0.53	-0.07	
16	0.76	0.99	1.00	0.84	0.87	0.84	0.37	0.62	0.50	0.58	0.33	-0.13	0.15	0.11	0.28	0.41	0.73	0.52	0.49	0.36	0.79	1.29	2.00	1.39	0.67	2.00	-0.13	
17	0.67	1.37	1.10	1.31	1.48	1.40	1.11	1.14	0.85	0.99	0.67	0.50	0.36	0.13	0.12	0.05	0.17	0.34	0.56	0.37	1.08	0.51	0.83	0.53	0.73	1.48	0.05	
18	0.48	0.70	0.54	0.35	0.24	0.77	0.05	0.06	Pw	0.06	-0.05	-0.40	-0.26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.21	0.77	-0.40	
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	1.19	1.20	1.23	1.28	1.22	1.25	1.16	1.06	1.09	1.06	0.87	0.69	0.67	0.64	0.78	0.93	0.95	0.89	1.03	0.83	1.22	1.37	1.37	1.21	1.05	1.91	0.22	
Max	2.61	2.20	2.68	2.61	2.46	2.80	3.09	2.44	2.12	2.34	2.14	2.86	3.28	2.64	2.68	3.40	1.87	2.15	2.50	2.68	2.69	3.07	2.70	2.76	2.24	3.40	1.21	
Min	-0.03	0.23	0.15	0.11	0.00	0.01	0.00	-0.07	-0.06	-0.02	-0.05	-0.40	-0.26	-0.19	0.01	0.02	0.05	0.02	0.00	0.08	0.04	-0.05	-0.05	-0.05	0.12	0.53	-0.40	

A-18

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
January 2018

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	19	87	202	316	236	261	287	163	27	0	0	0	0	0	0	0	67	316	0
2	0	0	0	0	0	0	0	0	20	99	177	232	356	349	274	159	25	0	0	0	0	0	0	0	70	356	0
3	0	0	0	0	0	0	0	0	13	61	108	83	86	120	124	73	24	0	0	0	0	0	0	0	29	124	0
4	0	0	0	0	0	0	0	0	13	121	270	256	223	269	284	157	17	0	0	0	0	0	0	0	67	284	0
5	0	0	0	0	0	0	0	0	15	58	69	105	170	300	328	167	32	0	0	0	0	0	0	0	52	328	0
6	0	0	0	0	0	0	0	0	18	109	163	251	174	285	354	212	34	0	0	0	0	0	0	0	67	354	0
7	0	0	0	0	0	0	0	0	30	133	121	180	325	357	282	130	33	0	0	0	0	0	0	0	66	357	0
8	0	0	0	0	0	0	0	0	5	21	50	226	432	225	214	140	12	0	0	0	0	0	0	0	55	432	0
9	0	0	0	0	0	0	0	0	18	75	187	381	360	164	141	88	19	0	0	0	0	0	0	0	60	381	0
10	0	0	0	0	0	0	0	0	13	51	119	148	250	296	167	95	38	0	0	0	0	0	0	0	49	296	0
11	0	0	0	0	0	0	0	0	20	93	129	149	173	135	104	43	8	0	0	0	0	0	0	0	36	173	0
12	0	0	0	0	0	0	0	0	4	27	45	57	69	94	156	87	20	0	0	0	0	0	0	0	23	156	0
13	0	0	0	0	0	0	0	0	12	60	172	383	320	404	298	186	35	1	0	0	0	0	0	0	78	404	0
14	0	0	0	0	0	0	0	0	32	169	263	208	236	282	166	118	28	1	0	0	0	0	0	0	63	282	0
15	0	0	0	0	0	0	0	0	32	184	316	394	429	398	323	201	61	1	0	0	0	0	0	0	97	429	0
16	0	0	0	0	0	0	0	0	23	87	241	351	404	398	321	206	60	1	0	0	0	0	0	0	87	404	0
17	0	0	0	0	0	0	0	2	22	73	138	171	305	267	120	78	18	0	0	0	0	0	0	0	50	305	0
18	0	0	0	0	0	0	0	0	29	99	226	312	299	283	320	101	25	0	0	0	0	0	0	0	71	320	0
19	0	0	0	0	0	0	0	0	3	14	35	47	55	43	37	37	26	0	0	0	0	0	0	0	12	55	0
20	0	0	0	0	0	0	0	0	21	59	82	102	179	161	279	231	100	2	0	0	0	0	0	0	51	279	0
21	0	0	0	0	0	0	0	0	20	70	288	395	448	423	349	230	86	2	0	0	0	0	0	0	96	448	0
22	0	0	0	0	0	0	0	0	18	80	209	287	316	194	127	93	46	2	0	0	0	0	0	0	57	316	0
23	0	0	0	0	0	0	0	1	45	190	306	441	459	427	349	202	58	2	0	0	0	0	0	0	103	459	0
24	0	0	0	0	0	0	0	1	43	199	309	396	450	419	315	230	59	2	0	0	0	0	0	0	101	450	0
25	0	0	0	0	0	0	0	0	32	219	278	166	433	88	84	69	20	1	0	0	0	0	0	0	58	433	0
26	0	0	0	0	0	0	0	1	59	89	159	419	481	197	134	178	83	4	0	0	0	0	0	0	75	481	0
27	0	0	0	0	0	0	0	1	36	135	283	334	362	337	227	148	27	2	0	0	0	0	0	0	79	362	0
28	0	0	0	0	0	0	0	1	75	218	154	283	209	188	121	51	13	0	0	0	0	0	0	0	55	283	0
29	0	0	0	0	0	0	0	0	9	27	21	45	141	135	84	62	116	16	0	0	0	0	0	0	27	141	0
30	0	0	0	0	0	0	0	0	44	88	272	314	191	188	164	218	119	4	0	0	0	0	0	0	67	314	0
31	0	0	0	0	0	0	0	1	49	94	192	217	229	338	372	98	41	6	0	0	0	0	0	0	68	372	0
Avg	0	0	0	0	0	0	0	0	26	100	180	247	284	259	223	137	42	2	0	0	0	0	0	0	62	326	0
Max	0	0	0	0	0	0	0	2	75	219	316	441	481	427	372	231	119	16	0	0	0	0	0	0	103	481	0
Min	0	0	0	0	0	0	0	0	3	14	21	45	55	43	37	37	8	0	0	0	0	0	0	0	12	55	0

A-19

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
February 2018

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	2	58	219	218	339	266	221	91	55	27	2	0	0	0	0	0	0	62	339	0	
2	0	0	0	0	0	0	0	0	8	26	41	244	279	139	119	48	16	2	0	0	0	0	0	0	38	279	0	
3	0	0	0	0	0	0	0	1	26	100	253	215	228	296	189	74	41	5	0	0	0	0	0	0	60	296	0	
4	0	0	0	0	0	0	0	1	28	69	165	221	200	109	84	48	18	1	0	0	0	0	0	0	39	221	0	
5	0	0	0	0	0	0	0	2	39	96	163	270	304	296	170	94	22	3	0	0	0	0	0	0	61	304	0	
6	0	0	0	0	0	0	0	1	53	88	107	221	324	240	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	74	324	0	
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa
Avg	0	0	0	0	0	0	0	1	35	100	158	252	267	217	131	64	25	3	0	0	0	0	0	0	54	294	0	
Max	0	0	0	0	0	0	0	2	58	219	253	339	324	296	189	94	41	5	0	0	0	0	0	0	74	339	0	
Min	0	0	0	0	0	0	0	0	8	26	41	215	200	109	84	48	16	1	0	0	0	0	0	0	38	221	0	

A-20

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	Ca	Ca	Ca	119	3	0	0	0	0	0	0	17	119	0
8	0	0	0	0	0	0	1	26	53	206	244	272	472	649	379	247	256	109	4	0	0	0	0	0	122	649	0	
9	0	0	0	0	0	0	1	63	294	393	507	563	549	582	331	313	104	25	5	0	0	0	0	0	155	582	0	
10	0	0	0	0	0	0	4	46	308	474	622	712	747	720	630	500	320	130	7	0	0	0	0	0	218	747	0	
11	0	0	0	0	0	0	3	72	232	423	626	728	601	726	624	445	265	110	5	0	0	0	0	0	203	728	0	
12	0	0	0	0	0	0	3	92	311	488	634	731	762	731	644	509	332	144	9	0	0	0	0	0	225	762	0	
13	0	0	0	0	0	0	4	119	332	510	654	744	775	749	656	522	347	150	4	0	0	0	0	0	232	775	0	
14	0	0	0	0	0	0	6	110	288	217	474	632	753	706	342	258	130	52	5	0	0	0	0	0	166	753	0	
15	0	0	0	0	0	0	1	39	141	280	360	603	427	349	402	228	149	105	7	0	0	0	0	0	129	603	0	
16	0	0	0	0	0	0	4	69	187	266	484	456	669	485	370	331	210	65	9	0	0	0	0	0	150	669	0	
17	0	0	0	0	0	0	7	83	275	267	280	312	428	352	208	191	153	78	10	0	0	0	0	0	110	428	0	
18	0	0	0	0	0	0	14	68	Pw	247	470	626	860	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	190	860	0	
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	0	0	0	0	0	0	4	72	242	343	487	580	640	605	459	354	227	99	6	0	0	0	0	0	168	640	0	
Max	0	0	0	0	0	0	14	119	332	510	654	744	860	749	656	522	347	150	10	0	0	0	0	0	232	860	0	
Min	0	0	0	0	0	0	1	26	53	206	244	272	427	349	208	191	104	25	3	0	0	0	0	0	17	119	0	

A-21

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
January 2018

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	24.41	24.40	24.41	24.40	24.39	24.39	24.39	24.39	24.41	24.44	24.46	24.45	24.45	24.45	24.46	24.47	24.49	24.50	24.52	24.52	24.52	24.53	24.54	24.54	24.46	24.54	24.39
2	24.54	24.54	24.56	24.56	24.55	24.56	24.57	24.58	24.59	24.62	24.62	24.60	24.60	24.60	24.60	24.59	24.60	24.61	24.61	24.60	24.59	24.57	24.57	24.57	24.58	24.62	24.54
3	24.55	24.54	24.53	24.51	24.50	24.48	24.47	24.46	24.45	24.45	24.45	24.44	24.43	24.43	24.42	24.42	24.42	24.42	24.43	24.44	24.45	24.45	24.45	24.45	24.46	24.55	24.42
4	24.44	24.44	24.44	24.43	24.43	24.42	24.41	24.41	24.41	24.41	24.40	24.39	24.38	24.37	24.36	24.36	24.36	24.37	24.38	24.38	24.37	24.37	24.37	24.37	24.39	24.44	24.36
5	24.36	24.36	24.35	24.36	24.36	24.36	24.36	24.36	24.36	24.36	24.37	24.37	24.36	24.36	24.36	24.35	24.35	24.36	24.35	24.34	24.33	24.31	24.30	24.30	24.35	24.37	24.30
6	24.28	24.27	24.27	24.26	24.24	24.23	24.22	24.21	24.21	24.21	24.22	24.20	24.19	24.18	24.17	24.17	24.18	24.19	24.20	24.21	24.21	24.22	24.23	24.24	24.22	24.28	24.17
7	24.23	24.23	24.23	24.24	24.25	24.25	24.25	24.25	24.28	24.28	24.28	24.28	24.27	24.26	24.26	24.26	24.26	24.25	24.25	24.24	24.25	24.24	24.24	24.24	24.25	24.28	24.23
8	24.24	24.23	24.23	24.21	24.20	24.20	24.19	24.18	24.18	24.19	24.18	24.18	24.16	24.14	24.14	24.14	24.13	24.12	24.12	24.12	24.12	24.10	24.09	24.09	24.16	24.24	24.09
9	24.07	24.06	24.05	24.04	24.02	24.00	23.98	23.96	23.96	23.94	23.92	23.92	23.89	23.86	23.84	23.84	23.84	23.85	23.84	23.84	23.84	23.83	23.83	23.82	23.92	24.07	23.82
10	23.82	23.81	23.80	23.82	23.84	23.86	23.89	23.91	23.95	23.98	24.01	24.02	24.02	24.01	24.02	24.05	24.07	24.09	24.11	24.13	24.14	24.15	24.17	24.17	23.99	24.17	23.80
11	24.18	24.19	24.20	24.21	24.21	24.22	24.22	24.23	24.24	24.24	24.23	24.22	24.18	24.15	24.13	24.12	24.11	24.10	24.09	24.07	24.06	24.06	24.06	24.07	24.16	24.24	24.06
12	24.08	24.11	24.14	24.17	24.20	24.22	24.26	24.27	24.30	24.33	24.37	24.37	24.38	24.38	24.39	24.41	24.42	24.42	24.43	24.44	24.44	24.44	24.45	24.44	24.33	24.45	24.08
13	24.44	24.44	24.44	24.44	24.44	24.43	24.44	24.43	24.44	24.46	24.47	24.48	24.47	24.47	24.49	24.50	24.51	24.52	24.53	24.54	24.56	24.58	24.59	24.58	24.49	24.59	24.43
14	24.57	24.56	24.57	24.57	24.56	24.56	24.56	24.56	24.57	24.57	24.57	24.56	24.55	24.54	24.53	24.54	24.54	24.55	24.56	24.55	24.56	24.58	24.60	24.62	24.56	24.62	24.53
15	24.62	24.62	24.64	24.65	24.65	24.67	24.67	24.68	24.69	24.68	24.68	24.66	24.64	24.63	24.62	24.61	24.61	24.61	24.60	24.59	24.58	24.57	24.56	24.55	24.63	24.69	24.55
16	24.53	24.51	24.51	24.49	24.48	24.46	24.45	24.44	24.44	24.46	24.45	24.43	24.41	24.40	24.40	24.42	24.42	24.43	24.44	24.45	24.46	24.46	24.47	24.49	24.45	24.53	24.40
17	24.50	24.50	24.51	24.53	24.52	24.52	24.52	24.51	24.51	24.51	24.51	24.49	24.45	24.42	24.39	24.39	24.39	24.37	24.36	24.34	24.33	24.32	24.31	24.31	24.44	24.53	24.31
18	24.29	24.26	24.24	24.22	24.20	24.17	24.16	24.15	24.14	24.14	24.13	24.11	24.08	24.06	24.05	24.04	24.04	24.03	24.03	24.03	24.02	24.01	23.99	23.99	24.11	24.29	23.99
19	23.98	23.97	23.97	23.97	23.96	23.96	23.97	23.96	23.97	23.98	24.00	24.00	23.99	24.00	24.00	24.01	24.03	24.04	24.06	24.07	24.08	24.09	24.11	24.12	24.01	24.12	23.96
20	24.12	24.12	24.14	24.14	24.15	24.14	24.15	24.16	24.16	24.17	24.17	24.16	24.16	24.15	24.16	24.16	24.16	24.18	24.20	24.22	24.23	24.23	24.24	24.25	24.17	24.25	24.12
21	24.25	24.25	24.25	24.25	24.27	24.27	24.28	24.28	24.29	24.31	24.30	24.29	24.28	24.28	24.27	24.26	24.26	24.28	24.29	24.29	24.28	24.27	24.26	24.26	24.27	24.31	24.25
22	24.26	24.26	24.27	24.27	24.26	24.27	24.28	24.28	24.29	24.30	24.30	24.31	24.29	24.28	24.28	24.28	24.29	24.29	24.31	24.32	24.32	24.33	24.34	24.35	24.29	24.35	24.26
23	24.34	24.33	24.35	24.36	24.37	24.38	24.38	24.39	24.40	24.40	24.39	24.38	24.37	24.35	24.33	24.33	24.32	24.31	24.31	24.30	24.28	24.27	24.26	24.25	24.34	24.40	24.25
24	24.23	24.21	24.21	24.20	24.19	24.19	24.19	24.19	24.19	24.21	24.22	24.22	24.19	24.18	24.16	24.15	24.13	24.13	24.10	24.08	24.07	24.05	24.04	24.04	24.16	24.23	24.04
25	24.02	24.02	24.01	23.99	23.98	23.97	23.95	23.92	23.91	23.92	23.92	23.91	23.89	23.89	23.88	23.90	23.92	23.95	23.96	23.97	23.99	24.01	24.03	24.05	23.96	24.05	23.88
26	24.06	24.06	24.07	24.07	24.08	24.09	24.12	24.15	24.16	24.17	24.18	24.19	24.19	24.18	24.18	24.20	24.20	24.21	24.23	24.25	24.25	24.26	24.27	24.28	24.17	24.28	24.06
27	24.28	24.29	24.31	24.32	24.33	24.33	24.35	24.36	24.37	24.37	24.35	24.34	24.33	24.30	24.28	24.26	24.26	24.26	24.26	24.26	24.28	24.29	24.29	24.30	24.31	24.37	24.26
28	24.32	24.34	24.36	24.38	24.41	24.44	24.48	24.52	24.55	24.56	24.57	24.57	24.57	24.56	24.56	24.56	24.55	24.55	24.55	24.54	24.54	24.53	24.53	24.53	24.50	24.57	24.32
29	24.52	24.52	24.51	24.50	24.49	24.48	24.47	24.47	24.47	24.47	24.47	24.45	24.43	24.41	24.38	24.36	24.34	24.30	24.28	24.25	24.21	24.19	24.17	24.15	24.39	24.52	24.15
30	24.12	24.09	24.08	24.07	24.04	24.02	24.01	24.01	24.01	24.01	24.03	24.03	24.02	24.02	24.01	24.03	24.06	24.09	24.11	24.12	24.14	24.15	24.15	24.15	24.07	24.15	24.01
31	24.14	24.13	24.13	24.12	24.12	24.13	24.13	24.15	24.16	24.17	24.18	24.19	24.19	24.19	24.20	24.21	24.22	24.24	24.25	24.26	24.27	24.27	24.28	24.29	24.19	24.29	24.12
Avg	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.29	24.30	24.30	24.30	24.28	24.27	24.27	24.27	24.27	24.28	24.28	24.28	24.28	24.28	24.28	24.29	24.28	24.37	24.20
Max	24.62	24.62	24.64	24.65	24.65	24.67	24.67	24.68	24.69	24.68	24.68	24.66	24.64	24.63	24.62	24.61	24.61	24.61	24.61	24.60	24.59	24.58	24.60	24.62	24.63	24.69	24.55
Min	23.82	23.81	23.80	23.82	23.84	23.86	23.89	23.91	23.91	23.92	23.92	23.91	23.89	23.86	23.84	23.84	23.84	23.85	23.84	23.84	23.84	23.83	23.83	23.82	23.92	24.05	23.80

A-22

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
February 2018

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	24.30	24.30	24.32	24.32	24.34	24.34	24.35	24.35	24.37	24.38	24.37	24.35	24.33	24.32	24.30	24.31	24.31	24.32	24.32	24.32	24.32	24.33	24.32	24.33	24.32	24.33	24.38	24.30
2	24.31	24.29	24.28	24.26	24.25	24.24	24.24	24.25	24.27	24.27	24.26	24.27	24.25	24.23	24.21	24.20	24.17	24.15	24.15	24.14	24.14	24.14	24.14	24.15	24.15	24.22	24.31	24.14
3	24.15	24.13	24.14	24.13	24.11	24.10	24.09	24.09	24.10	24.11	24.13	24.16	24.18	24.18	24.18	24.19	24.20	24.21	24.21	24.22	24.25	24.27	24.30	24.32	24.17	24.32	24.09	
4	24.33	24.33	24.32	24.31	24.29	24.27	24.25	24.24	24.23	24.22	24.21	24.19	24.16	24.13	24.09	24.07	24.04	24.01	23.98	23.96	23.96	23.97	23.97	23.98	24.15	24.33	23.96	
5	24.04	24.07	24.10	24.12	24.15	24.17	24.19	24.20	24.21	24.22	24.22	24.21	24.19	24.18	24.18	24.18	24.17	24.17	24.17	24.17	24.17	24.16	24.16	24.15	24.16	24.22	24.04	
6	24.15	24.15	24.14	24.14	24.13	24.15	24.16	24.18	24.21	24.22	24.26	24.29	24.29	24.30	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	24.20	24.30	24.13	
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
Avg	24.21	24.21	24.22	24.21	24.21	24.21	24.21	24.22	24.23	24.24	24.24	24.25	24.23	24.22	24.19	24.19	24.18	24.17	24.17	24.16	24.17	24.17	24.18	24.18	24.21	24.31	24.11	
Max	24.33	24.33	24.32	24.32	24.34	24.34	24.35	24.35	24.37	24.38	24.37	24.35	24.33	24.32	24.30	24.31	24.31	24.32	24.32	24.32	24.32	24.32	24.33	24.32	24.33	24.38	24.30	
Min	24.04	24.07	24.10	24.12	24.11	24.10	24.09	24.09	24.10	24.11	24.13	24.16	24.16	24.13	24.09	24.07	24.04	24.01	23.98	23.96	23.96	23.97	23.97	23.98	24.15	24.22	23.96	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	Ca	Ca	Ca	24.39	24.37	24.37	24.37	24.37	24.36	24.36	24.37	24.39	24.36	
8	24.36	24.35	24.33	24.32	24.30	24.28	24.28	24.27	24.25	24.25	24.24	24.23	24.21	24.20	24.18	24.17	24.16	24.16	24.16	24.17	24.17	24.16	24.15	24.15	24.23	24.36	24.15	
9	24.14	24.14	24.13	24.11	24.11	24.11	24.10	24.10	24.09	24.07	24.08	24.07	24.06	24.05	24.06	24.06	24.07	24.10	24.11	24.14	24.18	24.20	24.23	24.26	24.12	24.26	24.05	
10	24.28	24.30	24.32	24.36	24.38	24.40	24.42	24.43	24.43	24.45	24.46	24.47	24.47	24.48	24.48	24.49	24.50	24.51	24.50	24.52	24.53	24.55	24.54	24.55	24.45	24.55	24.28	
11	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.56	24.55	24.55	24.56	24.58	24.59	24.59	24.59	24.56	24.59	24.55	
12	24.60	24.60	24.60	24.60	24.60	24.61	24.61	24.62	24.62	24.61	24.61	24.62	24.61	24.60	24.59	24.59	24.58	24.58	24.57	24.57	24.58	24.58	24.59	24.59	24.60	24.62	24.57	
13	24.58	24.58	24.57	24.56	24.56	24.55	24.55	24.54	24.52	24.50	24.48	24.47	24.46	24.45	24.44	24.43	24.41	24.40	24.38	24.37	24.36	24.36	24.36	24.34	24.47	24.58	24.34	
14	24.33	24.32	24.30	24.28	24.26	24.25	24.23	24.21	24.19	24.18	24.18	24.18	24.16	24.14	24.12	24.12	24.11	24.10	24.10	24.10	24.09	24.07	24.05	24.04	24.17	24.33	24.04	
15	24.01	24.00	23.98	23.99	23.99	23.98	23.99	23.99	23.99	24.00	24.02	24.02	24.03	24.03	24.04	24.06	24.08	24.09	24.09	24.11	24.12	24.13	24.14	24.15	24.04	24.15	23.98	
16	24.16	24.17	24.18	24.18	24.20	24.21	24.21	24.21	24.21	24.22	24.23	24.23	24.22	24.21	24.21	24.21	24.20	24.20	24.19	24.19	24.19	24.19	24.20	24.19	24.20	24.23	24.16	
17	24.18	24.19	24.18	24.17	24.17	24.16	24.16	24.15	24.13	24.12	24.11	24.12	24.12	24.12	24.12	24.12	24.14	24.15	24.15	24.17	24.18	24.18	24.19	24.19	24.15	24.19	24.11	
18	24.20	24.19	24.19	24.19	24.19	24.19	24.20	24.21	Pw	24.25	24.27	24.29	24.29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.22	24.29	24.19	
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
Avg	24.31	24.31	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.29	24.29	24.30	24.29	24.28	24.28	24.28	24.28	24.29	24.29	24.30	24.30	24.31	24.31	24.31	24.30	24.38	24.23	
Max	24.60	24.60	24.60	24.60	24.60	24.61	24.61	24.62	24.62	24.61	24.61	24.62	24.61	24.60	24.59	24.59	24.58	24.58	24.57	24.57	24.58	24.59	24.59	24.59	24.60	24.62	24.57	
Min	24.01	24.00	23.98	23.99	23.99	23.98	23.99	23.99	23.99	24.00	24.02	24.02	24.03	24.03	24.04	24.06	24.07	24.09	24.09	24.10	24.09	24.07	24.05	24.04	24.04	24.15	23.98	

A-24

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
January 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	75.5	76.9	78.1	78.3	78.1	76.6	75.2	74.7	75.0	76.1	76.4	74.9	74.7	71.1	65.9	68.1	75.8	82.2	80.0	77.8	75.8	75.0	73.6	73.2	75.4	82.2	65.9
2	72.2	72.2	71.5	72.3	71.6	73.3	73.5	73.6	75.3	77.0	79.2	77.3	72.8	62.9	57.3	57.0	73.3	82.0	84.4	83.5	82.9	82.2	81.8	81.2	74.6	84.4	57.0
3	80.2	80.1	80.2	79.9	80.7	81.4	82.9	84.1	84.7	84.9	85.7	85.6	86.2	81.3	86.5	84.6	84.8	87.5	88.6	86.4	84.5	83.3	82.3	80.8	83.6	88.6	79.9
4	80.9	79.7	79.8	79.3	78.9	79.0	79.0	78.6	78.7	81.7	82.2	85.3	79.5	75.5	73.6	72.3	82.0	85.5	85.4	84.9	84.7	85.6	85.9	86.6	81.0	86.6	72.3
5	87.3	87.9	88.3	88.3	88.1	87.4	86.8	86.8	87.4	88.0	87.2	86.6	83.4	77.4	71.0	69.1	80.8	86.4	88.1	88.7	90.0	91.4	90.6	91.3	85.8	91.4	69.1
6	90.1	90.0	91.2	91.0	90.2	88.7	89.5	89.8	90.8	89.1	78.3	70.2	68.5	67.0	65.0	64.4	68.5	67.0	74.2	76.1	79.7	80.9	85.4	85.0	80.4	91.2	64.4
7	76.4	74.7	74.4	72.9	70.9	71.7	70.2	69.1	67.5	65.4	65.0	64.4	63.2	59.7	55.1	54.2	57.3	61.9	67.5	70.1	76.4	79.4	83.8	85.6	69.0	85.6	54.2
8	86.5	86.2	86.8	86.6	85.8	86.6	86.9	85.2	83.7	80.9	78.7	72.2	57.7	54.8	58.2	54.2	65.7	73.4	76.9	81.1	83.6	81.8	84.1	85.7	77.6	86.9	54.2
9	83.7	86.5	87.4	86.0	85.3	83.0	82.2	79.4	70.7	68.4	65.1	58.5	63.1	67.4	69.8	65.1	66.7	72.2	79.6	86.5	87.7	88.2	89.8	89.3	77.6	89.8	58.5
10	91.0	89.7	87.0	84.1	82.0	80.7	80.0	79.4	78.4	77.5	76.7	76.6	75.7	69.1	71.8	75.1	76.4	78.4	78.9	79.6	82.4	81.8	80.7	80.7	79.7	91.0	69.1
11	80.7	81.0	83.0	83.7	83.9	83.3	82.9	83.4	83.2	81.0	77.2	78.5	75.1	73.6	79.2	78.9	82.5	87.2	88.1	88.4	88.7	89.1	89.2	89.0	83.0	89.2	73.6
12	89.1	89.7	89.4	87.7	86.9	87.1	87.3	87.8	88.1	87.3	85.3	83.5	80.4	79.3	77.3	79.1	80.8	83.1	82.2	80.7	81.6	77.9	78.6	79.8	83.7	89.7	77.3
13	80.7	80.6	75.8	83.1	81.9	81.5	83.6	88.4	81.3	78.3	76.4	74.0	72.0	70.1	68.6	68.8	71.2	76.2	83.2	87.4	88.3	85.5	83.4	82.5	79.3	88.4	68.6
14	81.1	80.1	80.5	79.7	80.0	80.1	80.0	79.8	81.7	84.1	86.6	85.5	85.2	78.1	71.8	73.9	76.1	79.0	79.6	81.4	76.7	77.3	81.4	86.2	80.2	86.6	71.8
15	86.0	84.7	84.9	88.0	87.4	83.8	83.4	83.6	80.6	77.5	73.7	64.3	66.7	56.9	57.1	67.1	76.8	81.9	78.5	77.1	75.9	74.9	74.2	73.1	76.6	88.0	56.9
16	73.4	72.3	71.9	72.0	71.2	72.3	72.0	72.6	74.9	78.1	79.9	72.0	66.0	56.9	52.5	56.3	61.5	76.7	84.0	85.6	84.6	83.8	83.2	82.0	73.2	85.6	52.5
17	81.3	81.0	80.0	80.4	80.2	80.4	80.6	81.4	81.8	83.7	85.5	84.8	77.4	64.8	59.8	51.4	55.2	60.3	63.5	65.2	73.8	74.2	77.2	79.2	74.3	85.5	51.4
18	78.2	79.5	75.4	76.9	75.5	76.1	78.9	77.1	71.6	66.4	60.4	46.0	50.5	56.3	56.0	57.7	60.4	66.1	71.7	78.0	83.6	90.7	92.0	91.9	71.5	92.0	46.0
19	92.1	92.5	92.3	92.2	91.8	91.9	92.1	91.2	91.1	88.8	84.1	77.1	79.2	77.6	73.3	72.4	70.4	73.1	73.0	72.6	73.8	81.0	83.1	82.6	82.9	92.5	70.4
20	81.6	84.6	83.4	83.1	82.9	81.4	79.8	77.7	76.9	76.7	73.4	65.8	61.0	61.1	60.1	62.8	66.1	73.6	81.0	83.6	83.1	82.5	80.4	78.7	75.9	84.6	60.1
21	77.5	75.7	75.5	75.2	75.3	74.7	74.5	73.9	74.9	77.9	77.8	71.8	66.7	53.0	46.3	59.8	62.5	75.8	81.8	82.2	80.8	81.2	80.3	80.5	73.1	82.2	46.3
22	80.6	80.4	80.7	82.0	83.0	82.7	83.0	82.5	80.0	74.9	68.9	59.2	65.2	67.6	67.0	65.7	66.0	66.0	69.4	74.4	79.0	80.8	84.1	81.7	75.2	84.1	59.2
23	79.4	70.4	72.2	71.7	69.7	70.5	78.6	82.5	81.8	76.0	69.8	60.3	55.5	55.1	51.8	47.4	59.4	68.6	72.6	73.2	75.0	78.4	77.1	75.0	69.7	82.5	47.4
24	65.7	64.0	63.5	67.9	68.6	62.6	64.0	61.8	64.2	57.5	52.6	51.2	52.3	49.0	48.6	47.6	50.0	50.4	46.3	46.0	45.5	45.0	43.1	48.3	54.8	68.6	43.1
25	46.8	41.8	44.5	42.9	50.0	43.7	45.7	55.7	55.5	48.8	42.1	51.9	52.6	68.0	76.7	77.6	70.7	69.7	70.3	68.7	63.6	60.2	72.4	78.4	58.3	78.4	41.8
26	79.0	79.1	79.1	67.7	61.6	61.5	58.3	60.6	63.4	61.2	57.6	51.2	54.1	56.5	74.2	75.6	71.4	70.8	69.1	61.6	58.4	61.2	62.4	61.7	64.9	79.1	51.2
27	60.4	60.5	63.2	68.5	73.9	76.3	76.2	80.0	79.3	75.0	64.9	64.6	49.0	50.5	56.1	57.4	58.8	60.4	64.5	66.4	82.2	83.8	82.3	71.2	67.7	83.8	49.0
28	69.0	66.5	63.8	61.7	63.3	65.4	72.1	79.3	77.2	70.0	73.2	67.9	61.4	61.7	73.1	83.6	84.6	87.9	87.9	88.9	89.1	89.3	89.3	90.3	75.7	90.3	61.4
29	90.7	90.9	90.3	90.1	90.9	90.4	89.9	89.7	89.2	86.8	85.8	82.9	78.2	77.6	67.8	72.3	55.6	71.5	64.8	79.2	73.5	59.8	45.2	42.6	77.3	90.9	42.6
30	43.5	45.1	47.3	54.1	54.4	56.8	56.2	58.5	67.8	68.8	67.2	61.2	55.3	52.0	48.5	49.2	51.0	54.5	61.6	63.8	67.5	62.9	64.6	66.5	57.4	68.8	43.5
31	65.5	66.8	65.0	61.1	59.9	59.9	62.3	63.8	64.2	63.5	58.2	57.0	53.0	53.4	55.1	59.0	67.4	75.8	82.1	82.6	83.6	83.0	82.6	82.9	67.0	83.6	53.0
Avg	77.6	77.1	77.0	77.0	76.9	76.5	77.0	77.8	77.4	75.8	73.4	69.8	67.1	64.7	64.4	65.4	68.6	73.8	76.1	77.5	78.6	78.5	78.8	78.8	74.4	85.6	58.4
Max	92.1	92.5	92.3	92.2	91.8	91.9	92.1	91.2	91.1	89.1	87.2	86.6	86.2	81.3	86.5	84.6	84.8	87.9	88.6	88.9	90.0	91.4	92.0	91.9	85.8	92.5	79.9
Min	43.5	41.8	44.5	42.9	50.0	43.7	45.7	55.7	55.5	48.8	42.1	46.0	49.0	49.0	46.3	47.4	50.0	50.4	46.3	46.0	45.5	45.0	43.1	42.6	54.8	68.6	41.8

A-25

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
February 2018

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	82.6	82.5	81.9	81.8	81.1	80.7	80.4	79.6	76.8	74.2	75.3	69.1	62.8	55.8	58.7	58.7	63.1	62.4	63.4	61.5	60.5	60.9	65.4	74.4	70.6	82.6	55.8
2	83.8	87.0	86.9	88.2	88.7	88.7	89.1	89.5	89.1	86.6	83.1	77.2	74.6	73.2	70.2	69.4	70.0	79.3	82.1	76.3	71.2	72.7	70.5	69.5	79.9	89.5	69.4
3	68.8	65.6	64.7	66.9	69.8	70.2	68.9	69.8	78.0	79.7	78.2	78.1	76.0	73.6	74.3	75.3	75.7	76.2	76.2	75.4	74.4	69.1	70.5	73.1	72.9	79.7	64.7
4	72.1	72.7	73.8	74.7	74.7	74.2	75.1	75.5	74.5	72.5	67.6	63.5	62.7	76.8	76.9	79.3	83.5	88.7	89.9	90.5	87.6	80.4	79.6	81.6	77.0	90.5	62.7
5	80.6	80.6	78.9	78.1	77.5	78.0	77.9	77.2	78.4	76.8	76.0	73.3	67.5	74.5	77.0	80.7	80.6	80.8	79.7	81.2	81.4	81.9	83.0	83.6	78.5	83.6	67.5
6	83.8	84.1	84.8	85.0	85.3	84.8	85.8	86.3	85.2	82.5	78.9	77.1	75.8	74.4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	82.4	86.3	74.4
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
Avg	78.6	78.8	78.5	79.1	79.5	79.4	79.5	79.6	80.3	78.7	76.5	73.0	69.9	71.4	71.4	72.7	74.6	77.5	78.3	77.0	75.0	73.0	73.8	76.4	76.5	85.4	65.8
Max	83.8	87.0	86.9	88.2	88.7	88.7	89.1	89.5	89.1	86.6	83.1	78.1	76.0	76.8	77.0	80.7	83.5	88.7	89.9	90.5	87.6	81.9	83.0	83.6	82.4	90.5	74.4
Min	68.8	65.6	64.7	66.9	69.8	70.2	68.9	69.8	74.5	72.5	67.6	63.5	62.7	55.8	58.7	58.7	63.1	62.4	63.4	61.5	60.5	60.9	65.4	69.5	70.6	79.7	55.8

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	Ca	Ca	Ca	45.1	54.9	63.1	68.0	71.8	73.8	75.4	64.6	75.4	45.1	
8	75.3	77.6	78.3	73.3	69.8	75.7	77.8	79.7	72.7	52.6	60.0	67.7	46.9	39.0	42.5	49.1	56.9	57.5	67.6	75.2	82.1	83.6	85.3	81.0	67.8	85.3	39.0	
9	80.9	72.3	74.7	71.7	63.5	65.2	63.6	64.9	63.9	61.4	59.3	60.4	60.3	64.3	63.9	66.6	72.2	82.4	68.8	60.8	68.8	83.4	85.2	86.2	69.4	86.2	59.3	
10	87.3	84.7	83.7	85.2	87.3	86.1	85.9	86.4	69.0	69.2	53.8	54.1	49.9	39.1	43.9	41.0	42.6	45.7	61.1	69.6	77.4	81.1	80.7	84.1	68.7	87.3	39.1	
11	83.9	83.0	81.9	81.2	80.5	80.1	79.4	78.8	78.1	71.2	65.5	54.6	44.4	39.3	32.2	39.7	39.8	45.4	57.1	64.8	70.1	73.4	76.1	77.1	65.7	83.9	32.2	
12	78.7	79.3	77.6	78.1	78.1	76.7	79.2	76.3	70.6	58.1	57.1	40.1	36.7	38.0	38.5	41.6	41.7	37.8	54.4	60.7	70.2	74.7	78.1	80.2	62.6	80.2	36.7	
13	81.7	82.2	83.3	83.1	82.3	82.6	82.6	80.2	74.3	57.8	55.4	48.4	37.5	36.3	39.2	38.5	39.0	40.3	48.8	54.9	65.6	70.8	73.0	76.5	63.1	83.3	36.3	
14	78.4	77.6	80.6	81.4	81.7	82.1	79.6	74.3	69.2	66.5	53.3	45.2	49.6	48.0	48.3	61.1	63.8	62.9	63.3	68.6	73.0	79.1	83.0	81.0	68.8	83.0	45.2	
15	82.2	80.8	83.7	86.6	90.0	90.0	90.3	90.9	89.9	87.6	85.2	84.4	85.3	85.4	82.7	78.1	75.1	75.3	77.8	79.6	81.2	83.1	86.9	87.3	84.1	90.9	75.1	
16	89.1	89.1	89.0	88.1	87.4	87.2	87.4	87.4	86.8	84.5	73.7	65.6	55.2	52.0	54.0	56.1	62.6	61.3	67.2	73.5	79.1	81.7	84.1	84.6	76.1	89.1	52.0	
17	83.6	85.9	85.6	83.7	84.8	84.5	85.1	84.0	82.0	74.6	68.0	63.0	69.8	67.0	77.8	80.8	77.2	82.6	83.2	83.5	85.4	85.6	79.5	82.2	80.0	85.9	63.0	
18	86.4	89.4	87.8	83.9	80.3	80.0	83.2	84.2	Pw	76.6	82.2	75.8	61.8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	81.0	89.4	61.8	
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	82.5	82.0	82.4	81.5	80.5	80.9	81.3	80.6	75.6	69.1	64.9	59.9	54.3	50.8	52.3	55.3	57.1	57.8	64.0	68.6	74.6	78.9	80.5	81.4	70.9	85.0	48.7	
Max	89.1	89.4	89.0	88.1	90.0	90.0	90.3	90.9	89.9	87.6	85.2	84.4	85.3	85.4	82.7	80.8	77.2	82.6	83.2	83.5	85.4	85.6	86.9	87.3	84.1	90.9	75.1	
Min	75.3	72.3	74.7	71.7	63.5	65.2	63.6	64.9	63.9	52.6	53.3	40.1	36.7	36.3	32.2	38.5	39.0	37.8	48.8	54.9	65.6	70.8	73.0	75.4	62.6	75.4	32.2	

A-27

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
January 2018

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	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx			
2	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
3	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
4	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
5	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
6	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
7	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
8	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
9	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
10	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
11	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
12	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
13	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
14	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
15	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
16	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
17	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
18	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
19	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
20	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
21	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
22	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
23	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
24	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
25	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
26	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
27	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
28	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
29	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
30	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
31	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
Tot																											
Max																											

A-28

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
February 2018

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	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx			
2	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
3	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
4	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
5	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx		
6	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
9	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
10	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
11	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
12	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
13	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
14	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
15	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
16	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
17	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
18	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
19	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
20	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
21	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
22	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
23	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
24	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
25	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
26	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
27	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
28	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa		
Tot																											
Max																											

A-29

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
March 2018

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	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa				
2	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
3	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
4	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
5	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
6	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
7	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa			
8	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Wa	Ca	Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.010
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.010	0.030	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.030	0.050
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Pw	Pw	0.000	0.030	0.000	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.030	0.030	0.030
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
31	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Tot	0.000	0.000	0.000	0.000	0.010	0.030	0.000	0.010	0.000	0.010	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.000	0.090
Max	0.000	0.000	0.000	0.000	0.010	0.030	0.000	0.010	0.000	0.010	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.030	0.050

A-30

APPENDIX B: AUDIT/CALIBRATION REPORTS
FIRST QUARTER 2018



BISON ENGINEERING, INC.

Bison Engineering

Meteorological Audit/Calibration (Startup at New Tower Location)
(No calibration adjustments required to instruments)

Calibration Dates: 03/07/2018 (1) Tower Lowered : N/A (startup checks) First Good Data: 1800 MST
Client: Sandfire Resources America Inc.
Site: Black Butte (1) Rain gauge checked on 03/08/2018, hour ending 1400 MST
Performed By: Steve Heck First good precip data on 03/08/2018, hour ending 1500 MST

Temperature

Audit Device: Control Company - digital thermometer Model 4000
Meter S/N: 91255639 Temperature Sensor: Climatronics 100093
Last certified: 08/22/2017 S/N P12535 (Upper), S/N P12535 (Lower) - Matched Set

Temperature bath results

	9m	9m	2m	2m	9m - 2m
Audit Value	DAS Value	DAS Diff.	DAS Value	DAS Diff.	DAS Diff.
°C	°C	°C	°C	°C	°C
0.14	0.24	0.10	0.31	0.17	-0.07
19.91	19.82	-0.09	19.89	-0.02	-0.07
34.60	34.73	0.13	34.79	0.19	-0.06

Wind Direction

Sensor height: 9 Meter	Sensor (Make/model number): Climatronics/ 102083	Serial Number : P1336C	Crossarm orientation (from Garmin GPS): 0.0 / 180.0	Setpoint	Linearity Check from DAS			
					Clockwise	Counter-CW	Diff CW	Diff CCW
				0	0.1	0.1	0.1	0.1
				30	29.8	29.3	-0.2	-0.7
				60	59.7	59.1	-0.3	-0.9
GPS location at sensor:				90	90.0	89.3	0.0	-0.7
N 46 deg 46.350 min, W 110 deg 52.949 min				120	119.9	119.2	-0.1	-0.8
GPS location at sighting point:				150	149.8	149.2	-0.2	-0.8
N 46 deg 46.318 min, W 110 deg 52.949 min				180	179.8	179.0	-0.2	-1.0
Sensor response aligned with crossarm (as left): 179.4				210	209.3	208.6	-0.7	-1.4
				240	239.0	238.3	-1.0	-1.7
				270	268.9	268.2	-1.1	-1.8
Linearity Audit Device: Climatronics 101966, SN 70				300	298.4	297.7	-1.6	-2.3
				330	329.0	328.5	-1.0	-1.5
						Max Diff	-1.6	-2.3

Threshold Torque: 0.07 oz.-in.
(Waters Model 366-1 torque watch)

Wind Speed

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

Synchronous motor checks

Known Value	Known Value	DAS Value	DAS Diff.
RPM	m/s	m/s	m/s
0	0.22	0.22	0.00
300	6.66	6.72	0.06
600	13.09	13.22	0.13

Threshold Torque: 0.004 oz.-in.
(Waters Model 366-3 torque watch)

Slight error in responses because AC inverter was used to power synchronous motors. AC power not hooked up until 3/8

Solar Radiation

Audit Device: Eppley Pyranometer, SN 16166F3 (certified by Eppley October 2017)

Time (MST)	CTS Value (W/m2)	Site Value (W/m2)	Diff. (%)	Diff. (% FS)
1624	197	193	-2.0	-0.3
1627	207	203	-1.9	-0.3
1629	232	227	-2.2	-0.4

Relative Humidity

Site Sensor: Met One 083E-0-35
Sensor Height: 2 meters
Reference Std: Assmann Psychrometer, thermometer calibrations checked November 2017

Ref Dry-Bulb: 1.0 deg C BP = 24.33in. Hg
Ref Wet-Bulb: -3.1 deg C
Ref RH: 36.1 %RH
Station RH: 31.5 %RH
Diff: -4.6 %RH

Barometric Pressure

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

Audit Value: 24.33 in Hg
Station Value: 24.39 in Hg
Diff: 0.06 in Hg

Precipitation

Rain Gauge = Met One Model 375
Level checked OK
Wind Screen in place
8" opening Precip audit performed during hour ending at 1400 MST

559 ml water added
Calibration is 8.24 ml per tip
Known audit value is 559 / 8.24 = 67.8 tips (so 67 full tips expected)

Unit registered 68 tips
% difference from expected = 1.5%

Signature Site Operator : _____

Signature Auditor : _____

**SANDFIRE RESOURCES, INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
Second Quarter 2018**

Prepared for:

Sandfire Resources, Inc.
PO Box 431
White Sulphur Springs, MT 59645

Prepared by:

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August 15, 2018

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: Jeffrey S. Bell

Signature: 

Title: Senior Field Technician

Date: 8-8-2018

Reviewer: Steven R. Heck

Signature: 

Title: Meteorologist

Date: 8/15/2018

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APPENDICES

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

1.0 INTRODUCTION

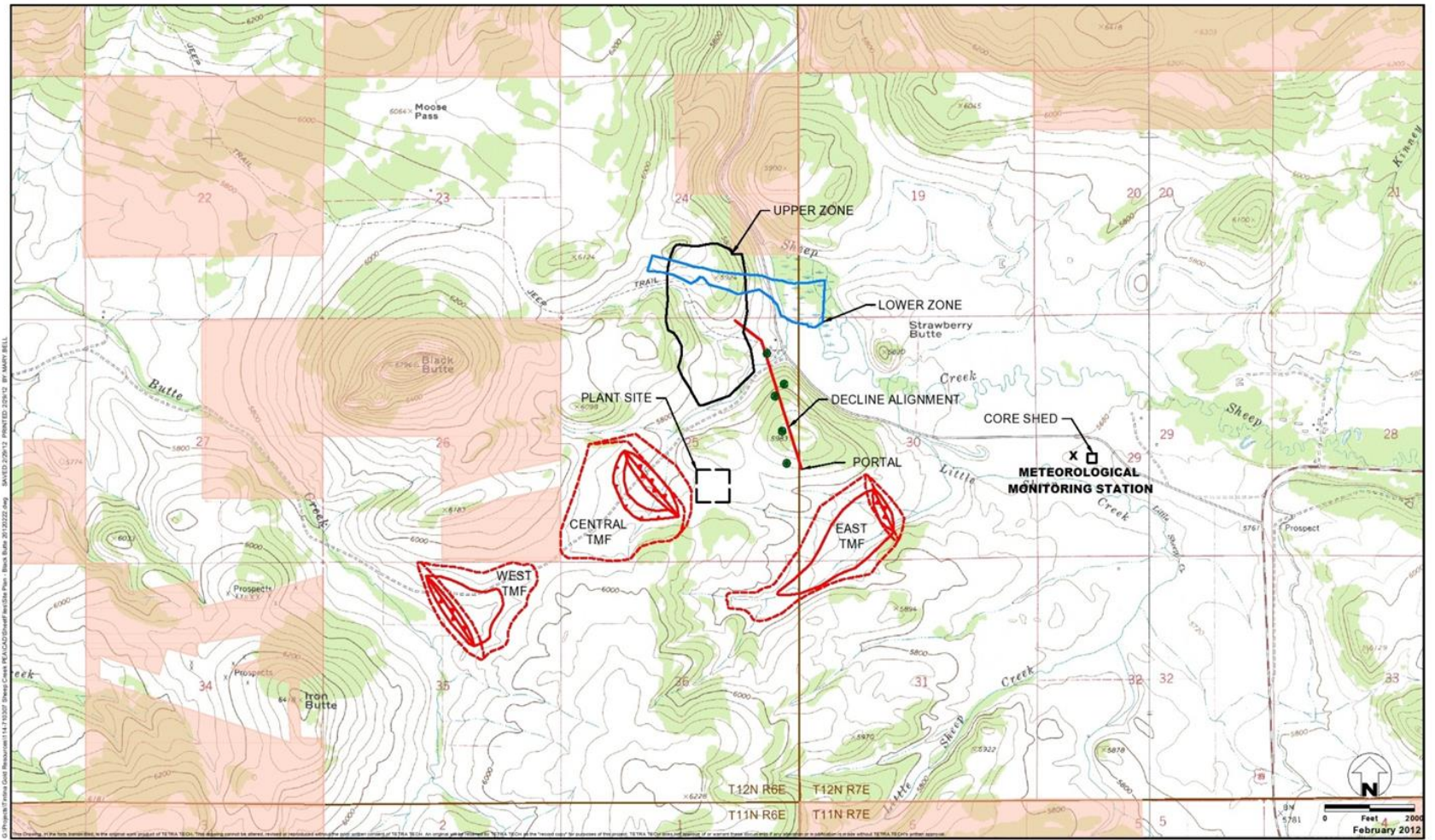
Sandfire Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately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

The meteorological monitoring system was installed in April 2012. The site is operated by Bison Engineering, Inc., of Helena and Billings. Figure 1 shows the location of the monitoring site. On February 6, 2018, the tower was shut down to move it 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 second quarter (April through June) of 2018. 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. The evaporation pan and manual rain gauge were not operated during the second quarter of 2018.

Figure 1. Monitoring Site Location



- ADIT ALIGNMENT HOLES
- TAILINGS MANAGEMENT FACILITY
- USFS PROPERTY

Site Plan
 Black Butte Copper Project
 Meagher County, Montana
 FIGURE 1



2.0 MONITORING SYSTEM OPERATIONS

The original meteorological monitoring system began collecting data on April 30, 2012. Data were collected continuously at that location until February 6, 2018 at 1400 MST when the existing meteorological tower was relocated approximately 300 feet to the southwest of the original location. All instruments except the automatic rain gauge were operational starting March 7 at 1800 MST; the rain gauge became operational on March 8 at 1500 MST.

Jeff Bell of Bison conducted performance audits of the meteorological system on May 22, 2018 and made any necessary calibration adjustments to the meteorological system following the audits. The Bison report of the audits is presented in Appendix B.

Several long power outages occurred during the second quarter, resulting in poor data recovery as discussed in Section 5.0. The power problems have been resolved and data have been collected continuously since July 9, 2018.

3.0 PERFORMANCE AUDIT DATA

Jeff Bell of Bison conducted performance audits of the meteorological system on May 22, 2018, and documented the as-found condition of each instrument. Based on those results no calibration adjustments were required. However, the delta temperature sensors should be replaced during the next audit to keep the delta temperature data within the required accuracy. The Bison report of the audits is presented in Appendix B.

4.0 CALIBRATION DATA

Jeff Bell conducted an as-found performance audit of the meteorological instruments on May 22, 2018, as discussed in Section 3.0. No calibration adjustments were required. The audit results are presented in Appendix B.

5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the second quarter of 2018 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 second quarter the net percentage data recovery was 20.1 percent for all parameters at the site. The data loss was due to unrecognized power failures at the new tower location. At the original tower site data were regularly downloaded via a phone modem that was hardwired to the main core shed building. However, the new tower is located approximately 500 feet from the phone connection of that building and Bison was advised that this was too great a distance to communicate over an Ethernet cable. In response, Bison procured the necessary equipment to establish cellular modem communications at the new tower and made plans to install the equipment in conjunction with the Quarter 2, 2018 audit. The following sequence of events then ensued:

- On May 22, 2018, Jeff Bell of Bison performed the second quarter audit and downloaded the meteorological data. During subsequent review, it was discovered that the battery charging system ran properly until March 11, when the 12-volt battery that supplies power to the datalogger and meteorological instruments failed to recharge. The battery continued to slowly degrade, until the station stopped functioning beginning on March 18, at 1400 MST. No additional data were collected during the first quarter of 2018, nor during much of the second quarter.
- On May 9, 2018, brief, intermittent periods of data collection resumed for unknown reasons. By coincidence the system was working at the time of the May 22 audit, so the problem was not detected during the audit. The magnitude of the problem became apparent when the downloaded data file was examined on May 24.
- During the May 22 audit the new cellular communication equipment was installed. Unfortunately, the signal was insufficient for data transmission. Over the next few weeks Sandfire personnel reoriented the cellular antenna in an attempt to improve signal strength. After it became apparent that the cellular system would not work, Bison ordered new radio-based equipment that would use a connection to Sandfire's Wi-Fi connection inside the core shed building.
- The new communications equipment was installed on July 9 and remote communications have since worked properly.
- When the data collected since May 22 were examined two large data gaps were noted; both were due to power failures:

- Approximately three days of data were lost between May 27 and May 30, due to power failure.
- Virtually all of the data from June 9 to June 30 were lost, also due to power failure.
- In early July an electrician was brought onsite to evaluate and repair the AC power supply / breaker box to the met tower. A new battery charging system was also installed at that time. Between July 9 and August 3 data collection was complete but the AC breaker tripped frequently and had to be reset. The AC power to the rain gauge heaters was disconnected on August 3 because the site technician suspected it was causing the breaker to trip, and this proved to be true. The system has been charging correctly since the AC power to the rain gauge heaters was unplugged and data collection has been complete. It is suspected that a short developed within the rain gauge heaters while the gauge was buried in snow for an extended period during the past winter (with AC power still connected). The gauge will be replaced during the next quarterly audit in September, as the manufacturer has indicated that the cost for two replacement heaters would approach the cost for an entire new gauge. The gauge will measure liquid precipitation correctly without the heaters, but not the frozen precipitation which comprises much of the annual precipitation at the Black Butte site.

Table 1. Monthly Data Completeness

April 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	0	0.0	0	0.0
Wind Direction	720	0	0.0	0	0.0
Standard Deviation	720	0	0.0	0	0.0
Temperature 9 Meters	720	0	0.0	0	0.0
Temperature 2 Meters	720	0	0.0	0	0.0
Temperature Delta T	720	0	0.0	0	0.0
Solar Radiation	720	0	0.0	0	0.0
Barometric Pressure	720	0	0.0	0	0.0
Relative Humidity	720	0	0.0	0	0.0
Precipitation	720	0	0.0	0	0.0
Total	7,200	0	0.0	0	0.0

Table 1. Monthly Data Completeness (Continued)

May 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	220	29.6	3	30.0
Wind Direction	744	220	29.6	3	30.0
Standard Deviation	744	220	29.6	3	30.0
Temperature 9 Meters	744	220	29.6	3	30.0
Temperature 2 Meters	744	220	29.6	3	30.0
Temperature Delta T	744	220	29.6	3	30.0
Solar Radiation	744	220	29.6	3	30.0
Barometric Pressure	744	220	29.6	3	30.0
Relative Humidity	744	220	29.6	3	30.0
Precipitation	744	220	29.6	3	30.0
Total	7,440	2,200	29.6	30	30.0

Table 1. Monthly Data Completeness (Continued)

June 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	215	29.9	0	29.9
Wind Direction	720	215	29.9	0	29.9
Standard Deviation	720	215	29.9	0	29.9
Temperature 9 Meters	720	215	29.9	0	29.9
Temperature 2 Meters	720	215	29.9	0	29.9
Temperature Delta T	720	215	29.9	0	29.9
Solar Radiation	720	215	29.9	0	29.9
Barometric Pressure	720	215	29.9	0	29.9
Relative Humidity	720	215	29.9	0	29.9
Precipitation	720	215	29.9	0	29.9
Total	7,200	2,150	29.9	0	29.9

Table 2. Quarterly Data Completeness

Second Quarter 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,184	435	19.9	3	20.1
Wind Direction	2,184	435	19.9	3	20.1
Standard Deviation	2,184	435	19.9	3	20.1
Temperature 9 Meters	2,184	435	19.9	3	20.1
Temperature 2 Meters	2,184	435	19.9	3	20.1
Temperature Delta T	2,184	435	19.9	3	20.1
Solar Radiation	2,184	435	19.9	3	20.1
Barometric Pressure	2,184	435	19.9	3	20.1
Relative Humidity	2,184	435	19.9	3	20.1
Precipitation	2,184	435	19.9	3	20.1
Total	21,840	4,350	19.9	30	20.1

6.0 MONITORING DATA

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

Monthly and quarterly wind rose distributions from the monitoring site are presented in Tables 4 through 7. These tables give the percentage frequency of occurrence of winds from 16 cardinal directions and from 22 wind speed ranges. These same data are presented graphically in Figures 2 through 5. In the wind rose figures, the length of each "petal" of the rose is proportional to the percentage of time the wind blew from that direction. On the bottom of each figure is a histogram showing the average wind speed from each of the cardinal wind directions. No wind rose could be calculated for April 2018, because no data were collected, as discussed in Section 5.0.

Table 3. Missing Data Codes

Mnemonic Code	Description	Equivalent EPA Null Value Reason Code
Sc	Scheduled but not collected	9972
Ti	Sample time out of limits	9973
Fi	Filter damage	9976
Op	Voided by operator	9978
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 5. Monthly Wind Rose Summary, Black Butte Copper Project Met Tower

May 2018																		
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	1.4	0.5	0.9	0.9	0.5	0.0	2.7	0.9	0.0	0.0	0.0	0.0	0.9	0.0	1.4	0.0	10.0
	1.1 - 2.0	0.5	0.5	1.8	1.8	4.1	3.2	4.1	1.8	0.5	0.9	0.5	0.5	0.5	0.0	1.4	0.9	22.7
	2.1 - 3.0	0.5	0.5	1.8	1.4	5.0	1.4	0.0	0.5	1.4	0.0	0.5	0.5	1.8	0.5	0.9	0.5	16.8
	3.1 - 4.0	1.8	0.5	0.5	1.4	1.8	0.0	0.5	1.8	0.9	0.5	0.5	2.3	1.8	1.4	1.8	1.4	18.6
	4.1 - 5.0	1.8	0.0	0.0	0.0	0.0	0.0	0.5	2.3	0.0	0.0	0.9	0.9	2.7	1.8	2.7	2.3	15.9
	5.1 - 6.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	0.9	0.5	0.9	0.5	0.5	1.4	1.8	8.2
	6.1 - 7.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.5	0.5	0.5	0.0	2.7
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	0.5	0.5	0.0	2.3
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.4	0.0	0.5	2.7
	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	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	6.8	1.8	5.0	5.5	11.4	4.5	7.7	8.2	3.2	3.2	2.7	5.5	10.5	6.4	10.5	7.3		100.0
Average Speed	3.5	2.0	1.9	2.0	2.2	2.0	1.6	3.2	3.1	4.4	3.7	4.0	4.2	5.4	3.7	4.4		3.2

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

June 2018																	
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.1 - 1.0	0.0	0.5	0.5	0.5	0.9	0.9	0.0	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.0	6.5
1.1 - 2.0	0.5	1.4	0.5	2.8	3.3	7.0	3.7	2.3	2.8	0.5	0.9	0.9	1.9	0.0	0.9	0.9	30.2
2.1 - 3.0	0.9	0.5	0.5	2.3	2.8	1.9	0.9	1.9	0.9	1.9	0.0	1.4	1.4	0.9	0.5	0.0	18.6
3.1 - 4.0	0.0	0.9	0.0	0.5	1.4	0.5	0.9	0.9	0.9	0.5	0.0	2.8	5.1	1.9	0.0	0.9	17.2
4.1 - 5.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.9	0.0	0.5	0.0	0.0	3.7	1.4	0.5	0.5	7.9
5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.9	0.0	0.9	0.5	3.3
6.1 - 7.0	0.0	0.5	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.9	1.4	3.3	1.4	0.0	0.0	8.4
7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.5	0.5	2.8	0.0	0.0	0.5	5.1
8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.9	0.0	0.5	0.0	0.0	0.0	1.9
9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	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	0.0	0.0	0.0	0.0	0.0
11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Calm																	0.0
Total	1.4	3.7	1.4	6.0	8.8	10.2	7.4	7.0	4.7	4.2	3.7	8.4	20.5	6.0	3.3	3.3	100.0
Average Speed	2.0	2.6	1.6	1.9	2.1	1.8	3.4	2.7	1.9	3.1	5.2	4.1	4.8	4.1	3.1	3.9	3.3

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

Second Quarter 2018																		
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	0.7	0.7	0.7	0.5	1.4	0.7	0.0	0.2	0.2	0.2	0.7	0.2	0.9	0.0	8.3
	1.1 - 2.0	0.5	0.9	1.1	2.3	3.7	5.1	3.9	2.1	1.6	0.7	0.7	0.7	1.1	0.0	1.1	0.9	26.4
	2.1 - 3.0	0.7	0.5	1.1	1.8	3.9	1.6	0.5	1.1	1.1	0.9	0.2	0.9	1.6	0.7	0.7	0.2	17.7
	3.1 - 4.0	0.9	0.7	0.2	0.9	1.6	0.2	0.7	1.4	0.9	0.5	0.2	2.5	3.4	1.6	0.9	1.1	17.9
	4.1 - 5.0	0.9	0.0	0.0	0.0	0.2	0.0	0.2	1.6	0.0	0.2	0.5	0.5	3.2	1.6	1.6	1.4	12.0
	5.1 - 6.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.5	0.2	0.7	0.7	0.2	1.1	1.1	5.7
	6.1 - 7.0	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.5	0.7	1.8	0.9	0.2	0.0	5.5
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.2	0.5	1.8	0.2	0.2	0.2	3.7
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.0	0.7	0.7	0.0	0.2	2.3
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.5
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	4.1	2.8	3.2	5.7	10.1	7.4	7.6	7.6	3.9	3.7	3.2	6.9	15.4	6.2	6.9	5.3		100.0
Average Speed	3.2	2.4	1.8	2.0	2.2	1.8	2.5	2.9	2.4	3.6	4.6	4.1	4.6	4.8	3.6	4.2		3.3

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

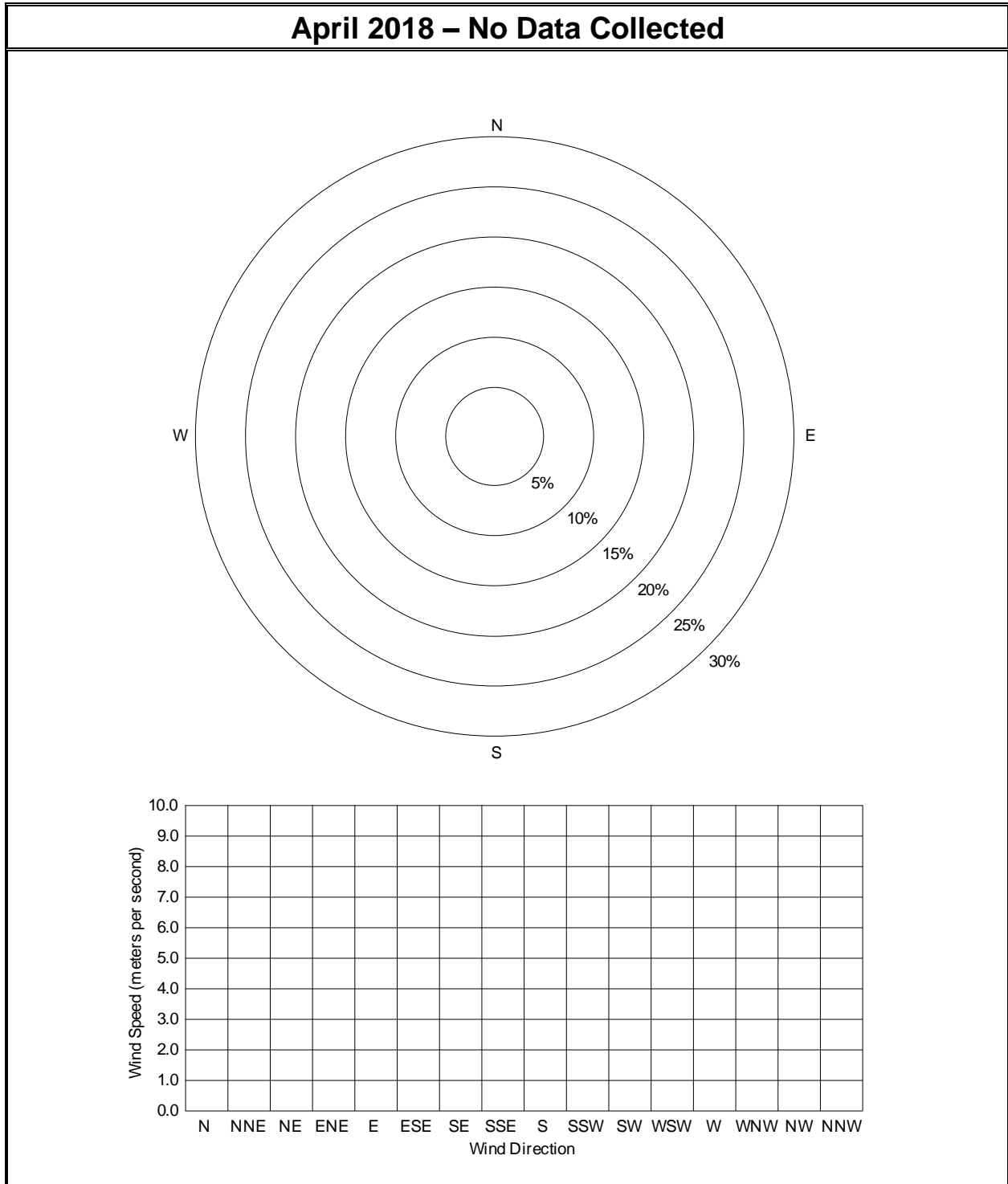


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

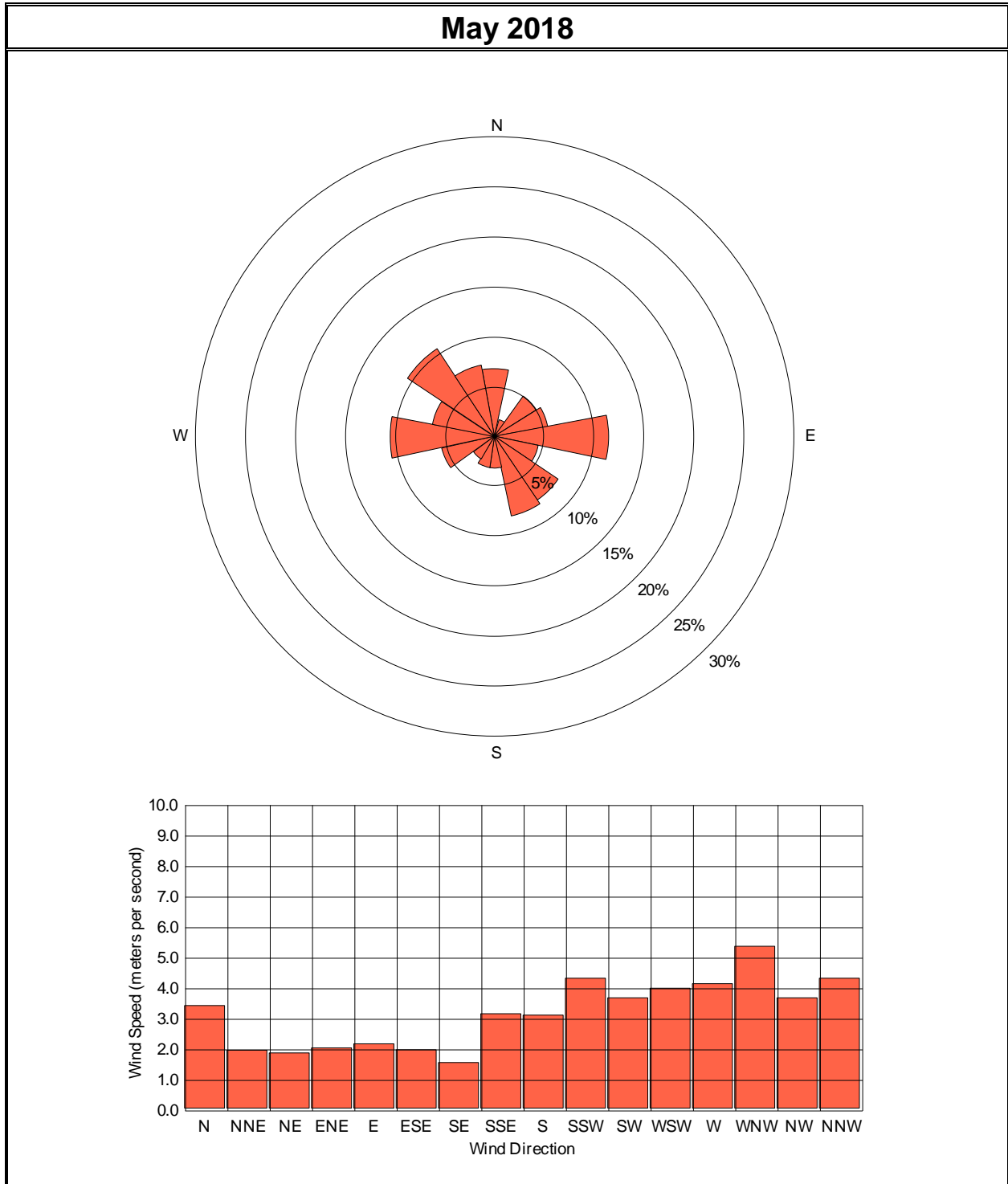


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

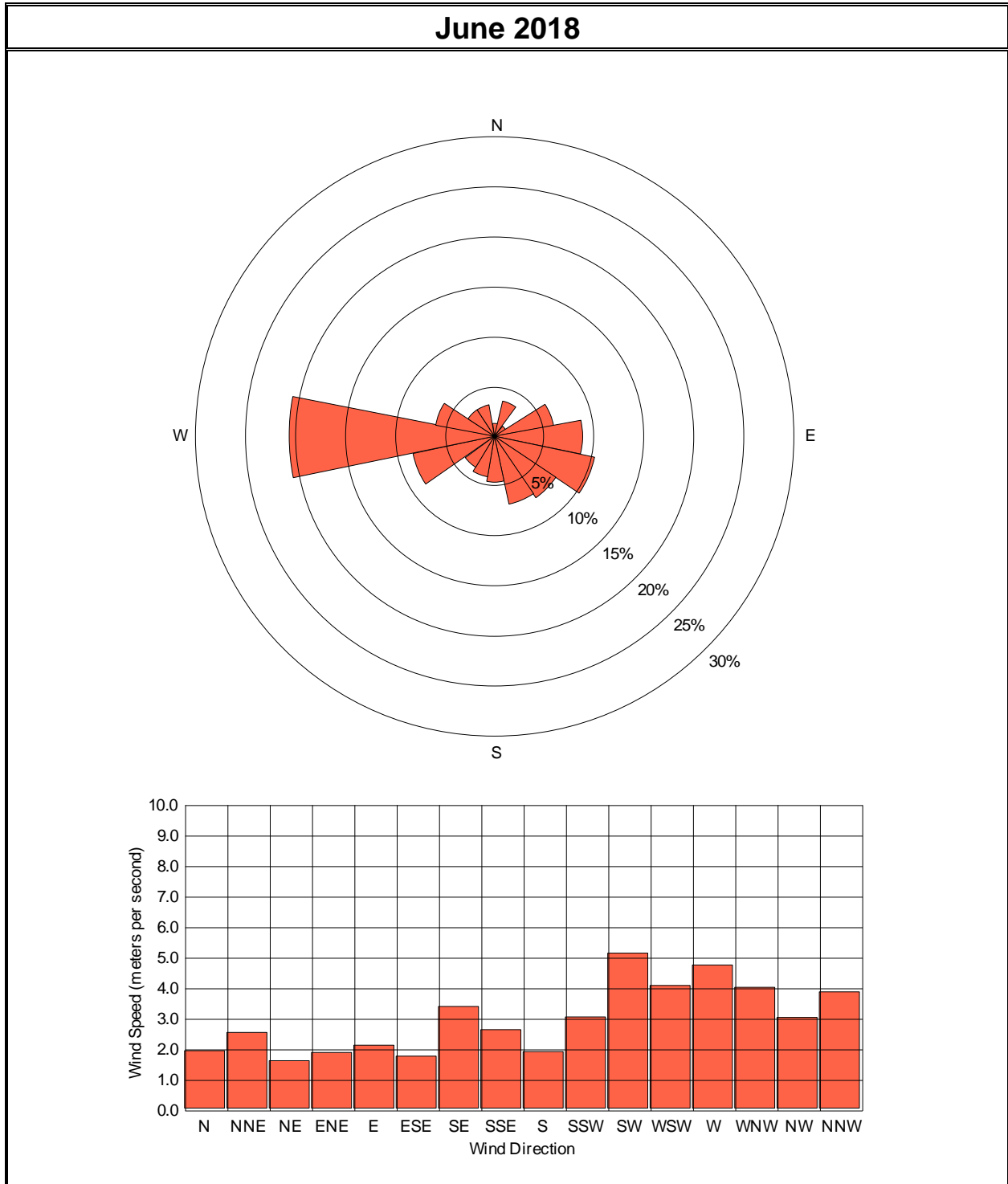
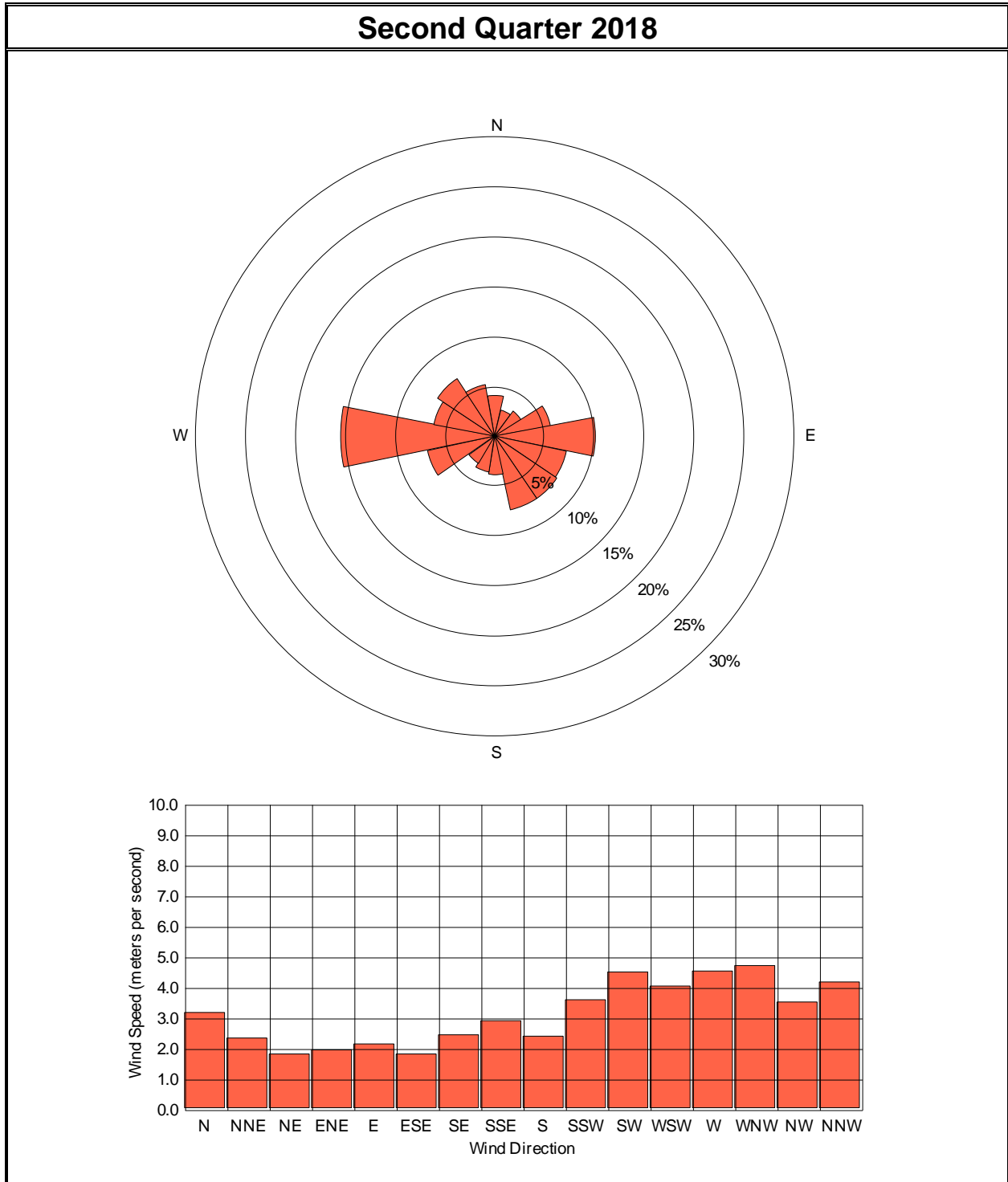


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, SECOND QUARTER 2018**

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
Avg																											
Max																											
Min																											

A-1

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	3.8	4.4	4.4	5.4	4.6	4.9	3.4	3.8	3.9	Pw	Pw	Pw	Pw	Pw	4.3	5.4	3.4
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	6.4	5.5	5.6	3.5	4.3	3.7	4.2	Pw	Pw	Pw	Pw	Pw	Pw	4.7	6.4	3.5
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	8.3	6.4	4.6	5.3	5.9	5.0	4.7	5.0	5.7	8.3	4.6	
18	4.2	4.0	5.8	6.0	5.3	4.8	3.8	4.8	5.3	5.4	5.1	4.1	4.7	4.7	3.8	4.0	5.0	3.9	3.0	2.3	2.3	2.7	3.8	2.4	4.2	6.0	2.3	
19	4.3	3.1	2.0	4.0	4.7	5.5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	3.9	5.5	2.0	
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	4.3	3.4	2.5	2.4	Pw	Pw	Pw	2.7	1.9	2.2	2.2	2.4	2.6	2.7	4.3	1.9	
23	1.0	1.3	0.9	1.1	0.6	1.0	0.5	1.3	1.1	0.8	1.0	1.3	1.9	1.6	1.7	2.1	1.8	2.5	2.4	2.1	0.7	0.7	0.7	1.0	1.3	2.5	0.5	
24	1.2	1.2	1.1	1.0	1.1	0.7	1.0	1.3	3.1	4.1	8.0	8.5	7.7	8.1	8.7	8.1	7.3	6.3	4.6	4.3	1.7	2.2	2.5	4.2	8.7	0.7		
25	1.9	1.5	1.2	1.6	1.2	1.0	0.9	1.1	3.1	3.1	3.3	4.0	5.3	4.1	3.7	3.6	3.1	2.6	3.8	4.8	1.9	2.3	2.4	1.5	2.6	5.3	0.9	
26	1.4	1.2	1.6	1.5	1.3	0.8	0.7	0.9	2.1	2.8	3.3	2.9	3.4	4.1	5.1	7.6	5.0	5.0	3.3	3.5	2.0	1.6	2.8	1.3	2.7	7.6	0.7	
27	1.0	1.8	1.7	1.7	1.5	0.7	0.8	1.1	2.0	2.4	3.2	2.0	2.2	3.6	2.7	3.3	3.2	3.7	Pw	Pw	Pw	Pw	Pw	Pw	2.1	3.7	0.7	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	6.1	6.1	6.0	4.4	4.4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	5.4	6.1	4.4	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	5.8	6.1	4.7	7.3	3.5	5.6	2.2	2.2	2.3	1.8	1.9	1.4	1.5	3.6	7.3	1.4	
31	1.4	2.0	2.3	2.6	2.0	4.0	3.1	1.7	1.1	3.2	3.6	1.7	2.6	5.7	3.2	4.1	4.2	3.8	5.0	2.7	4.5	3.3	2.5	2.9	3.1	5.7	1.1	
Avg	2.0	2.0	2.1	2.4	2.2	2.3	1.5	1.7	2.5	3.5	4.2	4.0	4.4	4.5	4.5	4.4	4.9	4.0	3.8	3.3	2.8	2.4	2.5	2.3	3.2	5.9	2.0	
Max	4.3	4.0	5.8	6.0	5.3	5.5	3.8	4.8	5.3	6.1	8.0	8.5	7.7	8.1	8.7	8.1	8.3	7.3	6.3	5.3	5.9	5.0	4.7	5.0	5.7	8.7	4.6	
Min	1.0	1.2	0.9	1.0	0.6	0.7	0.5	0.9	1.1	0.8	1.0	1.3	1.9	1.6	1.7	2.1	1.8	2.2	2.2	1.9	0.7	0.7	0.7	1.0	1.3	2.5	0.5	

A-2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
June 2018

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	2.8	2.4	1.8	1.0	1.2	1.1	2.9	4.0	5.8	6.6	7.0	6.0	4.3	7.1	6.2	7.2	6.9	6.4	8.5	7.7	6.7	4.7	4.9	2.4	4.8	8.5	1.0	
2	1.7	2.3	1.8	1.3	1.5	2.1	2.1	5.0	6.3	7.2	6.7	6.4	7.6	9.7	7.5	5.7	6.5	6.4	4.7	3.4	2.0	3.1	2.5	3.1	4.4	9.7	1.3	
3	2.4	2.1	1.4	1.6	1.6	1.4	0.6	0.7	1.0	2.7	3.1	3.1	3.8	3.4	3.9	2.6	3.3	3.3	2.3	1.6	2.9	1.2	1.4	1.6	2.2	3.9	0.6	
4	1.6	2.6	2.8	1.7	2.5	1.5	1.1	1.7	4.8	5.0	6.8	8.7	8.7	6.8	3.5	5.8	6.2	5.1	6.6	5.6	2.7	2.3	2.1	1.9	4.1	8.7	1.1	
5	1.4	1.0	1.1	1.3	1.1	1.2	0.9	0.9	2.1	3.7	2.0	2.4	2.3	4.3	4.2	3.8	3.9	3.6	2.7	1.4	2.7	2.5	1.9	1.3	2.2	4.3	0.9	
6	1.0	1.1	1.0	0.9	1.4	1.9	1.5	1.4	1.0	2.6	3.7	3.4	2.3	1.8	2.4	2.9	3.3	3.2	1.7	4.7	1.4	2.5	1.5	2.5	2.1	4.7	0.9	
7	1.3	5.2	4.1	3.5	3.3	7.1	2.3	3.2	4.1	2.7	1.8	1.9	2.0	3.4	3.5	2.5	1.7	1.5	1.7	3.8	3.1	1.6	2.3	1.6	2.9	7.1	1.3	
8	1.1	2.0	1.3	1.1	1.5	1.7	1.1	0.8	3.6	3.5	3.5	4.3	4.6	4.3	4.2	3.1	2.1	3.0	2.6	2.7	3.2	1.8	1.4	1.1	2.5	4.6	0.8	
9	1.2	1.3	1.2	1.0	1.5	1.7	1.4	3.7	6.4	7.8	7.6	8.5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	3.6	8.5	1.0	
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	9.6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	9.6	9.6	9.6
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	6.5	7.5	7.8	6.3	4.1	3.4	3.1	3.2	Pw	Pw	Pw	Pw	Pw	5.2	7.8	3.1
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
18	Pw	Pw	3.9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	3.9	3.9	3.9
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	0.3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.3	0.3	0.3
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	1.6	2.2	2.0	1.5	1.6	2.2	1.5	2.4	3.9	4.6	4.7	5.0	4.7	5.8	4.8	4.4	4.2	4.0	3.8	3.8	3.1	2.5	2.3	1.9	3.3	6.3	2.0	
Max	2.8	5.2	4.1	3.5	3.3	7.1	2.9	5.0	6.4	7.8	7.6	8.7	8.7	9.7	7.8	7.2	6.9	6.4	8.5	7.7	6.7	4.7	4.9	3.1	9.6	9.7	9.6	
Min	1.0	1.0	1.0	0.9	0.3	1.1	0.6	0.7	1.0	2.6	1.8	1.9	2.0	1.8	2.4	2.5	1.7	1.5	1.7	1.4	1.4	1.2	1.4	1.1	0.3	0.3	0.3	

A-3

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
Prev																									

A-4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	157	152	165	148	273	323	78	83	73	Pw	Pw	Pw	Pw	126
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	212	204	239	335	231	186	237	Pw	Pw	Pw	Pw	Pw	228
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	328	329	340	343	334	336	338
18	325	315	305	309	313	305	297	314	334	350	346	346	352	359	7	17	3	2	79	76	88	95	150	120	354
19	136	148	120	156	151	154	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	144
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	320	347	120	80	Pw	Pw	Pw	110	51	88	89	70	95	73
23	40	149	136	134	33	135	354	146	272	269	326	319	102	242	332	67	158	184	181	160	167	266	133	357	149
24	71	62	71	98	228	315	141	90	245	269	258	263	269	285	275	284	283	281	271	270	278	205	89	94	267
25	105	117	81	126	50	64	73	31	259	271	258	255	255	255	285	304	322	268	224	294	140	98	95	99	275
26	38	135	149	102	85	46	149	356	305	271	256	290	267	267	278	316	326	10	8	41	341	203	178	351	330
27	317	126	53	94	95	135	129	79	325	315	255	309	51	195	7	354	81	127	Pw	Pw	Pw	Pw	Pw	Pw	61
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	310	295	297	297	302	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	300
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	218	206	216	287	316	210	42	22	45	160	72	98	107	131
31	130	95	337	52	113	79	88	132	169	285	339	141	216	175	68	157	152	176	288	255	276	267	261	267	171
Prev	62	117	82	106	86	84	100	68	279	291	291	280	255	229	318	326	301	40	323	21	131	137	114	61	354

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
June 2018

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	269	249	270	249	277	234	265	267	262	285	292	308	328	275	291	278	271	271	264	271	275	271	278	305	275
2	342	73	102	111	121	91	24	274	268	276	268	263	265	262	267	270	258	260	268	285	103	91	42	84	285
3	86	81	81	114	121	120	87	303	105	252	246	255	280	267	245	213	200	185	192	154	87	24	160	138	160
4	87	114	110	128	78	123	176	144	148	193	200	220	232	244	256	258	252	152	18	346	354	62	71	88	145
5	92	119	133	101	69	191	230	12	1	261	144	151	145	266	286	268	273	283	295	246	166	82	102	67	167
6	90	5	322	58	123	71	101	136	161	160	148	185	160	228	189	201	252	289	309	158	76	95	27	63	129
7	105	304	322	139	331	329	144	74	84	104	75	13	340	262	262	275	280	251	280	285	93	37	121	115	1
8	112	89	180	122	59	120	313	54	264	269	252	288	262	266	271	274	252	291	213	184	164	145	147	189	216
9	162	188	194	197	175	159	139	133	138	141	135	132	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	157
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	243	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	243
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	219	233	237	232	282	334	13	23	Pw	Pw	Pw	Pw	277
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
18	Pw	Pw	113	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	113
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	264	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	264
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Prev	97	94	132	128	102	131	147	81	165	226	201	239	252	255	257	253	259	265	284	255	104	72	96	98	210

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
Avg																											
Max																											
Min																											

A-7

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	23	30	22	17	27	48	20	13	14	Pw	Pw	Pw	Pw	Pw	24	48	13
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	19	24	81	28	51	30	11	Pw	Pw	Pw	Pw	Pw	Pw	35	81	11
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	17	14	18	12	11	12	11	13	14	18	11	
18	13	9	9	7	7	12	11	17	19	10	10	14	13	12	15	14	17	16	19	20	14	11	10	22	13	22	7	
19	14	23	21	15	7	7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	15	23	7	
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	50	72	72	19	Pw	Pw	Pw	13	54	50	23	44	57	45	72	13	
23	64	62	44	29	96	79	90	89	81	64	28	25	21	59	74	49	23	12	12	15	75	56	42	64	52	96	12	
24	48	37	66	62	95	85	71	53	23	14	13	14	14	15	14	11	10	11	11	9	14	87	37	36	35	95	9	
25	23	57	75	33	57	40	86	65	38	38	52	32	22	34	35	37	43	28	19	30	48	44	51	61	44	86	19	
26	33	80	81	66	37	73	46	75	33	31	23	40	35	34	26	15	19	18	20	37	98	87	59	103	49	103	15	
27	60	35	54	65	60	92	70	88	28	49	30	47	71	47	44	32	40	37	Pw	Pw	Pw	Pw	Pw	Pw	53	92	28	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	15	19	18	24	32	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	22	32	15	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	8	22	29	18	33	14	54	71	86	84	28	49	48	42	86	8	
31	47	93	79	82	60	12	15	28	53	30	38	49	45	40	47	64	27	53	12	37	26	20	15	12	41	93	12	
Avg	38	50	54	45	52	50	56	59	39	31	27	29	32	35	35	31	28	27	20	31	47	41	35	46	38	68	13	
Max	64	93	81	82	96	92	90	89	81	64	52	50	72	72	81	64	51	54	71	86	98	87	59	103	53	103	28	
Min	13	9	9	7	7	7	11	17	19	10	10	8	13	12	14	11	10	11	11	9	11	11	10	12	13	18	7	

A-8

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
June 2018

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

A-9

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
Avg																											
Max																											
Min																											

A-10

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	15.8	16.5	17.2	17.2	15.5	12.6	11.3	10.8	10.9	Pw	Pw	Pw	Pw	Pw	14.2	17.2	10.8
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	17.9	17.9	13.2	15.4	17.4	17.3	16.7	Pw	Pw	Pw	Pw	Pw	Pw	16.5	17.9	13.2
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	9.9	9.2	9.0	8.5	7.1	7.1	6.8	6.4	8.0	9.9	6.4	
18	6.2	5.9	5.3	5.0	4.7	4.5	4.6	5.0	5.1	5.4	5.6	5.9	6.1	6.0	6.1	6.9	6.5	5.8	5.3	5.0	4.4	3.9	3.3	3.1	5.2	6.9	3.1	
19	2.7	2.4	2.0	2.0	2.0	2.0	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	2.2	2.7	2.0	
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	11.3	10.5	10.9	10.2	Pw	Pw	Pw	14.3	12.1	9.3	8.3	7.3	6.2	10.0	14.3	6.2	
23	4.9	4.1	3.2	2.6	2.7	4.0	5.0	6.4	8.0	10.0	10.6	10.6	10.5	10.4	11.5	11.6	11.7	11.8	11.5	11.0	10.4	9.4	8.8	7.3	8.3	11.8	2.6	
24	5.6	4.6	4.0	3.8	4.4	4.6	5.4	9.4	12.6	13.5	15.1	16.0	16.4	17.0	17.4	17.6	17.7	17.5	17.4	16.1	14.6	12.5	8.3	6.6	11.6	17.7	3.8	
25	5.6	4.6	3.4	3.0	2.5	2.8	5.9	10.7	14.0	15.2	16.5	17.9	18.8	19.5	20.2	20.6	20.9	20.5	19.1	16.2	14.7	12.9	11.4	9.5	12.8	20.9	2.5	
26	8.8	7.0	5.2	5.4	4.7	4.7	7.1	11.5	15.5	16.8	17.9	19.1	20.4	21.0	21.4	18.5	17.4	16.9	15.9	15.0	14.0	12.8	12.6	10.9	13.4	21.4	4.7	
27	9.1	8.2	6.6	5.3	4.8	4.9	8.3	12.6	15.2	16.4	16.2	17.5	18.1	15.6	15.1	16.2	16.6	16.6	Pw	Pw	Pw	Pw	Pw	Pw	12.4	18.1	4.8	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	15.4	15.9	16.4	16.4	17.2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	16.3	17.2	15.4	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	18.4	19.0	19.4	17.9	15.6	12.3	11.7	11.6	11.4	10.1	9.7	8.8	8.3	13.4	19.4	8.3	
31	7.1	7.4	8.2	8.2	8.7	8.4	9.4	10.9	12.2	13.4	13.0	14.6	15.8	15.5	13.4	14.4	14.5	13.7	9.8	8.7	7.2	6.9	6.6	6.5	10.6	15.8	6.5	
Avg	6.3	5.5	4.7	4.4	4.3	4.5	6.5	9.5	11.8	13.3	13.9	14.9	15.5	15.6	14.9	15.2	14.3	13.8	12.9	11.5	10.2	9.3	8.2	7.2	10.8	15.1	6.5	
Max	9.1	8.2	8.2	8.2	8.7	8.4	9.4	12.6	15.5	16.8	17.9	19.1	20.4	21.0	21.4	20.6	20.9	20.5	19.1	16.2	14.7	12.9	12.6	10.9	16.5	21.4	15.4	
Min	2.7	2.4	2.0	2.0	2.0	2.0	4.6	5.0	5.1	5.4	5.6	5.9	6.1	6.0	6.1	6.9	6.5	5.8	5.3	5.0	4.4	3.9	3.3	3.1	2.2	2.7	2.0	

A-11

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
June 2018

Day	<< Hour >>																								Avg	Max	Min	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1	6.4	5.9	5.9	6.0	6.2	6.3	6.4	6.6	6.6	6.3	6.7	6.6	6.4	7.1	7.4	8.6	9.2	9.2	8.6	7.6	6.8	5.5	5.1	4.1	6.7	9.2	4.1	
2	3.1	1.2	0.1	-0.4	-1.0	0.8	4.0	7.2	8.8	9.9	11.0	12.2	13.3	14.0	14.5	15.2	16.0	16.4	16.3	15.1	10.2	7.1	6.0	4.7	8.6	16.4	-1.0	
3	3.2	2.6	1.2	1.0	0.6	0.9	4.3	9.4	14.5	16.0	16.8	17.8	18.6	19.3	20.1	20.2	20.5	20.8	20.7	18.6	15.0	13.0	13.2	12.7	12.5	20.8	0.6	
4	12.3	11.6	9.8	7.9	7.7	7.2	10.3	14.0	17.9	20.0	21.1	22.2	22.6	21.2	21.9	22.5	23.3	20.1	16.9	16.1	14.8	12.4	11.3	9.5	15.6	23.3	7.2	
5	8.3	7.1	6.9	7.4	7.8	8.3	9.8	11.5	12.2	11.7	11.2	13.4	14.8	16.3	17.2	17.9	18.3	18.4	17.8	16.4	14.1	11.6	8.8	7.5	12.3	18.4	6.9	
6	6.2	5.7	5.3	4.8	5.1	5.0	7.5	10.2	14.6	16.0	16.5	17.6	18.5	19.3	20.1	20.7	21.3	21.1	20.9	18.5	16.7	14.8	12.3	12.2	13.8	21.3	4.8	
7	11.8	12.7	11.6	12.3	12.0	12.5	11.8	11.0	10.3	11.8	13.7	15.7	17.5	18.8	19.3	18.6	18.7	18.6	17.7	14.9	13.1	11.4	8.8	7.3	13.8	19.3	7.3	
8	6.1	5.9	4.9	4.0	3.3	4.1	6.5	11.3	14.2	15.2	16.4	17.6	18.5	19.0	19.6	19.9	20.1	20.2	20.0	18.5	15.8	14.0	11.1	9.3	13.1	20.2	3.3	
9	8.8	8.0	10.3	12.8	13.5	12.3	15.4	18.2	20.3	21.7	22.9	23.8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	15.7	23.8	8.0	
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	13.2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	13.2	13.2	13.2
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	21.2	21.8	22.1	22.7	23.1	22.5	20.5	18.6	Pw	Pw	Pw	Pw	Pw	21.6	23.1	18.6
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
18	Pw	Pw	9.0	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	9.0	9.0	9.0
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	8.8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	8.8	8.8	8.8
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	7.4	6.7	6.5	6.2	6.4	6.4	8.4	11.0	13.3	14.3	15.1	16.3	16.8	17.0	18.0	18.5	18.9	18.6	17.7	16.0	13.3	11.2	9.6	8.4	12.6	17.4	7.0	
Max	12.3	12.7	11.6	12.8	13.5	12.5	15.4	18.2	20.3	21.7	22.9	23.8	22.6	21.8	22.1	22.7	23.3	22.5	20.9	18.6	16.7	14.8	13.2	12.7	21.6	23.8	18.6	
Min	3.1	1.2	0.1	-0.4	-1.0	0.8	4.0	6.6	6.6	6.3	6.7	6.6	6.4	7.1	7.4	8.6	9.2	9.2	8.6	7.6	6.8	5.5	5.1	4.1	6.7	8.8	-1.0	

A-12

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
Avg																												
Max																												
Min																												

A-13

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	16.6	17.0	17.7	17.6	15.8	12.5	11.3	10.8	10.8	Pw	Pw	Pw	Pw	Pw	14.5	17.7	10.8
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	18.7	18.5	12.9	16.1	18.0	17.6	16.6	Pw	Pw	Pw	Pw	Pw	Pw	16.9	18.7	12.9	
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	10.4	9.5	9.2	8.6	7.3	7.2	6.9	6.5	8.2	10.4	6.5		
18	6.2	5.9	5.3	5.0	4.7	4.5	4.8	5.2	5.2	5.5	5.9	6.2	6.4	6.3	6.4	7.5	7.0	6.0	5.5	5.1	4.5	4.0	3.4	3.2	5.4	7.5	3.2	
19	2.8	2.4	1.9	2.2	2.1	2.2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	2.3	2.8	1.9	
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	11.3	10.4	10.7	10.2	Pw	Pw	Pw	14.5	11.8	9.2	8.0	7.2	6.1	9.9	14.5	6.1	
23	4.4	3.5	2.5	2.0	2.2	3.8	5.2	6.6	8.2	10.3	10.9	10.9	10.7	10.8	11.9	11.8	12.0	12.1	11.6	11.1	10.5	9.2	8.6	6.9	8.2	12.1	2.0	
24	5.3	4.3	3.8	3.8	4.4	4.5	5.4	9.8	12.9	13.8	15.7	16.7	17.1	17.7	18.0	18.1	18.2	17.8	17.5	15.7	13.6	11.3	7.7	6.4	11.6	18.2	3.8	
25	4.9	3.9	2.5	1.9	1.6	2.3	6.3	11.4	14.6	15.9	17.3	18.8	19.8	20.4	21.2	21.6	21.9	20.5	18.4	15.9	14.1	12.5	11.0	8.7	12.8	21.9	1.6	
26	8.1	5.8	4.1	4.5	3.7	4.3	7.3	12.2	16.3	17.5	18.7	20.0	21.3	22.0	22.5	18.7	17.7	17.1	15.9	14.9	13.5	12.5	12.3	10.2	13.4	22.5	3.7	
27	8.3	7.5	6.0	4.6	3.8	5.0	8.7	13.3	16.0	17.4	16.9	18.4	18.7	15.3	15.3	16.6	17.0	16.9	Pw	Pw	Pw	Pw	Pw	Pw	12.5	18.7	3.8	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	16.3	16.9	17.5	17.3	18.2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	17.2	18.2	16.3	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	19.2	19.9	19.8	18.2	15.5	12.2	11.8	11.6	11.3	10.0	9.6	8.5	8.0	13.5	19.9	8.0	
31	6.8	7.4	8.1	8.3	8.6	8.5	9.7	11.2	12.6	14.0	13.7	15.0	16.2	15.7	13.6	14.7	14.6	13.9	10.1	8.8	7.3	7.0	6.7	6.6	10.8	16.2	6.6	
Avg	5.8	5.1	4.3	4.0	3.9	4.4	6.8	10.0	12.3	13.8	14.5	15.5	16.1	16.1	15.3	15.6	14.7	14.0	12.9	11.4	10.0	9.0	8.0	7.0	11.0	15.7	6.2	
Max	8.3	7.5	8.1	8.3	8.6	8.5	9.7	13.3	16.3	17.5	18.7	20.0	21.3	22.0	22.5	21.6	21.9	20.5	18.4	15.9	14.1	12.5	12.3	10.2	17.2	22.5	16.3	
Min	2.8	2.4	1.9	1.9	1.6	2.2	4.8	5.2	5.2	5.5	5.9	6.2	6.4	6.3	6.4	7.5	7.0	6.0	5.5	5.1	4.5	4.0	3.4	3.2	2.3	2.8	1.6	

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
June 2018

Day	<< Hour >>																								Avg	Max	Min	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1	6.5	6.1	6.1	6.2	6.3	6.4	6.6	6.8	6.8	6.5	6.6	6.7	6.9	7.7	8.1	9.6	9.9	9.5	8.7	7.7	6.8	5.3	4.9	3.7	6.9	9.9	3.7	
2	2.4	0.1	-0.6	-1.4	-1.7	0.2	4.1	7.7	9.4	10.7	11.9	13.1	14.3	15.0	15.4	16.1	16.6	16.9	16.5	14.5	9.5	6.9	5.5	4.4	8.6	16.9	-1.7	
3	2.3	1.9	0.5	0.0	-0.3	0.4	4.8	10.1	15.2	16.6	17.5	18.5	19.5	20.2	20.9	20.8	21.1	21.3	20.8	17.9	14.4	11.7	12.0	10.5	12.4	21.3	-0.3	
4	10.6	10.6	8.3	6.7	7.1	6.7	10.6	14.3	18.4	20.5	21.7	22.9	23.2	21.4	22.4	22.9	23.5	20.0	16.9	15.7	14.3	12.2	11.0	9.3	15.5	23.5	6.7	
5	7.7	6.4	6.4	7.4	7.8	8.4	10.1	11.9	12.6	12.0	11.5	14.0	15.3	17.1	18.3	18.8	19.0	19.0	18.2	16.0	13.2	10.7	8.2	7.0	12.4	19.0	6.4	
6	5.6	5.0	4.5	4.3	4.2	4.4	7.7	10.6	15.2	16.7	17.3	18.4	19.2	19.9	20.9	21.3	21.8	21.8	21.7	18.4	16.2	14.2	11.7	11.8	13.9	21.8	4.2	
7	11.5	12.4	11.2	11.9	11.6	12.1	11.4	10.9	10.4	12.0	14.2	16.5	18.3	19.5	20.0	18.7	19.1	18.7	17.5	14.7	12.8	10.9	8.3	6.6	13.8	20.0	6.6	
8	5.3	5.5	4.2	3.2	2.7	3.7	7.1	11.9	14.8	15.9	17.1	18.6	19.2	19.9	20.5	20.7	20.7	21.0	20.1	17.9	15.4	12.7	9.8	7.9	13.2	21.0	2.7	
9	7.2	6.4	7.4	9.8	11.7	10.7	15.0	18.4	20.5	22.2	23.5	24.5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	14.8	24.5	6.4	
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	14.2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	14.2	14.2	14.2
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	22.0	22.6	22.5	23.0	23.8	23.0	20.0	18.2	Pw	Pw	Pw	Pw	Pw	21.9	23.8	18.2
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
18	Pw	Pw	8.9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	8.9	8.9	8.9
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	8.9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	8.9	8.9	8.9
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	6.6	6.0	5.7	5.3	5.8	5.9	8.6	11.4	13.7	14.8	15.7	17.0	17.5	17.8	18.8	19.1	19.5	19.0	17.8	15.7	12.8	10.6	8.9	7.7	12.6	18.0	6.5	
Max	11.5	12.4	11.2	11.9	11.7	12.1	15.0	18.4	20.5	22.2	23.5	24.5	23.2	22.6	22.5	23.0	23.8	23.0	21.7	18.4	16.2	14.2	12.0	11.8	21.9	24.5	18.2	
Min	2.3	0.1	-0.6	-1.4	-1.7	0.2	4.1	6.8	6.8	6.5	6.6	6.7	6.9	7.7	8.1	9.6	9.9	9.5	8.7	7.7	6.8	5.3	4.9	3.7	6.9	8.9	-1.7	

A-15

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
Avg																											
Max																											
Min																											

A-16

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.78	-0.54	-0.49	-0.45	-0.25	0.06	-0.07	-0.07	0.03	Pw	Pw	Pw	Pw	Pw	-0.28	0.06	-0.78
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.76	-0.64	0.34	-0.72	-0.58	-0.26	0.17	Pw	Pw	Pw	Pw	Pw	Pw	-0.35	0.34	-0.76	
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.50	-0.21	-0.16	-0.15	-0.15	-0.11	-0.06	-0.03	-0.17	-0.03	-0.50		
18	-0.03	-0.04	0.02	0.00	0.00	-0.05	-0.20	-0.18	-0.14	-0.16	-0.25	-0.30	-0.31	-0.28	-0.33	-0.59	-0.46	-0.24	-0.19	-0.12	-0.10	-0.10	-0.11	-0.04	-0.18	0.02	-0.59	
19	-0.08	-0.02	0.06	-0.11	-0.10	-0.15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.07	0.06	-0.15	
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	0.05	0.08	0.21	0.00	Pw	Pw	Pw	-0.18	0.34	0.17	0.26	0.09	0.08	0.11	0.34	-0.18	
23	0.45	0.52	0.67	0.64	0.58	0.17	-0.13	-0.16	-0.19	-0.25	-0.34	-0.28	-0.22	-0.37	-0.40	-0.27	-0.28	-0.29	-0.14	-0.05	-0.02	0.15	0.20	0.39	0.02	0.67	-0.40	
24	0.28	0.32	0.18	0.05	0.00	0.13	-0.07	-0.35	-0.33	-0.34	-0.58	-0.70	-0.61	-0.77	-0.55	-0.49	-0.48	-0.26	-0.12	0.48	0.97	1.19	0.63	0.26	-0.05	1.19	-0.77	
25	0.68	0.75	0.90	1.14	0.86	0.45	-0.40	-0.64	-0.58	-0.74	-0.80	-0.87	-0.98	-0.86	-1.01	-1.02	-0.96	0.06	0.70	0.31	0.56	0.38	0.40	0.79	-0.04	1.14	-1.02	
26	0.69	1.21	1.07	0.89	1.01	0.31	-0.29	-0.71	-0.83	-0.71	-0.75	-0.92	-0.98	-0.99	-1.08	-0.20	-0.32	-0.15	-0.02	0.11	0.54	0.29	0.33	0.69	-0.03	1.21	-1.08	
27	0.82	0.76	0.58	0.69	0.97	-0.13	-0.35	-0.66	-0.88	-1.01	-0.63	-0.89	-0.67	0.28	-0.21	-0.37	-0.43	-0.25	Pw	Pw	Pw	Pw	Pw	Pw	-0.13	0.97	-1.01	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.92	-0.97	-1.07	-0.80	-1.06	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.96	-0.80	-1.07	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.84	-0.84	-0.40	-0.31	0.01	0.05	-0.16	-0.04	0.14	0.10	0.07	0.21	0.27	-0.13	0.27	-0.84	
31	0.28	0.00	0.04	-0.01	0.12	-0.08	-0.30	-0.37	-0.43	-0.64	-0.77	-0.47	-0.45	-0.20	-0.21	-0.28	-0.07	-0.16	-0.27	-0.11	-0.12	-0.15	-0.17	-0.15	-0.21	0.28	-0.77	
Avg	0.39	0.44	0.44	0.41	0.43	0.08	-0.25	-0.44	-0.48	-0.60	-0.64	-0.64	-0.59	-0.46	-0.38	-0.42	-0.36	-0.18	-0.03	0.10	0.22	0.22	0.17	0.25	-0.12	0.41	-0.71	
Max	0.82	1.21	1.07	1.14	1.01	0.45	-0.07	-0.16	-0.14	-0.16	-0.25	0.05	0.08	0.28	0.34	0.01	0.06	0.06	0.70	0.48	0.97	1.19	0.63	0.79	0.11	1.21	-0.15	
Min	-0.08	-0.04	0.02	-0.11	-0.10	-0.15	-0.40	-0.71	-0.88	-1.01	-0.97	-1.07	-0.98	-1.06	-1.08	-1.02	-0.96	-0.29	-0.27	-0.15	-0.15	-0.15	-0.17	-0.15	-0.96	-0.80	-1.08	

A-17

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
June 2018

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	-0.15	-0.13	-0.12	-0.14	-0.10	-0.13	-0.17	-0.21	-0.24	-0.19	0.07	-0.08	-0.51	-0.61	-0.68	-1.05	-0.68	-0.32	-0.13	-0.02	0.04	0.21	0.25	0.41	-0.19	0.41	-1.05	
2	0.68	1.09	0.74	0.91	0.76	0.57	-0.09	-0.48	-0.61	-0.80	-0.87	-0.86	-1.00	-0.97	-0.91	-0.87	-0.66	-0.46	-0.18	0.55	0.67	0.23	0.47	0.26	-0.08	1.09	-1.00	
3	0.90	0.78	0.69	0.94	1.01	0.56	-0.56	-0.75	-0.68	-0.60	-0.67	-0.72	-0.93	-0.87	-0.82	-0.61	-0.56	-0.44	-0.07	0.66	0.62	1.30	1.17	2.15	0.10	2.15	-0.93	
4	1.69	0.98	1.56	1.24	0.55	0.46	-0.31	-0.32	-0.48	-0.54	-0.60	-0.70	-0.65	-0.18	-0.55	-0.41	-0.23	0.13	-0.06	0.44	0.47	0.25	0.30	0.28	0.14	1.69	-0.70	
5	0.59	0.76	0.50	0.00	-0.05	-0.13	-0.36	-0.38	-0.41	-0.27	-0.25	-0.51	-0.52	-0.84	-1.06	-0.87	-0.72	-0.63	-0.41	0.34	0.83	0.90	0.61	0.47	-0.10	0.90	-1.06	
6	0.61	0.79	0.77	0.56	0.95	0.53	-0.27	-0.39	-0.61	-0.69	-0.82	-0.77	-0.69	-0.61	-0.73	-0.53	-0.56	-0.73	-0.83	0.08	0.44	0.55	0.60	0.33	-0.08	0.95	-0.83	
7	0.33	0.24	0.40	0.36	0.40	0.43	0.39	0.09	-0.08	-0.25	-0.56	-0.75	-0.76	-0.71	-0.64	-0.03	-0.42	-0.07	0.19	0.20	0.30	0.49	0.42	0.71	0.03	0.71	-0.76	
8	0.79	0.38	0.67	0.77	0.66	0.36	-0.57	-0.60	-0.61	-0.70	-0.69	-0.96	-0.75	-0.83	-0.89	-0.86	-0.65	-0.72	-0.08	0.59	0.39	1.32	1.24	1.32	-0.02	1.32	-0.96	
9	1.62	1.66	2.91	2.97	1.75	1.55	0.44	-0.17	-0.27	-0.43	-0.60	-0.70	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.89	2.97	-0.70	
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.97	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.97	-0.97	-0.97
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.81	-0.80	-0.39	-0.30	-0.69	-0.43	0.56	0.43	Pw	Pw	Pw	Pw	-0.30	0.56	-0.81
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
18	Pw	Pw	0.11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.11	0.11	0.11
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	-0.10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.10	-0.10	-0.10
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	0.78	0.73	0.82	0.85	0.58	0.47	-0.17	-0.36	-0.44	-0.50	-0.55	-0.67	-0.74	-0.74	-0.74	-0.61	-0.57	-0.41	-0.11	0.36	0.47	0.66	0.63	0.74	0.01	0.91	-0.75	
Max	1.69	1.66	2.91	2.97	1.75	1.55	0.44	0.09	-0.08	-0.19	0.07	-0.08	-0.51	-0.18	-0.39	-0.03	-0.23	0.13	0.56	0.66	0.83	1.32	1.24	2.15	0.89	2.97	0.11	
Min	-0.15	-0.13	-0.12	-0.14	-0.10	-0.13	-0.57	-0.75	-0.68	-0.80	-0.87	-0.96	-1.00	-0.97	-1.06	-1.05	-0.72	-0.73	-0.83	-0.02	0.04	0.21	0.25	0.26	-0.97	-0.97	-1.06	

A-18

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
Avg																											
Max																											
Min																											

A-19

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	802	353	342	294	209	60	125	64	13	Pw	Pw	Pw	Pw	Pw	Pw	251	802	13
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	702	582	260	735	551	292	96	Pw	Pw	Pw	Pw	Pw	Pw	460	735	96	
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	196	33	21	16	0	0	0	0	33	196	0		
18	0	0	0	0	1	24	75	105	94	124	171	210	200	188	252	420	234	106	67	22	0	0	0	96	420	0		
19	0	0	0	0	2	32	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	6	32	0		
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	45	27	26	40	Pw	Pw	Pw	170	24	0	0	0	33	170	0		
23	0	0	0	0	1	20	31	49	120	126	167	174	198	361	333	162	170	160	53	15	0	0	0	89	361	0		
24	0	0	0	0	4	33	135	360	182	289	659	795	557	682	542	405	429	275	195	45	1	0	0	233	795	0		
25	0	0	0	0	4	95	257	433	610	755	887	954	976	940	856	724	571	190	46	11	0	0	0	346	976	0		
26	0	0	0	0	4	88	219	419	590	759	832	849	973	999	884	143	237	151	64	21	2	0	0	301	999	0		
27	0	0	0	0	5	105	249	449	596	691	509	807	435	118	334	340	432	220	Pw	Pw	Pw	Pw	Pw	294	807	0		
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	816	893	966	571	917	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	833	966	571		
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	952	1009	380	289	65	65	84	62	8	1	0	0	0	224	1009	0		
31	0	0	0	0	2	51	261	376	595	416	462	519	506	228	522	237	162	155	79	3	1	0	0	191	595	0		
Avg	0	0	0	0	3	56	175	313	398	497	573	643	542	480	419	344	282	163	83	18	1	0	0	221	633	49		
Max	0	0	0	0	5	105	261	449	610	816	893	966	1009	999	884	735	571	292	195	45	2	0	0	833	1009	571		
Min	0	0	0	0	1	20	31	49	94	124	167	45	27	26	40	65	60	33	21	3	0	0	0	6	32	0		

A-20

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
June 2018

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	2	7	54	91	128	235	309	249	230	351	293	629	482	223	123	44	1	0	0	0	144	629	0	
2	0	0	0	0	6	107	270	451	628	778	894	965	988	957	871	750	583	403	221	60	1	0	0	0	372	988	0	
3	0	0	0	0	6	110	278	449	629	770	862	956	928	926	902	674	529	417	214	54	1	0	0	0	363	956	0	
4	0	0	0	0	5	87	218	423	619	768	882	994	860	373	708	522	386	126	205	28	1	0	0	0	300	994	0	
5	0	0	0	0	4	43	187	163	213	125	178	584	343	810	861	717	551	369	194	56	2	0	0	0	225	861	0	
6	0	0	0	0	6	80	238	412	601	667	749	885	745	610	746	603	538	412	231	77	4	0	0	0	317	885	0	
7	0	0	0	0	2	10	8	11	72	277	707	940	960	936	658	124	336	152	62	7	0	0	0	0	219	960	0	
8	0	0	0	0	6	81	229	433	604	753	875	965	897	893	842	718	572	409	209	42	1	0	0	0	355	965	0	
9	0	0	0	0	7	100	261	434	608	759	872	950	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	333	950	0	
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	950	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	950	950	950
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	1012	924	557	467	563	362	43	12	Pw	Pw	Pw	Pw	Pw	493	1012	12
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
18	Pw	Pw	0	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0	0	0
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	10	10	10
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	0	0	0	0	5	69	194	319	456	570	703	832	774	773	715	578	504	319	167	42	1	0	0	0	298	782	75	
Max	0	0	0	0	10	110	278	451	629	778	894	994	1012	957	902	750	583	417	231	77	4	0	0	0	950	1012	950	
Min	0	0	0	0	2	7	8	11	72	125	178	249	230	351	293	124	336	126	43	7	0	0	0	0	0	0	0	

A-21

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
Avg																												
Max																												
Min																												

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.42	24.40	24.38	24.36	24.37	24.39	24.37	24.36	24.36	Pw	Pw	Pw	Pw	Pw	24.38	24.42	24.36
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.37	24.36	24.39	24.36	24.33	24.33	24.34	Pw	Pw	Pw	Pw	Pw	Pw	24.35	24.39	24.33	
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.40	24.41	24.41	24.42	24.43	24.44	24.44	24.44	24.44	24.42	24.44	24.40	
18	24.45	24.45	24.44	24.44	24.44	24.45	24.46	24.46	24.47	24.49	24.50	24.51	24.51	24.52	24.53	24.52	24.52	24.54	24.54	24.55	24.56	24.58	24.58	24.58	24.50	24.58	24.44	
19	24.57	24.56	24.55	24.56	24.55	24.55	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.56	24.57	24.55	
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	24.37	24.47	24.48	24.48	Pw	Pw	Pw	24.45	24.44	24.45	24.46	24.45	24.44	24.45	24.48	24.37	
23	24.42	24.41	24.41	24.40	24.40	24.40	24.39	24.39	24.38	24.37	24.37	24.37	24.37	24.36	24.35	24.35	24.34	24.34	24.34	24.34	24.36	24.36	24.37	24.37	24.37	24.42	24.34	
24	24.37	24.37	24.37	24.38	24.39	24.39	24.40	24.41	24.41	24.42	24.41	24.42	24.41	24.42	24.42	24.42	24.42	24.42	24.43	24.44	24.45	24.46	24.46	24.47	24.42	24.47	24.37	
25	24.47	24.47	24.47	24.46	24.46	24.46	24.47	24.47	24.47	24.46	24.45	24.44	24.43	24.42	24.40	24.39	24.37	24.36	24.37	24.36	24.36	24.36	24.35	24.33	24.42	24.47	24.33	
26	24.32	24.31	24.30	24.31	24.31	24.32	24.33	24.33	24.33	24.32	24.33	24.32	24.32	24.32	24.31	24.32	24.33	24.34	24.37	24.38	24.41	24.43	24.44	24.43	24.34	24.44	24.30	
27	24.42	24.41	24.42	24.46	24.47	24.50	24.50	24.50	24.49	24.51	24.52	24.52	24.51	24.51	24.52	24.51	24.51	24.51	Pw	Pw	Pw	Pw	Pw	Pw	24.49	24.52	24.41	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.38	24.38	24.38	24.38	24.38	24.38	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.38	24.38	24.38	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.24	24.24	24.23	24.21	24.23	24.27	24.26	24.26	24.26	24.26	24.28	24.27	24.26	24.26	24.25	24.28	24.21	
31	24.25	24.25	24.26	24.26	24.28	24.26	24.26	24.27	24.26	24.26	24.26	24.25	24.24	24.21	24.21	24.21	24.20	24.20	24.23	24.25	24.26	24.27	24.26	24.26	24.25	24.28	24.20	
Avg	24.41	24.40	24.40	24.41	24.41	24.42	24.40	24.40	24.40	24.40	24.40	24.39	24.39	24.38	24.38	24.37	24.37	24.37	24.37	24.38	24.40	24.40	24.40	24.40	24.39	24.44	24.36	
Max	24.57	24.56	24.55	24.56	24.55	24.55	24.50	24.50	24.49	24.51	24.52	24.52	24.51	24.52	24.53	24.52	24.54	24.54	24.54	24.55	24.56	24.58	24.58	24.58	24.56	24.58	24.55	
Min	24.25	24.25	24.26	24.26	24.28	24.26	24.26	24.27	24.26	24.26	24.26	24.24	24.24	24.21	24.21	24.21	24.20	24.20	24.23	24.25	24.26	24.27	24.26	24.26	24.25	24.28	24.20	

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
June 2018

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

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
Avg																												
Max																												
Min																												

A-25

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	40.7	40.0	38.7	40.4	40.5	61.8	71.8	76.0	72.1	Pw	Pw	Pw	Pw	Pw	53.6	76.0	38.7
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	30.4	31.1	58.4	50.3	34.1	35.4	36.5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	39.5	58.4	30.4
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	71.9	75.1	76.0	76.4	82.6	79.5	78.8	80.7	77.6	82.6	71.9	
18	81.8	83.2	86.3	87.3	87.3	88.2	88.1	84.7	82.4	77.5	77.7	79.9	79.2	79.7	77.9	73.1	74.1	80.9	79.9	75.8	77.0	78.3	81.9	83.9	81.1	88.2	73.1	
19	84.7	85.7	86.0	87.0	88.5	88.7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	86.8	88.7	84.7
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	76.5	80.4	79.2	85.2	Pw	Pw	Pw	58.7	74.2	84.6	87.0	87.0	87.3	80.0	87.3	58.7	
23	90.6	92.6	92.5	93.1	93.6	93.8	93.2	91.5	90.4	85.3	84.4	85.1	77.0	76.2	69.8	71.5	72.0	71.8	75.7	80.0	85.0	89.3	90.5	92.0	84.9	93.8	69.8	
24	93.2	93.9	94.0	94.3	94.4	94.3	94.4	85.5	67.2	63.6	55.7	51.2	50.4	47.4	43.6	42.3	41.6	41.9	41.3	46.6	55.1	63.5	79.3	84.6	67.5	94.4	41.3	
25	87.3	89.8	91.3	92.8	93.3	92.2	81.3	68.3	57.3	50.6	47.1	39.7	34.5	32.6	29.8	28.4	28.4	33.4	44.4	47.9	58.5	64.7	69.8	77.5	60.0	93.3	28.4	
26	75.3	83.7	88.6	88.8	88.6	87.1	78.4	65.1	51.9	47.7	45.1	39.9	36.1	33.0	35.2	50.0	50.6	52.7	58.6	62.2	68.8	74.5	71.3	79.1	63.0	88.8	33.0	
27	84.5	85.9	87.3	89.6	91.6	88.2	75.9	60.6	51.7	48.8	55.8	46.6	43.9	62.4	67.8	62.0	59.9	61.6	Pw	Pw	Pw	Pw	Pw	Pw	68.0	91.6	43.9	
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	48.0	46.1	46.2	44.0	41.7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	45.2	48.0	41.7	
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	37.5	35.5	34.9	38.8	53.2	71.4	79.0	78.4	75.5	86.5	84.7	88.6	89.0	65.6	89.0	34.9	
31	90.3	90.4	89.5	88.5	88.9	88.5	82.0	70.5	61.2	64.3	69.6	60.0	54.5	58.8	69.8	67.0	66.4	69.3	82.8	83.9	90.0	90.7	91.1	91.1	77.5	91.1	54.5	
Avg	86.0	88.1	89.4	90.2	90.8	90.1	84.8	75.2	66.0	60.7	60.2	54.8	50.5	51.3	56.1	53.8	57.5	61.2	64.4	69.5	76.5	79.1	82.0	85.0	70.1	83.7	50.4	
Max	93.2	93.9	94.0	94.3	94.4	94.3	94.4	91.5	90.4	85.3	84.4	85.1	80.4	79.7	85.2	73.1	74.1	80.9	82.8	83.9	90.0	90.7	91.1	92.0	86.8	94.4	84.7	
Min	75.3	83.2	86.0	87.0	87.3	87.1	75.9	60.6	51.7	47.7	45.1	37.5	30.4	31.1	29.8	28.4	28.4	33.4	36.5	46.6	55.1	63.5	69.8	77.5	39.5	48.0	28.4	

A-26

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
June 2018

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	91.5	92.0	91.5	90.4	88.5	87.7	86.2	85.9	86.1	86.4	82.9	81.5	83.8	76.6	71.9	63.9	60.5	57.6	58.2	61.0	63.6	67.4	68.5	72.6	77.3	92.0	57.6	
2	77.7	86.0	87.3	88.6	88.9	84.3	73.4	57.4	51.0	47.8	45.0	42.7	38.6	36.3	37.4	36.1	33.2	31.4	33.1	35.8	57.2	72.5	76.7	78.7	58.2	88.9	31.4	
3	85.5	86.3	89.5	89.5	90.3	87.9	74.6	60.8	39.7	35.6	35.5	34.2	33.0	31.4	29.8	29.9	29.1	28.5	28.9	44.6	51.7	64.2	67.1	73.0	55.0	90.3	28.5	
4	74.1	74.3	79.9	85.4	82.8	84.1	71.1	62.2	43.1	35.8	31.9	27.2	25.3	27.8	29.4	28.3	27.0	40.5	61.9	60.4	63.8	74.5	79.8	84.8	56.5	85.4	25.3	
5	89.4	90.1	92.2	90.7	89.5	88.6	77.3	71.2	67.8	68.8	77.8	66.1	60.1	49.8	42.4	41.1	37.4	36.9	41.2	48.8	69.8	74.9	82.3	85.8	68.3	92.2	36.9	
6	89.1	90.6	92.2	93.0	92.6	92.8	83.5	73.9	45.3	47.2	58.8	52.1	46.2	43.6	41.6	36.1	32.3	33.3	35.0	61.2	72.0	79.7	84.4	84.5	65.0	93.0	32.3	
7	85.9	76.8	78.8	75.4	76.4	70.6	75.6	80.0	85.7	79.7	69.1	61.1	48.8	44.3	40.6	48.4	47.3	51.0	62.5	59.7	70.6	77.3	85.3	89.7	68.4	89.7	40.6	
8	92.0	91.0	91.3	92.5	93.0	92.6	85.5	68.6	58.6	57.0	52.7	47.0	41.9	37.1	35.4	35.2	33.7	34.2	37.0	51.8	60.5	70.3	80.2	85.9	63.5	93.0	33.7	
9	87.3	88.5	85.4	80.5	73.0	76.8	63.8	50.6	40.9	36.9	35.3	33.7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	62.7	88.5	33.7	
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	27.8	27.8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	27.8	27.8	27.8
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	22.2	21.4	22.3	23.2	22.9	28.4	35.4	38.4	Pw	Pw	Pw	Pw	Pw	26.8	38.4	21.4
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
18	Pw	Pw	85.7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	85.7	85.7	85.7
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
20	Pw	Pw	Pw	Pw	92.3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	92.3	92.3	92.3
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw
Avg	85.8	86.2	87.4	87.3	86.7	85.0	76.8	67.8	57.6	55.0	54.3	49.5	44.4	39.6	39.0	38.0	35.9	38.0	43.7	51.3	63.7	72.6	78.0	81.9	62.6	81.3	42.1	
Max	92.0	92.0	92.2	93.0	93.0	92.8	86.2	85.9	86.1	86.4	82.9	81.5	83.8	76.6	71.9	63.9	60.5	57.6	62.5	61.2	72.0	79.7	85.3	89.7	92.3	93.0	92.3	
Min	74.1	74.3	78.8	75.4	73.0	70.6	63.8	50.6	39.7	35.6	31.9	27.2	22.2	21.4	22.3	23.2	22.9	28.4	28.9	35.8	51.7	64.2	67.1	72.6	26.8	27.8	21.4	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
April 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
18	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
Tot																											
Max																											

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
May 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.000	Pw	Pw	Pw	Pw	0.020	0.020	
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000	0.190	0.000	0.000	0.000	0.000	0.000	Pw	Pw	Pw	Pw	Pw	0.190	0.190
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.010	0.010	0.000	0.000	0.020	0.020	0.020	0.000	0.000	0.020	0.000	0.020	0.010	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.140	0.020
19	0.000	0.000	0.000	0.000	0.000	0.000	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000
20	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Au	Au	Au	0.020	0.000	0.000	0.000	Pw	Pw	Pw	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.020	0.000	0.000	0.000	0.040	0.020	
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	Pw	Pw	Pw	Pw	Pw	Pw	0.040	0.040
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw		
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000	0.000	0.000	0.000	0.000	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000	0.000	0.000	0.000	0.050	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.050	
31	0.000	0.000	0.010	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.010	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.000	0.130	0.040	
Tot	0.000	0.000	0.020	0.050	0.000	0.000	0.020	0.030	0.020	0.000	0.000	0.040	0.000	0.100	0.200	0.010	0.070	0.010	0.010	0.040	0.020	0.000	0.000	0.000	0.640	0.000	
Max	0.000	0.000	0.010	0.040	0.000	0.000	0.020	0.020	0.020	0.000	0.000	0.020	0.000	0.040	0.190	0.010	0.050	0.010	0.010	0.030	0.020	0.000	0.000	0.000	0.190	0.190	

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
June 2018

Day	<< Hour >>																								Tot	Max
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.040
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.030
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
10	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
11	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
12	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
13	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
15	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
16	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
17	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
18	Pw	Pw	0.000	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
19	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
20	Pw	Pw	Pw	Pw	0.000	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
21	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
22	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
23	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
24	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
25	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
26	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
27	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
28	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
29	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
30	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	0.000
Tot	0.000	0.010	0.000	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.000
Max	0.000	0.010	0.000	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.040

A-30

APPENDIX B: PERFORMANCE AUDIT REPORTS
SECOND QUARTER 2018



BISON ENGINEERING, INC.

PRELIMINARY METEOROLOGICAL AUDIT REPORT

Client : Tintina Resources
SITE : Black Butte

DATE : 05/22/18

Audit Start Time : 9:00 MST Audit End Time : 12:00 MST

Temperature

Audit Device : Control Company Digital Thermometer
 Model Number : 4000 Serial Number : 140251289
 Last certified : 04/20/18
 Sensor Make : Climatronics
 Model Number : 100093 Serial Number Upper: P12535 Serial Number Lower: P12535

Temperature bath results as is

	9m	9m	2m	2m	9m - 2m
Audit Value	DAS Value	DAS Diff.	DAS Value	DAS Diff.	DAS Diff.
oC	oC	oC	oC	oC	oC
0.09	0.20	0.11	0.30	0.21	0.10
19.71	19.41	-0.30	19.41	-0.30	0.00
47.10	47.10	0.00	47.21	0.11	0.11

Wind Direction

Alignment Audit Device : Nextar
 Model Number : X3-T
 Linearity Audit Device : Climatronics
 Model Number : 101966
 Sensor height : 10 Meter
 Sensor Make : Climatronics
 Model Number : 102083

Crossarm Orientation : N-S
 Magnetic Declination : 12
 Measured Degrees : 0.5
 Sensor response aligned with crossarm (as found) : 0.0
 Sensor response aligned with crossarm (as left) : 0.0

Linearity Check from DAS (as found)

Setpoint	Clockwise	Counter-CW	Diff CW	Diff CCW
0	1.2	0.9	1.2	0.9
30	31.8	31.5	1.8	1.5
60	61.6	61.5	1.6	1.5
90	91.8	91.7	1.8	1.7
120	121.6	121.4	1.6	1.4
150	151.8	151.5	1.8	1.5
180	181.5	181.4	1.5	1.4
210	211.4	210.9	1.4	0.9
240	241.1	240.7	1.1	0.7
270	270.7	270.4	0.7	0.4
300	300.3	300.1	0.3	0.1
330	331.1	330.7	1.1	0.7
		Max Diff	1.8	1.7

Linearity Check from DAS (as left)

Setpoint	Clockwise	Counter-CW	Diff CW	Diff CCW
0	0.2	0.1	0.2	0.1
90	91.0	90.6	1.0	0.6
180	181.0	180.0	1.0	0.0
270	271.0	270.7	1.0	0.7
		Max Diff	1.0	0.7

Wind Speed

Audit Device : RMYoung
Model Number : 18811 Serial Number : CA02929
Last certified : 4/19/18
Sensor height : 10 Meter
Sensor Make : Climatronics
Model Number : 102083 Serial Number : 1849

Synchronous motor checks

DAS			
Known	Audit	Station	DAS
Value	Value	Value	Diff.
RPM	MPS	MPS	MPS
0	0.2	0.2	0.0
300	6.7	6.7	0.0
600	13.1	13.1	0.0
990	21.4	21.4	0.0

Relative Humidity

Audit Device : Control company Hygometer
Model Number : 4185 Serial Number : 61644981
Last certified : 4/17/18
Sensor height : 10 Meter
Sensor Make : Met One
Model Number : 083E-0-35 Serial Number : P18245

Audit	Audit	Audit
Audit RH	Station RH	Diff
%RH	%RH	%RH
51.2	59.7	8.5

Barometric Pressure

Audit Device : Delta Cal
Model Number : Delta Cal Serial Number : 999
Last certified : 05/03/18
Sensor Make : Climatronics
Model Number : 102663-G0 Serial Number : 42017

Audit	Station	Audit
Value	Value	Diff.
In Hg	In Hg	In Hg
24.39	24.47	0.08

**SANDFIRE RESOURCES, INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
Third Quarter 2018**

Prepared for:

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November 15, 2018

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: Jeffrey S. Bell

Signature: 

Title: Senior Field Technician

Date: 10/16/2018

Reviewer: Steven R. Heck

Signature: 

Title: Meteorologist

Date: 10-18-2018

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APPENDICES

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

1.0 INTRODUCTION

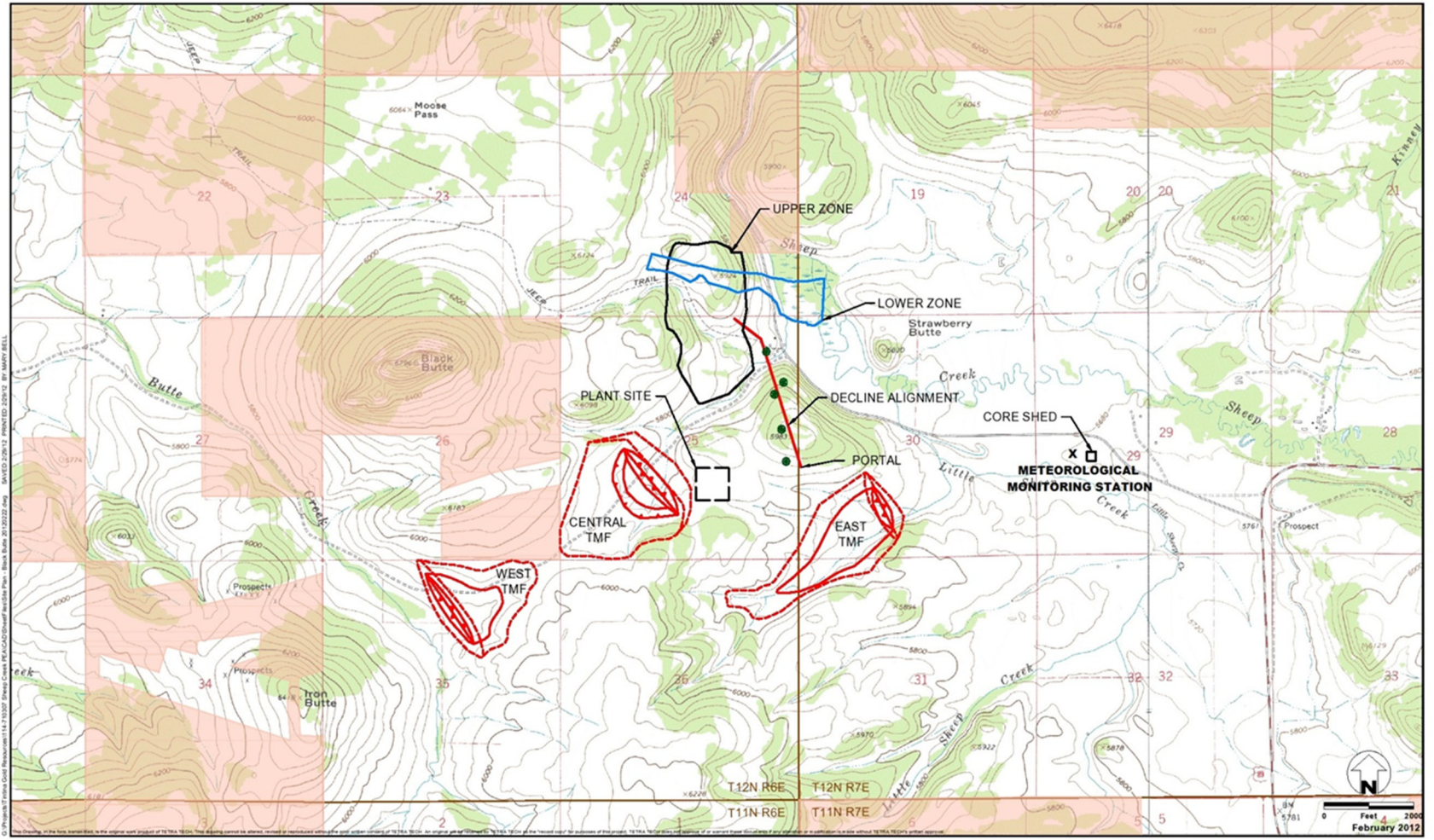
Sandfire Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately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

The meteorological monitoring system was installed in April 2012. The site is operated by Bison Engineering, Inc., of Helena and Billings. Figure 1 shows the location of the monitoring site. On February 6, 2018 the tower was shut down to move it to a new location approximately 300 feet southwest of the original location, where monitoring resumed on March 7, 2018. Relocation activities were documented in the monitoring report for the first quarter of 2018.

This report presents the data collected during the third quarter (July through September) of 2018. 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. The evaporation pan and manual rain gauge were not operated during the third quarter of 2018.

Figure 1. Monitoring Site Location



- ADIT ALIGNMENT HOLES
- TAILINGS MANAGEMENT FACILITY
- USFS PROPERTY

Site Plan
 Black Butte Copper Project
 Meagher County, Montana
 FIGURE 1



2.0 MONITORING SYSTEM OPERATIONS

The original meteorological monitoring system began collecting data on April 30, 2012. Data were collected continuously at that location until February 6, 2018 at 1400 MST when the existing meteorological tower was relocated approximately 300 feet to the southwest of the original location. All instruments except the automatic rain gauge were operational starting March 7 at 1800 MST; the rain gauge became operational on March 8 at 1500 MST.

Steve Heck of Bison conducted performance audits of the meteorological system on September 21, 2018 and made any necessary calibration adjustments to the meteorological system following the audits.

The start of the third quarter was affected by a power outage that carried over from the second quarter. The power problems were resolved on July 9, 2018, and no data collection interruptions have occurred since then.

3.0 PERFORMANCE AUDIT DATA

Steve Heck of Bison conducted performance audits of the meteorological system on September 21, 2018. All as-found audit results were satisfactory, but several equipment items were replaced following the audit. Those replacements are discussed in Section 4.0.

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

4.0 CALIBRATION DATA

Steve Heck of Bison conducted an as-found performance audit of the meteorological instruments on September 21, 2018 as discussed in Section 3.0. The audit results were acceptable and are presented in Appendix B.

Immediately following the audit, several equipment replacements were made. The new equipment was calibrated and those results are also presented in Appendix B.

Replacements included:

- The two delta temperature probes were replaced because they had begun drifting apart during the last two audits. Audit results for both the old and new sensors were acceptable, although the new sensors produced better results.
- Both aspirator fans were replaced because they had been in use for approximately 15 months. The old fans were working properly when they were removed.
- The precipitation gauge was replaced because the old gauge had an electrical problem that caused the site power to trip whenever its heater cable was plugged in. The old gauge was providing accurate data during the third quarter because the precipitation being measured was in liquid form.
- The new gauge was tested immediately following installation. It produced an acceptable number of bucket tips (70, versus a known of 68) when a known volume of water was introduced. However, the datalogger registered 78 tips. The manufacturer indicated this may have been caused by “bouncing” of the reed switch when the water was introduced at a fast rate – equivalent to approximately 3 inches of rain per hour. The gauge is believed to be working correctly during actual precipitation events. During the next audit a capacitor will be added to filter out any reed switch bouncing effects.

5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the third quarter of 2018 are given in Tables 1 and 2. In these tables, the number of possible data values during each month of the quarter is given, together with the number of valid readings and the number of hours spent on quality assurance activities (such as calibrations, performance audits, and maintenance on the sensors). The quality assurance hours are added to the number of hours of valid data to compute the net percentage data recovery.

During the third quarter the net percentage data recovery was 90.9 percent for all parameters at the site. The data losses were due to a power failure at the start of the quarter, plus audit and equipment replacement activities conducted on September 21.

Table 1. Monthly Data Completeness

July 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	542	72.8	0	72.8
Wind Direction	744	542	72.8	0	72.8
Standard Deviation	744	542	72.8	0	72.8
Temperature 9 Meters	744	542	72.8	0	72.8
Temperature 2 Meters	744	542	72.8	0	72.8
Temperature Delta T	744	542	72.8	0	72.8
Solar Radiation	744	542	72.8	0	72.8
Barometric Pressure	744	542	72.8	0	72.8
Relative Humidity	744	542	72.8	0	72.8
Precipitation	744	540	72.6	2	72.8
Total	7,440	5,418	72.8	2	72.8

Table 1. Monthly Data Completeness (Continued)

August 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
Temperature 9 Meters	744	744	100.0	0	100.0
Temperature 2 Meters	744	744	100.0	0	100.0
Temperature Delta T	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	741	99.6	3	100.0
Total	7,440	7,437	100.0	3	100.0

Table 1. Monthly Data Completeness (Continued)

September 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	715	99.3	5	100.0
Wind Direction	720	715	99.3	5	100.0
Standard Deviation	720	715	99.3	5	100.0
Temperature 9 Meters	720	715	99.3	5	100.0
Temperature 2 Meters	720	715	99.3	5	100.0
Temperature Delta T	720	715	99.3	5	100.0
Solar Radiation	720	715	99.3	5	100.0
Barometric Pressure	720	715	99.3	5	100.0
Relative Humidity	720	715	99.3	5	100.0
Precipitation	720	712	98.9	8	100.0
Total	7,200	7,147	99.3	53	100.0

Table 2. Quarterly Data Completeness

Third Quarter 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,208	2,001	90.6	5	90.9
Wind Direction	2,208	2,001	90.6	5	90.9
Standard Deviation	2,208	2,001	90.6	5	90.9
Temperature 9 Meters	2,208	2,001	90.6	5	90.9
Temperature 2 Meters	2,208	2,001	90.6	5	90.9
Temperature Delta T	2,208	2,001	90.6	5	90.9
Solar Radiation	2,208	2,001	90.6	5	90.9
Barometric Pressure	2,208	2,001	90.6	5	90.9
Relative Humidity	2,208	2,001	90.6	5	90.9
Precipitation	2,208	1,993	90.3	13	90.9
Total	22,080	20,002	90.6	58	90.9

6.0 MONITORING DATA

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

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

Table 3. Missing Data Codes

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

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

July 2018																		
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	1.1	1.3	2.2	3.1	1.5	3.1	2.2	0.6	0.9	0.4	0.0	0.6	0.6	1.1	0.9	20.1
	1.1 - 2.0	1.7	1.1	3.5	5.0	3.1	5.5	3.9	1.1	0.7	0.2	0.2	0.6	1.1	0.9	1.1	1.5	31.2
	2.1 - 3.0	0.0	0.6	0.2	1.5	2.0	1.3	0.9	0.4	0.6	0.4	0.6	0.6	2.6	3.0	2.2	1.1	17.7
	3.1 - 4.0	0.4	0.6	1.1	0.4	1.5	0.2	1.3	0.6	0.0	0.2	0.6	0.7	1.8	3.5	2.6	1.1	16.4
	4.1 - 5.0	0.0	0.2	0.2	0.4	0.2	0.0	0.2	0.6	0.4	0.2	0.6	0.9	0.7	2.2	0.7	0.0	7.4
	5.1 - 6.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.4	0.4	0.2	0.2	0.7	0.4	0.4	0.4	0.2	3.7
	6.1 - 7.0	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.2	0.0	0.0	0.2	0.7	0.6	0.4	0.0	3.0
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.2	0.0	0.6
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.8	3.5	6.5	9.4	10.0	8.5	10.1	5.5	2.8	2.0	2.4	3.9	7.9	11.3	8.7	4.8		100.0
Average Speed	2.0	1.9	1.9	1.7	1.8	1.5	2.0	2.4	2.9	2.2	3.1	4.0	3.2	3.4	3.1	2.3		2.4

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

August 2018																		
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	1.3	0.5	1.9	1.3	2.0	3.4	2.7	1.6	0.8	0.3	0.3	0.0	0.4	0.3	0.7	0.4	17.9
	1.1 - 2.0	0.8	0.4	1.6	3.2	4.8	6.3	3.5	1.9	0.8	0.4	0.5	1.1	0.7	0.5	1.1	1.2	28.9
	2.1 - 3.0	0.3	0.0	0.1	1.7	2.6	1.3	1.2	0.8	0.4	0.0	0.3	0.1	1.5	1.6	1.7	0.4	14.1
	3.1 - 4.0	0.3	0.0	0.1	0.9	0.4	0.5	0.9	0.7	0.3	0.0	0.1	0.7	3.2	3.9	1.3	0.4	13.8
	4.1 - 5.0	0.0	0.0	0.0	0.1	0.5	0.3	0.4	1.1	0.0	0.4	0.1	1.1	2.8	2.0	0.9	0.3	10.1
	5.1 - 6.0	0.0	0.1	0.0	0.3	0.3	0.1	0.8	0.4	0.4	0.1	0.3	0.4	1.9	0.8	0.5	0.4	6.9
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.0	0.1	0.3	0.9	2.4	0.1	0.4	0.3	5.5
	7.1 - 8.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.8	0.1	0.0	1.9
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.9
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.8	1.1	3.8	7.7	10.6	12.0	9.9	7.0	2.7	1.3	2.0	4.4	13.4	10.2	7.7	3.4		100.0
Average Speed	1.7	1.6	1.2	2.0	2.0	1.6	2.2	2.8	2.2	3.1	3.4	4.2	4.4	3.9	3.7	2.9		2.8

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

September 2018																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	0.8	0.7	0.6	0.3	1.5	2.0	2.7	1.1	0.8	0.1	0.4	0.7	0.6	0.3	0.7	0.8	14.1
	1.1 - 2.0	1.1	1.4	1.1	2.8	5.3	5.3	5.6	2.1	1.5	0.6	0.3	0.1	1.1	1.8	1.8	1.0	33.0
	2.1 - 3.0	0.3	0.1	0.3	1.4	2.9	2.1	0.8	2.1	1.3	0.1	0.0	0.6	1.3	0.4	1.7	0.7	16.1
	3.1 - 4.0	0.1	0.6	0.1	0.4	0.7	0.6	0.3	2.4	0.4	0.6	0.3	0.4	2.0	1.7	0.8	0.7	12.0
	4.1 - 5.0	0.4	0.0	0.0	0.1	0.3	0.0	0.4	2.4	0.1	0.1	0.6	0.3	2.1	0.6	1.0	0.8	9.2
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.7	0.3	0.4	0.6	0.6	1.7	0.6	1.4	0.3	7.8
	6.1 - 7.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	1.1	0.0	0.1	0.4	0.1	1.8	0.3	0.3	0.0	4.6
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.0	0.0	0.0	0.0	0.7	0.1	0.0	0.1	2.1
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.8
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.8	2.9	2.1	5.0	10.8	10.1	10.8	13.8	4.5	2.1	2.8	2.9	11.5	5.7	7.7	4.5		100.0
Average Speed	1.9	1.9	1.5	2.0	1.8	1.7	2.0	3.8	2.2	3.4	4.4	3.6	4.4	3.3	3.2	2.8		2.8

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

Third Quarter 2018																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	0.9	0.7	1.2	1.2	2.1	2.3	2.8	1.6	0.7	0.4	0.3	0.2	0.5	0.3	0.8	0.7	17.1
	1.1 - 2.0	1.1	0.9	1.9	3.5	4.5	5.7	4.3	1.7	1.0	0.4	0.3	0.6	0.9	1.1	1.3	1.2	31.0
	2.1 - 3.0	0.2	0.2	0.2	1.5	2.5	1.6	1.0	1.1	0.7	0.1	0.2	0.4	1.7	1.5	1.8	0.7	15.8
	3.1 - 4.0	0.2	0.3	0.4	0.6	0.8	0.4	0.8	1.2	0.2	0.2	0.3	0.6	2.4	3.0	1.5	0.7	13.9
	4.1 - 5.0	0.1	0.0	0.0	0.2	0.3	0.1	0.3	1.4	0.1	0.2	0.4	0.7	2.0	1.5	0.9	0.4	9.0
	5.1 - 6.0	0.0	0.0	0.0	0.1	0.1	0.1	0.5	0.8	0.3	0.2	0.3	0.5	1.4	0.6	0.8	0.3	6.3
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.0	0.1	0.2	0.4	1.7	0.3	0.3	0.1	4.5
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.4	0.4	0.1	0.0	1.6
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.3	0.0	0.6
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.8	2.4	3.9	7.2	10.5	10.3	10.3	9.0	3.3	1.8	2.4	3.7	11.2	8.9	7.9	4.1		100.0
Average Speed	1.8	1.8	1.6	1.9	1.9	1.6	2.1	3.3	2.4	2.9	3.8	4.0	4.2	3.6	3.4	2.7		2.7

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

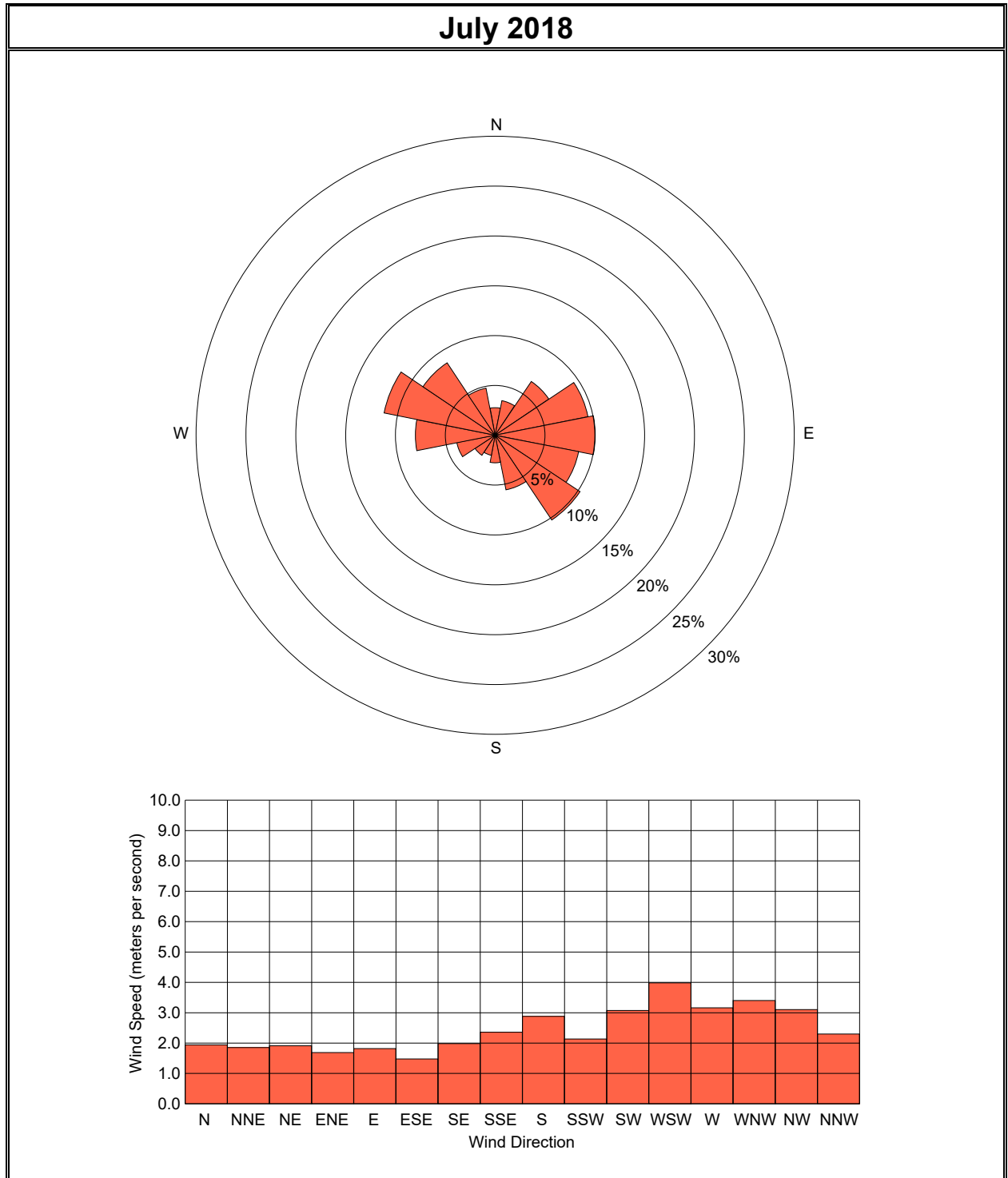


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

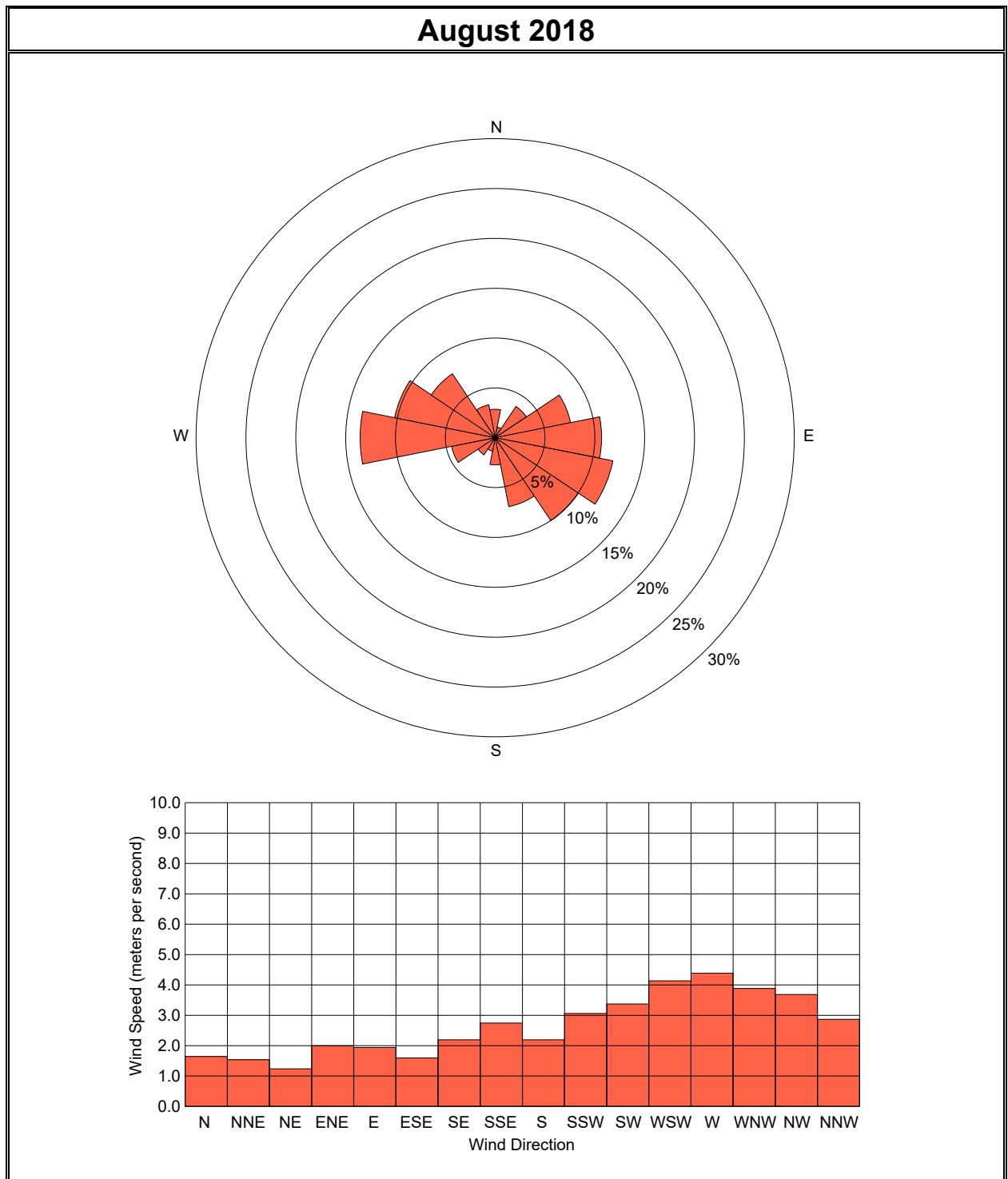


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

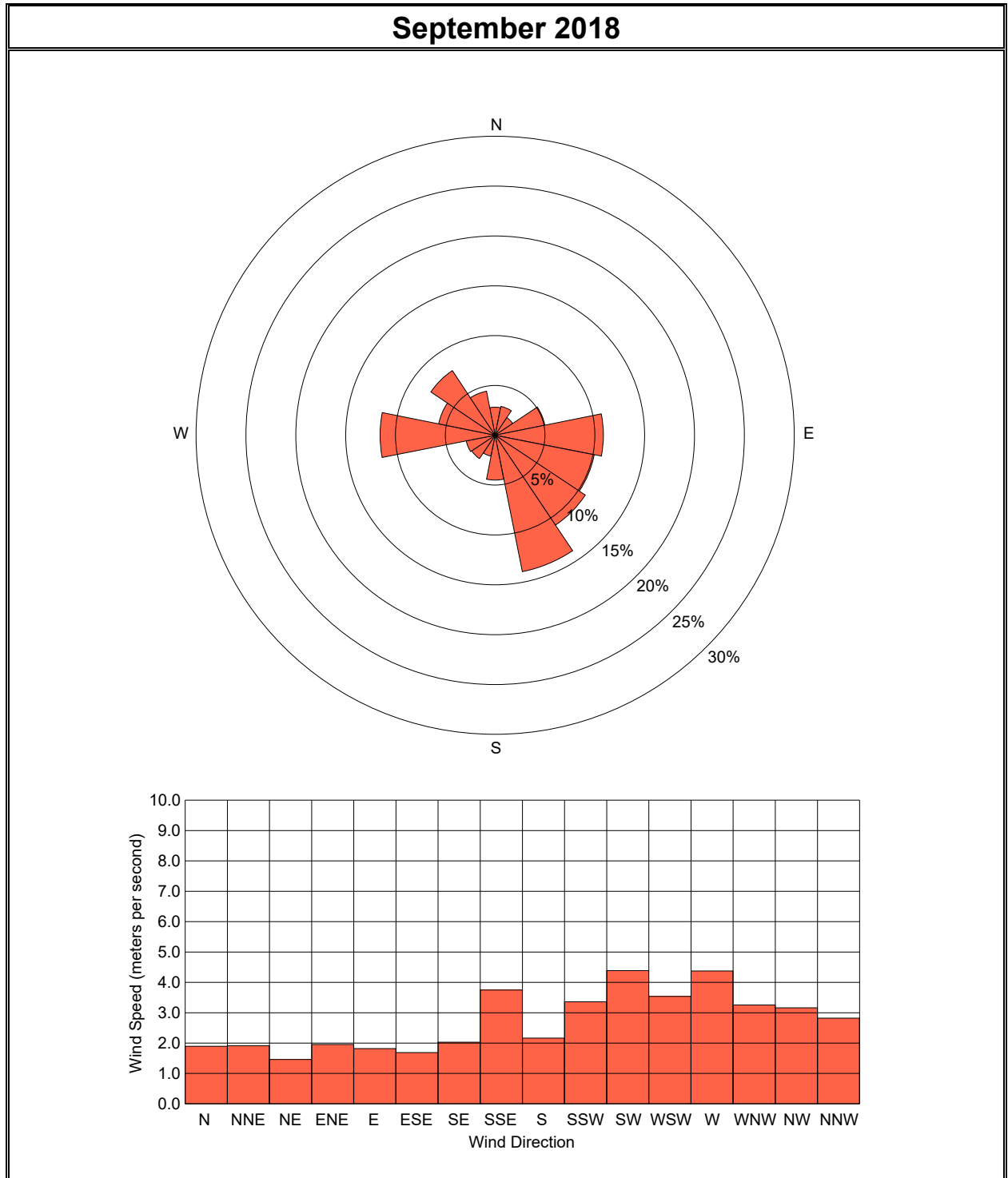
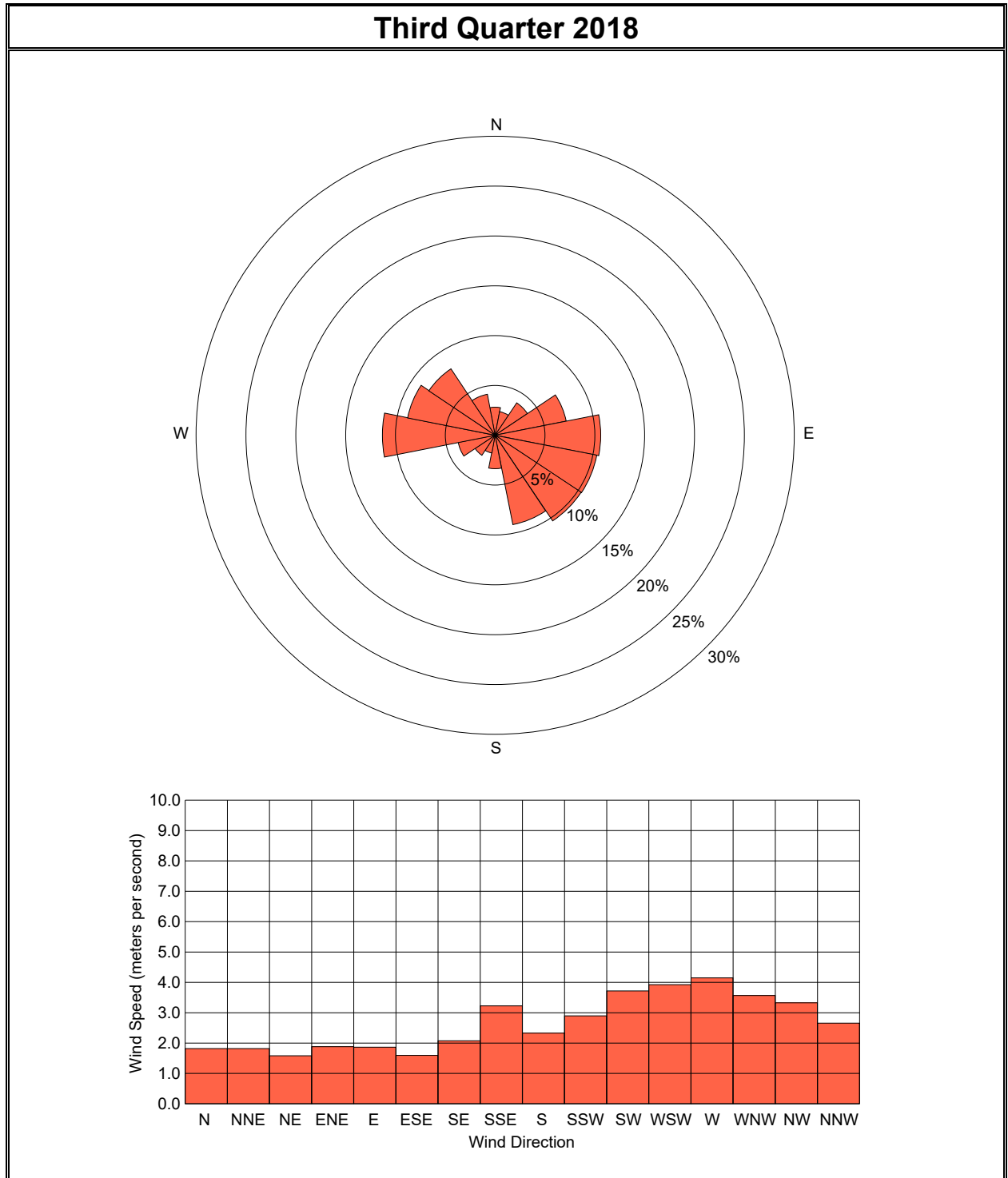


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, THIRD QUARTER 2018**

Sandfire Resources America Inc. Black Butte Copper Project Met Tower Air Monitoring Summary Wind Speed (meters per second) July 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	1.1	Pw	2.0	1.7	1.8	3.2	4.4	3.3	4.7	7.0	4.2	2.4	2.6	1.3	2.6	3.0	7.0	1.1	
10	3.1	1.3	1.5	1.2	1.5	1.4	1.0	0.5	1.8	5.6	6.6	5.7	6.0	6.2	3.3	2.3	7.0	7.6	5.9	5.0	3.8	1.8	1.3	1.2	3.4	7.6	0.5	
11	1.2	1.0	1.1	1.5	1.5	0.8	0.6	0.8	1.9	2.4	2.9	3.5	2.8	2.8	3.0	2.9	2.3	2.4	1.9	3.6	3.4	2.8	1.4	1.3	2.1	3.6	0.6	
12	0.7	0.6	1.0	0.8	0.7	0.7	0.6	0.9	1.7	1.9	2.6	2.9	3.3	3.0	3.4	3.5	3.3	2.5	2.1	1.2	2.1	2.7	1.6	1.1	1.9	3.5	0.6	
13	0.7	0.9	0.8	1.0	1.0	1.4	0.8	0.8	0.8	1.5	1.7	4.1	4.3	5.4	4.0	4.2	4.5	4.2	3.1	1.4	1.4	2.0	1.4	1.5	2.2	5.4	0.7	
14	1.1	1.0	1.4	1.1	1.7	1.2	1.2	0.8	0.6	1.8	3.6	4.2	4.8	5.8	6.1	6.1	5.1	4.9	5.0	3.9	1.6	0.7	0.6	0.8	2.7	6.1	0.6	
15	0.8	1.2	2.0	4.9	1.5	0.9	5.2	6.3	5.7	3.5	2.6	1.8	3.8	3.9	3.8	2.5	2.1	2.6	1.0	1.8	1.4	1.3	1.1	0.6	2.6	6.3	0.6	
16	1.2	1.0	1.4	1.0	1.2	1.4	0.8	0.6	2.4	3.9	2.1	2.2	3.2	4.1	2.9	2.8	2.6	3.2	1.2	1.6	1.7	2.2	2.2	1.0	2.0	4.1	0.6	
17	1.3	1.7	1.5	1.6	1.7	1.6	1.0	0.7	3.2	4.5	6.2	3.1	3.2	3.7	1.9	1.9	3.9	4.1	4.8	1.3	1.3	1.2	1.0	1.1	2.4	6.2	0.7	
18	1.0	1.6	0.8	1.3	1.3	1.4	1.0	0.7	1.3	3.4	3.9	4.5	6.9	6.7	7.4	6.8	5.5	6.9	6.4	4.1	1.2	2.5	2.0	2.0	3.4	7.4	0.7	
19	1.3	1.1	0.9	0.9	0.8	0.9	0.7	0.8	1.9	5.0	3.8	3.3	3.0	2.9	3.8	3.3	3.4	2.6	1.4	0.9	3.0	1.6	0.8	0.8	2.0	5.0	0.7	
20	1.5	0.8	0.5	0.8	0.8	0.9	0.6	0.7	2.2	2.7	4.4	4.6	4.5	3.9	4.5	3.8	2.4	2.1	2.0	1.8	3.2	3.4	1.3	1.2	2.3	4.6	0.5	
21	1.0	1.1	0.7	0.5	0.8	0.8	1.0	0.8	0.7	1.4	3.7	4.9	5.6	5.1	7.1	5.8	5.8	5.1	4.2	2.3	1.3	1.4	1.7	1.5	2.7	7.1	0.5	
22	1.2	0.9	1.4	1.3	1.9	2.1	0.8	0.9	2.3	3.5	3.3	3.1	3.2	3.3	3.2	3.0	2.6	2.0	2.2	2.9	3.1	3.0	2.5	1.4	2.3	3.5	0.8	
23	1.0	1.0	0.7	0.9	1.0	0.8	1.1	5.2	5.6	6.5	4.0	2.6	2.5	4.1	4.3	4.1	4.9	3.9	2.5	1.0	2.3	3.2	2.0	1.9	2.8	6.5	0.7	
24	1.5	1.2	1.1	1.2	0.7	0.6	0.6	1.5	2.0	2.2	1.8	2.8	2.9	3.9	4.0	3.8	3.9	3.3	2.6	3.3	2.0	2.7	2.3	2.2	2.3	4.0	0.6	
25	1.2	1.6	0.7	1.5	1.0	0.8	0.6	1.8	6.7	5.0	3.6	3.2	2.3	3.6	4.2	3.8	3.9	4.7	3.1	2.4	3.3	2.2	3.1	3.4	2.8	6.7	0.6	
26	3.9	1.8	1.0	1.4	1.4	1.3	1.7	3.2	2.0	2.0	2.3	3.8	3.4	4.9	2.7	3.0	4.2	5.3	4.3	3.3	3.4	2.8	2.5	1.9	2.8	5.3	1.0	
27	1.7	1.3	0.9	1.1	1.7	1.2	1.0	1.3	0.9	1.3	3.0	5.9	6.7	2.9	2.0	1.7	3.5	2.8	3.0	2.0	1.8	1.5	1.6	1.4	2.2	6.7	0.9	
28	1.6	1.3	1.0	1.1	1.0	0.9	0.4	0.5	1.2	2.5	2.0	2.6	2.8	5.5	3.9	3.5	4.0	3.1	3.5	1.6	1.3	1.8	1.9	1.5	2.1	5.5	0.4	
29	1.8	1.2	2.0	1.1	1.0	0.8	0.9	0.6	0.7	2.1	3.0	3.3	2.7	3.7	4.4	4.2	3.1	3.3	4.3	2.7	1.8	2.6	2.3	1.7	2.3	4.4	0.6	
30	2.1	1.2	1.0	1.0	1.3	0.9	0.8	0.8	0.7	1.7	2.2	3.3	3.0	3.3	2.5	2.1	2.9	2.1	1.7	1.1	2.5	2.3	1.6	1.7	1.8	3.3	0.7	
31	1.3	1.2	1.0	1.4	1.1	0.8	1.1	0.9	1.5	1.7	1.6	2.4	2.6	3.7	2.7	3.4	3.4	2.7	3.0	3.4	3.4	4.0	1.1	0.9	2.1	4.0	0.8	
Avg	1.5	1.2	1.1	1.3	1.2	1.1	1.1	1.4	2.2	2.9	3.2	3.5	3.7	4.1	3.8	3.6	3.8	3.7	3.3	2.5	2.3	2.3	1.7	1.5	2.4	5.4	0.7	
Max	3.9	1.8	2.0	4.9	1.9	2.1	5.2	6.3	6.7	6.5	6.6	5.9	6.9	6.7	7.4	6.8	7.0	7.6	7.0	5.0	3.8	4.0	3.1	3.4	3.4	7.6	1.1	
Min	0.7	0.6	0.5	0.5	0.7	0.6	0.4	0.5	0.6	1.1	1.6	1.8	1.7	1.8	1.9	1.7	2.1	2.0	1.0	0.9	1.2	0.7	0.6	0.6	1.8	3.3	0.4	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
August 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.3	2.4	1.5	3.1	1.7	1.6	1.0	1.0	1.5	3.1	3.2	3.5	4.8	4.4	5.6	5.6	5.3	3.4	1.7	1.5	1.4	1.3	1.6	1.8	2.6	5.6	1.0
2	1.1	1.5	0.9	1.1	1.0	0.8	0.7	0.5	1.3	3.2	3.6	4.3	4.9	4.2	4.0	5.8	6.7	4.4	3.9	4.4	6.0	3.8	3.4	2.5	3.1	6.7	0.5
3	1.4	1.2	1.5	1.9	1.6	1.5	1.2	1.0	0.9	2.8	3.1	3.5	3.3	4.6	7.4	7.1	7.8	8.1	8.2	4.0	1.8	3.0	2.2	2.0	3.4	8.2	0.9
4	2.0	1.6	1.2	0.7	1.0	1.4	0.9	0.7	1.7	3.4	3.3	4.3	4.5	3.6	4.1	3.6	3.9	3.4	3.7	5.2	1.4	1.4	1.9	0.9	2.5	5.2	0.7
5	1.6	1.2	1.1	1.3	1.6	2.0	3.3	2.7	1.2	1.5	2.3	2.2	5.2	5.8	4.9	3.5	5.6	5.2	2.2	2.5	1.6	2.3	1.8	1.2	2.7	5.8	1.1
6	1.7	1.3	1.0	0.7	1.0	1.2	0.7	0.5	0.5	2.2	3.7	3.6	3.4	4.1	3.4	3.6	3.6	3.5	3.2	1.7	3.0	2.9	2.7	2.2	2.3	4.1	0.5
7	1.7	1.2	1.2	1.0	1.1	1.0	0.6	0.8	0.6	3.0	4.5	4.6	3.8	3.5	3.6	4.4	4.6	3.3	2.8	1.3	2.2	3.1	2.5	2.1	2.4	4.6	0.6
8	1.6	1.7	1.6	1.3	1.3	1.0	1.0	0.5	0.5	1.9	4.1	3.3	3.8	2.6	3.4	3.7	4.2	2.6	2.6	1.6	3.4	2.7	2.4	1.9	2.3	4.2	0.5
9	1.4	1.0	1.1	1.1	0.9	1.2	0.7	0.6	0.6	1.5	3.1	3.6	4.1	3.5	3.5	2.5	3.6	4.1	2.9	1.0	2.4	2.4	1.8	1.5	2.1	4.1	0.6
10	1.8	1.1	0.7	0.9	1.2	0.9	0.8	0.5	0.4	0.8	1.7	2.8	3.5	3.4	4.4	1.7	2.3	2.5	1.1	1.8	2.8	2.4	2.2	1.2	1.8	4.4	0.4
11	0.6	1.2	1.0	0.6	1.2	1.3	0.9	0.6	0.6	0.9	1.6	2.4	2.8	4.4	3.7	4.5	5.5	5.4	9.0	5.0	2.5	5.3	4.2	1.9	2.8	9.0	0.6
12	1.5	1.2	0.9	1.4	1.0	1.0	1.0	0.9	1.1	3.5	4.6	4.6	4.8	5.6	5.1	5.7	4.8	4.5	4.1	5.3	2.4	2.3	3.2	1.2	3.0	5.7	0.9
13	1.1	0.8	0.9	0.9	1.1	0.6	0.6	1.3	1.6	2.3	4.3	4.5	2.0	1.8	2.9	3.1	4.5	6.2	6.6	3.7	3.1	3.0	2.5	1.0	2.5	6.6	0.6
14	1.4	0.7	1.1	0.7	0.4	0.9	0.9	0.7	0.9	1.8	3.3	4.1	3.6	3.4	3.6	3.5	4.0	4.4	3.6	2.1	2.5	1.2	1.8	1.3	2.2	4.4	0.4
15	1.0	1.1	1.2	0.9	0.7	1.1	0.7	0.5	0.7	2.5	4.5	3.5	3.6	3.9	3.9	3.4	1.6	1.2	0.8	1.9	2.3	2.6	1.9	1.6	2.0	4.5	0.5
16	1.0	1.5	1.0	1.3	0.8	0.8	1.0	0.6	0.6	0.8	2.3	2.9	3.6	3.2	3.5	3.1	3.1	2.9	2.4	2.1	1.9	2.7	1.8	1.5	1.9	3.6	0.6
17	0.8	1.5	1.1	1.0	0.9	0.9	1.1	0.5	0.6	1.7	1.1	1.8	3.5	3.0	3.7	2.2	2.2	3.3	5.7	4.3	1.3	2.4	4.6	1.8	2.1	5.7	0.5
18	1.1	1.3	1.1	1.0	2.8	1.5	3.2	2.6	1.8	2.3	2.9	1.9	1.3	0.9	1.9	6.4	7.8	5.9	4.1	4.2	6.1	2.3	1.7	1.3	2.8	7.8	0.9
19	1.7	1.7	2.0	1.4	1.4	1.4	1.3	0.7	0.6	1.4	2.8	3.0	3.4	3.2	3.6	5.5	6.8	6.1	4.9	2.8	2.4	5.5	2.0	2.4	2.8	6.8	0.6
20	2.8	2.5	4.8	2.4	1.3	1.3	1.7	4.7	4.0	5.8	5.2	6.7	5.8	2.2	1.1	1.6	0.8	1.8	3.1	2.0	2.5	2.3	2.8	3.6	3.0	6.7	0.8
21	4.8	3.8	2.2	1.3	2.7	2.7	1.6	2.0	3.6	4.9	4.1	5.8	6.0	6.0	6.5	5.4	4.9	5.0	4.4	3.5	1.8	0.8	1.4	3.4	3.7	6.5	0.8
22	3.1	2.4	2.7	2.8	3.3	3.5	3.2	3.1	2.0	1.7	1.8	4.4	4.0	5.1	6.6	4.6	5.8	4.9	1.7	1.8	2.7	3.0	1.0	1.4	3.2	6.6	1.0
23	1.0	0.8	0.9	1.5	0.7	0.9	0.8	0.7	0.8	4.1	4.6	4.2	5.3	5.7	5.5	6.5	6.2	5.6	5.0	2.6	2.4	2.7	2.4	1.4	3.0	6.5	0.7
24	1.6	1.4	1.1	1.0	0.9	0.8	1.2	0.6	0.8	1.2	3.3	5.2	4.5	4.6	7.1	7.6	5.4	5.6	5.3	4.3	2.2	2.6	1.9	1.0	3.0	7.6	0.6
25	1.3	1.5	1.3	1.0	0.8	1.1	0.9	0.7	0.8	1.2	3.5	4.8	5.3	4.5	4.7	3.8	3.2	1.7	2.1	2.3	1.7	1.5	1.3	1.4	2.2	5.3	0.7
26	1.3	1.9	1.5	1.5	1.4	1.1	0.9	1.9	3.7	5.1	6.0	6.3	6.6	6.1	5.7	6.9	6.0	5.5	4.4	2.9	1.3	2.1	1.4	1.0	3.4	6.9	0.9
27	0.5	1.1	0.5	0.4	0.8	1.2	2.3	3.2	4.9	5.5	6.4	7.4	7.7	8.1	8.4	8.3	7.8	6.6	4.9	4.1	3.9	4.2	3.5	2.9	4.4	8.4	0.4
28	2.8	1.6	0.9	1.1	0.6	0.8	1.0	0.9	1.3	3.1	3.9	6.1	7.6	6.8	6.3	6.7	6.2	6.0	5.5	2.9	1.5	1.4	2.0	2.4	3.3	7.6	0.6
29	1.5	0.9	1.2	1.1	1.2	1.0	0.9	0.6	0.7	4.9	6.3	6.7	6.4	5.7	6.1	7.2	6.7	6.1	4.4	1.0	1.5	1.6	1.1	1.4	3.2	7.2	0.6
30	1.5	0.9	1.2	1.1	1.3	1.1	1.1	0.9	1.7	6.7	6.8	6.9	7.4	7.4	7.3	8.1	6.2	4.0	1.5	1.7	2.8	2.3	2.3	6.1	3.7	8.1	0.9
31	4.8	2.6	5.2	4.4	1.1	1.6	1.7	1.5	5.6	4.8	5.6	6.9	6.7	6.1	6.8	6.5	6.6	6.7	4.6	1.9	1.6	1.9	2.2	1.6	4.1	6.9	1.1
Avg	1.7	1.5	1.5	1.4	1.3	1.3	1.3	1.2	1.5	2.9	3.8	4.4	4.6	4.4	4.8	4.9	5.0	4.5	3.9	2.8	2.5	2.5	2.2	1.9	2.8	6.2	0.7
Max	4.8	3.8	5.2	4.4	3.3	3.5	3.3	4.7	5.6	6.7	6.8	7.4	7.7	8.1	8.4	8.3	7.8	8.1	9.0	5.3	6.1	5.5	4.6	6.1	4.4	9.0	1.1
Min	0.5	0.7	0.5	0.4	0.4	0.6	0.6	0.5	0.4	0.8	1.1	1.8	1.3	0.9	1.1	1.6	0.8	1.2	0.8	1.0	1.3	0.8	1.0	0.9	1.8	3.6	0.4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
September 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.7	1.2	1.5	0.9	1.5	1.4	1.5	0.9	0.9	3.8	6.7	8.5	6.4	6.1	5.4	5.2	5.6	4.4	3.2	1.6	2.9	2.4	1.7	1.2	3.2	8.5	0.9
2	1.0	0.6	1.0	1.0	1.2	1.3	1.2	0.6	0.8	2.0	4.2	5.2	5.6	5.9	6.1	5.7	6.9	5.4	3.0	1.7	2.9	2.9	2.0	1.8	2.9	6.9	0.6
3	1.2	1.3	0.7	1.1	1.1	0.8	1.4	1.0	0.7	2.8	5.9	6.4	7.1	8.4	8.0	7.7	6.8	7.5	6.5	3.1	1.5	1.0	1.5	1.6	3.5	8.4	0.7
4	1.6	3.2	1.3	1.2	0.9	0.7	1.4	4.4	6.7	7.4	6.2	5.2	5.2	3.9	4.7	5.4	6.0	7.1	5.3	2.2	1.5	2.0	2.0	2.5	3.7	7.4	0.7
5	2.1	2.6	1.7	2.3	1.2	1.6	1.2	1.5	4.9	5.2	3.6	3.1	2.7	2.8	3.6	3.9	3.5	2.5	5.2	3.3	1.8	2.5	3.3	2.5	2.9	5.2	1.2
6	2.1	2.1	1.7	1.6	1.9	1.5	1.1	0.8	1.0	1.1	3.6	2.3	3.1	3.1	4.0	5.2	5.6	2.9	4.1	5.7	3.9	1.6	1.3	1.3	2.6	5.7	0.8
7	2.2	1.6	0.9	1.1	1.7	1.1	1.0	1.0	0.7	1.8	2.2	4.0	4.3	4.1	5.0	9.5	5.2	1.9	2.9	1.4	2.5	1.3	0.9	1.2	2.5	9.5	0.7
8	4.2	2.5	1.8	1.4	1.2	2.0	1.2	1.0	1.0	1.9	4.9	5.6	6.7	8.0	7.2	6.0	5.5	4.4	4.0	2.1	2.6	1.6	1.8	1.9	3.4	8.0	1.0
9	0.7	0.9	1.6	1.4	1.2	1.2	1.2	1.0	2.1	5.8	5.5	5.6	5.1	6.1	6.2	5.2	3.8	3.1	1.9	1.6	3.0	2.2	1.6	1.0	2.9	6.2	0.7
10	1.4	2.3	2.0	1.4	1.0	1.1	1.2	0.8	0.8	2.0	5.3	4.8	6.4	6.5	5.8	6.9	5.5	3.6	5.8	3.5	4.5	3.6	4.4	4.3	3.5	6.9	0.8
11	1.3	1.6	1.4	1.2	1.3	1.5	0.6	0.9	1.1	2.1	2.5	2.7	2.1	3.0	2.3	1.3	0.8	2.6	2.1	2.4	2.3	4.5	7.8	7.2	2.4	7.8	0.6
12	2.4	2.3	1.7	1.7	3.2	2.0	1.3	1.2	0.8	1.9	2.0	3.8	4.0	3.1	4.0	4.6	2.8	2.6	3.2	2.7	2.9	2.3	2.7	3.1	2.6	4.6	0.8
13	2.2	1.7	2.1	2.3	2.4	1.3	2.7	3.1	2.7	2.8	4.6	4.5	4.5	6.7	4.0	3.7	4.1	5.2	4.0	4.1	2.8	2.1	2.0	1.5	3.2	6.7	1.3
14	2.1	1.5	1.8	1.0	1.0	1.3	1.1	0.7	0.7	1.6	2.1	2.5	3.8	3.1	3.2	4.3	5.7	6.3	5.3	2.2	2.4	3.6	4.9	4.5	2.8	6.3	0.7
15	5.1	6.0	4.7	3.5	1.9	1.3	1.1	0.7	1.4	2.5	1.6	2.2	1.7	1.7	2.2	2.4	4.5	3.8	3.9	4.8	4.9	3.9	7.6	3.5	3.2	7.6	0.7
16	1.5	1.1	1.2	0.8	1.3	1.1	1.2	1.1	1.6	2.7	3.6	5.8	7.0	9.0	8.2	6.4	4.5	3.9	3.2	1.9	1.6	1.6	2.8	2.3	3.1	9.0	0.8
17	1.0	1.3	1.5	1.4	2.3	3.4	3.4	1.7	0.9	1.3	3.1	5.0	5.4	4.3	3.7	2.4	2.7	3.0	3.5	1.1	2.3	1.1	1.4	1.3	2.4	5.4	0.9
18	0.7	1.0	1.7	1.0	1.1	0.7	0.8	0.6	1.3	4.4	3.1	3.1	4.0	3.3	3.3	4.8	4.5	3.8	2.8	1.8	2.8	2.0	1.4	1.4	2.3	4.8	0.6
19	2.8	1.2	1.1	0.8	1.0	1.5	1.4	0.9	1.2	1.2	1.9	3.2	2.3	1.6	2.0	3.4	4.1	4.1	2.6	1.4	1.9	2.4	1.5	2.0	2.0	4.1	0.8
20	2.5	1.7	2.2	2.1	1.1	1.1	1.4	2.0	2.3	4.4	5.3	5.1	6.4	6.0	3.8	4.2	3.3	1.3	1.2	2.0	1.4	2.2	1.2	1.6	2.7	6.4	1.1
21	1.5	0.8	1.3	1.1	0.7	1.5	1.0	1.1	1.5	2.7	Au	Au	Au	Au	Au	3.9	3.2	1.8	2.3	2.8	2.3	1.6	1.2	1.4	1.8	3.9	0.7
22	1.7	1.8	1.5	0.9	1.7	1.8	1.6	1.2	0.8	0.9	5.8	4.8	4.2	4.6	4.6	3.1	1.7	1.5	3.1	1.3	1.1	1.3	1.6	1.8	2.3	5.8	0.8
23	1.2	1.4	1.4	2.1	2.7	1.9	3.7	1.9	1.4	4.6	2.6	3.3	3.8	3.5	5.4	1.3	3.0	3.9	3.6	1.5	2.4	2.4	1.5	1.8	2.6	5.4	1.2
24	1.1	1.4	1.5	1.3	1.3	0.8	0.8	0.7	1.2	4.7	5.0	5.1	5.5	5.6	3.8	5.0	4.1	4.0	1.8	0.7	0.4	1.0	1.4	1.3	2.5	5.6	0.4
25	0.8	1.2	1.0	1.0	0.7	1.0	1.4	1.0	0.8	1.4	2.4	4.0	4.6	5.3	5.0	4.0	3.8	2.5	1.8	2.3	1.9	2.0	1.2	0.6	2.2	5.3	0.6
26	0.4	1.1	1.0	1.0	0.8	0.8	0.5	0.5	0.9	3.2	5.4	5.7	6.2	6.4	6.7	6.8	6.7	5.0	4.3	2.9	1.5	1.7	2.1	2.0	3.1	6.8	0.4
27	1.5	1.3	1.4	0.7	0.9	0.8	0.9	0.6	0.6	0.6	1.9	2.3	4.1	4.1	4.9	4.8	5.4	2.2	1.7	1.7	3.1	4.1	2.8	1.0	2.2	5.4	0.6
28	1.0	1.0	1.9	2.9	1.9	1.2	4.7	3.9	5.3	6.2	7.1	7.8	8.1	8.3	7.8	6.9	5.9	5.5	4.2	4.0	4.3	3.0	2.1	1.0	4.4	8.3	1.0
29	1.2	0.5	0.7	0.7	1.0	0.9	0.8	1.8	1.9	2.2	2.7	2.6	4.1	4.3	3.5	1.6	1.6	1.5	3.0	2.9	1.8	1.5	1.5	2.3	1.9	4.3	0.5
30	3.3	3.5	3.0	3.6	6.2	5.6	6.5	6.1	5.3	5.0	6.2	6.6	7.2	4.8	4.6	3.5	2.5	1.7	1.1	0.9	0.9	1.0	1.3	1.1	3.8	7.2	0.9
Avg	1.8	1.7	1.6	1.5	1.6	1.5	1.6	1.5	1.8	3.0	4.0	4.5	4.9	5.0	4.8	4.6	4.3	3.6	3.4	2.4	2.4	2.2	2.4	2.1	2.8	6.4	0.8
Max	5.1	6.0	4.7	3.6	6.2	5.6	6.5	6.1	6.7	7.4	7.1	8.5	8.1	9.0	8.2	9.5	6.9	7.5	6.5	5.7	4.9	4.5	7.8	7.2	4.4	9.5	1.3
Min	0.4	0.5	0.7	0.7	0.7	0.7	0.5	0.5	0.6	0.6	1.6	2.2	1.7	1.6	2.0	1.3	0.8	1.3	1.1	0.7	0.4	1.0	0.9	0.6	1.8	3.9	0.4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
July 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	351	Pw	357	276	26	247	218	221	170	146	93	115	111	121	105	134
10	118	88	151	161	110	123	127	213	155	173	181	191	211	275	271	314	297	320	323	323	347	344	119	147	180
11	126	132	99	65	54	76	145	344	263	236	291	291	265	322	331	321	293	295	283	35	68	64	360	110	356
12	204	112	178	332	27	97	205	342	128	252	268	269	275	277	272	290	282	286	269	269	116	75	64	64	272
13	86	83	62	87	111	119	135	269	33	333	302	243	254	283	289	283	258	275	287	248	128	71	9	120	320
14	119	97	68	66	105	61	64	156	277	327	298	292	294	278	275	280	300	313	300	269	215	162	186	150	279
15	119	108	120	132	108	128	142	146	149	154	149	244	311	285	286	272	272	246	226	44	132	113	58	74	145
16	46	53	42	59	63	83	168	296	137	143	135	202	310	300	261	254	302	320	259	135	113	110	104	78	93
17	92	90	78	72	92	110	144	20	156	168	240	287	47	92	276	296	278	286	267	7	76	143	104	117	95
18	132	145	314	140	90	116	166	282	345	301	284	285	263	288	296	293	304	306	314	295	42	91	51	90	312
19	143	125	124	92	134	87	325	322	315	297	280	287	287	310	258	299	272	299	345	335	77	161	217	156	291
20	137	164	174	343	21	19	128	307	145	154	191	227	245	243	251	229	230	283	135	96	95	34	297	113	184
21	40	108	101	73	91	85	147	144	58	340	217	198	238	232	239	240	250	254	164	86	53	70	49	111	123
22	190	132	119	171	89	87	78	313	329	305	303	286	294	323	320	282	317	358	332	83	80	73	77	82	12
23	146	126	151	50	76	47	192	153	144	149	146	140	28	275	279	291	288	294	288	167	90	91	77	75	124
24	92	37	94	29	153	52	5	350	310	305	286	301	329	336	312	323	332	327	331	207	110	91	21	41	358
25	1	67	38	131	61	88	27	332	149	152	145	134	124	282	303	317	309	34	48	74	82	123	127	51	70
26	57	40	355	142	128	136	104	146	183	188	315	306	272	236	208	184	60	53	59	101	129	86	99	68	110
27	27	142	80	36	112	39	142	162	321	2	290	340	355	321	56	98	313	313	301	56	88	113	121	61	43
28	77	13	11	70	117	90	114	157	34	174	144	169	335	274	349	15	13	360	44	56	58	75	91	68	61
29	63	32	56	49	124	87	116	116	271	295	305	294	314	342	321	324	337	22	31	23	134	92	57	48	27
30	94	71	63	46	124	81	132	196	283	340	272	263	312	251	242	278	267	289	279	320	83	68	59	102	341
31	12	90	58	123	111	100	105	79	326	315	324	227	264	275	266	323	304	296	264	164	81	79	128	208	16
Prev	96	94	85	80	97	87	127	244	254	267	257	260	291	290	282	288	293	308	303	52	93	91	82	94	59

A-4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
August 2018

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	146	132	125	99	134	123	148	108	148	139	257	281	263	266	260	254	266	274	243	228	99	43	77	76	168
2	75	111	82	77	63	56	136	117	354	313	287	286	262	266	266	173	164	82	76	83	81	92	60	69	79
3	81	43	39	99	60	88	55	335	34	309	296	300	266	279	281	285	297	305	320	310	322	105	85	79	353
4	45	58	130	52	71	88	170	13	335	316	300	255	293	298	285	290	276	327	348	24	155	15	101	111	360
5	99	321	121	267	161	111	46	307	232	247	137	227	75	71	84	133	160	181	281	319	242	107	118	82	139
6	68	109	101	102	152	137	143	266	272	312	296	303	283	262	264	252	261	267	276	275	94	96	75	63	252
7	51	61	104	108	118	132	132	5	332	291	273	272	298	310	282	314	280	299	291	180	109	77	78	83	6
8	83	116	115	111	113	118	154	313	321	332	285	319	249	286	296	277	270	309	295	58	80	77	91	113	17
9	100	77	98	127	122	115	134	8	13	344	297	297	245	282	311	244	251	279	298	140	74	64	84	44	43
10	84	69	85	95	136	109	167	127	307	1	57	283	305	263	239	328	349	307	306	122	79	90	72	108	62
11	74	84	85	36	128	124	116	153	359	356	120	300	226	197	261	285	291	307	317	324	90	89	92	86	68
12	91	41	111	128	104	98	144	35	329	301	311	295	278	280	273	288	303	313	316	328	354	35	113	185	341
13	200	164	162	148	161	136	110	331	334	322	164	152	237	235	155	147	143	143	134	131	103	100	108	133	148
14	149	147	136	143	136	36	62	1	353	307	294	292	268	321	276	272	286	298	339	95	79	71	50	70	7
15	47	78	127	105	64	121	104	73	1	307	265	266	261	272	282	282	348	11	355	105	71	102	103	94	51
16	53	112	108	151	116	91	132	95	151	40	331	276	276	298	281	304	282	281	321	81	77	75	73	79	65
17	9	80	80	104	81	22	123	218	137	163	255	346	300	265	288	315	294	1	338	311	131	140	76	120	39
18	107	97	139	35	146	123	1	296	265	310	330	323	203	129	9	337	357	346	330	338	334	310	89	101	5
19	84	57	103	111	70	126	123	217	326	172	150	163	165	156	144	146	147	143	134	126	142	155	131	150	136
20	153	191	122	128	282	208	155	166	170	140	107	156	145	137	188	293	211	97	134	142	123	100	113	131	149
21	106	114	123	186	174	161	136	153	155	152	140	142	140	146	160	159	156	154	148	154	139	111	109	128	144
22	117	120	76	76	76	75	77	75	88	156	131	147	178	200	201	227	191	202	156	123	95	95	154	138	130
23	108	128	39	109	44	44	84	149	123	284	268	251	256	251	264	273	264	279	268	278	135	100	108	54	191
24	99	41	124	85	21	87	125	48	335	5	265	262	256	244	263	278	281	293	311	290	269	66	246	103	316
25	126	108	162	91	69	129	118	71	184	31	281	262	235	276	245	229	247	325	337	98	95	76	73	123	122
26	104	108	315	121	46	359	100	277	301	284	259	254	277	297	282	266	295	307	303	276	117	169	143	113	283
27	134	94	142	319	285	289	289	299	303	307	308	303	301	305	310	315	322	326	320	303	293	283	286	308	304
28	271	272	184	156	184	270	213	124	325	260	271	264	258	263	261	261	265	259	271	265	181	110	83	79	243
29	89	98	108	114	151	114	107	173	179	255	255	242	243	234	241	219	223	215	209	131	119	118	97	69	165
30	109	74	77	91	123	101	121	286	115	259	269	271	262	298	301	290	308	311	245	293	297	274	278	279	284
31	280	289	277	279	223	31	78	66	270	269	277	267	264	261	246	258	275	272	275	249	10	83	91	107	277
Prev	95	93	110	107	112	102	120	50	323	301	273	269	255	262	264	267	268	294	299	246	97	89	95	98	121

A-5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
September 2018

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	74	59	132	101	78	30	76	32	295	291	281	261	293	274	287	305	314	290	310	310	99	98	80	125	356
2	137	225	110	92	127	98	134	318	358	316	264	282	260	258	276	256	260	274	295	152	71	94	74	96	226
3	57	117	108	84	115	115	109	245	41	239	260	283	263	260	262	293	315	332	26	19	25	221	304	86	340
4	178	150	191	148	143	108	56	154	152	144	151	171	182	166	160	155	152	153	150	113	79	65	179	174	148
5	162	144	156	151	138	121	93	146	160	164	164	171	181	169	251	272	268	264	163	150	131	121	109	97	157
6	80	119	118	132	132	125	69	18	144	273	300	314	298	282	283	221	194	182	157	146	118	219	150	101	155
7	115	131	178	53	108	124	144	127	315	132	262	256	271	261	269	242	233	265	150	120	62	92	31	172	163
8	93	124	116	65	94	105	272	97	141	183	264	270	260	272	277	311	318	329	327	63	98	92	19	148	78
9	123	130	87	104	81	118	116	5	325	281	269	270	271	254	267	268	217	154	133	75	74	113	84	111	125
10	118	82	86	82	81	93	128	101	335	131	208	225	226	236	229	225	223	264	312	327	337	342	322	349	237
11	342	122	121	116	107	98	89	314	15	335	261	6	60	251	274	356	53	321	268	23	311	324	132	145	17
12	155	99	121	129	81	114	19	140	286	330	337	325	280	300	296	312	335	175	93	100	125	98	109	74	76
13	109	70	132	79	117	354	93	90	99	154	164	163	169	262	335	82	82	304	37	78	112	94	109	119	101
14	92	103	64	156	45	117	101	138	332	61	175	176	173	222	209	193	143	141	123	113	122	141	156	151	135
15	154	150	145	140	131	157	118	150	169	169	212	176	353	323	196	122	135	178	149	323	268	275	278	15	167
16	12	77	136	122	34	121	140	141	144	135	159	196	195	234	236	262	266	271	194	294	289	241	269	245	200
17	271	174	59	53	72	74	78	136	81	56	256	244	266	309	278	239	339	343	16	26	35	3	160	354	15
18	145	161	141	341	111	344	164	9	54	133	157	260	267	291	318	308	1	17	63	270	304	275	283	287	310
19	154	174	268	221	240	295	286	337	277	285	297	314	316	316	319	168	159	156	154	324	321	159	113	303	265
20	271	159	53	307	94	263	321	296	303	297	312	325	323	298	283	341	81	57	81	88	86	85	137	95	355
21	128	170	154	124	176	148	155	159	131	151	Au	Au	Au	Au	Au	196	213	197	111	89	97	125	135	122	146
22	129	120	156	108	85	105	89	125	308	360	237	251	235	224	265	276	303	333	332	360	142	21	206	126	170
23	132	59	84	114	7	167	285	3	23	217	153	147	149	149	327	12	275	282	271	38	99	77	56	92	80
24	105	115	92	100	132	121	87	257	339	298	274	316	306	285	310	312	299	305	310	120	240	251	319	66	313
25	140	346	123	312	342	142	94	120	146	359	310	273	271	275	269	292	270	272	180	113	90	80	123	126	176
26	35	78	131	59	94	63	21	8	98	269	248	275	263	264	266	267	266	271	272	283	348	137	93	102	324
27	114	71	87	92	117	350	145	153	102	193	306	323	272	273	332	354	346	334	296	122	161	160	162	24	76
28	137	268	173	154	119	108	157	154	150	155	164	147	151	154	154	159	157	156	164	162	161	160	164	171	156
29	186	130	262	187	152	140	191	300	313	311	313	318	327	341	4	135	196	101	63	72	100	82	96	85	99
30	104	107	138	154	149	154	152	144	159	157	156	157	156	159	162	158	165	167	134	141	272	152	148	217	154
Prev	121	121	125	110	106	110	109	110	55	217	242	255	255	260	272	262	253	262	129	78	86	113	121	110	141

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**Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
July 2018**

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	58	Pw	43	67	55	58	28	25	18	14	20	36	26	53	47	39	67	14
10	20	64	68	59	32	59	38	73	56	13	12	16	32	16	30	48	14	9	9	17	20	58	81	75	38	81	9
11	59	72	58	45	34	54	77	80	58	41	36	27	46	63	40	43	52	40	10	44	12	10	49	57	46	80	10
12	68	74	77	56	72	68	85	63	50	63	37	41	32	43	41	25	38	26	14	86	24	24	32	56	50	86	14
13	70	67	61	32	38	23	33	54	78	51	62	28	26	18	27	27	18	15	13	34	81	21	46	38	40	81	13
14	54	47	55	37	51	74	80	60	79	19	23	15	9	18	13	11	22	20	19	14	56	36	75	74	40	80	9
15	72	70	31	10	34	32	10	7	8	18	29	77	27	29	33	32	47	26	37	64	41	40	81	47	38	81	7
16	64	52	30	49	42	58	92	78	50	15	49	92	33	21	37	43	28	19	50	46	50	34	44	57	47	92	15
17	53	35	34	31	28	33	67	57	25	30	12	58	63	68	26	38	20	16	9	90	83	30	54	73	43	90	9
18	54	54	97	31	45	38	35	91	63	18	29	25	16	17	19	16	16	11	11	12	83	25	33	43	37	97	11
19	80	46	61	71	55	73	88	82	60	12	23	44	60	61	34	50	28	29	36	68	52	86	83	74	57	88	12
20	47	61	88	40	39	51	47	66	59	26	28	36	33	35	68	31	51	66	48	52	35	50	93	51	50	93	26
21	37	70	67	98	90	76	52	65	63	56	41	24	31	29	19	24	16	29	46	83	82	76	48	49	53	98	16
22	79	83	60	89	35	37	94	92	35	19	32	51	48	66	47	37	41	19	26	36	9	10	16	81	48	94	9
23	62	95	91	75	45	73	88	11	11	10	25	32	64	39	27	40	32	19	12	68	27	13	32	53	44	95	10
24	35	51	62	69	87	62	57	35	36	18	36	28	23	19	21	32	17	22	9	52	52	20	35	41	38	87	9
25	80	57	81	85	75	63	65	56	10	20	25	39	77	45	53	22	29	17	12	45	8	28	62	34	45	85	8
26	58	53	60	41	34	36	24	15	37	55	55	30	35	14	80	60	32	15	25	34	24	21	29	57	39	80	14
27	71	63	93	67	28	85	86	76	52	42	76	20	41	62	42	54	38	18	24	34	39	35	44	48	52	93	18
28	35	35	68	52	55	57	95	79	74	38	42	64	42	24	56	33	21	17	46	44	76	27	36	40	48	95	17
29	45	33	27	56	51	57	35	47	52	71	37	36	48	31	26	20	46	32	17	51	38	24	18	26	39	71	17
30	26	45	37	48	24	53	36	64	91	73	82	37	29	47	43	58	40	57	13	90	37	30	53	32	48	91	13
31	40	100	65	27	81	57	52	70	42	41	56	68	56	26	64	26	20	17	62	23	8	13	37	64	46	100	8
Avg	55	60	62	53	49	55	61	60	50	35	39	40	41	37	39	35	30	24	24	48	42	32	49	53	45	87	13
Max	80	100	97	98	90	85	95	92	91	73	82	92	77	68	80	60	52	66	62	90	83	86	93	81	57	100	26
Min	20	33	27	10	24	23	10	7	8	10	12	15	9	14	13	11	14	9	9	12	8	10	16	26	37	67	7

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**Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
August 2018**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	49	27	18	20	38	18	30	49	47	31	38	31	21	31	23	21	22	22	49	98	67	47	48	30	36	98	18
2	40	38	60	52	70	58	72	83	59	25	25	43	26	26	36	36	29	13	8	9	9	21	17	32	37	83	8
3	36	60	41	42	33	35	58	87	59	53	32	36	40	32	24	18	15	11	10	14	58	23	46	36	37	87	10
4	57	41	54	81	80	87	71	42	43	36	47	32	59	40	54	49	28	23	38	21	55	51	43	62	50	87	21
5	98	91	99	84	89	59	72	16	65	81	50	57	27	11	11	44	12	30	84	36	76	34	68	80	57	99	11
6	36	34	36	84	33	21	54	80	85	32	21	27	41	48	46	35	30	22	23	71	17	17	19	31	39	85	17
7	25	44	55	43	30	28	73	71	75	44	25	38	35	39	48	45	30	21	18	80	30	15	16	30	40	80	15
8	37	27	28	43	41	45	23	82	94	45	42	40	33	56	49	39	40	44	21	64	17	38	25	32	42	94	17
9	38	38	43	29	40	22	23	78	74	62	23	37	29	57	53	58	22	20	26	71	37	31	34	33	41	78	20
10	31	61	45	54	45	38	58	93	77	91	37	59	42	46	54	62	32	16	23	54	28	20	22	30	47	93	16
11	72	38	50	76	23	24	35	67	89	52	53	63	45	32	30	35	10	19	10	69	77	16	13	74	45	89	10
12	63	61	60	40	63	52	84	87	40	25	32	37	35	20	20	20	14	14	7	9	68	74	93	89	46	93	7
13	43	82	74	39	35	53	72	64	26	37	32	23	83	90	34	22	13	9	10	16	10	15	15	45	39	90	9
14	12	77	43	62	59	76	43	73	40	54	29	34	40	48	52	40	37	17	26	57	28	54	31	46	45	77	12
15	50	33	31	71	59	23	36	99	67	65	29	35	38	44	40	32	46	55	45	57	33	20	52	52	46	99	20
16	72	50	83	30	47	58	27	80	58	56	43	44	38	40	52	24	25	13	26	72	49	24	30	37	45	83	13
17	50	45	53	71	65	81	36	89	46	17	101	46	29	31	26	53	32	27	40	49	65	47	24	65	50	101	17
18	48	63	59	83	74	100	54	62	26	28	12	20	74	71	85	14	15	15	18	17	12	40	71	61	47	100	12
19	55	40	20	32	36	18	31	96	52	90	19	20	31	40	29	9	7	8	14	19	16	9	50	20	32	96	7
20	12	59	65	42	60	88	85	14	8	36	72	16	18	36	72	36	47	21	24	21	32	17	14	12	38	88	8
21	13	11	30	77	9	14	18	10	13	10	21	14	11	18	9	10	11	9	7	6	21	38	76	13	20	77	6
22	16	16	10	11	9	8	8	12	41	28	41	16	30	26	19	20	11	12	15	26	35	28	50	78	24	78	8
23	70	56	69	36	70	65	47	50	95	26	20	23	28	21	24	18	18	14	14	26	43	24	24	37	38	95	14
24	54	62	66	59	48	68	37	94	36	48	32	20	22	19	19	15	16	11	11	25	75	26	70	96	43	96	11
25	33	72	82	36	73	30	71	80	89	79	28	17	31	33	27	43	33	65	15	71	63	35	64	99	53	99	15
26	81	51	89	55	50	87	30	100	16	14	18	17	24	17	19	17	15	13	14	31	87	65	61	80	44	100	13
27	53	21	76	41	16	12	10	9	9	9	10	10	13	11	12	12	11	9	9	10	12	9	11	16	17	76	9
28	11	31	73	39	74	34	36	85	74	34	26	19	17	14	16	14	12	15	12	22	50	45	40	34	34	85	11
29	35	51	53	41	83	68	67	90	96	22	18	21	29	24	24	16	15	16	11	59	22	30	46	37	41	96	11
30	97	58	44	62	28	61	55	83	97	12	17	19	23	21	14	14	17	17	68	24	15	40	20	10	38	97	10
31	15	26	20	24	74	78	39	83	19	24	30	18	23	27	21	23	19	15	13	56	59	70	34	50	36	83	13
Avg	45	47	53	50	50	49	47	68	55	41	33	30	33	34	34	29	22	20	23	41	41	33	40	47	40	90	13
Max	98	91	99	84	89	100	85	100	97	91	101	63	83	90	85	62	47	65	84	98	87	74	93	99	57	101	21
Min	11	11	10	11	9	8	8	9	8	9	10	10	11	11	9	9	7	8	7	6	9	9	11	10	17	76	6

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
September 2018

A-9

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	68	80	32	72	71	65	85	85	90	66	17	13	16	20	27	20	21	16	13	68	24	25	46	65	46	90	13
2	40	99	68	69	49	47	27	59	47	76	29	21	24	23	19	21	15	26	16	78	36	33	29	36	41	99	15
3	40	35	76	54	49	44	43	93	51	63	23	19	15	15	18	23	14	26	17	35	102	55	90	86	45	102	14
4	80	9	74	84	22	67	73	50	9	11	10	17	20	27	21	16	10	7	10	38	58	76	32	13	35	84	7
5	28	12	14	18	20	21	28	79	10	10	25	31	44	58	41	29	25	37	8	14	19	14	12	19	26	79	8
6	22	26	24	26	18	41	58	95	46	94	30	71	64	45	38	20	26	18	13	13	53	50	18	34	39	95	13
7	47	53	82	51	38	56	96	53	55	54	82	38	32	38	34	13	23	28	90	44	41	46	78	94	53	96	13
8	34	47	22	48	37	82	88	69	66	63	22	23	23	22	20	21	16	14	12	56	14	51	87	26	40	88	12
9	90	26	42	46	64	37	47	78	76	18	19	21	25	22	22	25	30	22	56	59	12	37	66	73	42	90	12
10	40	45	32	25	38	52	34	97	69	86	43	34	24	24	23	21	17	21	22	9	17	28	7	19	34	97	7
11	39	32	44	35	37	25	72	91	68	55	46	43	89	32	32	66	58	25	71	65	41	13	17	15	46	91	13
12	76	65	84	77	19	38	81	39	77	40	44	33	9	21	16	24	40	61	28	15	18	20	18	30	41	84	9
13	23	26	56	61	47	95	32	22	19	19	15	15	18	43	65	21	11	24	85	15	54	76	65	28	39	95	11
14	18	45	29	24	74	37	52	65	48	58	53	26	31	34	32	17	19	11	36	59	28	42	12	10	36	74	10
15	10	9	11	12	18	27	37	65	27	24	65	51	63	77	49	80	26	25	86	34	28	23	19	58	39	86	9
16	71	76	27	26	66	37	20	55	34	20	18	25	25	15	13	24	18	47	65	27	51	56	10	32	36	76	10
17	44	84	60	15	9	6	6	48	73	79	50	25	24	32	51	55	35	22	47	72	82	64	91	50	47	91	6
18	66	64	22	52	65	96	99	74	52	14	34	50	31	33	48	20	20	10	38	34	17	47	76	62	47	99	10
19	16	28	36	80	78	40	86	51	16	48	30	10	9	17	13	45	6	7	29	44	30	29	76	57	37	86	6
20	32	46	66	25	64	63	51	12	18	12	14	12	11	17	37	58	12	53	69	18	33	22	35	25	34	69	11
21	31	25	17	85	96	21	28	26	24	22	Au	Au	Au	Au	Au	28	36	48	14	19	20	15	47	22	33	96	14
22	29	22	27	70	59	43	51	61	78	67	15	18	29	37	24	30	21	31	20	55	75	86	102	54	46	102	15
23	59	84	56	71	80	66	29	39	56	39	53	17	16	19	52	42	29	13	14	80	27	40	37	33	44	84	13
24	39	34	50	64	69	70	65	86	31	15	23	32	17	15	30	18	14	10	59	65	80	91	32	61	45	91	10
25	23	86	40	31	96	32	25	64	51	53	34	21	21	20	19	15	20	33	47	24	18	20	34	45	36	96	15
26	62	65	71	52	54	68	75	89	48	82	16	18	22	22	16	15	12	10	17	13	40	78	30	26	42	89	10
27	23	37	32	43	38	68	51	58	73	48	41	18	18	20	23	17	9	29	22	55	12	12	14	103	36	103	9
28	41	99	27	7	32	49	6	8	8	10	7	11	9	7	6	6	7	7	7	8	6	10	14	27	17	99	6
29	17	89	54	36	60	32	87	9	13	9	13	11	9	15	21	52	64	84	16	22	21	30	32	12	34	89	9
30	11	18	25	10	7	8	9	11	10	9	9	7	6	7	8	11	12	24	57	90	61	31	54	75	24	90	6
Avg	41	49	43	46	49	48	51	58	45	42	30	25	26	27	28	28	22	26	36	41	37	41	43	43	39	90	11
Max	90	99	84	85	96	96	99	97	90	94	82	71	89	77	65	80	64	84	90	90	102	91	102	103	53	103	15
Min	10	9	11	7	7	6	6	8	8	9	7	7	6	7	6	6	6	7	7	8	6	10	7	10	17	69	6

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
July 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	24.3	Pw	26.6	27.5	28.0	28.8	28.8	28.3	25.5	24.1	22.1	19.9	18.0	16.3	15.6	23.8	28.8	15.6
10	13.8	11.8	11.7	10.9	10.5	11.4	14.5	18.0	23.6	26.5	27.7	27.7	28.2	25.6	22.6	25.3	26.2	24.5	22.8	20.8	16.8	14.5	11.5	9.6	19.0	28.2	9.6	
11	7.8	6.4	4.8	4.5	4.0	3.9	7.5	12.3	14.9	16.2	17.8	18.8	19.8	20.7	21.7	22.3	22.4	22.2	21.7	18.7	16.0	14.8	11.6	9.5	14.2	22.4	3.9	
12	8.6	7.7	6.6	6.6	6.5	6.7	9.7	15.5	18.5	19.8	20.5	20.9	22.2	23.0	23.9	24.2	24.3	24.3	23.3	20.7	14.9	12.1	10.2	8.0	15.8	24.3	6.5	
13	7.6	7.0	6.6	6.2	5.4	5.6	9.9	15.5	20.1	22.5	23.7	25.0	25.9	26.6	27.3	27.5	27.5	27.2	26.2	23.3	17.4	14.3	12.7	11.2	17.6	27.5	5.4	
14	9.8	8.4	7.6	6.2	4.6	5.4	7.4	10.5	14.6	19.9	20.6	20.0	20.2	19.9	19.2	18.4	18.9	17.8	15.6	13.1	10.6	9.1	7.2	6.2	13.0	20.6	4.6	
15	5.0	7.4	11.6	11.8	10.9	10.3	12.4	13.9	15.3	16.8	18.5	20.4	21.9	22.9	23.6	24.1	24.4	24.3	24.1	20.9	16.9	13.8	12.3	11.4	16.5	24.4	5.0	
16	9.9	9.2	8.5	7.2	6.5	6.9	9.8	15.0	20.1	22.2	23.5	24.6	25.3	25.0	25.0	25.5	25.5	23.5	25.1	20.7	18.3	15.5	14.7	12.6	17.5	25.5	6.5	
17	11.0	10.5	9.8	9.2	8.0	7.9	12.0	16.9	21.3	22.1	21.1	18.3	16.4	16.6	19.3	22.4	22.3	21.4	20.2	18.4	15.4	12.3	10.5	9.0	15.5	22.4	7.9	
18	7.8	6.6	5.9	5.4	5.0	4.6	8.1	13.3	18.5	21.3	23.1	24.6	25.6	26.6	26.9	27.0	26.3	25.8	24.3	22.1	17.4	11.7	9.1	6.5	16.4	27.0	4.6	
19	5.3	3.4	3.4	2.8	2.2	2.7	6.4	11.6	17.2	19.3	20.3	21.3	22.1	23.3	24.0	24.6	24.7	24.8	23.8	20.2	16.0	12.4	10.2	9.7	14.7	24.8	2.2	
20	9.1	8.2	7.4	6.3	6.0	5.6	8.9	14.9	20.0	22.1	23.5	24.3	25.5	26.2	26.5	26.6	26.8	26.8	25.3	21.9	16.8	15.2	11.1	9.3	17.3	26.8	5.6	
21	8.0	7.1	6.8	5.9	4.5	4.1	7.8	13.6	19.3	22.4	24.0	25.2	26.1	27.2	28.1	27.8	27.7	27.0	23.7	19.7	16.4	14.1	13.1	11.9	17.1	28.1	4.1	
22	11.6	11.2	10.1	7.2	4.4	3.5	6.3	11.6	15.9	17.3	18.5	19.6	20.7	21.4	22.1	22.6	22.8	22.6	21.3	18.4	15.1	13.6	13.2	8.4	15.0	22.8	3.5	
23	6.9	6.5	5.3	5.2	5.6	4.9	9.7	14.7	16.5	18.0	19.1	20.6	22.1	23.6	24.3	24.6	25.3	25.0	24.1	20.1	14.1	10.5	6.4	6.0	15.0	25.3	4.9	
24	4.2	3.6	3.5	3.4	2.6	2.6	7.0	11.3	14.1	17.0	17.9	18.8	20.5	22.1	23.2	24.4	24.7	24.3	23.1	20.2	17.2	14.2	11.1	10.1	14.2	24.7	2.6	
25	8.7	7.8	6.4	5.4	4.8	4.2	7.5	12.3	15.7	17.1	18.3	19.9	20.6	22.5	23.1	23.3	23.7	22.8	22.2	19.2	17.5	15.6	14.7	14.5	15.3	23.7	4.2	
26	12.7	11.1	10.0	8.9	10.5	9.1	12.2	15.0	16.8	18.5	19.9	21.0	22.0	21.3	22.5	19.4	20.0	19.6	17.6	15.7	13.4	12.0	9.9	8.5	15.3	22.5	8.5	
27	8.8	8.8	7.1	6.2	4.6	4.4	6.6	11.0	13.6	15.5	16.7	14.1	12.3	12.1	14.3	17.0	18.0	16.6	15.6	14.2	11.5	8.5	7.4	6.3	11.3	18.0	4.4	
28	5.0	4.1	3.7	2.2	1.6	1.3	4.4	9.6	15.0	17.4	18.6	19.6	20.1	16.9	16.1	19.5	19.8	18.4	16.9	15.1	11.5	9.5	8.6	8.1	11.8	20.1	1.3	
29	7.2	5.7	6.0	3.7	1.7	2.1	4.4	10.0	16.1	18.8	19.8	20.4	21.1	21.1	21.9	21.8	21.4	21.2	20.1	17.3	12.3	9.3	8.8	6.4	13.3	21.9	1.7	
30	4.6	2.9	2.5	2.2	1.0	0.8	3.9	10.4	16.8	19.7	21.1	22.2	23.3	24.0	24.9	25.5	25.8	25.6	24.9	20.1	14.5	11.4	9.0	6.4	14.3	25.8	0.8	
31	6.5	6.3	4.5	3.1	3.5	3.7	6.5	12.0	16.7	19.0	21.7	24.5	24.8	25.8	26.7	26.8	26.7	25.6	23.2	21.5	19.2	17.9	15.0	12.5	16.4	26.8	3.1	
Avg	8.2	7.4	6.8	5.9	5.2	5.1	8.3	13.1	17.3	19.7	20.7	21.7	22.4	22.7	23.3	23.9	24.1	23.3	22.1	19.3	15.6	13.1	11.1	9.5	15.5	24.5	5.1	
Max	13.8	11.8	11.7	11.8	10.9	11.4	14.5	18.0	23.6	26.5	27.7	27.7	28.2	28.0	28.8	28.8	28.3	27.2	26.2	23.3	19.9	18.0	16.3	15.6	23.8	28.8	15.6	
Min	4.2	2.9	2.5	2.2	1.0	0.8	3.9	9.6	13.6	15.5	16.7	14.1	12.3	12.1	14.3	17.0	18.0	16.6	15.6	13.1	10.6	8.5	6.4	6.0	11.3	18.0	0.8	

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
August 2018

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	15.4	15.8	14.1	11.5	8.7	6.9	8.4	13.2	19.2	23.5	25.3	26.6	27.2	27.6	28.5	28.7	28.7	28.0	25.7	22.0	20.0	15.9	12.9	10.8	19.4	28.7	6.9
2	9.2	7.6	7.1	6.7	6.2	5.8	8.1	12.9	19.7	22.8	24.1	25.4	26.6	27.5	27.2	23.2	20.9	21.6	20.4	17.6	14.6	12.3	12.0	10.0	16.2	27.5	5.8
3	7.7	7.0	6.7	6.4	6.3	4.5	5.3	10.3	16.8	20.2	21.3	22.2	23.0	23.2	24.0	24.1	23.8	23.0	21.4	18.5	15.3	10.1	6.0	3.9	14.6	24.1	3.9
4	2.5	1.3	0.2	-0.4	-1.2	-1.3	1.6	8.5	14.1	15.9	17.0	18.1	18.8	19.1	20.4	20.9	21.2	20.6	19.3	16.5	13.9	10.9	8.8	6.5	11.4	21.2	-1.3
5	5.6	5.9	6.9	5.9	5.6	7.3	10.0	11.0	12.6	15.5	17.7	18.1	15.3	13.4	14.2	16.4	15.5	13.9	11.7	10.0	8.3	7.7	6.0	5.3	10.8	18.1	5.3
6	4.7	2.6	1.6	1.2	0.6	-0.3	1.9	7.1	12.4	16.4	18.3	19.7	21.0	22.0	22.5	22.8	23.0	23.0	21.6	19.0	14.3	10.3	8.1	7.1	12.5	23.0	-0.3
7	5.0	3.3	2.2	1.5	1.1	0.9	4.0	10.0	16.6	20.4	21.5	22.5	22.8	24.0	24.1	25.0	25.3	24.7	23.4	19.1	15.7	13.9	11.3	8.5	14.5	25.3	0.9
8	6.1	4.5	3.9	3.0	3.1	2.5	4.1	10.3	16.8	22.2	23.8	24.8	25.7	26.8	27.6	28.0	28.1	27.9	26.1	20.8	16.3	12.9	10.5	7.4	16.0	28.1	2.5
9	6.4	5.4	4.3	3.8	3.6	3.3	6.2	12.2	18.5	24.3	26.4	27.5	28.0	29.0	29.7	30.0	30.1	29.9	27.5	23.0	18.0	16.1	11.3	9.9	17.7	30.1	3.3
10	7.0	6.5	5.9	4.9	3.9	3.5	6.6	13.1	20.2	26.3	29.2	30.5	31.1	32.1	32.3	32.5	32.5	31.7	29.9	23.1	18.5	14.6	12.4	9.7	19.1	32.5	3.5
11	8.7	7.7	7.2	6.8	6.0	5.1	7.3	13.2	19.1	25.2	29.9	31.6	32.2	33.3	34.0	34.0	32.1	28.5	26.5	23.5	21.9	22.8	21.7	15.0	20.6	34.0	5.1
12	12.2	10.9	9.7	8.2	7.4	8.4	10.1	14.2	20.2	23.5	23.7	25.5	26.4	27.7	27.6	27.9	27.5	26.3	23.8	21.0	19.2	18.0	16.8	13.1	18.7	27.9	7.4
13	10.4	9.6	6.9	4.5	3.0	1.7	2.8	8.6	13.6	16.3	18.7	19.7	19.4	19.6	19.7	21.2	21.1	19.9	18.2	15.8	14.7	12.4	11.5	10.2	13.3	21.2	1.7
14	8.9	6.7	5.9	4.0	3.0	2.2	3.2	8.9	14.6	17.6	19.3	20.6	21.4	22.5	23.2	23.7	24.1	23.7	21.4	17.3	12.1	9.1	7.3	5.5	13.6	24.1	2.2
15	5.4	5.0	4.8	3.7	2.7	1.5	3.4	9.4	16.2	20.6	21.8	22.8	24.2	25.1	25.3	24.9	25.8	26.1	24.5	17.9	14.7	8.8	7.5	5.8	14.5	26.1	1.5
16	5.5	4.4	4.3	2.8	2.0	1.2	3.2	9.7	16.3	22.2	25.3	26.4	27.4	27.9	28.1	27.6	27.9	26.8	24.8	21.7	17.4	14.5	12.8	11.1	16.3	28.1	1.2
17	9.8	8.4	7.4	7.2	6.4	5.4	6.4	9.5	14.3	18.8	22.8	26.0	26.6	27.2	27.7	27.9	26.6	25.2	23.1	19.1	18.0	17.0	16.6	15.7	17.2	27.9	5.4
18	13.6	11.9	11.1	10.9	12.4	11.6	11.5	12.2	13.6	14.5	13.2	13.2	14.4	15.9	18.1	20.0	19.0	18.2	17.1	15.8	14.7	12.2	9.2	6.9	13.8	20.0	6.9
19	5.0	4.8	2.8	2.4	1.7	1.3	2.0	4.6	8.5	14.1	16.9	18.5	20.3	21.2	20.8	20.6	20.0	18.4	17.0	15.9	14.3	13.3	12.4	11.0	12.0	21.2	1.3
20	10.7	10.5	10.4	9.6	8.1	6.3	7.8	8.3	8.0	7.8	8.9	9.2	8.2	8.3	7.7	7.6	7.7	7.6	7.0	6.4	6.3	6.5	6.4	6.4	8.0	10.7	6.3
21	6.5	6.4	6.6	6.1	6.2	6.1	6.5	7.1	8.5	9.4	10.4	11.1	11.3	11.5	11.7	11.4	11.9	11.6	10.3	7.9	6.5	5.0	5.4	8.3	8.5	11.9	5.0
22	8.4	8.2	7.9	7.7	7.2	6.5	6.1	7.0	8.7	11.3	14.9	18.1	19.8	20.6	21.6	21.8	20.7	19.4	17.6	14.7	11.7	9.7	8.5	7.8	12.7	21.8	6.1
23	8.2	7.9	8.1	7.9	7.6	7.6	7.2	9.1	13.2	15.9	17.4	18.9	20.6	21.7	22.7	23.2	23.1	22.6	20.9	17.1	12.3	9.9	6.7	5.0	13.9	23.2	5.0
24	3.5	2.8	2.1	1.3	1.5	1.2	1.5	4.8	9.5	16.2	19.2	19.8	20.1	20.6	22.4	21.8	21.0	20.4	18.8	16.5	12.3	9.9	9.0	7.0	11.8	22.4	1.2
25	6.0	5.3	3.9	2.4	1.6	0.3	0.5	4.2	10.1	13.9	16.3	17.8	18.8	19.6	20.3	20.5	20.3	19.5	16.6	13.9	13.6	13.9	13.4	10.5	11.8	20.5	0.3
26	9.1	8.6	7.7	7.6	7.6	7.2	7.2	9.0	10.2	10.6	11.7	13.4	14.6	14.2	14.4	14.8	14.9	13.0	11.8	10.2	8.9	8.6	7.8	7.2	10.4	14.9	7.2
27	6.8	6.8	6.6	6.4	6.3	6.4	6.6	6.7	6.6	6.1	6.2	7.3	7.9	8.0	7.5	7.2	6.8	5.2	4.5	3.9	3.5	3.2	3.1	3.0	5.9	8.0	3.0
28	2.3	1.3	-0.8	-1.2	-0.3	0.0	0.0	1.1	5.0	7.6	9.4	11.0	12.9	12.1	12.8	13.7	13.8	14.0	13.5	10.3	6.6	5.4	2.6	1.9	6.5	14.0	-1.2
29	0.2	-0.8	-1.8	-2.3	-3.0	-3.2	-2.0	2.8	9.6	14.8	16.5	17.8	19.1	20.0	20.6	21.2	21.4	21.2	19.3	13.4	10.1	5.8	4.4	2.6	9.5	21.4	-3.2
30	2.3	1.3	0.6	0.4	-0.6	-0.5	0.3	5.9	14.2	18.3	18.8	19.7	20.7	21.7	20.8	20.9	19.1	17.1	16.1	15.0	14.5	14.2	13.3	14.2	12.0	21.7	-0.6
31	13.4	11.8	11.5	9.9	6.6	4.3	3.5	8.9	12.6	13.9	15.5	16.2	16.7	17.2	18.3	18.9	19.1	18.3	16.4	11.8	8.6	5.2	3.2	0.7	11.8	19.1	0.7
Avg	7.3	6.4	5.7	4.9	4.2	3.7	4.9	8.8	13.5	17.0	18.8	20.0	20.7	21.3	21.8	22.0	21.7	20.9	19.2	16.1	13.4	11.3	9.6	8.0	13.4	22.5	3.0
Max	15.4	15.8	14.1	11.5	12.4	11.6	11.5	14.2	20.2	26.3	29.9	31.6	32.2	33.3	34.0	34.0	32.5	31.7	29.9	23.5	21.9	22.8	21.7	15.7	20.6	34.0	7.4
Min	0.2	-0.8	-1.8	-2.3	-3.0	-3.2	-2.0	1.1	5.0	6.1	6.2	7.3	7.9	8.0	7.5	7.2	6.8	5.2	4.5	3.9	3.5	3.2	2.6	0.7	5.9	8.0	-3.2

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
September 2018

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	-0.4	-1.3	-2.1	-2.8	-2.9	-3.1	-1.3	2.0	6.0	12.6	15.0	16.0	16.1	17.5	18.2	18.5	18.3	17.7	15.2	11.0	8.1	4.8	1.5	0.3	7.7	18.5	-3.1
2	-1.3	-1.3	-2.0	-3.3	-3.7	-3.5	-2.6	3.1	10.2	14.9	16.7	17.9	18.8	20.1	20.7	20.9	21.0	20.5	17.9	12.1	8.2	5.3	4.0	1.2	9.0	21.0	-3.7
3	0.1	-0.8	-1.5	-1.6	-2.3	-2.8	-2.2	4.0	11.9	17.3	19.1	20.2	21.2	21.8	22.2	22.5	21.7	19.7	14.4	11.4	9.0	7.0	5.3	4.4	10.1	22.5	-2.8
4	2.8	2.8	3.3	2.8	3.6	2.3	1.9	6.1	8.5	9.8	11.3	12.6	13.9	15.0	15.7	16.0	15.6	14.5	12.1	10.3	9.7	8.8	7.9	7.2	8.9	16.0	1.9
5	6.8	5.9	4.7	4.2	3.4	1.4	0.8	6.3	11.5	13.5	15.0	16.8	19.1	20.9	22.1	22.7	22.6	22.2	17.7	14.6	13.5	10.9	9.6	6.2	12.2	22.7	0.8
6	6.3	4.5	5.0	3.9	2.8	2.7	3.8	8.3	15.3	21.3	23.8	24.6	25.4	25.6	26.5	25.1	24.9	22.8	20.5	19.1	18.3	16.6	13.1	9.6	15.4	26.5	2.7
7	8.2	10.3	7.9	6.5	5.6	7.1	7.2	9.1	13.8	21.4	23.8	25.2	26.0	26.3	26.3	23.6	23.2	22.7	20.5	20.1	17.0	11.8	9.9	11.3	16.0	26.3	5.6
8	14.0	15.2	12.1	9.1	9.3	9.1	9.6	10.3	15.7	20.7	22.3	23.0	23.7	24.2	24.0	23.0	22.1	20.6	17.6	14.8	12.8	12.0	10.5	8.9	16.0	24.2	8.9
9	8.3	7.8	6.8	5.0	3.6	2.6	1.7	6.2	13.5	15.9	16.1	16.9	18.5	19.5	20.3	20.2	19.5	18.1	15.8	12.9	11.8	8.6	7.4	6.3	11.8	20.3	1.7
10	4.2	4.3	2.2	1.2	0.4	-0.4	-0.3	4.4	11.6	17.6	20.1	21.1	21.9	22.3	22.8	23.1	22.8	22.6	20.1	17.8	16.9	14.4	11.6	11.6	13.1	23.1	-0.4
11	9.5	4.9	2.9	1.5	-0.7	-1.5	-1.8	3.1	9.7	13.1	14.5	15.6	16.7	17.0	16.8	16.9	17.0	15.2	13.3	10.4	9.3	8.9	9.0	8.7	9.6	17.0	-1.8
12	8.5	7.9	8.7	8.3	8.2	7.5	7.0	7.9	9.8	11.6	12.6	13.1	12.2	12.7	13.2	12.7	11.8	9.8	7.9	7.7	7.5	6.7	4.5	4.0	9.2	13.2	4.0
13	3.5	3.2	3.1	4.4	4.5	4.6	4.8	5.1	5.8	7.5	9.3	10.5	12.2	11.7	7.4	7.9	8.9	7.9	5.7	5.3	4.9	4.7	4.3	3.7	6.3	12.2	3.1
14	2.5	1.1	0.3	0.0	-1.4	-1.9	-2.0	-0.6	2.2	8.9	11.5	12.1	13.6	14.4	14.9	15.1	14.4	13.4	12.0	10.7	9.7	8.0	7.6	7.4	7.2	15.1	-2.0
15	7.1	7.7	8.2	8.3	8.0	7.6	5.0	8.4	12.1	14.2	16.6	18.7	19.3	20.4	20.1	19.4	19.1	15.9	15.6	14.2	11.0	9.1	8.1	7.1	12.6	20.4	5.0
16	5.4	3.3	1.8	1.7	0.8	0.5	0.2	2.1	7.3	11.8	14.4	16.7	17.6	18.8	19.0	19.8	19.7	18.4	15.0	11.3	9.5	8.9	8.3	8.2	10.0	19.8	0.2
17	7.7	7.7	7.6	7.1	6.1	4.2	3.4	5.3	7.4	11.0	13.6	15.1	15.7	16.2	16.9	17.0	17.1	16.4	12.6	10.5	8.4	7.0	3.8	2.8	10.0	17.1	2.8
18	2.6	2.0	4.5	3.0	2.1	1.0	0.2	3.3	8.7	12.3	13.8	15.2	16.3	17.0	17.5	17.1	15.4	13.8	12.0	9.9	9.1	8.2	7.6	7.5	9.2	17.5	0.2
19	5.2	5.5	6.1	6.1	6.3	6.1	6.1	6.5	7.1	7.8	7.9	7.0	7.0	7.4	7.6	7.8	7.6	7.8	6.9	5.6	5.6	5.9	5.7	5.5	6.6	7.9	5.2
20	5.3	4.5	4.1	4.0	4.0	4.5	4.7	5.0	5.3	6.5	7.7	8.6	9.4	9.6	8.0	4.8	5.0	5.7	4.6	3.6	2.1	1.1	-0.1	-0.6	4.9	9.6	-0.6
21	-0.3	0.3	0.5	0.0	-0.5	-0.6	-0.4	1.6	6.3	9.8	Au	Au	Au	Au	Au	16.5	16.8	15.4	10.1	7.9	4.8	4.1	3.8	2.7	5.2	16.8	-0.6
22	1.2	0.3	0.2	-0.1	0.1	0.9	1.0	1.9	6.6	13.7	18.3	18.3	18.2	19.8	19.5	18.4	17.1	15.2	14.0	11.8	8.5	8.2	7.6	7.3	9.5	19.8	-0.1
23	6.2	6.2	6.3	6.6	7.6	7.5	8.1	6.8	7.1	7.2	7.1	6.6	6.8	9.0	7.4	8.9	10.0	10.1	7.4	4.6	2.2	1.4	1.3	0.3	6.4	10.1	0.3
24	-1.1	-0.8	-2.2	-2.9	-3.7	-4.4	-3.3	-1.8	0.7	6.5	6.2	5.0	6.6	4.0	4.0	3.8	3.9	3.8	1.7	1.5	1.5	1.4	1.6	0.6	1.4	6.6	-4.4
25	-0.4	-1.1	-0.4	0.3	0.5	-0.1	-0.4	0.4	1.3	4.2	5.9	7.2	8.1	9.1	9.4	9.5	9.8	9.4	4.9	1.6	-0.2	-1.5	-3.4	-4.0	2.9	9.8	-4.0
26	-4.1	-4.9	-5.0	-5.4	-5.3	-5.3	-5.1	-4.4	-0.7	7.0	9.7	11.0	11.8	12.8	13.4	13.8	13.8	12.5	10.7	10.6	9.4	7.6	6.4	5.8	4.8	13.8	-5.4
27	5.4	5.1	4.6	3.7	3.6	3.6	3.7	4.1	5.5	6.8	7.4	7.8	7.8	7.9	6.9	5.5	4.1	3.4	2.6	2.7	1.3	0.7	0.2	-0.1	4.3	7.9	-0.1
28	-0.2	-0.2	-0.3	-0.3	-0.4	-0.8	-0.4	0.3	1.1	2.3	2.8	3.1	3.4	3.3	3.2	3.2	2.8	1.6	1.2	1.1	1.1	1.3	1.4	1.6	1.3	3.4	-0.8
29	1.6	1.7	1.6	1.3	1.4	1.3	1.2	1.2	1.3	1.4	1.8	2.5	3.3	2.9	2.7	2.1	1.7	1.8	1.3	1.2	1.0	0.7	0.5	0.3	1.6	3.3	0.3
30	0.2	0.0	-0.5	-0.8	-1.0	-1.5	-2.1	-2.7	-2.7	-1.9	-1.3	-1.1	-1.4	-1.3	-1.0	-0.7	-0.3	-0.1	-0.2	0.0	-0.2	-0.2	0.0	0.1	-0.9	0.2	-2.7
Avg	3.8	3.4	2.9	2.4	2.0	1.6	1.6	3.8	7.3	10.9	12.5	13.4	14.1	14.7	14.7	14.5	14.2	13.3	11.0	9.2	7.7	6.4	5.3	4.5	8.1	15.4	0.3
Max	14.0	15.2	12.1	9.1	9.3	9.1	9.6	10.3	15.7	21.4	23.8	25.2	26.0	26.3	26.5	25.1	24.9	22.8	20.5	20.1	18.3	16.6	13.1	11.6	16.0	26.5	8.9
Min	-4.1	-4.9	-5.0	-5.4	-5.3	-5.3	-5.1	-4.4	-2.7	-1.9	-1.3	-1.1	-1.4	-1.3	-1.0	-0.7	-0.3	-0.1	-0.2	0.0	-0.2	-1.5	-3.4	-4.0	-0.9	0.2	-5.4

A-12

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
July 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	23.4	Pw	25.8	26.8	27.3	28.1	28.6	28.7	26.4	24.7	22.5	20.9	19.3	17.5	16.4	24.0	28.7	16.4
10	14.9	13.1	12.9	11.9	12.1	12.4	14.4	17.6	23.3	26.3	27.4	27.6	28.2	25.9	22.8	24.6	26.0	24.4	23.0	21.5	19.4	15.6	13.3	11.3	19.6	28.2	11.3	
11	9.2	8.0	6.3	5.5	5.1	4.4	7.0	11.7	14.3	15.6	16.9	17.9	18.9	19.8	20.7	21.3	21.7	21.6	21.3	18.9	16.4	15.5	12.9	10.7	14.2	21.7	4.4	
12	9.8	8.9	7.8	7.7	7.6	7.6	9.3	14.7	18.0	19.1	19.8	20.3	21.3	22.1	23.0	23.3	23.6	23.7	23.4	21.4	15.7	13.0	11.4	9.3	15.9	23.7	7.6	
13	9.1	8.3	7.9	7.6	6.9	6.8	9.8	14.8	19.3	21.5	22.9	24.3	25.1	25.7	26.4	26.8	27.1	27.0	26.3	24.3	18.4	15.3	13.7	12.1	17.8	27.1	6.8	
14	11.1	9.8	8.9	7.8	6.1	6.9	7.5	10.3	14.0	18.9	19.5	18.7	18.8	18.7	18.0	17.3	17.9	16.9	15.0	13.0	11.0	9.8	8.1	7.2	13.0	19.5	6.1	
15	6.0	8.4	11.8	12.0	11.4	11.0	12.3	13.5	14.6	16.0	17.7	19.6	20.9	21.8	22.4	23.1	23.6	23.8	23.8	21.7	18.1	15.3	13.5	12.6	16.5	23.8	6.0	
16	11.0	10.1	9.6	8.4	8.0	7.9	9.7	14.3	19.5	21.5	22.8	23.8	24.4	24.4	24.6	24.9	24.9	24.1	24.8	21.8	19.3	16.2	15.5	13.8	17.7	24.9	7.9	
17	12.2	11.7	10.8	10.5	9.6	8.8	11.7	16.2	20.9	21.6	20.8	18.3	16.4	16.4	18.6	21.2	21.7	21.1	20.1	18.7	16.3	13.0	11.6	10.1	15.8	21.7	8.8	
18	9.0	7.8	7.1	6.7	6.2	5.7	8.0	12.7	17.8	20.5	22.2	23.6	24.8	25.8	26.1	26.3	25.9	25.6	24.5	23.2	19.1	12.9	9.9	8.5	16.7	26.3	5.7	
19	7.0	5.3	5.1	4.4	4.0	3.7	6.0	10.9	16.4	18.4	19.4	20.3	21.1	22.3	23.0	23.6	23.9	24.1	23.6	21.0	16.5	13.8	11.7	11.3	14.9	24.1	3.7	
20	11.3	10.1	9.0	7.8	7.6	6.8	9.0	14.2	19.3	21.4	22.8	23.6	24.6	25.3	25.6	25.8	26.1	26.2	25.6	23.1	17.5	15.8	12.4	11.5	17.6	26.2	6.8	
21	9.3	8.7	8.3	7.6	6.1	5.6	7.8	13.2	18.5	21.5	23.3	24.4	25.3	26.5	27.3	27.4	27.6	27.3	24.4	21.3	17.7	15.2	14.0	13.1	17.6	27.6	5.6	
22	13.8	13.3	11.7	9.3	6.3	4.6	5.9	10.9	15.0	16.4	17.5	18.6	19.7	20.4	21.0	21.5	21.8	21.9	21.0	18.6	15.6	13.9	13.7	10.3	15.1	21.9	4.6	
23	9.1	8.8	7.4	7.4	8.5	7.0	10.5	14.4	15.9	17.2	18.2	19.6	21.1	22.5	23.2	23.6	24.5	24.4	24.0	21.3	14.9	12.1	8.7	7.8	15.5	24.5	7.0	
24	6.2	5.3	5.4	4.7	4.4	3.9	6.6	10.7	13.3	16.0	17.2	18.0	19.3	21.3	22.3	23.4	23.8	23.6	23.1	20.8	18.1	15.3	12.5	11.2	14.4	23.8	3.9	
25	10.2	8.8	7.6	6.8	6.2	5.2	7.1	11.6	15.1	16.2	17.4	18.8	19.8	21.4	22.1	22.3	22.7	22.1	21.8	19.8	17.7	16.4	15.5	15.1	15.3	22.7	5.2	
26	12.9	11.5	10.8	10.0	11.3	10.2	12.3	14.5	16.2	17.8	18.9	20.0	21.0	20.8	21.8	19.4	19.4	19.1	17.6	16.2	14.3	12.9	10.7	8.9	15.4	21.8	8.9	
27	9.1	9.2	7.9	6.9	5.6	5.3	6.6	10.5	13.0	14.8	16.1	14.0	12.4	11.9	13.7	16.3	17.3	16.4	15.7	14.6	12.2	9.4	8.4	7.2	11.4	17.3	5.3	
28	6.0	5.0	4.6	3.9	2.9	2.6	4.6	9.1	14.3	16.7	17.9	18.7	19.2	17.1	15.3	18.5	19.0	18.1	16.8	15.6	12.6	10.3	9.2	8.7	11.9	19.2	2.6	
29	8.0	6.6	6.7	5.0	3.2	3.3	4.6	9.5	15.4	18.1	18.8	19.4	20.0	20.2	20.9	20.9	20.7	20.8	20.1	18.2	13.7	10.3	9.7	7.7	13.4	20.9	3.2	
30	6.1	4.5	4.2	3.6	2.6	2.0	4.1	10.0	16.1	18.9	20.2	21.2	22.1	23.0	23.9	24.5	24.9	24.9	24.6	21.1	15.6	12.9	10.5	8.7	14.6	24.9	2.0	
31	7.8	8.1	6.1	5.2	5.3	5.5	6.4	11.5	15.8	18.2	20.8	23.6	24.1	24.8	25.6	25.9	25.9	25.5	23.5	22.5	20.0	18.4	16.1	14.6	16.7	25.9	5.2	
Avg	9.5	8.7	8.1	7.3	6.7	6.2	8.2	12.6	16.6	19.0	19.9	20.9	21.5	22.0	22.5	23.1	23.4	23.0	22.1	20.0	16.6	14.0	12.2	10.8	15.7	23.8	6.3	
Max	14.9	13.3	12.9	12.0	12.1	12.4	14.4	17.6	23.3	26.3	27.4	27.6	28.2	27.3	28.1	28.6	28.7	27.3	26.3	24.3	20.9	19.3	17.5	16.4	24.0	28.7	16.4	
Min	6.0	4.5	4.2	3.6	2.6	2.0	4.1	9.1	13.0	14.8	16.1	14.0	12.4	11.9	13.7	16.3	17.3	16.4	15.0	13.0	11.0	9.4	8.1	7.2	11.4	17.3	2.0	

A-13

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
August 2018

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	17.3	16.9	15.6	12.5	9.7	8.6	9.0	12.9	18.7	22.8	24.5	25.6	26.2	26.7	27.5	28.0	28.1	27.7	26.4	23.1	21.3	17.3	14.4	12.5	19.7	28.1	8.6
2	10.8	9.5	8.6	8.2	7.8	7.3	8.4	12.3	18.9	21.9	23.1	24.4	25.7	26.4	26.5	23.1	21.1	21.4	20.5	18.1	14.8	12.7	12.2	10.7	16.4	26.5	7.3
3	8.8	8.3	7.9	7.3	6.9	5.7	5.6	9.8	16.1	19.4	20.5	21.2	22.1	22.5	23.0	23.1	23.0	22.6	21.3	19.4	16.8	11.1	7.4	5.3	14.8	23.1	5.3
4	4.1	2.9	1.8	1.0	0.3	0.0	1.6	7.8	13.2	14.9	16.0	17.0	17.8	18.1	19.2	19.8	20.3	19.9	19.0	16.8	15.1	12.5	9.9	7.6	11.5	20.3	0.0
5	6.9	6.6	7.6	6.9	6.7	7.7	10.0	10.8	12.4	14.9	16.8	17.5	14.8	12.6	13.6	15.7	15.2	13.7	11.8	10.2	8.9	8.0	6.9	6.0	10.9	17.5	6.0
6	5.4	4.0	2.5	1.9	1.5	0.3	2.1	6.6	11.6	15.5	17.1	18.5	19.9	20.8	21.4	21.9	22.2	22.4	21.8	19.7	15.0	11.4	9.5	8.4	12.6	22.4	0.3
7	6.5	5.2	3.4	3.2	2.6	2.2	4.0	9.3	15.9	19.5	20.5	21.4	21.9	22.8	23.2	23.9	24.2	24.0	23.4	20.3	16.4	14.1	12.1	9.9	14.6	24.2	2.2
8	7.9	6.7	5.6	4.7	4.6	4.2	4.7	9.7	16.2	21.4	23.0	23.8	24.7	25.6	26.4	26.9	27.3	27.1	26.4	22.0	16.7	14.0	11.8	9.8	16.3	27.3	4.2
9	8.5	7.5	6.6	5.7	5.4	5.4	6.7	11.5	17.8	23.5	25.3	26.4	27.0	28.0	28.7	29.1	29.4	29.4	28.1	24.4	19.0	17.0	13.6	11.9	18.2	29.4	5.4
10	10.2	8.4	8.3	6.6	5.9	5.5	7.2	12.6	19.5	25.6	28.3	29.4	30.0	31.0	31.3	31.6	31.6	31.2	30.1	24.2	19.0	16.1	14.4	12.0	19.6	31.6	5.5
11	10.6	10.2	9.3	8.7	8.3	7.3	8.2	12.9	18.5	24.5	29.2	30.7	31.4	32.5	33.0	33.0	31.7	28.9	26.6	24.1	22.8	23.0	22.1	16.8	21.0	33.0	7.3
12	14.2	12.7	11.6	10.0	8.9	10.2	10.6	14.0	19.5	22.6	22.7	24.4	25.4	26.5	26.7	26.8	26.6	25.9	24.3	21.9	19.9	18.4	17.5	14.5	19.0	26.8	8.9
13	12.5	10.9	8.6	6.8	5.0	3.2	3.5	8.0	12.7	15.4	17.7	18.6	18.8	19.1	19.3	20.2	20.3	19.5	18.2	16.5	15.3	13.4	12.9	11.6	13.7	20.3	3.2
14	10.5	8.6	7.6	5.8	4.3	3.4	4.0	8.2	13.7	16.7	18.2	19.5	20.2	21.3	22.1	22.7	23.2	23.1	21.8	18.3	13.2	9.9	8.7	7.1	13.8	23.2	3.4
15	6.4	6.4	6.3	5.1	4.4	3.2	4.1	8.9	15.3	19.7	20.8	21.8	23.0	24.0	24.4	24.3	25.0	25.5	24.8	19.2	15.5	11.1	9.7	7.9	14.9	25.5	3.2
16	7.9	6.7	6.0	4.5	3.5	2.9	4.1	9.3	15.9	21.4	24.3	25.4	26.2	26.8	27.2	27.0	27.3	26.9	25.7	22.9	18.5	15.6	14.2	12.9	16.8	27.3	2.9
17	11.6	10.4	9.0	8.5	8.4	6.9	7.3	9.8	14.0	18.5	22.1	25.0	25.7	26.3	26.7	27.0	26.5	25.6	23.5	19.8	19.0	17.4	17.1	16.3	17.6	27.0	6.9
18	14.4	12.6	11.8	11.5	13.0	11.9	11.7	12.3	13.4	14.4	13.1	13.0	14.0	15.4	17.4	19.4	18.8	18.2	17.4	16.4	15.1	13.0	10.5	7.6	14.0	19.4	7.6
19	5.9	5.8	4.2	4.0	3.1	2.7	2.8	4.5	8.0	13.5	16.2	17.8	19.5	20.4	20.4	20.3	19.6	18.3	17.0	16.3	14.9	13.7	12.9	11.6	12.2	20.4	2.7
20	11.1	10.8	10.5	9.9	9.0	7.3	7.9	8.2	8.0	7.8	8.8	8.7	8.0	8.1	7.6	7.5	7.5	7.5	6.9	6.3	6.2	6.5	6.6	6.5	8.0	11.1	6.2
21	6.5	6.6	6.7	6.0	6.2	6.0	6.3	6.8	8.1	8.9	9.8	10.4	10.7	10.7	11.1	10.9	11.3	11.1	10.3	8.5	7.3	5.9	6.0	8.4	8.4	11.3	5.9
22	8.3	8.1	7.8	7.6	7.1	6.3	5.9	6.8	8.2	10.8	14.2	17.2	18.9	19.8	20.9	21.1	20.4	19.4	18.1	15.5	12.0	10.4	9.3	8.9	12.6	21.1	5.9
23	9.1	8.6	8.8	8.5	8.0	8.1	7.7	8.9	12.9	15.3	16.5	18.1	19.5	20.7	21.6	22.4	22.6	22.4	21.2	18.4	13.8	11.1	8.1	6.6	14.1	22.6	6.6
24	5.3	4.2	3.5	2.5	2.6	2.4	2.5	4.5	9.0	15.5	18.4	19.0	19.3	20.1	21.6	21.2	20.6	20.3	19.0	17.4	13.7	10.7	10.0	8.2	12.1	21.6	2.4
25	7.4	6.4	5.3	3.9	2.5	1.5	1.3	3.8	9.5	13.2	15.3	16.7	17.8	18.5	19.2	19.6	19.7	19.3	17.5	15.0	14.5	14.3	13.8	11.5	12.0	19.7	1.3
26	10.2	9.0	8.3	8.3	7.9	7.7	7.4	9.0	10.2	10.4	11.2	12.6	13.5	13.5	13.8	14.2	14.1	12.8	11.8	11.0	9.5	8.9	8.0	7.2	10.4	14.2	7.2
27	6.6	6.7	6.5	6.3	6.3	6.3	6.5	6.6	6.3	5.8	5.6	6.4	6.9	6.8	6.6	6.3	5.9	4.8	4.3	3.8	3.4	3.1	2.9	3.0	5.6	6.9	2.9
28	2.3	1.6	-0.1	-1.0	-0.4	-0.1	-0.1	0.7	4.4	6.9	8.5	10.1	11.7	11.5	12.2	13.2	13.4	13.8	13.5	11.2	8.3	7.6	3.4	2.7	6.5	13.8	-1.0
29	1.1	0.3	-0.3	-1.3	-1.4	-1.8	-1.1	2.4	9.0	14.1	15.5	16.7	18.1	19.0	19.6	20.3	20.8	20.8	20.1	15.0	11.4	8.3	5.9	4.3	9.9	20.8	-1.8
30	4.1	3.1	2.0	1.8	0.9	1.1	1.4	5.6	13.7	17.8	18.1	18.9	19.7	20.5	20.0	20.2	19.0	17.3	16.5	15.6	15.4	14.9	14.0	14.5	12.3	20.5	0.9
31	13.7	12.5	12.1	10.7	7.9	5.8	3.9	8.5	12.0	13.1	14.4	15.1	15.6	16.2	17.3	18.0	18.3	17.9	16.7	13.2	10.1	6.6	4.3	2.6	11.9	18.3	2.6
Avg	8.6	7.7	6.9	6.0	5.4	4.8	5.3	8.5	13.0	16.3	17.9	19.1	19.8	20.4	21.0	21.2	21.1	20.6	19.5	16.9	14.3	12.2	10.6	9.2	13.6	21.8	4.2
Max	17.3	16.9	15.6	12.5	13.0	11.9	11.7	14.0	19.5	25.6	29.2	30.7	31.4	32.5	33.0	33.0	31.7	31.2	30.1	24.4	22.8	23.0	22.1	16.8	21.0	33.0	8.9
Min	1.1	0.3	-0.3	-1.3	-1.4	-1.8	-1.1	0.7	4.4	5.8	5.6	6.4	6.9	6.8	6.6	6.3	5.9	4.8	4.3	3.8	3.4	3.1	2.9	2.6	5.6	6.9	-1.8

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
September 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.2	0.1	-0.3	-1.1	-1.6	-1.7	-0.5	1.9	5.6	12.0	14.0	14.9	14.9	16.2	17.0	17.4	17.4	17.0	15.7	12.7	9.1	6.1	3.1	1.9	8.0	17.4	-1.7
2	0.9	0.2	-0.3	-1.2	-1.7	-1.7	-1.8	2.3	9.3	14.1	15.7	16.7	17.7	18.8	19.5	19.9	20.2	20.0	18.5	13.7	9.4	7.1	5.2	3.0	9.4	20.2	-1.8
3	1.9	1.1	0.1	0.0	-0.4	-1.2	-1.0	3.6	11.1	16.5	18.1	19.0	20.0	20.6	21.2	21.5	20.9	19.2	14.5	11.8	9.5	7.7	6.3	5.4	10.3	21.5	-1.2
4	3.7	3.5	3.8	3.3	3.9	2.9	2.5	5.8	7.7	8.7	10.2	11.5	12.8	13.8	14.5	14.8	14.8	14.0	12.2	10.9	10.0	9.5	8.7	8.2	8.8	14.8	2.5
5	7.5	6.4	5.9	5.9	5.4	3.0	1.4	6.0	10.9	12.6	14.1	15.8	18.1	19.9	21.0	21.6	21.8	21.7	18.1	15.4	14.8	13.5	11.5	8.1	12.5	21.8	1.4
6	7.3	6.1	6.1	5.6	4.7	4.5	4.7	7.9	14.9	20.6	22.8	23.6	24.4	24.8	25.5	24.8	24.6	23.6	21.4	19.8	18.9	17.7	14.8	11.2	15.8	25.5	4.5
7	9.4	11.0	9.6	8.1	7.1	8.0	8.1	9.2	13.2	20.7	23.1	24.2	24.9	25.3	25.5	23.2	23.2	23.2	21.2	20.8	17.8	13.5	11.5	12.7	16.4	25.5	7.1
8	14.6	15.7	13.0	10.6	10.4	9.6	10.4	10.6	15.3	20.1	21.4	21.9	22.7	23.2	23.0	22.3	21.7	20.6	18.9	16.1	13.6	12.5	11.5	10.2	16.2	23.2	9.6
9	9.5	8.9	7.8	6.3	4.8	3.8	3.1	5.8	12.8	15.1	15.2	16.1	17.4	18.3	19.2	19.1	18.8	18.2	16.5	13.2	12.1	9.7	9.0	8.1	12.0	19.2	3.1
10	6.2	5.5	4.2	3.1	2.2	1.2	1.0	4.1	10.8	16.9	19.2	20.1	20.9	21.3	21.9	22.4	22.5	22.5	20.4	18.7	17.8	15.5	13.7	12.6	13.5	22.5	1.0
11	10.4	7.0	4.0	2.8	0.8	0.0	-0.6	2.6	9.0	12.3	13.6	14.7	15.9	16.4	16.3	16.5	16.7	15.3	13.7	10.7	9.5	9.0	9.4	8.9	9.8	16.7	-0.6
12	8.9	8.5	9.0	8.7	8.5	7.6	7.1	7.7	9.4	10.8	11.9	12.4	11.8	12.2	12.6	12.3	11.7	10.0	8.0	7.9	7.8	7.0	4.9	4.2	9.2	12.6	4.2
13	3.7	3.4	3.4	4.5	4.5	4.8	4.9	5.0	5.6	7.2	8.7	10.0	11.5	11.3	7.3	7.6	8.6	7.9	5.7	5.3	4.9	4.7	4.4	4.0	6.2	11.5	3.4
14	2.8	1.4	0.4	-0.2	-1.3	-1.7	-1.7	-0.7	1.8	8.5	10.9	11.6	12.8	13.7	14.3	14.8	14.2	13.4	12.1	10.9	10.0	8.5	8.0	7.9	7.2	14.8	-1.7
15	7.5	7.9	8.3	8.8	9.1	8.7	6.1	8.3	11.7	13.8	16.1	18.2	18.8	19.8	20.0	19.5	19.1	16.0	15.8	14.4	11.2	9.0	8.1	7.1	12.6	20.0	6.1
16	5.8	3.9	2.5	2.0	1.1	0.6	0.1	1.8	7.1	11.4	13.7	15.9	16.9	18.0	18.3	19.1	19.2	18.2	15.6	12.0	10.2	9.2	8.5	8.3	10.0	19.2	0.1
17	7.7	7.7	7.5	6.9	5.9	4.0	3.3	5.1	7.1	10.3	12.9	14.3	14.7	15.1	15.8	16.3	16.4	16.3	13.6	11.1	9.4	8.1	5.3	4.2	10.0	16.4	3.3
18	4.1	3.8	6.4	4.8	4.0	2.7	1.3	3.0	8.2	11.5	13.0	14.4	15.3	15.9	16.5	16.4	15.1	13.8	12.1	10.0	9.2	8.4	7.6	7.7	9.4	16.5	1.3
19	5.9	5.5	6.0	6.3	6.3	6.1	6.0	6.3	6.9	7.5	7.6	6.7	6.6	7.1	7.3	7.6	7.5	7.7	6.9	5.6	5.6	6.0	5.6	5.5	6.5	7.7	5.5
20	5.3	4.5	4.1	4.0	3.9	4.4	4.6	4.9	5.2	6.2	7.2	8.0	9.0	9.2	7.9	4.8	4.6	5.4	4.8	3.7	2.5	1.4	0.0	-0.1	4.8	9.2	-0.1
21	-0.1	0.4	0.7	0.3	-0.1	0.0	0.0	1.5	5.9	9.3	Au	Au	Au	Au	Au	15.9	16.4	15.6	10.8	8.3	6.0	4.8	4.7	3.8	5.5	16.4	-0.1
22	2.8	1.8	1.6	1.0	1.1	1.9	1.9	2.5	6.1	13.1	17.7	17.9	17.8	19.1	19.2	18.6	17.5	15.9	14.8	12.8	10.1	8.9	8.7	8.0	10.0	19.2	1.0
23	7.1	6.9	6.9	6.9	8.0	8.0	8.5	7.0	7.0	7.3	7.1	6.6	6.7	8.4	7.1	8.3	9.9	10.1	8.4	5.9	2.9	1.7	1.6	1.0	6.6	10.1	1.0
24	-0.2	-0.3	-1.4	-1.9	-2.5	-3.4	-3.1	-1.9	0.4	5.7	5.6	4.5	6.0	3.8	3.7	3.6	3.7	3.7	2.3	1.9	1.8	1.6	1.9	1.0	1.5	6.0	-3.4
25	0.0	-0.5	0.0	0.4	0.6	0.4	-0.2	0.3	1.1	3.6	5.3	6.7	7.6	8.4	8.9	9.1	9.6	9.4	6.1	2.2	0.5	-0.7	-2.2	-2.9	3.1	9.6	-2.9
26	-3.1	-3.7	-4.2	-4.1	-4.1	-4.2	-4.2	-3.7	-0.8	6.6	9.0	10.1	11.0	12.0	12.6	13.2	13.6	12.8	11.5	11.4	10.0	8.3	7.4	6.0	5.1	13.6	-4.2
27	5.6	5.3	5.0	4.3	4.1	4.1	4.1	4.3	5.5	6.7	7.3	7.5	7.4	7.6	6.8	5.2	4.0	3.4	2.6	2.7	1.4	0.7	0.2	-0.1	4.4	7.6	-0.1
28	-0.2	-0.2	-0.3	-0.3	-0.4	-0.5	-0.3	0.2	0.8	1.6	2.0	2.2	2.6	2.6	2.5	2.7	2.4	1.4	1.1	1.0	1.1	1.3	1.3	1.5	1.1	2.7	-0.5
29	1.5	1.6	1.6	1.3	1.3	1.3	1.2	1.0	1.1	1.2	1.6	2.1	2.8	2.5	2.4	1.9	1.6	1.7	1.4	1.2	1.0	0.6	0.5	0.2	1.4	2.8	0.2
30	0.1	0.0	-0.6	-0.8	-1.0	-1.6	-2.2	-2.8	-2.8	-2.1	-1.7	-1.4	-1.6	-1.5	-1.2	-0.9	-0.5	-0.2	-0.2	0.0	-0.1	-0.2	0.0	0.2	-1.0	0.2	-2.8
Avg	4.6	4.1	3.7	3.2	2.8	2.4	2.2	3.7	6.9	10.3	11.8	12.6	13.4	13.9	14.0	14.0	13.9	13.3	11.5	9.7	8.3	7.0	6.0	5.3	8.2	14.8	1.1
Max	14.6	15.7	13.0	10.6	10.4	9.6	10.4	10.6	15.3	20.7	23.1	24.2	24.9	25.3	25.5	24.8	24.6	23.6	21.4	20.8	18.9	17.7	14.8	12.7	16.4	25.5	9.6
Min	-3.1	-3.7	-4.2	-4.1	-4.1	-4.2	-4.2	-3.7	-2.8	-2.1	-1.7	-1.4	-1.6	-1.5	-1.2	-0.9	-0.5	-0.2	-0.2	0.0	-0.1	-0.7	-2.2	-2.9	-1.0	0.2	-4.2

A-15

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
July 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	-0.83	Pw	-0.75	-0.77	-0.74	-0.65	-0.18	0.35	0.88	0.56	0.35	0.96	1.27	1.20	0.83	0.18	1.27	-0.83	
10	1.11	1.35	1.18	1.09	1.59	0.95	-0.07	-0.39	-0.30	-0.14	-0.25	-0.08	0.02	0.32	0.14	-0.69	-0.14	-0.05	0.13	0.62	2.60	1.09	1.73	1.69	0.56	2.60	-0.69	
11	1.45	1.58	1.47	0.93	1.06	0.49	-0.46	-0.68	-0.63	-0.61	-0.86	-0.92	-0.88	-0.85	-0.99	-0.97	-0.77	-0.58	-0.35	0.24	0.31	0.78	1.33	1.18	0.05	1.58	-0.99	
12	1.19	1.23	1.19	1.08	1.08	0.82	-0.33	-0.79	-0.53	-0.72	-0.72	-0.59	-0.92	-0.90	-0.90	-0.93	-0.69	-0.55	0.05	0.64	0.76	0.90	1.25	1.30	0.12	1.30	-0.93	
13	1.52	1.36	1.23	1.41	1.51	1.15	-0.13	-0.65	-0.84	-0.95	-0.79	-0.71	-0.81	-0.86	-0.93	-0.76	-0.39	-0.21	0.18	1.00	0.95	1.04	0.93	0.92	0.22	1.52	-0.95	
14	1.24	1.39	1.35	1.56	1.56	1.45	0.09	-0.16	-0.56	-1.00	-1.14	-1.27	-1.32	-1.22	-1.17	-1.08	-1.04	-0.89	-0.55	-0.10	0.41	0.67	0.91	0.98	0.00	1.56	-1.32	
15	1.05	0.95	0.20	0.26	0.48	0.73	-0.06	-0.44	-0.68	-0.78	-0.77	-0.75	-1.04	-1.10	-1.10	-0.94	-0.87	-0.44	-0.23	0.80	1.17	1.41	1.19	1.23	0.01	1.41	-1.10	
16	1.13	0.95	1.12	1.22	1.45	1.00	-0.17	-0.70	-0.57	-0.68	-0.69	-0.75	-0.90	-0.60	-0.41	-0.60	-0.50	0.53	-0.27	1.04	0.96	0.73	0.75	1.20	0.22	1.45	-0.90	
17	1.20	1.16	1.08	1.26	1.62	0.91	-0.28	-0.78	-0.42	-0.48	-0.31	0.00	-0.04	-0.23	-0.71	-1.22	-0.65	-0.28	-0.05	0.26	0.82	0.72	1.15	1.16	0.25	1.62	-1.22	
18	1.20	1.18	1.12	1.35	1.21	1.13	-0.03	-0.64	-0.79	-0.87	-0.90	-0.92	-0.85	-0.86	-0.77	-0.74	-0.44	-0.18	0.21	1.12	1.74	1.17	0.86	2.05	0.26	2.05	-0.92	
19	1.61	1.86	1.71	1.54	1.76	1.05	-0.41	-0.64	-0.87	-0.91	-0.86	-0.99	-0.98	-1.04	-0.96	-0.99	-0.79	-0.71	-0.14	0.79	0.50	1.37	1.48	1.58	0.21	1.86	-1.04	
20	2.13	1.87	1.59	1.43	1.65	1.22	0.03	-0.70	-0.61	-0.67	-0.68	-0.77	-0.90	-0.90	-0.93	-0.78	-0.63	-0.63	0.30	1.18	0.75	0.62	1.26	2.16	0.33	2.16	-0.93	
21	1.32	1.56	1.57	1.72	1.59	1.46	-0.07	-0.41	-0.77	-0.92	-0.72	-0.73	-0.74	-0.78	-0.73	-0.37	-0.11	0.33	0.76	1.61	1.24	1.15	0.99	1.18	0.42	1.72	-0.92	
22	2.18	2.11	1.63	2.07	1.90	1.12	-0.33	-0.62	-0.86	-0.91	-0.97	-0.96	-0.98	-1.03	-1.12	-1.12	-1.06	-0.72	-0.34	0.16	0.53	0.38	0.52	1.97	0.15	2.18	-1.12	
23	2.28	2.37	2.06	2.23	2.89	2.13	0.82	-0.28	-0.62	-0.79	-0.96	-0.95	-0.99	-1.17	-1.15	-0.99	-0.82	-0.67	-0.13	1.24	0.84	1.57	2.27	1.77	0.54	2.89	-1.17	
24	2.02	1.64	1.86	1.31	1.74	1.33	-0.36	-0.62	-0.82	-1.04	-0.71	-0.82	-1.15	-0.82	-0.93	-0.99	-0.91	-0.68	-0.03	0.61	0.88	1.08	1.36	1.18	0.21	2.02	-1.15	
25	1.52	0.99	1.15	1.39	1.41	1.06	-0.36	-0.70	-0.65	-0.88	-0.97	-1.03	-0.81	-1.18	-1.05	-0.99	-0.97	-0.70	-0.36	0.61	0.23	0.74	0.83	0.56	-0.01	1.52	-1.18	
26	0.24	0.38	0.79	1.14	0.77	1.05	0.08	-0.46	-0.59	-0.72	-0.99	-1.00	-0.96	-0.50	-0.75	0.08	-0.65	-0.50	-0.03	0.46	0.88	0.82	0.82	0.39	0.03	1.14	-1.00	
27	0.27	0.46	0.80	0.68	1.03	0.83	0.03	-0.48	-0.54	-0.62	-0.52	-0.16	0.08	-0.27	-0.61	-0.62	-0.69	-0.21	0.15	0.34	0.62	0.96	0.97	0.87	0.14	1.03	-0.69	
28	1.01	0.85	0.89	1.69	1.31	1.28	0.15	-0.49	-0.68	-0.66	-0.70	-0.86	-0.90	0.19	-0.77	-0.99	-0.74	-0.28	-0.06	0.53	1.09	0.79	0.60	0.56	0.16	1.69	-0.99	
29	0.77	0.98	0.71	1.23	1.41	1.26	0.17	-0.43	-0.69	-0.77	-0.99	-0.97	-1.02	-0.87	-1.07	-0.87	-0.63	-0.41	-0.07	0.96	1.43	1.00	0.90	1.29	0.14	1.43	-1.07	
30	1.50	1.62	1.64	1.33	1.64	1.16	0.23	-0.42	-0.69	-0.80	-0.87	-1.01	-1.19	-1.09	-0.97	-0.99	-0.89	-0.62	-0.33	1.05	1.14	1.50	1.51	2.34	0.28	2.34	-1.19	
31	1.29	1.83	1.61	2.01	1.81	1.87	-0.04	-0.47	-0.93	-0.89	-0.93	-0.85	-0.73	-0.91	-1.07	-0.91	-0.80	-0.10	0.36	1.08	0.80	0.46	1.05	2.06	0.32	2.06	-1.07	
Avg	1.33	1.35	1.27	1.36	1.48	1.16	-0.07	-0.54	-0.67	-0.77	-0.79	-0.78	-0.82	-0.76	-0.85	-0.81	-0.64	-0.33	-0.01	0.72	0.94	0.97	1.12	1.32	0.21	1.76	-1.02	
Max	2.28	2.37	2.06	2.23	2.89	2.13	0.82	-0.16	-0.30	-0.14	-0.25	0.00	0.08	0.32	0.14	0.08	0.35	0.88	0.76	1.61	2.60	1.57	2.27	2.34	0.56	2.89	-0.69	
Min	0.24	0.38	0.20	0.26	0.48	0.49	-0.46	-0.79	-0.93	-1.04	-1.14	-1.27	-1.32	-1.22	-1.17	-1.22	-1.06	-0.89	-0.55	-0.10	0.23	0.38	0.52	0.39	-0.01	1.03	-1.32	

A-16

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
August 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.89	1.19	1.56	0.96	0.99	1.75	0.65	-0.31	-0.45	-0.73	-0.79	-1.03	-1.02	-0.97	-0.93	-0.74	-0.58	-0.22	0.64	1.14	1.38	1.42	1.50	1.69	0.37	1.89	-1.03
2	1.57	1.87	1.44	1.49	1.68	1.52	0.32	-0.51	-0.76	-0.83	-1.00	-1.01	-0.98	-1.03	-0.66	-0.12	0.18	-0.24	0.02	0.41	0.23	0.35	0.23	0.61	0.20	1.87	-1.03
3	1.09	1.26	1.15	0.87	0.60	1.14	0.31	-0.56	-0.71	-0.81	-0.86	-1.01	-0.83	-0.74	-1.00	-0.96	-0.75	-0.47	-0.07	0.93	1.50	0.97	1.34	1.34	0.16	1.50	-1.01
4	1.55	1.55	1.61	1.41	1.62	1.38	-0.01	-0.69	-0.85	-0.97	-0.99	-1.04	-1.08	-0.92	-1.22	-1.13	-0.98	-0.66	-0.23	0.37	1.19	1.62	1.10	1.16	0.16	1.62	-1.22
5	1.29	0.75	0.80	0.94	1.14	0.41	0.06	-0.15	-0.22	-0.64	-0.86	-0.62	-0.49	-0.83	-0.63	-0.73	-0.31	-0.18	0.03	0.17	0.62	0.28	0.90	0.76	0.10	1.29	-0.86
6	0.75	1.37	0.92	0.66	0.90	0.60	0.16	-0.50	-0.86	-0.90	-1.11	-1.18	-1.10	-1.21	-1.16	-0.91	-0.81	-0.63	0.19	0.75	0.75	1.06	1.40	1.27	0.02	1.40	-1.21
7	1.49	1.91	1.25	1.78	1.43	1.24	0.00	-0.71	-0.71	-0.93	-1.02	-1.05	-0.90	-1.27	-0.88	-1.13	-1.06	-0.76	0.00	1.25	0.79	0.26	0.86	1.42	0.14	1.91	-1.27
8	1.80	2.23	1.70	1.70	1.52	1.68	0.62	-0.53	-0.57	-0.87	-0.81	-1.05	-1.04	-1.17	-1.15	-1.08	-0.86	-0.72	0.32	1.23	0.36	1.04	1.34	2.36	0.34	2.36	-1.17
9	2.07	2.07	2.27	1.82	1.81	2.06	0.58	-0.64	-0.69	-0.83	-1.09	-1.03	-1.01	-1.07	-1.05	-0.91	-0.72	-0.46	0.64	1.42	0.98	0.84	2.27	2.03	0.47	2.27	-1.09
10	3.15	1.90	2.44	1.72	1.95	2.00	0.54	-0.43	-0.68	-0.75	-0.90	-1.02	-1.12	-1.11	-1.04	-0.86	-0.84	-0.51	0.24	1.03	0.50	1.46	2.01	2.27	0.50	3.15	-1.12
11	1.86	2.51	2.07	1.99	2.31	2.17	0.92	-0.28	-0.66	-0.68	-0.72	-0.88	-0.80	-0.85	-1.02	-1.00	-0.42	0.46	0.17	0.57	0.82	0.20	0.39	1.84	0.46	2.51	-1.02
12	1.95	1.79	1.88	1.81	1.51	1.76	0.44	-0.16	-0.73	-0.87	-0.98	-1.04	-1.01	-1.13	-0.93	-1.06	-0.91	-0.48	0.48	0.95	0.67	0.37	0.72	1.47	0.27	1.95	-1.13
13	2.12	1.31	1.74	2.28	2.01	1.49	0.74	-0.65	-0.91	-0.91	-1.00	-1.13	-0.62	-0.44	-0.45	-0.93	-0.75	-0.40	0.03	0.65	0.58	1.01	1.47	1.34	0.36	2.28	-1.13
14	1.65	1.82	1.66	1.82	1.29	1.29	0.74	-0.64	-0.88	-0.90	-1.07	-1.13	-1.16	-1.15	-1.13	-1.02	-0.86	-0.66	0.38	0.96	1.08	0.83	1.37	1.64	0.25	1.82	-1.16
15	1.03	1.41	1.45	1.41	1.70	1.62	0.64	-0.51	-0.86	-0.90	-0.99	-0.97	-1.15	-1.11	-0.87	-0.61	-0.73	-0.59	0.33	1.30	0.82	2.31	2.21	2.10	0.38	2.31	-1.15
16	2.34	2.27	1.65	1.64	1.49	1.77	0.85	-0.37	-0.42	-0.79	-0.97	-1.01	-1.18	-1.16	-0.93	-0.60	-0.62	0.04	0.97	1.12	1.12	1.12	1.46	1.83	0.48	2.34	-1.18
17	1.71	1.98	1.58	1.26	1.93	1.56	0.87	0.29	-0.27	-0.27	-0.68	-1.00	-0.85	-0.89	-1.00	-0.89	-0.13	0.39	0.40	0.70	0.95	0.46	0.52	0.61	0.38	1.98	-1.00
18	0.75	0.68	0.73	0.58	0.63	0.27	0.15	0.07	-0.19	-0.12	-0.08	-0.12	-0.38	-0.51	-0.67	-0.64	-0.27	0.00	0.25	0.52	0.46	0.86	1.31	0.75	0.21	1.31	-0.67
19	0.97	0.99	1.46	1.59	1.39	1.45	0.77	-0.10	-0.48	-0.57	-0.68	-0.76	-0.84	-0.83	-0.38	-0.28	-0.35	-0.12	0.07	0.47	0.60	0.38	0.55	0.63	0.25	1.59	-0.84
20	0.39	0.32	0.14	0.32	0.95	0.94	0.05	-0.13	-0.05	0.00	-0.15	-0.45	-0.18	-0.18	-0.15	-0.16	-0.16	-0.08	-0.07	-0.02	-0.03	0.04	0.15	0.09	0.07	0.95	-0.45
21	0.00	0.19	0.07	-0.05	-0.02	-0.08	-0.17	-0.27	-0.40	-0.47	-0.53	-0.69	-0.64	-0.77	-0.58	-0.54	-0.60	-0.47	-0.07	0.65	0.75	0.86	0.63	0.07	-0.13	0.86	-0.77
22	-0.04	-0.08	-0.11	-0.12	-0.14	-0.17	-0.20	-0.27	-0.52	-0.54	-0.69	-0.92	-0.88	-0.79	-0.75	-0.71	-0.38	0.03	0.50	0.82	0.32	0.67	0.83	1.07	-0.13	1.07	-0.92
23	0.92	0.67	0.75	0.62	0.42	0.49	0.49	-0.21	-0.33	-0.59	-0.83	-0.84	-1.05	-1.07	-1.05	-0.86	-0.53	-0.18	0.35	1.31	1.47	1.13	1.45	1.64	0.17	1.64	-1.07
24	1.77	1.43	1.47	1.17	1.12	1.23	0.97	-0.28	-0.59	-0.69	-0.79	-0.75	-0.76	-0.46	-0.82	-0.58	-0.40	-0.09	0.22	0.96	1.41	0.85	1.00	1.24	0.36	1.77	-0.82
25	1.37	1.09	1.38	1.48	0.90	1.22	0.80	-0.39	-0.58	-0.77	-1.00	-1.04	-1.03	-1.11	-1.07	-0.90	-0.58	-0.20	0.92	1.06	0.82	0.37	0.41	1.07	0.18	1.48	-1.11
26	1.13	0.44	0.66	0.64	0.27	0.53	0.24	0.05	0.06	-0.24	-0.52	-0.86	-1.07	-0.70	-0.55	-0.57	-0.78	-0.21	0.07	0.78	0.60	0.31	0.20	-0.01	0.02	1.13	-1.07
27	-0.11	-0.06	-0.08	-0.07	-0.03	-0.04	-0.10	-0.13	-0.24	-0.33	-0.62	-0.85	-0.95	-1.14	-0.98	-0.92	-0.89	-0.41	-0.20	-0.07	-0.09	-0.13	-0.14	0.00	-0.36	0.00	-1.14
28	0.09	0.34	0.70	0.23	-0.11	-0.18	-0.23	-0.38	-0.61	-0.70	-0.85	-0.88	-1.23	-0.62	-0.57	-0.59	-0.36	-0.23	0.04	0.86	1.72	2.19	0.78	0.79	0.01	2.19	-1.23
29	0.93	1.12	1.43	1.07	1.56	1.36	0.87	-0.39	-0.51	-0.73	-0.93	-1.02	-1.06	-1.01	-1.04	-0.85	-0.66	-0.31	0.73	1.58	1.32	2.49	1.51	1.76	0.38	2.49	-1.06
30	1.78	1.80	1.38	1.48	1.51	1.62	1.09	-0.34	-0.54	-0.49	-0.71	-0.76	-0.96	-1.24	-0.83	-0.68	-0.11	0.19	0.41	0.64	0.88	0.62	0.72	0.28	0.32	1.80	-1.24
31	0.33	0.69	0.59	0.79	1.28	1.53	0.44	-0.41	-0.65	-0.78	-1.06	-1.06	-1.10	-1.05	-1.00	-0.89	-0.80	-0.40	0.35	1.37	1.46	1.38	1.12	1.85	0.17	1.85	-1.10
Avg	1.28	1.25	1.22	1.14	1.15	1.15	0.44	-0.34	-0.54	-0.66	-0.82	-0.91	-0.92	-0.92	-0.85	-0.77	-0.58	-0.28	0.26	0.83	0.84	0.89	1.02	1.19	0.21	1.76	-1.04
Max	3.15	2.51	2.44	2.28	2.31	2.17	1.09	0.29	0.06	0.00	-0.08	-0.12	-0.18	-0.18	-0.15	-0.12	0.18	0.46	0.97	1.58	1.72	2.49	2.27	2.36	0.50	3.15	-0.45
Min	-0.11	-0.08	-0.11	-0.12	-0.14	-0.18	-0.23	-0.71	-0.91	-0.97	-1.11	-1.18	-1.23	-1.27	-1.22	-1.13	-1.06	-0.76	-0.23	-0.07	-0.09	-0.13	-0.14	-0.01	-0.36	0.00	-1.27

A-17

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
September 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.62	1.47	1.77	1.68	1.28	1.33	0.87	-0.03	-0.43	-0.55	-0.98	-1.10	-1.21	-1.34	-1.24	-1.05	-0.92	-0.62	0.54	1.70	1.01	1.34	1.58	1.60	0.35	1.77	-1.34
2	2.20	1.64	1.63	2.09	1.99	1.82	0.86	-0.73	-0.85	-0.82	-0.99	-1.20	-1.12	-1.24	-1.22	-0.94	-0.73	-0.43	0.60	1.55	1.17	1.82	1.14	1.77	0.42	2.20	-1.24
3	1.77	1.96	1.62	1.71	1.92	1.57	1.28	-0.49	-0.84	-0.73	-0.98	-1.21	-1.17	-1.21	-1.03	-0.98	-0.81	-0.42	0.07	0.37	0.51	0.75	0.96	1.05	0.24	1.96	-1.21
4	0.92	0.69	0.51	0.45	0.29	0.62	0.65	-0.30	-0.74	-1.06	-1.19	-1.11	-1.15	-1.11	-1.19	-1.14	-0.83	-0.45	0.16	0.56	0.38	0.70	0.80	1.07	-0.10	1.07	-1.19
5	0.71	0.51	1.20	1.69	2.01	1.61	0.64	-0.28	-0.62	-0.87	-0.90	-0.98	-0.94	-0.99	-1.02	-1.11	-0.85	-0.54	0.41	0.79	1.28	2.58	1.85	1.89	0.34	2.58	-1.11
6	1.00	1.59	1.12	1.71	1.97	1.76	0.94	-0.40	-0.41	-0.65	-1.03	-1.02	-0.98	-0.83	-1.02	-0.28	-0.30	0.77	0.88	0.69	0.60	1.09	1.62	1.57	0.43	1.97	-1.03
7	1.25	0.67	1.68	1.62	1.46	0.89	0.88	0.07	-0.58	-0.69	-0.70	-0.99	-1.08	-0.95	-0.79	-0.33	-0.03	0.50	0.67	0.74	0.84	1.73	1.62	1.43	0.41	1.73	-1.08
8	0.59	0.48	0.84	1.50	1.12	0.55	0.84	0.29	-0.45	-0.59	-0.85	-1.02	-1.01	-0.99	-0.91	-0.62	-0.44	0.00	1.26	1.30	0.80	0.46	1.02	1.32	0.23	1.50	-1.02
9	1.20	1.15	1.02	1.32	1.15	1.21	1.33	-0.39	-0.67	-0.84	-0.91	-0.86	-1.07	-1.18	-1.16	-1.08	-0.62	0.07	0.74	0.30	0.29	1.10	1.53	1.83	0.23	1.83	-1.18
10	1.96	1.22	2.05	1.84	1.81	1.69	1.27	-0.35	-0.72	-0.71	-0.85	-0.99	-0.97	-1.01	-0.88	-0.76	-0.24	-0.01	0.36	0.89	0.90	1.15	2.15	0.97	0.45	2.15	-1.01
11	0.89	2.08	1.08	1.37	1.54	1.49	1.16	-0.47	-0.73	-0.83	-0.90	-0.98	-0.82	-0.58	-0.45	-0.40	-0.28	0.14	0.42	0.32	0.20	0.11	0.37	0.26	0.21	2.08	-0.98
12	0.44	0.52	0.38	0.39	0.31	0.09	0.07	-0.18	-0.36	-0.78	-0.72	-0.69	-0.39	-0.42	-0.54	-0.37	-0.07	0.27	0.10	0.19	0.31	0.28	0.46	0.18	-0.02	0.52	-0.78
13	0.23	0.15	0.24	0.10	0.04	0.23	0.06	-0.07	-0.17	-0.29	-0.54	-0.50	-0.72	-0.43	-0.15	-0.26	-0.28	0.01	0.03	-0.02	-0.01	-0.01	0.10	0.29	-0.08	0.29	-0.72
14	0.30	0.24	0.11	-0.14	0.02	0.22	0.29	-0.01	-0.31	-0.38	-0.59	-0.53	-0.71	-0.64	-0.56	-0.29	-0.21	0.03	0.11	0.28	0.32	0.46	0.39	0.47	-0.05	0.47	-0.71
15	0.37	0.13	0.18	0.49	1.10	1.07	1.17	-0.05	-0.34	-0.43	-0.52	-0.50	-0.56	-0.58	-0.05	0.12	-0.06	0.12	0.21	0.19	0.17	-0.01	-0.04	0.09	0.09	1.17	-0.58
16	0.31	0.63	0.72	0.25	0.30	0.12	-0.08	-0.29	-0.19	-0.43	-0.68	-0.79	-0.74	-0.76	-0.72	-0.69	-0.56	-0.23	0.62	0.64	0.72	0.38	0.16	0.06	-0.05	0.72	-0.79
17	-0.02	-0.02	-0.13	-0.16	-0.19	-0.15	-0.11	-0.24	-0.36	-0.69	-0.74	-0.87	-0.94	-1.05	-1.08	-0.61	-0.64	-0.05	0.93	0.59	0.95	1.08	1.45	1.41	-0.07	1.45	-1.08
18	1.50	1.78	1.91	1.80	1.81	1.69	1.16	-0.32	-0.52	-0.81	-0.81	-0.78	-1.00	-1.11	-0.94	-0.70	-0.32	0.03	0.08	0.17	0.10	0.15	0.02	0.16	0.21	1.91	-1.11
19	0.70	0.03	-0.01	0.15	-0.02	-0.07	-0.09	-0.15	-0.22	-0.29	-0.28	-0.32	-0.36	-0.29	-0.31	-0.25	-0.19	-0.11	0.07	0.04	-0.02	0.02	-0.07	0.01	-0.08	0.70	-0.36
20	-0.01	-0.01	0.00	-0.04	-0.14	-0.04	-0.10	-0.10	-0.12	-0.30	-0.50	-0.65	-0.41	-0.38	-0.12	-0.01	-0.35	-0.28	0.18	0.08	0.41	0.31	0.20	0.54	-0.08	0.54	-0.65
21	0.20	0.06	0.24	0.30	0.46	0.55	0.48	-0.10	-0.35	-0.48	Au	Au	Au	Au	Au	-0.60	-0.39	0.18	0.72	0.35	1.19	0.69	0.88	1.12	0.29	1.19	-0.60
22	1.57	1.48	1.38	1.18	0.96	1.00	0.95	0.66	-0.50	-0.56	-0.57	-0.46	-0.42	-0.69	-0.25	0.22	0.49	0.67	0.79	1.09	1.59	0.68	1.09	0.69	0.54	1.59	-0.69
23	0.86	0.77	0.55	0.30	0.37	0.58	0.48	0.12	-0.06	0.08	0.04	-0.05	-0.18	-0.60	-0.29	-0.58	-0.12	0.05	1.02	1.34	0.77	0.30	0.30	0.68	0.28	1.34	-0.60
24	0.86	0.52	0.78	1.00	1.18	1.01	0.27	-0.03	-0.23	-0.77	-0.60	-0.49	-0.55	-0.12	-0.26	-0.14	-0.27	-0.02	0.60	0.40	0.33	0.25	0.32	0.45	0.19	1.18	-0.77
25	0.44	0.60	0.37	0.10	0.15	0.55	0.19	-0.09	-0.24	-0.60	-0.60	-0.55	-0.51	-0.74	-0.54	-0.35	-0.27	-0.04	1.16	0.66	0.67	0.76	1.15	1.09	0.14	1.16	-0.74
26	1.03	1.14	0.85	1.31	1.22	1.19	0.93	0.73	-0.19	-0.49	-0.70	-0.85	-0.84	-0.82	-0.70	-0.56	-0.23	0.33	0.80	0.81	0.59	0.67	0.98	0.25	0.31	1.31	-0.85
27	0.27	0.20	0.44	0.63	0.52	0.52	0.43	0.23	0.00	-0.12	-0.13	-0.25	-0.36	-0.31	-0.16	-0.28	-0.09	-0.04	-0.01	0.01	0.08	0.02	-0.02	0.00	0.07	0.63	-0.36
28	0.02	-0.02	0.07	0.00	0.03	0.22	0.10	-0.02	-0.30	-0.76	-0.78	-0.90	-0.81	-0.73	-0.65	-0.50	-0.40	-0.20	-0.12	-0.10	-0.08	-0.07	-0.08	-0.07	-0.26	0.22	-0.90
29	-0.07	-0.07	-0.05	-0.02	-0.05	-0.06	-0.05	-0.12	-0.20	-0.23	-0.26	-0.41	-0.42	-0.33	-0.21	-0.21	-0.11	-0.04	0.03	0.03	0.00	-0.01	-0.02	-0.03	-0.12	0.03	-0.42
30	-0.02	-0.03	-0.06	0.00	-0.06	-0.07	-0.10	-0.13	-0.17	-0.22	-0.34	-0.30	-0.24	-0.25	-0.18	-0.19	-0.17	-0.08	-0.03	-0.07	0.12	0.01	0.03	0.15	-0.10	0.15	-0.34
Avg	0.77	0.72	0.75	0.82	0.82	0.77	0.56	-0.11	-0.40	-0.56	-0.68	-0.74	-0.75	-0.75	-0.64	-0.50	-0.34	-0.01	0.45	0.53	0.54	0.63	0.73	0.74	0.15	1.25	-0.85
Max	2.20	2.08	2.05	2.09	2.01	1.82	1.33	0.73	0.00	0.08	0.04	-0.05	-0.18	-0.12	-0.05	0.22	0.49	0.77	1.26	1.70	1.59	2.58	2.15	1.89	0.54	2.58	-0.34
Min	-0.07	-0.07	-0.13	-0.16	-0.19	-0.15	-0.11	-0.73	-0.85	-1.06	-1.19	-1.21	-1.21	-1.34	-1.24	-1.14	-0.92	-0.62	-0.12	-0.10	-0.08	-0.07	-0.08	-0.07	-0.26	0.03	-1.34

A-18

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
July 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	790	Pw	925	945	915	843	590	363	164	150	63	3	0	0	0	411	945	0	
10	0	0	0	0	5	65	195	322	549	720	849	595	597	249	450	719	563	394	227	69	3	0	0	274	849	0		
11	0	0	0	0	3	77	242	419	596	751	872	950	975	942	872	749	592	415	234	70	2	0	0	365	975	0		
12	0	0	0	0	3	72	228	401	557	743	708	655	991	946	904	715	593	419	236	72	3	0	0	344	991	0		
13	0	0	0	0	3	81	237	406	584	735	851	927	962	938	864	732	559	404	228	72	2	0	0	358	962	0		
14	0	0	0	0	1	36	118	206	392	743	924	956	967	930	854	692	566	395	218	68	2	0	0	336	967	0		
15	0	0	0	0	2	68	227	401	576	732	857	888	972	937	860	729	579	405	232	54	2	0	0	355	972	0		
16	0	0	0	0	2	61	216	399	572	721	846	816	799	586	480	576	440	257	229	44	3	0	0	294	846	0		
17	0	0	0	0	2	60	221	388	523	618	421	133	118	309	633	736	483	267	189	36	1	0	0	214	736	0		
18	0	0	0	0	1	54	222	398	574	721	841	921	960	893	781	684	455	362	219	62	2	0	0	340	960	0		
19	0	0	0	0	1	59	218	393	573	730	857	932	948	929	858	729	578	399	215	58	2	0	0	353	948	0		
20	0	0	0	0	1	61	212	385	566	721	847	937	962	933	863	736	580	408	210	54	1	0	0	353	962	0		
21	0	0	0	0	2	59	233	406	572	715	832	910	854	895	874	568	440	223	76	24	1	0	0	320	910	0		
22	0	0	0	0	1	59	224	402	583	741	860	937	963	933	860	733	579	401	217	56	1	0	0	356	963	0		
23	0	0	0	0	1	53	210	386	561	717	843	924	934	942	856	670	585	398	216	56	1	0	0	348	942	0		
24	0	0	0	0	1	55	190	304	515	533	437	546	814	671	582	720	549	379	200	53	1	0	0	273	814	0		
25	0	0	0	0	1	48	198	371	548	710	804	878	656	921	832	560	560	419	212	34	0	0	0	323	921	0		
26	0	0	0	0	0	36	202	357	547	681	789	702	785	489	595	238	549	366	74	23	0	0	0	268	789	0		
27	0	0	0	0	0	25	139	320	244	361	327	231	97	266	563	606	451	159	79	26	0	0	0	162	606	0		
28	0	0	0	0	0	42	176	358	505	633	716	779	647	34	716	728	470	174	74	30	0	0	0	253	779	0		
29	0	0	0	0	0	43	186	358	547	710	870	736	805	703	719	580	388	284	191	40	0	0	0	298	870	0		
30	0	0	0	0	0	44	199	375	562	720	845	933	960	928	856	730	564	379	197	37	0	0	0	347	960	0		
31	0	0	0	0	0	35	175	329	548	652	799	805	515	647	858	546	460	225	63	12	0	0	0	278	858	0		
Avg	0	0	0	0	1	54	203	367	536	691	773	783	792	736	764	655	519	335	182	48	1	0	0	312	892	0		
Max	0	0	0	0	5	81	242	419	596	790	924	956	991	946	904	749	593	419	236	72	3	0	0	411	991	0		
Min	0	0	0	0	0	25	118	206	244	361	327	133	97	34	450	238	363	159	63	12	0	0	0	162	606	0		

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
August 2018

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	24	115	315	494	649	764	845	834	757	760	645	489	289	78	23	0	0	0	0	295	845	0
2	0	0	0	0	1	28	155	319	507	665	788	872	864	803	490	201	274	296	106	33	0	0	0	0	267	872	0
3	0	0	0	0	0	23	154	333	509	639	646	710	723	575	729	666	533	364	183	33	0	0	0	0	284	729	0
4	0	0	0	0	0	31	184	358	531	692	741	862	840	626	896	688	556	332	155	23	0	0	0	0	313	896	0
5	0	0	0	0	0	12	75	103	169	611	719	605	216	727	420	442	201	91	25	14	0	0	0	0	185	727	0
6	0	0	0	0	0	26	168	331	515	671	795	878	909	856	825	648	471	368	146	39	0	0	0	0	319	909	0
7	0	0	0	0	0	26	163	336	524	680	807	899	601	922	612	747	565	316	135	19	0	0	0	0	306	922	0
8	0	0	0	0	0	12	137	318	498	651	773	870	910	875	799	673	517	336	151	18	0	0	0	0	314	910	0
9	0	0	0	0	0	18	146	322	503	665	789	858	893	863	789	661	500	322	139	16	0	0	0	0	312	893	0
10	0	0	0	0	0	22	149	320	502	662	787	870	890	866	791	657	487	294	137	13	0	0	0	0	310	890	0
11	0	0	0	0	0	16	116	275	413	566	705	834	748	868	774	674	352	89	23	3	0	0	0	0	269	868	0
12	0	0	0	0	0	17	98	214	449	522	714	780	814	779	636	635	458	277	128	21	0	0	0	0	273	814	0
13	0	0	0	0	0	10	114	302	486	636	765	844	274	195	314	619	390	242	92	17	0	0	0	0	221	844	0
14	0	0	0	0	0	13	119	286	469	631	767	857	899	855	775	636	492	314	124	12	0	0	0	0	302	899	0
15	0	0	0	0	0	14	129	302	490	648	762	825	877	837	558	363	449	302	106	11	0	0	0	0	278	877	0
16	0	0	0	0	0	12	121	294	471	621	758	844	874	833	654	324	346	153	58	8	0	0	0	0	265	874	0
17	0	0	0	0	0	9	50	144	282	244	691	783	459	665	620	501	172	97	21	2	0	0	0	0	198	783	0
18	0	0	0	0	0	1	14	81	189	127	87	124	360	470	504	496	266	128	78	6	0	0	0	0	122	504	0
19	0	0	0	0	0	5	45	147	292	456	564	673	708	642	228	264	287	152	52	5	0	0	0	0	188	708	0
20	0	0	0	0	0	7	80	86	19	10	177	353	85	64	32	36	20	18	6	0	0	0	0	0	41	353	0
21	0	0	0	0	0	1	33	98	192	256	299	375	284	428	281	269	292	215	73	5	0	0	0	0	129	428	0
22	0	0	0	0	0	4	25	86	337	540	673	713	768	714	653	532	342	183	65	3	0	0	0	0	235	768	0
23	0	0	0	0	0	2	41	164	272	446	653	765	837	791	705	565	386	206	67	2	0	0	0	0	246	837	0
24	0	0	0	0	0	5	62	199	344	540	644	600	569	396	641	411	286	159	51	2	0	0	0	0	205	644	0
25	0	0	0	0	0	6	85	233	457	620	749	835	862	747	744	565	333	122	45	1	0	0	0	0	267	862	0
26	0	0	0	0	0	1	25	69	83	147	356	645	646	299	272	351	348	103	28	0	0	0	0	0	141	646	0
27	0	0	0	0	0	1	28	73	121	165	323	451	551	640	510	449	393	113	25	1	0	0	0	0	160	640	0
28	0	0	0	0	0	2	32	207	284	514	554	559	864	318	291	343	192	138	68	2	0	0	0	0	182	864	0
29	0	0	0	0	0	5	105	276	454	615	742	825	845	809	720	594	426	246	68	1	0	0	0	0	280	845	0
30	0	0	0	0	0	4	105	249	481	413	541	532	710	759	475	417	105	21	7	1	0	0	0	0	201	759	0
31	0	0	0	0	0	3	95	276	454	541	784	710	756	670	646	593	419	237	61	1	0	0	0	0	260	784	0
Avg	0	0	0	0	0	12	96	230	380	511	642	716	693	666	585	505	366	210	81	11	0	0	0	0	238	780	0
Max	0	0	0	0	1	31	184	358	531	692	807	899	910	922	896	747	565	368	183	39	0	0	0	0	319	922	0
Min	0	0	0	0	0	1	14	69	19	10	87	124	85	64	32	36	20	18	6	0	0	0	0	0	41	353	0

A-20

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
September 2018

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	5	74	132	254	381	661	760	798	847	727	503	416	234	57	1	0	0	0	0	244	847	0
2	0	0	0	0	0	2	107	275	452	614	743	824	845	803	714	584	416	232	54	0	0	0	0	0	278	845	0
3	0	0	0	0	0	2	87	273	452	617	740	815	838	770	647	563	405	216	46	0	0	0	0	0	270	838	0
4	0	0	0	0	0	2	71	251	431	590	726	802	815	775	690	558	345	212	42	0	0	0	0	0	263	815	0
5	0	0	0	0	0	2	76	256	428	589	715	794	817	774	692	558	390	209	37	0	0	0	0	0	264	817	0
6	0	0	0	0	0	1	44	237	409	558	634	790	706	500	585	226	291	98	18	0	0	0	0	0	212	790	0
7	0	0	0	0	0	1	41	136	313	576	628	778	724	637	442	262	127	72	5	0	0	0	0	0	198	778	0
8	0	0	0	0	0	0	27	140	387	521	626	705	743	668	583	331	257	108	15	0	0	0	0	0	213	743	0
9	0	0	0	0	0	0	31	283	369	551	531	627	785	792	699	527	319	107	26	0	0	0	0	0	235	792	0
10	0	0	0	0	0	1	64	241	415	579	700	779	773	727	624	506	206	125	21	0	0	0	0	0	240	779	0
11	0	0	0	0	0	1	65	238	411	574	705	557	508	285	185	181	112	31	1	0	0	0	0	0	161	705	0
12	0	0	0	0	0	0	23	141	236	487	484	356	158	186	248	180	55	17	5	0	0	0	0	0	107	487	0
13	0	0	0	0	0	0	4	28	88	224	385	398	594	276	54	223	197	13	1	0	0	0	0	0	104	594	0
14	0	0	0	0	0	0	27	144	328	556	651	498	624	607	456	231	140	44	7	0	0	0	0	0	180	651	0
15	0	0	0	0	0	0	58	189	289	335	584	439	391	410	133	109	121	21	2	0	0	0	0	0	128	584	0
16	0	0	0	0	0	0	34	217	394	562	682	754	692	735	637	499	340	165	14	0	0	0	0	0	239	754	0
17	0	0	0	0	0	0	25	116	247	569	662	754	702	681	648	413	298	147	10	0	0	0	0	0	220	754	0
18	0	0	0	0	0	0	66	180	327	566	665	629	764	692	587	340	171	53	4	0	0	0	0	0	210	764	0
19	0	0	0	0	0	0	4	33	70	91	61	65	65	60	64	68	42	26	2	0	0	0	0	0	27	91	0
20	0	0	0	0	0	0	7	23	35	209	345	427	254	270	99	51	249	86	3	0	0	0	0	0	86	427	0
21	0	0	0	0	0	0	41	200	400	454	Au	Au	Au	Au	Au	479	312	84	4	0	0	0	0	0	104	479	0
22	0	0	0	0	0	0	16	114	333	504	692	510	462	702	317	130	91	31	2	0	0	0	0	0	163	702	0
23	0	0	0	0	0	0	4	28	52	55	48	61	159	523	243	410	127	115	4	0	0	0	0	0	76	523	0
24	0	0	0	0	0	0	8	60	152	501	310	304	272	107	181	91	165	73	2	0	0	0	0	0	93	501	0
25	0	0	0	0	0	0	21	36	200	411	393	395	366	473	357	201	198	123	2	0	0	0	0	0	132	473	0
26	0	0	0	0	0	0	15	54	264	517	612	664	658	645	524	410	248	66	2	0	0	0	0	0	195	664	0
27	0	0	0	0	0	0	3	20	55	77	72	109	180	144	54	103	18	8	0	0	0	0	0	0	35	180	0
28	0	0	0	0	0	0	11	62	234	532	547	534	405	398	285	201	146	27	0	0	0	0	0	0	141	547	0
29	0	0	0	0	0	0	3	17	27	67	88	161	195	141	86	61	35	9	0	0	0	0	0	0	37	195	0
30	0	0	0	0	0	0	2	14	39	81	142	130	115	131	75	63	59	31	0	0	0	0	0	0	37	142	0
Avg	0	0	0	0	0	1	35	138	270	432	511	532	531	509	401	302	210	93	13	0	0	0	0	0	163	609	0
Max	0	0	0	0	0	5	107	283	452	617	743	824	845	847	727	584	416	234	57	1	0	0	0	0	278	847	0
Min	0	0	0	0	0	0	2	14	27	55	48	61	65	60	54	51	18	8	0	0	0	0	0	0	27	91	0

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
July 2018

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

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
August 2018

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

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
September 2018

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

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
July 2018

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	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw				
2	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
3	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
4	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
5	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
6	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
7	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
8	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw			
9	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	Pw	38.8	Pw	30.0	33.2	32.0	29.2	27.0	28.1	44.1	48.0	51.7	57.8	59.5	62.5	66.9	43.5	66.9	27.0
10	73.2	80.0	81.5	84.3	84.9	82.2	75.3	62.1	47.7	35.8	31.6	32.7	32.5	36.3	57.1	51.8	32.3	31.0	30.1	29.2	39.6	45.1	58.8	65.9	53.4	84.9	29.2	
11	75.5	77.5	83.2	84.8	85.1	83.5	71.9	59.4	45.9	41.5	39.2	36.7	33.8	30.9	28.4	25.8	26.7	28.0	31.7	46.6	57.5	61.5	74.5	82.0	54.6	85.1	25.8	
12	85.1	86.9	89.0	90.7	90.4	88.5	79.8	65.0	48.6	44.0	45.7	48.1	44.0	39.1	33.1	32.5	26.3	23.0	27.5	38.0	55.1	64.0	72.0	81.7	58.3	90.7	23.0	
13	83.3	88.4	90.0	91.4	93.3	93.9	85.0	67.2	50.1	40.7	38.2	34.4	32.0	29.3	27.1	28.1	28.8	29.5	34.1	40.7	59.7	68.0	74.3	76.2	57.7	93.9	27.1	
14	81.8	84.2	84.5	86.3	88.0	87.5	83.5	75.0	65.9	46.1	50.6	57.3	57.6	57.9	60.0	60.9	57.5	59.5	65.5	74.4	82.8	86.4	89.5	91.4	72.3	91.4	46.1	
15	91.8	92.5	80.9	75.1	76.4	75.5	70.5	67.6	64.6	60.2	54.1	46.5	38.9	34.0	32.8	30.4	27.7	27.5	27.1	44.3	56.6	69.1	78.2	81.2	58.5	92.5	27.1	
16	85.0	87.1	89.1	90.4	92.2	92.3	83.2	66.7	53.5	45.2	36.3	34.8	32.7	33.0	31.6	31.4	30.4	38.4	28.3	47.8	59.2	69.8	70.4	77.8	58.6	92.3	28.3	
17	81.5	82.4	84.8	85.9	89.2	90.0	78.4	66.6	48.3	44.2	46.9	57.4	70.0	61.5	51.1	37.3	36.2	39.6	49.7	56.6	68.5	76.5	82.6	86.4	65.5	90.0	36.2	
18	89.6	91.1	91.9	92.6	93.1	93.6	86.1	68.0	49.0	39.5	35.2	27.4	25.1	19.3	18.7	19.8	22.0	19.3	18.0	17.8	28.5	46.6	58.7	66.1	50.7	93.6	17.8	
19	70.3	75.9	77.0	78.1	79.5	79.2	70.8	57.5	46.5	41.4	32.3	30.7	29.9	25.1	20.4	20.1	18.9	18.9	26.9	40.3	45.7	59.6	69.3	74.8	49.5	79.5	18.9	
20	80.5	82.9	86.0	88.6	89.4	89.3	79.8	65.3	46.5	33.1	28.8	25.5	21.5	17.2	17.5	19.1	17.6	19.0	25.6	34.2	44.2	46.9	63.0	66.9	49.5	89.4	17.2	
21	75.9	78.6	80.8	83.5	86.7	86.7	76.2	55.7	32.9	21.4	22.7	20.5	18.3	16.8	15.6	16.1	16.8	19.3	27.4	41.8	53.1	62.9	67.1	70.8	47.8	86.7	15.6	
22	63.8	54.3	57.2	68.9	70.8	72.5	67.7	50.1	35.4	26.8	24.6	23.6	22.6	19.7	18.5	17.1	17.4	18.9	28.0	33.8	41.3	45.5	45.5	63.1	41.1	72.5	17.1	
23	69.1	70.3	74.8	75.7	73.0	74.9	65.0	49.7	45.3	40.8	37.3	33.9	29.9	22.4	21.9	18.1	13.1	14.8	18.0	29.9	43.8	52.6	67.3	65.4	46.1	75.7	13.1	
24	73.4	77.3	77.9	78.4	81.2	81.6	72.5	62.3	57.0	49.6	47.5	48.4	42.4	28.1	30.2	28.9	27.4	26.4	30.9	44.1	56.7	58.4	66.7	69.0	54.8	81.6	26.4	
25	76.4	78.2	83.6	86.0	87.1	88.0	78.5	68.7	61.0	56.1	51.5	47.0	43.7	35.5	29.0	27.8	24.2	32.7	32.8	42.7	56.1	62.2	64.7	64.5	57.4	88.0	24.2	
26	71.0	77.8	81.0	85.0	80.5	82.0	70.7	60.9	51.3	46.3	46.8	43.6	37.6	39.8	32.5	53.2	49.7	45.5	50.1	59.5	71.8	76.8	80.0	83.8	61.5	85.0	32.5	
27	83.7	83.0	86.6	88.5	89.9	90.7	87.1	69.1	63.2	58.2	50.2	69.7	67.9	74.8	64.7	49.8	44.9	54.5	60.8	64.4	71.8	83.0	85.2	86.8	72.0	90.7	44.9	
28	89.7	91.5	91.6	91.7	93.2	93.7	90.5	72.9	59.5	45.5	40.1	40.1	40.9	51.8	63.2	40.8	41.0	48.9	51.6	61.6	73.2	77.5	81.0	82.8	67.3	93.7	40.1	
29	82.5	87.6	84.3	88.9	92.0	92.5	86.2	66.9	44.5	29.6	27.6	27.9	26.2	27.5	25.7	25.4	26.5	28.3	31.7	37.1	53.7	64.6	63.3	71.9	53.9	92.5	25.4	
30	78.8	84.2	86.7	88.0	90.1	89.9	83.2	65.1	44.9	29.2	25.4	20.9	18.6	18.1	14.8	11.2	13.5	13.9	17.1	29.9	42.8	52.9	62.9	72.5	48.1	90.1	11.2	
31	75.0	73.4	79.2	83.7	83.1	81.1	75.3	57.9	52.1	49.8	43.3	27.3	28.2	25.0	19.7	19.1	20.6	26.1	39.7	38.3	43.2	48.1	55.9	64.6	50.4	83.7	19.1	
Avg	79.0	81.1	82.8	84.8	85.9	85.9	78.1	63.6	50.6	41.9	38.9	37.6	36.0	33.7	32.3	30.1	28.2	30.7	34.8	43.7	54.9	62.5	69.3	74.5	55.5	86.5	25.8	
Max	91.8	92.5	91.9	92.6	93.3	93.9	90.5	75.0	65.9	60.2	54.1	69.7	70.0	74.8	64.7	60.9	57.5	59.5	65.5	74.4	82.8	86.4	89.5	91.4	72.3	93.9	46.1	
Min	63.8	54.3	57.2	68.9	70.8	72.5	65.0	49.7	32.9	21.4	22.7	20.5	18.3	16.8	14.8	11.2	13.1	13.9	17.1	17.8	28.5	45.1	45.5	63.1	41.1	66.9	11.2	

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
August 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	55.5	57.8	64.8	71.4	81.4	86.6	83.7	67.0	44.7	32.8	27.7	25.5	24.9	24.3	22.0	21.4	19.8	21.4	26.8	42.0	41.6	53.4	62.5	69.8	47.0	86.6	19.8
2	74.9	79.0	81.4	83.2	84.7	84.9	77.8	60.3	38.3	25.5	25.2	21.1	16.1	18.0	21.3	36.6	47.6	46.2	52.2	64.4	74.3	77.6	73.9	77.2	55.9	84.9	16.1
3	87.1	88.0	88.2	88.2	85.9	86.3	86.2	69.7	38.3	21.5	21.2	21.1	21.7	21.8	20.7	17.7	14.8	13.8	15.3	19.5	26.0	40.0	53.2	60.7	46.1	88.2	13.8
4	65.2	68.4	73.6	76.1	79.3	79.2	69.3	53.8	40.7	39.6	37.3	32.3	30.3	29.5	25.1	21.0	18.3	23.2	27.5	37.2	45.2	55.4	62.1	72.3	48.4	79.3	18.3
5	78.0	78.4	76.0	79.8	82.5	78.8	70.5	67.6	63.0	50.2	40.8	40.3	49.6	62.7	61.2	48.9	50.7	58.1	73.7	86.1	89.5	88.8	91.2	92.8	69.1	92.8	40.3
6	91.4	92.9	93.4	93.7	93.7	93.8	94.6	88.1	58.2	46.4	42.1	36.5	32.5	30.3	27.8	25.7	22.6	22.9	25.0	31.9	49.4	62.3	68.6	70.9	58.1	94.6	22.6
7	78.4	83.4	86.7	86.5	87.3	87.5	76.8	60.7	41.8	30.9	29.4	26.9	26.2	23.7	23.1	21.6	20.4	22.1	25.1	36.7	47.6	53.3	60.0	68.1	50.2	87.5	20.4
8	77.0	80.9	82.4	83.2	82.7	84.5	79.5	60.2	41.1	27.5	22.8	18.8	15.7	15.6	15.4	13.2	12.6	12.8	16.7	28.5	39.0	47.8	56.6	64.6	45.0	84.5	12.6
9	68.9	73.1	76.6	77.9	78.6	80.1	70.0	52.8	37.8	23.1	20.3	17.5	15.9	15.5	14.9	14.1	14.0	13.0	17.2	26.0	38.6	42.8	57.6	62.4	42.0	80.1	13.0
10	71.7	73.7	74.3	77.2	78.3	80.3	72.1	51.9	35.8	22.1	17.1	13.0	11.2	8.8	9.7	7.6	8.9	11.4	16.8	31.5	38.3	46.6	51.5	60.0	40.4	80.3	7.6
11	64.1	66.9	67.3	70.2	71.8	74.5	68.6	51.3	37.2	28.7	14.6	12.7	10.0	8.4	7.8	7.5	10.0	14.9	22.9	31.8	36.0	31.5	32.6	48.6	37.1	74.5	7.5
12	57.8	62.3	65.3	70.7	73.0	72.6	69.9	56.2	39.4	30.0	32.1	28.0	25.4	20.2	20.1	18.1	18.2	19.7	23.0	23.6	24.6	26.3	27.8	36.8	39.2	73.5	18.1
13	44.6	48.8	59.0	67.2	73.0	77.3	74.5	58.7	46.2	42.3	36.8	37.6	37.9	39.6	42.0	38.2	39.2	42.1	44.6	52.1	60.5	67.1	67.7	70.5	52.8	77.3	36.8
14	74.2	78.6	83.2	86.3	87.5	89.9	86.7	70.1	52.3	44.4	39.4	29.9	25.2	23.1	21.4	19.4	14.1	12.6	18.5	24.8	37.9	47.2	52.0	60.3	49.1	89.9	12.6
15	62.9	65.4	69.5	75.3	79.7	84.8	77.9	58.1	39.9	25.9	22.9	21.0	18.5	15.0	14.8	15.1	12.7	12.7	18.6	35.9	38.9	55.5	57.6	63.9	43.4	84.8	12.7
16	64.6	69.4	69.1	73.6	75.9	80.2	71.6	49.9	33.3	24.5	17.7	13.6	10.1	9.2	10.8	13.9	13.2	15.3	21.4	27.8	37.5	45.2	52.7	57.8	39.9	80.2	9.2
17	62.9	67.5	70.0	72.0	73.6	76.3	74.6	69.2	48.3	39.7	27.5	20.6	19.3	17.1	16.3	16.3	20.0	24.4	25.6	39.9	42.4	47.2	53.6	54.8	45.0	76.3	16.3
18	65.8	72.8	75.0	78.4	75.8	83.0	86.2	82.5	74.8	70.7	82.8	82.3	72.5	65.6	58.0	43.1	44.6	47.6	50.2	50.8	51.6	59.3	70.5	78.2	67.6	86.2	43.1
19	85.4	85.8	89.2	90.5	91.5	91.8	91.9	88.7	78.2	60.3	48.6	42.2	35.5	32.7	36.2	37.9	41.5	46.6	50.8	53.3	60.1	66.2	69.1	73.9	64.5	91.9	32.7
20	75.3	75.5	77.5	83.8	86.5	90.6	89.5	87.9	84.7	86.7	82.6	80.7	83.2	81.9	86.6	87.8	86.8	83.4	86.4	89.0	88.4	86.9	83.4	84.6	84.6	90.6	75.3
21	84.7	82.5	80.9	86.7	86.8	88.8	88.4	85.5	81.1	77.7	73.6	70.1	71.1	71.7	69.7	71.8	70.8	72.1	76.5	84.6	88.3	89.0	91.7	84.1	80.3	91.7	69.7
22	83.1	84.2	84.4	84.7	85.3	87.7	89.4	87.0	80.0	68.2	55.1	47.1	38.9	35.8	31.2	28.5	31.7	35.9	45.0	54.9	67.4	73.8	77.2	83.3	64.2	89.4	28.5
23	82.6	84.1	84.1	84.1	86.1	85.9	87.6	82.5	62.7	47.4	41.6	37.3	33.8	31.2	28.3	26.6	26.8	26.5	29.8	36.6	54.3	64.6	74.3	80.0	57.4	87.6	26.5
24	85.6	86.7	87.8	88.6	88.8	88.4	87.7	81.0	67.2	41.9	30.0	28.9	29.0	27.3	22.1	24.0	25.4	25.8	29.0	29.1	37.8	49.6	58.3	69.8	53.7	88.8	22.1
25	78.1	82.2	86.4	88.6	88.7	91.5	91.3	81.5	60.3	42.1	34.1	30.8	27.7	25.7	23.8	23.2	24.9	29.6	38.3	50.3	55.1	57.5	59.9	69.5	55.9	91.5	23.2
26	75.5	77.4	80.6	81.8	83.7	85.8	84.7	75.2	59.4	56.0	51.7	44.3	39.6	38.9	40.3	39.1	39.4	45.4	50.7	55.9	62.7	67.5	77.1	85.0	62.4	85.8	38.9
27	89.0	90.8	90.6	91.6	92.0	91.0	89.8	87.1	86.2	82.9	81.4	75.2	70.5	69.4	69.8	68.4	68.0	74.7	75.3	77.4	80.0	82.8	84.8	84.0	81.4	92.0	68.0
28	87.4	89.1	89.6	90.8	91.4	91.9	92.4	90.9	73.4	63.1	57.8	51.6	44.9	46.3	44.4	41.1	41.5	40.4	40.7	51.1	64.1	70.1	79.6	83.2	67.4	92.4	40.4
29	86.1	88.8	90.3	90.6	90.8	91.0	88.8	75.1	58.2	37.3	29.8	26.3	26.2	29.1	28.3	25.3	24.1	24.1	27.3	41.8	53.4	67.4	72.4	79.5	56.3	91.0	24.1
30	81.9	83.4	85.9	85.5	88.0	87.4	84.9	72.5	45.6	28.6	28.4	26.6	25.4	24.2	24.8	23.5	25.6	28.7	31.6	35.3	37.8	38.3	41.2	34.4	48.7	88.0	23.5
31	35.3	39.9	44.5	50.7	61.1	70.4	71.4	56.7	46.4	38.9	31.5	31.4	33.0	32.2	27.9	25.9	23.6	23.4	28.0	38.4	49.0	61.6	69.3	75.6	44.4	75.6	23.4
Avg	73.4	76.1	78.3	80.9	82.8	84.6	81.6	70.3	54.7	43.8	38.8	35.2	33.0	32.1	31.2	29.8	30.1	32.0	36.5	44.8	52.0	58.8	64.2	69.6	54.8	85.7	27.0
Max	91.4	92.9	93.4	93.7	93.7	93.8	94.6	90.9	86.2	86.7	82.8	82.3	83.2	81.9	86.6	87.8	86.8	83.4	86.4	89.0	89.5	89.0	91.7	92.8	84.6	94.6	75.3
Min	35.3	39.9	44.5	50.7	61.1	70.4	68.6	49.9	33.3	21.5	14.6	12.7	10.0	8.4	7.8	7.5	8.9	11.4	15.3	19.5	24.6	26.3	27.8	34.4	37.1	73.5	7.5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
September 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	80.1	82.4	84.7	85.3	86.3	86.5	84.0	79.9	71.8	42.8	33.1	31.0	31.9	28.9	27.5	27.1	27.8	27.7	32.7	42.0	53.6	63.6	71.3	76.7	56.6	86.5	27.1
2	79.7	80.9	82.9	84.3	87.4	89.2	85.4	67.8	49.0	33.8	29.1	22.8	19.6	18.5	17.4	16.5	15.6	16.3	21.0	32.1	45.5	53.4	57.0	66.1	48.8	89.2	15.6
3	70.3	73.8	76.9	76.6	79.2	80.5	79.4	61.8	39.9	24.5	20.4	19.2	18.5	19.1	19.7	19.5	21.6	27.2	46.8	56.4	65.0	72.5	76.6	79.8	51.1	80.5	18.5
4	84.7	86.0	83.2	86.2	83.3	85.4	85.3	71.5	62.5	57.9	52.2	46.3	41.7	39.0	37.8	37.5	38.4	39.8	44.5	49.1	51.0	54.6	60.0	62.3	60.0	86.2	37.5
5	65.0	68.2	71.1	71.6	73.7	79.6	78.3	60.8	48.6	43.5	39.0	36.3	32.5	30.0	25.4	22.4	21.7	22.7	40.4	48.4	50.9	58.4	62.1	74.1	51.0	79.6	21.7
6	73.7	80.9	80.0	82.5	85.1	85.5	83.2	64.7	41.6	25.1	21.6	18.8	18.6	17.8	15.4	17.4	15.7	19.7	30.6	36.4	38.3	43.6	53.4	63.6	46.4	85.5	15.4
7	71.4	63.0	70.9	75.0	79.1	75.4	75.2	68.0	52.8	30.4	23.3	20.4	16.8	14.7	14.1	20.4	19.5	19.9	27.7	27.1	34.1	47.6	53.7	51.3	43.8	79.1	14.1
8	48.5	45.4	55.9	66.4	67.2	69.1	67.8	66.0	43.9	27.9	23.8	21.1	19.5	17.4	18.4	20.0	20.8	24.6	29.0	34.5	41.6	45.6	50.7	53.4	40.8	69.1	17.4
9	58.3	59.8	65.3	69.4	74.1	77.0	78.4	64.3	38.2	28.7	30.9	28.3	22.6	18.3	19.0	21.7	24.8	30.5	36.1	45.2	48.3	57.7	61.9	64.3	46.8	78.4	18.3
10	68.7	70.6	78.0	80.7	84.1	86.7	83.5	69.4	48.3	32.9	26.1	21.9	19.4	17.7	17.2	16.5	15.8	15.8	22.8	29.4	29.4	33.8	41.1	42.8	43.9	86.7	15.8
11	49.1	63.1	69.8	74.3	79.6	82.6	79.8	64.9	46.3	35.7	34.8	34.4	32.1	31.3	31.5	31.1	31.3	37.6	47.6	77.4	86.0	88.7	78.0	77.9	56.9	88.7	31.1
12	76.4	78.0	73.1	75.1	77.0	81.4	85.5	82.6	69.6	59.7	52.7	49.7	52.5	47.7	43.3	45.2	47.5	60.8	78.2	77.3	72.6	74.6	83.9	86.2	67.9	86.2	43.3
13	86.3	86.7	87.6	84.6	83.4	84.4	86.4	88.1	86.2	82.0	72.7	66.2	55.0	48.4	72.5	78.3	70.2	75.4	85.7	86.0	87.8	90.1	90.0	91.5	80.2	91.5	48.4
14	91.1	91.7	92.7	93.1	93.1	93.0	92.7	92.7	92.1	66.2	40.8	44.0	37.9	32.0	30.8	27.6	37.3	45.4	54.2	59.1	63.7	72.7	78.8	78.9	66.7	93.1	27.6
15	81.2	81.3	82.7	82.4	80.9	82.2	87.7	76.9	64.6	54.4	42.4	31.1	34.4	26.8	25.5	29.2	36.5	57.9	55.9	60.5	77.2	88.6	89.4	87.6	63.2	89.4	25.5
16	88.4	90.9	92.8	93.4	93.3	93.6	93.9	93.5	86.7	62.4	51.1	38.2	36.0	23.7	21.8	21.0	22.0	29.0	49.8	71.7	81.0	85.0	89.4	90.9	66.6	93.9	21.0
17	92.0	92.0	92.2	92.8	93.3	93.3	91.0	88.8	87.4	63.1	46.3	30.8	28.9	30.5	29.0	26.7	27.7	30.3	43.3	49.8	60.8	66.0	77.0	81.6	63.1	93.3	26.7
18	83.3	85.5	85.0	86.8	90.1	90.3	90.3	81.8	74.3	59.7	53.3	45.6	39.3	34.7	31.2	31.2	47.9	52.7	61.1	72.4	78.0	81.4	84.8	85.0	67.7	90.3	31.2
19	89.2	90.6	89.2	88.3	88.1	90.8	91.0	90.3	86.6	83.0	83.7	89.3	89.2	88.0	87.1	82.9	81.9	78.3	81.5	89.3	91.8	88.5	90.1	90.8	87.5	91.8	78.3
20	91.3	89.8	89.5	89.3	91.6	91.7	91.0	90.7	89.1	84.4	76.9	71.6	61.0	53.9	54.3	77.6	80.7	78.3	84.0	88.1	89.9	89.2	91.8	92.4	82.8	92.4	53.9
21	92.1	92.2	92.0	91.9	92.0	92.2	92.1	87.3	70.8	57.0	Au	Au	Au	Au	Au	32.8	32.1	36.3	62.6	72.8	79.8	85.6	83.8	87.7	75.4	92.2	32.1
22	89.0	89.3	90.4	89.7	89.4	87.9	86.0	84.5	71.3	45.5	21.5	22.3	23.0	19.8	21.5	24.2	32.8	42.9	42.2	49.4	64.0	68.5	73.0	74.0	58.4	90.4	19.8
23	78.1	80.5	80.2	80.3	74.3	75.2	72.2	82.6	83.5	79.0	79.8	84.1	84.4	72.1	80.2	73.5	61.5	53.8	63.3	72.0	83.3	86.6	88.2	88.5	77.4	88.5	53.8
24	90.0	91.0	90.5	90.6	90.5	90.1	90.3	90.1	88.7	63.2	64.8	76.7	64.0	79.4	85.9	84.8	81.1	75.7	83.5	86.9	88.5	89.7	88.1	89.6	83.9	91.0	63.2
25	90.6	91.8	92.1	92.5	92.4	92.3	92.6	92.8	91.1	76.7	71.1	62.5	55.8	49.5	47.3	46.2	44.1	43.3	62.0	80.2	84.7	87.7	88.8	89.6	75.7	92.8	43.3
26	90.0	89.6	89.5	89.1	88.6	88.8	88.5	87.7	85.4	61.5	50.2	44.3	41.9	38.6	36.8	35.1	32.1	33.6	37.9	38.7	44.5	56.2	65.7	69.7	61.8	90.0	32.1
27	72.3	75.3	77.3	82.2	82.7	84.5	84.0	84.8	78.9	69.6	68.5	68.8	72.9	72.0	70.2	68.8	70.7	75.6	80.2	79.6	83.4	86.3	87.8	89.9	77.8	89.9	68.5
28	91.0	91.4	91.2	89.5	89.4	90.0	86.3	82.4	79.3	75.6	73.6	72.1	70.2	72.3	73.4	73.6	77.2	84.1	86.6	87.3	86.5	84.8	84.8	84.0	82.4	91.4	70.2
29	83.8	83.6	84.8	87.5	89.1	90.5	90.6	90.6	89.9	90.6	88.8	85.7	78.2	77.1	75.4	80.3	83.8	81.5	75.0	73.8	74.9	74.2	73.3	74.2	82.4	90.6	73.3
30	73.7	74.8	79.6	82.2	83.4	85.6	86.0	86.7	85.4	82.7	81.0	80.6	82.7	84.9	81.1	81.3	81.2	81.7	85.0	85.2	86.9	88.2	88.8	88.0	83.2	88.8	73.7
Avg	79.3	80.7	82.4	83.8	84.7	85.8	85.3	79.8	70.1	56.6	50.1	47.0	44.2	41.5	41.7	42.3	43.4	46.6	55.0	61.9	67.4	72.1	75.4	77.7	64.9	87.9	37.3
Max	92.1	92.2	92.8	93.4	93.3	93.6	93.9	93.5	92.1	90.6	88.8	89.3	89.2	88.0	87.1	84.8	83.8	84.1	86.6	89.3	91.8	90.1	91.8	92.4	87.5	93.9	78.3
Min	48.5	45.4	55.9	66.4	67.2	69.1	67.8	60.8	38.2	24.5	20.4	18.8	16.8	14.7	14.1	16.5	15.6	15.8	21.0	27.1	29.4	33.8	41.1	42.8	40.8	69.1	14.1

A-27

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (inches)
September 2018

Day	<< Hour >>																								Tot	Max					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24							
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.09	0.14	0.05	0.01	0.32	0.14	0.02	0.01	
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.03	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.12	0.01	0.01	
14	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.19	0.09	0.40	0.19	0.01	0.01		
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.13	0.06	0.28	0.13	0.01	0.01		
20	0.11	0.15	0.02	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.15	0.01	0.01		
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Au	Au	Au	Au	Au	Au	Au	Au	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.04	0.01	0.01		
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.04	0.01	0.01	0.01		
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	
Tot	0.11	0.15	0.03	0.00	0.05	0.00	0.02	0.03	0.04	0.01	0.01	0.00	0.00	0.06	0.05	0.11	0.00	0.04	0.14	0.02	0.10	0.32	0.39	0.17	1.85	0.00	0.00	0.00	0.00	0.00	
Max	0.11	0.15	0.02	0.00	0.04	0.00	0.02	0.01	0.04	0.01	0.01	0.00	0.00	0.04	0.03	0.08	0.00	0.03	0.12	0.02	0.09	0.14	0.19	0.09	0.40	0.19	0.01	0.01	0.01	0.01	

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APPENDIX B: PERFORMANCE AUDIT REPORTS
THIRD QUARTER 2018



BISON ENGINEERING, INC.

Bison Engineering

Preliminary Meteorological Parameters Audit Form

Audit Dates: 09/21/2018 Tower Lowered : 10:20 MST Tower Back Up : 14:50 MST
 Client: Tintina Resources
 Site: Black Butte
 AUDITOR: Steve Heck PRECEDING CALIBRATION BY: Jeff Bell

Temperature (existing sensors as-found)

Audit Device: Control Company - digital thermometer Model 4000
 Meter S/N: 91255639 Temperature Sensor: Climatronics 100093
 Last certified: Sep 2017 S/N P12535 (Upper), S/N P12535 (Lower) - Matched Set

<u>Temperature bath results</u>					
	9m	9m	2m	2m	9m - 2m
Audit	DAS	DAS	DAS	DAS	DAS
Value	Value	Diff.	Value	Diff.	Diff.
°C	°C	°C	°C	°C	°C
0.21	0.28	0.07	0.36	0.15	-0.08
16.80	16.72	-0.08	16.79	-0.01	-0.07
37.64	37.80	0.16	37.85	0.21	-0.05

Temperature (replacement sensors as-left)

Audit Device: Control Company - digital thermometer Model 4000
 Meter S/N: 91255639 Temperature Sensor: Climatronics 100093
 Last certified: Sep 2017 S/N X17929 (Upper), S/N X17927 (Lower) - Matched Set

<u>Temperature bath results</u>					
	9m	9m	2m	2m	9m - 2m
Audit	DAS	DAS	DAS	DAS	DAS
Value	Value	Diff.	Value	Diff.	Diff.
°C	°C	°C	°C	°C	°C
0.10	0.25	0.15	0.25	0.15	0.00
17.99	17.95	-0.04	17.95	-0.04	0.00
34.31	34.50	0.19	34.47	0.16	0.03

Wind Direction

		<u>Linearity Check from DAS</u>				
Sensor height:	9 Meter	Setpoint	Clockwise	Counter-CW	Diff CW	Diff CCW
Sensor (Make/model number):	Climatronics/ 102083	0	0.1	0.2	0.1	0.2
Serial Number :	P1336C	30	30.4	29.9	0.4	-0.1
Crossarm orientation (from Garmin GPS):	0.0 / 180.0	60	60.0	61.1	0.0	1.1
GPS location at sensor:		90	91.4	91.4	1.4	1.4
N 46 deg 46.352 min, W 110 deg 52.949 min		120	121.0	119.6	1.0	-0.4
GPS location at sighting point:		150	150.4	149.6	0.4	-0.4
N 46 deg 46.312 min, W 110 deg 52.949 min		180	179.4	180.0	-0.6	0.0
Sensor response aligned with crossarm (as found):	181.0	210	210.4	209.0	0.4	-1.0
Sensor response aligned with crossarm (as left):	180.6	240	238.7	239.9	-1.3	-0.1
		270	269.9	269.9	-0.1	-0.1
Linearity Audit Device: Climatronics 101966, SN 70		300	298.6	298.4	-1.4	-1.6
		330	330.2	329.7	0.2	-0.3
Threshold Torque: 0.08 oz.-in.				Max Diff	1.4	-1.6
(Waters Model 366-1 torque watch)						

Wind Speed

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

Synchronous motor checks

Known Value	Known Value	DAS Value	DAS Diff.
RPM	m/s	m/s	m/s
0	0.22	0.22	0.00
300	6.66	6.65	-0.01
600	13.09	13.10	0.01

Threshold Torque: 0.004 oz.-in.
 (Waters Model 366-3 torque watch)

Solar Radiation

Audit Device: Eppley Pyranometer, SN 16166F3 (certified by Eppley October 2017)

Time (MST)	CTS Value (W/m2)	Site Value (W/m2)	Diff. (%)	Diff. (% FS)
1439	527	535	1.5	0.6
1442	583	619	6.2	2.8
1451	540	572	5.9	2.5
1458	519	538	3.7	1.5

Relative Humidity

Site Sensor: Met One 083E-0-35
Sensor Height: 2 meters
Reference Std: Assmann Psychrometer, thermometer calibrations checked July 2018

Ref Dry-Bulb: 17.7 deg C BP = 24.45 in. Hg
Ref Wet-Bulb 8.9 deg C
Ref RH: 32.9 %RH
Station RH: 31.7 %RH
Diff: -1.2 %RH

Barometric Pressure

Audit Device: Wallace & Tiernan Model FA185260, S/N LL03297.
Checked against Bison Mercury barometer (Butte) July 2018

Audit Value: 24.45 in Hg
Station Value: 24.49 in Hg
Diff: 0.04 in Hg

Precipitation (existing gauge as-found)

Rain Gauge = Met One Model 375
Level checked OK
Wind Screen in place
8" opening Precip audit performed during hour ending at 1100 MST

559 ml water added
Calibration is 8.24 ml per tip
Known audit value is $559 / 8.24 = 67.8$ tips (so 67 full tips expected)

Unit registered 70 tips
% difference from expected = 4.5%

Precipitation (new gauge as-left)

Rain Gauge = Met One Model 375D, Serial No. X15682
Level checked OK
Wind Screen in place
8" opening Precip audit performed during hour ending at 1600 MST

559 ml water added
Calibration is 8.24 ml per tip
Known audit value is $559 / 8.24 = 67.8$ tips (so 67 or 68 full tips expected)

Unit registered 70 tips mechanically but CR1000 counted 78 tips. See discussion in Section 4.0 of report.
% difference from expected = 2.9% / 14.9%

Signature Site Operator : _____

Signature Auditor : _____

**SANDFIRE RESOURCES, INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
Fourth Quarter 2018**

Prepared for:

Sandfire Resources, Inc.
PO Box 431
White Sulphur Springs, MT 59645

Prepared by:

Bison Engineering, Inc.
2751 Enterprise Ave., Ste. 2
Billings, MT 59102
(406) 896-1716
<http://www.bison-eng.com>

February 15, 2019

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: Jeffrey S. Bell

Signature: 

Title: Senior Field Technician

Date: 1/14/2019

Reviewer: Steven R. Heck

Signature: 

Title: Meteorologist

Date: 1-23-2019

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APPENDICES

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

1.0 INTRODUCTION

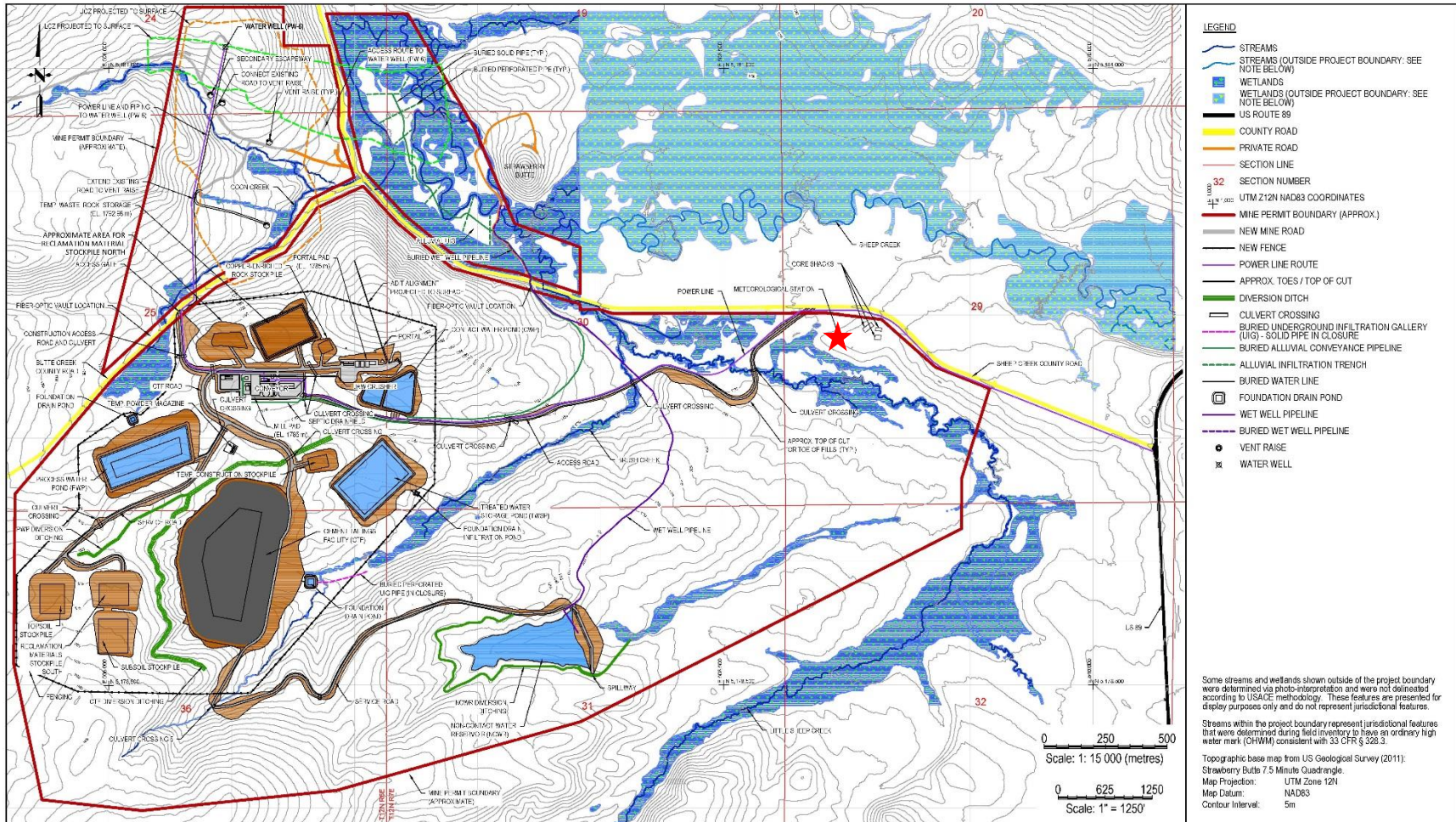
Sandfire Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately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

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

This report presents the data collected during the fourth quarter (October through December) of 2018. 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. The evaporation pan and manual rain gauge were not operated during the fourth quarter of 2018.

Figure 1. Monitoring Site Location



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



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

2.0 MONITORING SYSTEM OPERATIONS

The original meteorological monitoring system began collecting data on April 30, 2012. Data were collected continuously at that location until February 6, 2018 at 1400 MST when the existing meteorological tower was relocated approximately 300 feet to the southwest of the original location. All instruments except the automatic rain gauge were operational starting March 7 at 1800 MST; the rain gauge became operational on March 8 at 1500 MST.

Jeff Bell of Bison conducted performance audits of the meteorological system on November 20, 2018, and made any necessary calibration adjustments to the meteorological system following the audits.

3.0 PERFORMANCE AUDIT DATA

Jeff Bell of Bison conducted performance audits of the meteorological system on November 20, 2018. All as-found audit results were satisfactory and no calibration adjustments were needed

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

4.0 CALIBRATION DATA

Jeff Bell of Bison conducted performance audits of the meteorological system on November 20, 2018, as discussed in Section 3.0. All as-found audit results were satisfactory and no calibration adjustments were needed.

5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the fourth quarter of 2018 are given in Tables 1 and 2. In these tables, the number of possible data values during each month of the quarter is given, together with the number of valid readings and the number of hours spent on quality assurance activities (such as calibrations, performance audits, and maintenance on the sensors). The quality assurance hours are added to the number of hours of valid data to compute the net percentage data recovery.

During the fourth quarter the net percentage data recovery was 100.0 percent for all parameters except wind speed and precipitation. The net percentage data recovery was 99.2 percent for wind speed; 18 hours of data were lost in December due to the cups freezing in place during bad weather. The net percentage data recovery was 99.7 percent for precipitation because of a few erroneous values that may have been caused by “bouncing” of the reed switch. The manufacturer recommends putting a capacitor on the rain gauge to stop the effect. The gauge is believed to be working correctly during actual precipitation events. During the next audit a capacitor will be added to filter out any reed switch bouncing effects.

Table 1. Monthly Data Completeness

October 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
Temperature 9 Meters	744	744	100.0	0	100.0
Temperature 2 Meters	744	744	100.0	0	100.0
Temperature Delta T	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	738	99.2	0	99.2
Total	7,440	7,434	99.9	0	99.9

Table 1. Monthly Data Completeness (Continued)

November 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	717	99.6	3	100.0
Wind Direction	720	717	99.6	3	100.0
Standard Deviation	720	717	99.6	3	100.0
Temperature 9 Meters	720	717	99.6	3	100.0
Temperature 2 Meters	720	717	99.6	3	100.0
Temperature Delta T	720	717	99.6	3	100.0
Solar Radiation	720	717	99.6	3	100.0
Barometric Pressure	720	717	99.6	3	100.0
Relative Humidity	720	717	99.6	3	100.0
Precipitation	720	717	99.6	3	100.0
Total	7,200	7,170	99.6	30	100.0

Table 1. Monthly Data Completeness (Continued)

December 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	726	97.6	0	97.6
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
Temperature 9 Meters	744	744	100.0	0	100.0
Temperature 2 Meters	744	744	100.0	0	100.0
Temperature Delta T	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	741	99.6	0	99.6
Total	7,440	7,419	99.7	0	99.7

Table 2. Quarterly Data Completeness

Fourth Quarter 2018					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,208	2,187	99.0	3	99.2
Wind Direction	2,208	2,205	99.9	3	100.0
Standard Deviation	2,208	2,205	99.9	3	100.0
Temperature 9 Meters	2,208	2,205	99.9	3	100.0
Temperature 2 Meters	2,208	2,205	99.9	3	100.0
Temperature Delta T	2,208	2,205	99.9	3	100.0
Solar Radiation	2,208	2,205	99.9	3	100.0
Barometric Pressure	2,208	2,205	99.9	3	100.0
Relative Humidity	2,208	2,205	99.9	3	100.0
Precipitation	2,208	2,196	99.5	3	99.6
Total	22,080	22,023	99.7	30	99.9

6.0 MONITORING DATA

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

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

Table 3. Missing Data Codes

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

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

October 2018																		
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	1.5	1.3	1.2	0.5	2.6	5.1	2.2	1.3	0.1	0.7	0.4	0.7	0.7	1.3	0.9	21.6
	1.1 - 2.0	0.4	0.8	1.6	1.1	3.8	3.6	4.2	2.0	1.5	0.5	1.3	0.7	1.1	2.2	1.3	0.5	26.6
	2.1 - 3.0	0.1	0.1	0.7	0.8	1.5	1.3	0.9	0.8	0.3	0.4	0.4	1.1	1.2	1.3	0.7	0.5	12.2
	3.1 - 4.0	0.0	0.0	0.0	0.4	0.3	0.5	0.4	1.9	0.1	0.3	0.3	0.5	3.0	2.2	0.8	0.4	11.0
	4.1 - 5.0	0.1	0.0	0.0	0.1	0.0	0.4	0.5	1.5	0.1	0.1	0.5	1.2	2.4	1.5	0.7	0.5	9.8
	5.1 - 6.0	0.3	0.0	0.0	0.0	0.0	0.3	0.4	1.2	0.0	0.3	0.4	1.1	1.5	1.3	0.3	0.7	7.7
	6.1 - 7.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.1	0.0	1.1	1.6	1.1	0.4	0.3	5.8
	7.1 - 8.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.1	0.1	0.5	1.2	0.1	0.4	0.3	4.0
	8.1 - 9.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.0	0.0	0.4	1.2
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.7	2.4	3.6	3.6	6.0	8.7	11.8	11.2	3.4	2.0	3.9	6.9	12.9	10.3	5.9	4.6		100.0
Average Speed	3.2	1.1	1.4	1.8	1.7	1.8	1.7	3.4	1.4	3.4	2.8	4.5	4.4	3.6	3.0	3.9		2.9

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

November 2018																		
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	1.3	1.1	2.0	2.1	3.3	4.3	4.5	3.2	1.5	1.3	1.5	0.6	0.7	1.5	0.4	0.6	29.8
	1.1 - 2.0	1.1	1.0	2.4	2.4	3.3	5.6	5.4	2.1	0.8	0.4	0.6	1.0	2.0	1.7	0.6	0.6	30.8
	2.1 - 3.0	0.1	0.0	0.0	0.8	1.4	0.8	0.4	0.1	0.6	0.1	0.4	1.0	2.9	2.4	1.3	0.8	13.2
	3.1 - 4.0	0.0	0.0	0.0	0.6	0.4	0.0	0.3	0.3	0.3	0.0	0.1	0.4	3.1	1.8	0.7	0.3	8.2
	4.1 - 5.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.1	1.8	2.8	0.7	0.4	6.7
	5.1 - 6.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.4	1.5	1.0	0.8	0.3	4.6
	6.1 - 7.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.5	0.7	1.0	0.0	4.6
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.1	0.0	1.1
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.4
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.4
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	3.1	2.1	4.3	5.9	8.6	10.9	10.7	5.9	3.2	2.1	3.1	3.6	15.1	12.8	5.7	2.9		100.0
Average Speed	2.0	1.0	1.1	1.5	1.5	1.3	1.3	1.3	1.4	1.5	1.8	2.6	4.0	3.6	4.1	2.6		2.3

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

December 2018																		
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	1.8	0.6	1.1	1.5	2.1	2.9	1.8	1.5	0.8	0.4	0.1	0.4	0.4	0.8	0.8	17.6
	1.1 - 2.0	0.1	0.7	1.8	1.9	3.2	4.7	5.5	2.6	1.0	0.4	0.6	0.7	1.0	1.8	1.1	1.1	28.1
	2.1 - 3.0	0.1	0.0	0.4	1.2	1.5	3.3	1.7	0.1	0.3	0.0	0.8	1.7	3.4	2.1	0.7	0.4	17.8
	3.1 - 4.0	0.6	0.0	0.1	0.0	0.7	0.7	1.0	0.8	0.6	0.6	0.4	0.4	3.4	0.6	0.6	0.0	10.3
	4.1 - 5.0	0.1	0.1	0.0	0.0	0.8	0.0	0.1	1.0	0.6	0.3	0.0	1.5	2.5	0.4	0.1	0.1	7.7
	5.1 - 6.0	0.1	0.0	0.0	0.0	0.1	0.0	0.3	0.6	0.6	0.8	0.4	0.4	2.1	1.0	0.1	0.3	6.7
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.8	0.1	1.9	0.4	0.0	0.7	4.8
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	1.5	0.3	0.0	0.1	2.5
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.8	0.3	0.0	0.0	2.5
	9.1 - 10.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.6	0.0	0.0	0.0	1.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	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	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	1.8	2.6	2.9	4.3	7.9	10.7	11.4	6.9	4.8	3.9	4.3	5.0	19.3	7.2	3.4	3.7		100.0
Average Speed	3.2	1.0	1.6	1.7	2.1	1.8	1.7	2.2	2.8	4.2	4.7	3.5	5.0	3.4	2.1	3.4		3.0

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

Fourth Quarter 2018																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	1.0	1.5	1.3	1.5	1.8	3.0	4.2	2.4	1.5	0.7	0.9	0.4	0.6	0.9	0.9	0.8	23.0
	1.1 - 2.0	0.5	0.8	1.9	1.8	3.4	4.6	5.0	2.2	1.1	0.5	0.8	0.8	1.3	1.9	1.0	0.7	28.5
	2.1 - 3.0	0.1	0.0	0.4	1.0	1.5	1.8	1.0	0.4	0.4	0.2	0.5	1.2	2.5	1.9	0.9	0.6	14.4
	3.1 - 4.0	0.2	0.0	0.0	0.3	0.5	0.4	0.5	1.0	0.3	0.3	0.3	0.5	3.2	1.5	0.7	0.2	9.9
	4.1 - 5.0	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.8	0.2	0.2	0.3	1.0	2.2	1.6	0.5	0.4	8.1
	5.1 - 6.0	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.6	0.2	0.4	0.3	0.6	1.7	1.1	0.4	0.4	6.4
	6.1 - 7.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.2	0.3	0.5	2.0	0.7	0.5	0.3	5.1
	7.1 - 8.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.1	0.2	1.0	0.3	0.2	0.1	2.6
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.7	0.2	0.0	0.1	1.4
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	2.5	2.4	3.6	4.6	7.5	10.1	11.3	8.0	3.8	2.7	3.7	5.2	15.7	10.1	5.0	3.7		100.0
Average Speed	2.7	1.1	1.3	1.6	1.8	1.6	1.6	2.6	2.0	3.3	3.3	3.8	4.5	3.5	3.2	3.4		2.7

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

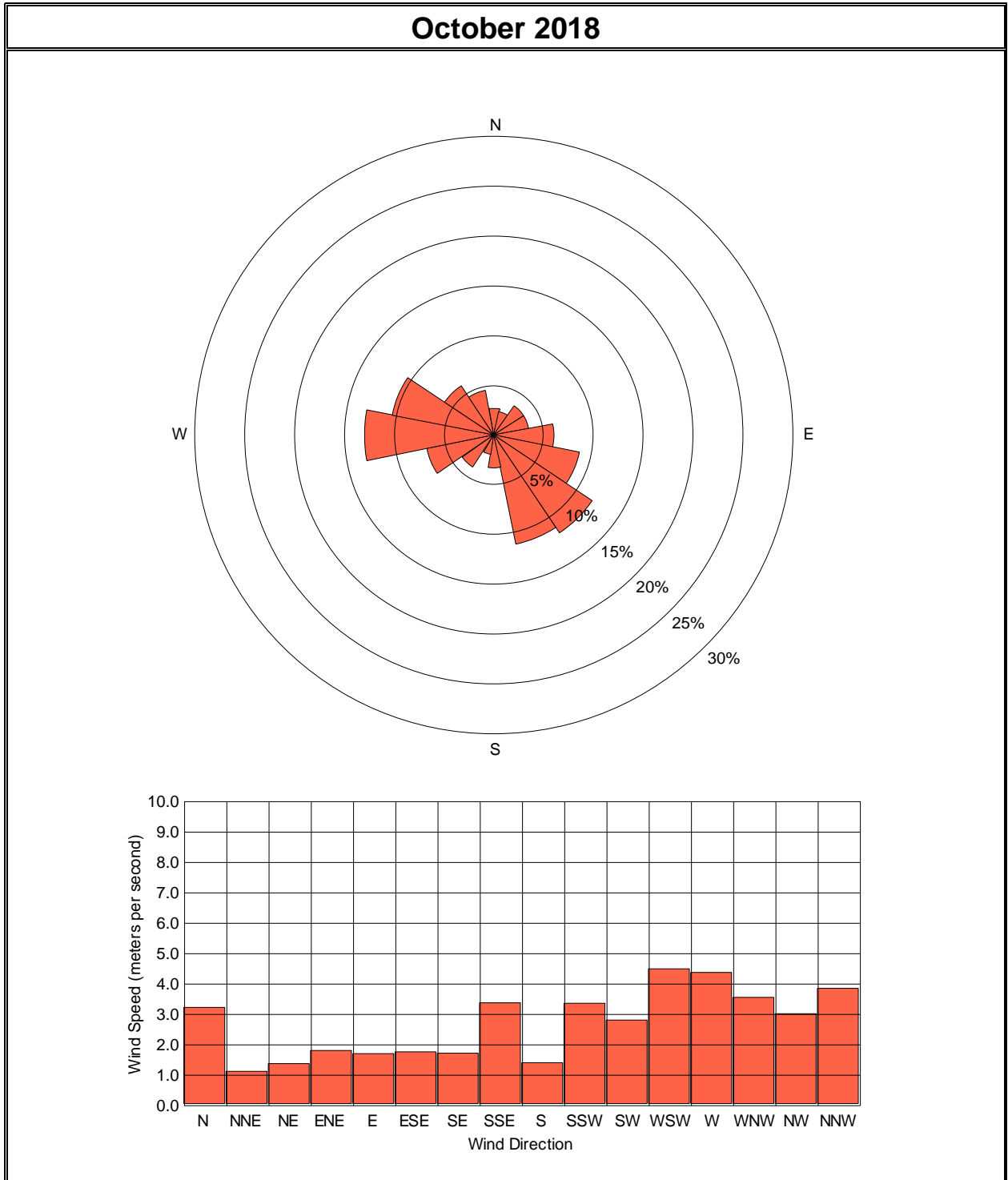


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

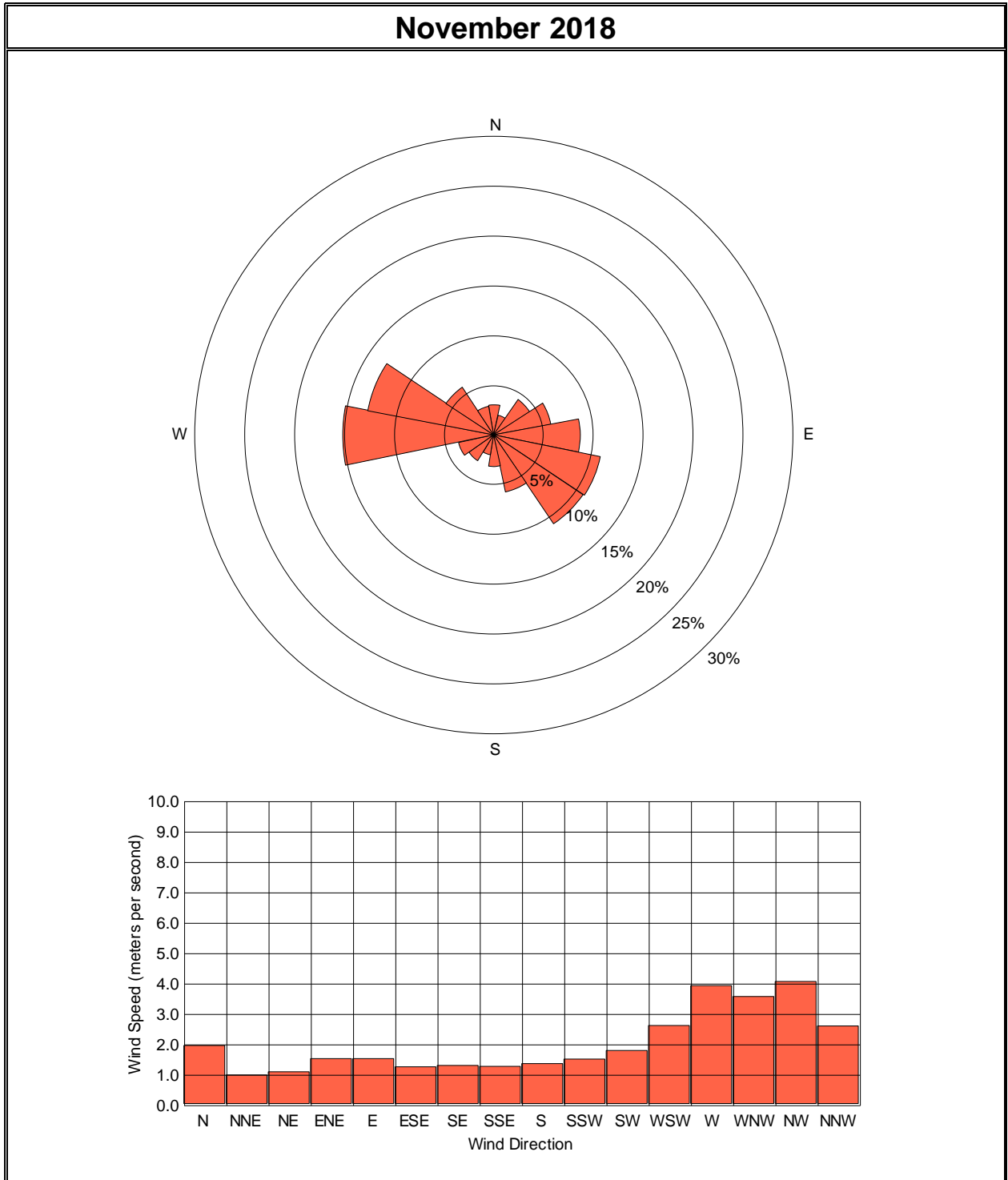


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

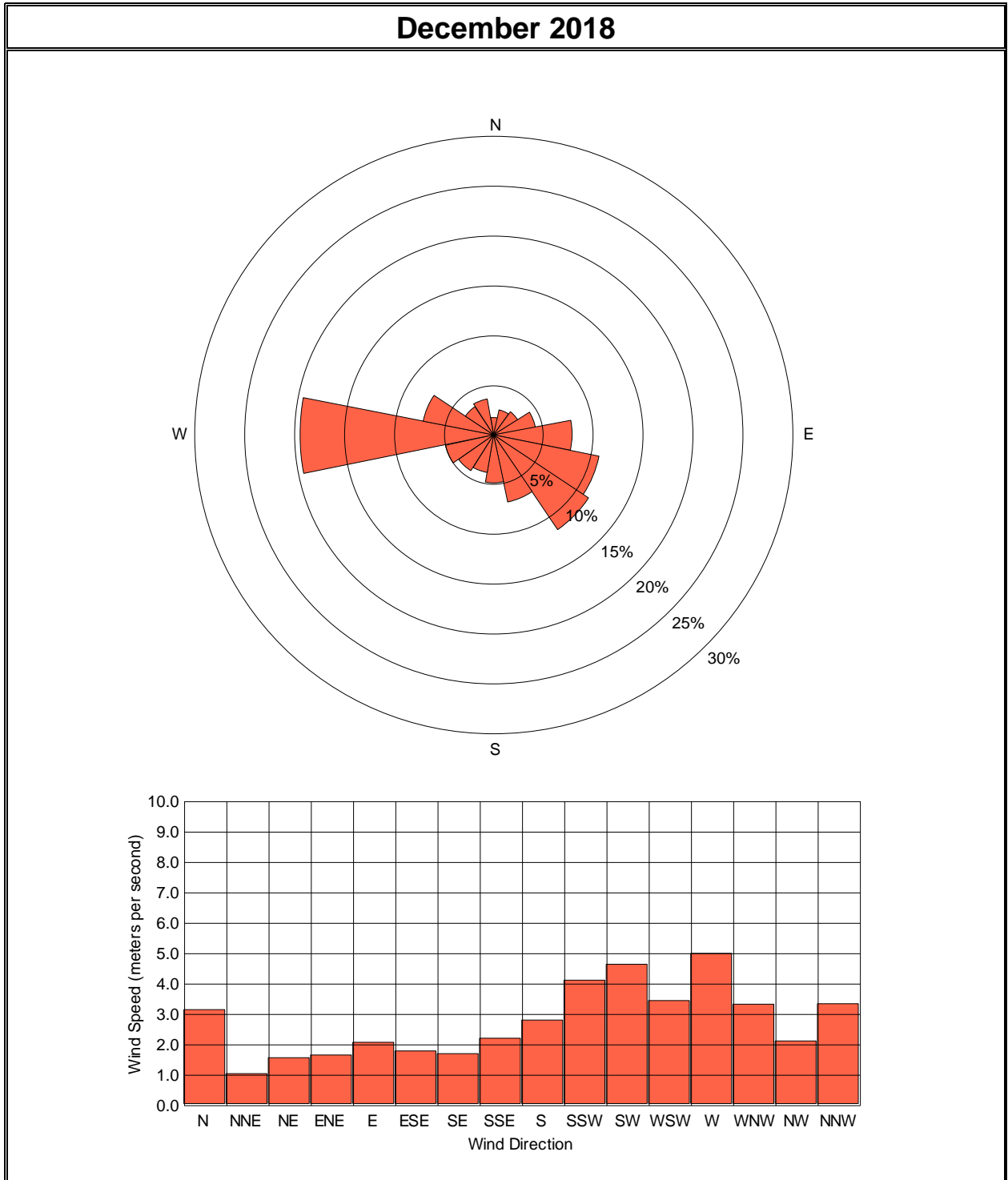
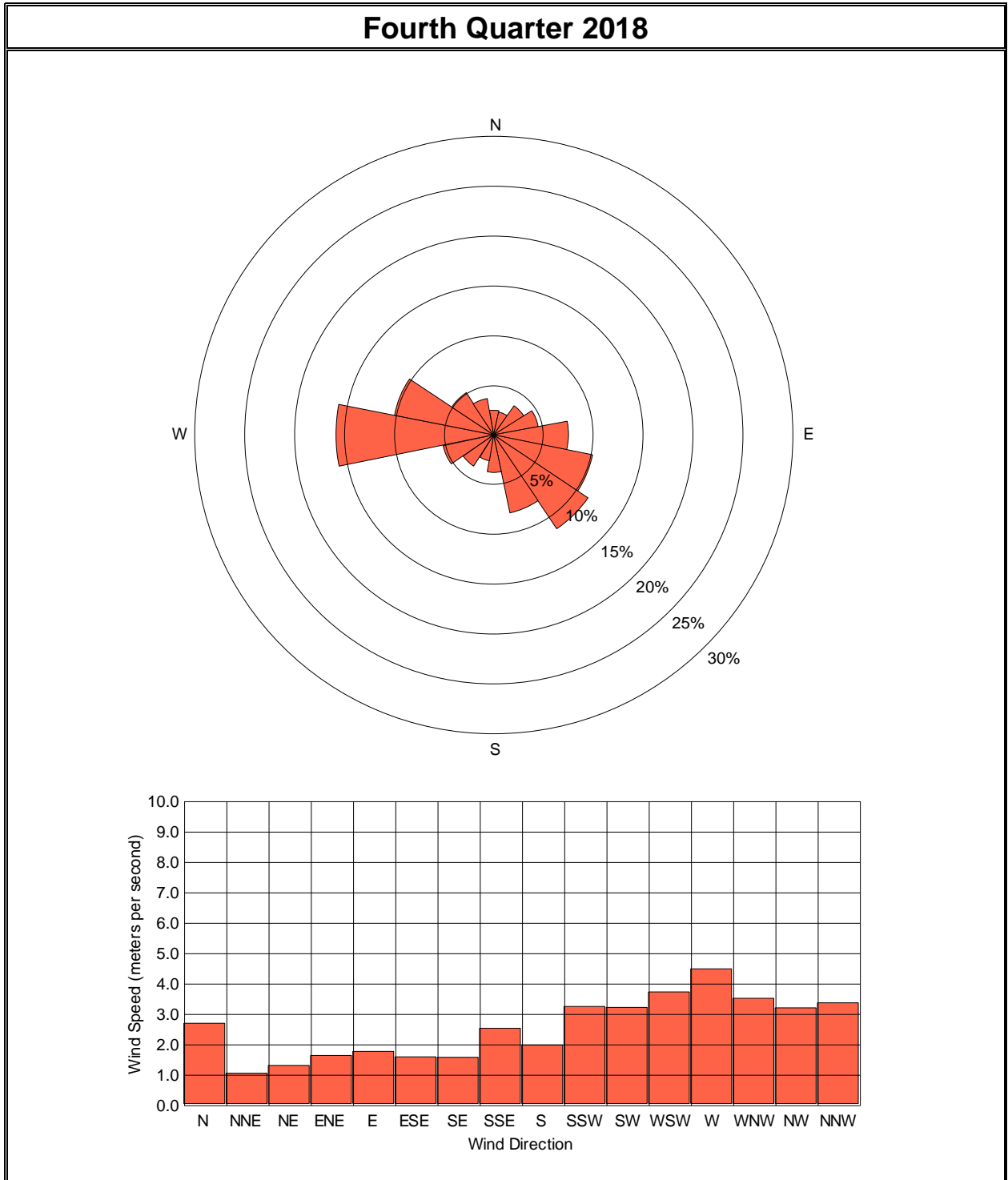


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, FOURTH QUARTER 2018**

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
October 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.5	0.8	1.3	1.4	1.2	1.3	0.9	0.9	1.0	2.6	4.1	4.1	5.6	6.0	4.5	6.0	4.1	2.1	2.6	2.2	1.6	1.0	0.7	1.1	2.4	6.0	0.7
2	2.1	1.0	1.3	1.3	1.5	2.2	0.9	0.8	0.5	0.9	0.9	1.0	3.6	3.3	1.7	3.6	2.1	1.8	2.3	1.7	1.9	1.5	1.2	1.6	1.7	3.6	0.5
3	3.9	3.7	3.5	6.1	5.0	7.8	6.7	7.6	6.9	5.2	4.3	4.4	3.3	2.4	2.6	1.6	1.4	3.7	5.5	3.3	2.9	2.9	1.8	2.9	4.1	7.8	1.4
4	3.3	4.2	2.1	1.3	1.0	0.9	0.8	0.8	0.7	1.1	2.7	1.5	3.5	3.2	3.3	3.0	3.0	1.8	1.2	1.6	1.5	1.2	1.6	1.4	1.9	4.2	0.7
5	1.2	1.6	0.6	2.0	3.4	2.5	1.8	1.0	2.2	4.7	4.6	3.4	5.0	4.4	4.7	5.1	3.6	1.6	1.9	2.1	0.9	1.6	2.1	1.7	2.7	5.1	0.6
6	1.3	1.3	0.8	1.0	1.8	1.0	0.8	0.8	0.9	0.7	1.1	1.4	1.7	0.9	1.2	1.1	1.8	1.7	1.1	1.4	0.8	1.0	0.9	0.6	1.1	1.8	0.6
7	0.8	0.8	0.5	0.4	0.8	1.1	1.1	1.4	1.6	0.7	0.4	0.6	1.0	1.1	0.8	1.4	1.5	1.4	1.1	1.1	1.0	1.0	0.9	0.6	1.0	1.6	0.4
8	0.5	0.6	0.6	1.1	1.3	0.6	0.5	0.7	1.0	1.7	1.6	3.0	3.3	3.7	4.2	5.9	3.5	0.8	1.1	0.6	0.7	3.2	4.4	3.3	2.0	5.9	0.5
9	3.8	4.7	5.1	5.1	5.5	3.2	3.7	3.0	4.4	4.7	5.1	7.5	7.2	6.3	7.1	7.1	4.3	3.9	3.7	4.1	4.8	4.8	4.8	4.9	4.9	7.5	3.0
10	4.7	5.3	3.8	2.8	3.5	4.5	5.2	5.0	6.3	6.0	6.3	7.1	6.9	5.3	5.3	5.3	4.6	4.0	3.4	2.6	3.4	4.0	4.5	3.7	4.7	7.1	2.6
11	3.7	2.1	1.6	1.2	0.3	0.5	0.6	0.9	1.4	3.1	4.0	4.9	4.5	6.1	4.8	6.1	4.7	2.1	3.1	1.8	1.1	1.1	0.9	0.7	2.6	6.1	0.3
12	0.8	1.3	1.3	1.5	1.3	1.7	1.6	1.6	2.9	4.6	6.8	7.4	6.6	7.7	8.0	6.9	7.1	3.0	3.8	5.1	4.2	1.2	2.6	4.3	3.9	8.0	0.8
13	5.2	6.3	5.8	4.8	8.1	7.8	7.3	4.4	8.5	8.1	8.4	8.0	7.5	7.9	6.9	7.5	5.5	3.4	2.4	4.5	6.1	3.8	4.4	5.6	6.2	8.5	2.4
14	5.7	6.0	6.0	5.0	5.0	3.2	3.6	1.4	2.7	4.6	5.1	6.0	6.4	5.5	5.8	5.8	5.2	3.4	1.0	1.1	1.7	2.5	1.8	2.2	4.0	6.4	1.0
15	1.6	1.2	0.8	0.6	0.6	0.7	1.6	2.1	2.6	2.2	3.4	4.0	4.4	4.6	4.7	4.6	4.0	2.5	1.8	2.4	2.6	2.5	2.1	1.9	2.5	4.7	0.6
16	1.1	1.1	1.0	1.2	0.7	0.7	0.9	1.5	1.1	1.0	2.0	2.7	3.7	3.9	4.0	3.9	3.7	2.0	3.2	3.5	2.9	1.8	0.9	1.0	2.1	4.0	0.7
17	1.1	0.9	0.9	0.9	0.8	0.9	0.9	0.5	0.7	0.8	1.2	2.1	2.7	3.1	2.6	3.0	2.8	2.5	3.2	3.2	2.7	2.4	2.1	1.3	1.8	3.2	0.5
18	1.4	0.8	1.2	1.2	0.9	0.9	0.8	1.0	0.7	0.8	2.6	3.8	4.6	4.1	4.9	5.5	5.3	3.6	1.8	2.6	1.5	1.1	1.6	0.9	2.2	5.5	0.7
19	0.6	0.5	0.7	1.2	0.6	0.4	1.0	0.5	0.7	0.6	2.2	3.4	4.6	4.2	4.8	5.2	5.4	1.5	2.2	3.1	2.8	1.7	0.8	1.7	2.1	5.4	0.4
20	0.9	1.4	0.9	1.2	1.1	1.2	0.9	0.9	1.0	0.9	1.8	3.3	5.3	6.2	5.7	5.4	3.0	1.3	2.5	2.9	1.7	1.6	1.6	1.3	2.3	6.2	0.9
21	1.3	1.1	1.1	0.8	1.5	0.8	1.4	0.9	0.7	0.7	1.0	1.6	2.2	3.9	4.3	3.3	2.1	1.6	1.6	1.8	2.3	1.3	1.1	1.1	1.6	4.3	0.7
22	1.3	0.8	1.2	0.9	1.3	0.7	0.6	0.6	0.5	4.6	6.4	6.9	6.2	5.9	6.4	7.7	5.9	4.2	2.3	2.2	1.1	1.3	1.6	1.3	3.0	7.7	0.5
23	1.0	0.6	0.4	0.5	0.9	0.6	1.0	0.8	0.8	0.7	1.0	1.2	2.8	3.3	3.5	4.3	3.0	3.2	1.2	2.2	2.3	2.1	1.9	1.3	1.7	4.3	0.4
24	1.2	0.9	0.9	1.1	0.7	0.7	0.7	0.7	0.8	1.0	4.1	5.5	6.0	6.4	6.5	6.0	4.1	1.8	1.3	1.4	1.1	1.1	1.1	1.3	2.3	6.5	0.7
25	1.2	0.9	0.7	1.4	2.0	1.6	1.3	1.9	2.1	6.5	7.9	7.1	7.8	8.5	8.5	8.1	6.2	4.7	2.8	2.2	2.4	2.2	1.8	1.0	3.8	8.5	0.7
26	1.1	1.0	0.8	2.7	3.6	3.5	3.0	1.2	0.9	2.4	4.0	6.9	5.1	6.9	5.9	6.2	4.8	6.0	8.5	4.5	6.1	4.8	3.1	2.4	4.0	8.5	0.8
27	1.8	1.0	2.6	7.1	7.1	7.1	5.9	5.5	6.5	7.3	7.0	6.4	6.9	6.3	6.5	6.1	3.9	2.7	1.5	2.9	1.6	1.6	1.6	1.5	4.5	7.3	1.0
28	1.4	1.3	1.8	1.6	1.4	1.5	1.5	1.3	2.0	3.6	6.8	7.4	7.1	8.3	5.7	6.0	5.2	6.9	4.3	3.6	3.6	1.7	3.3	1.6	3.7	8.3	1.3
29	1.9	1.8	1.8	1.8	2.8	3.6	3.8	1.2	1.8	1.8	4.2	5.5	7.4	6.8	6.2	5.0	6.0	5.2	2.5	0.8	1.1	1.2	2.2	1.6	3.2	7.4	0.8
30	3.3	3.9	2.7	1.0	0.7	0.4	0.6	1.2	1.8	3.3	5.6	6.5	6.6	6.7	7.7	7.9	5.9	4.7	4.6	4.4	5.0	4.0	3.6	2.4	3.9	7.9	0.4
31	1.2	1.2	2.7	1.6	0.9	0.8	1.0	1.4	2.4	4.6	4.2	5.4	4.2	1.9	2.2	1.4	1.2	1.3	1.0	0.7	0.6	0.9	1.0	0.6	1.9	5.4	0.6
Avg	2.0	1.9	1.8	2.0	2.2	2.1	2.0	1.7	2.2	3.0	3.9	4.5	5.0	5.0	4.9	5.0	4.0	2.9	2.6	2.5	2.4	2.1	2.1	1.9	2.9	6.0	0.9
Max	5.7	6.3	6.0	7.1	8.1	7.8	7.3	7.6	8.5	8.1	8.4	8.0	7.8	8.5	8.5	8.1	7.1	6.9	8.5	5.1	6.1	4.8	4.8	5.6	6.2	8.5	3.0
Min	0.5	0.5	0.4	0.4	0.3	0.4	0.5	0.5	0.5	0.6	0.4	0.6	1.0	0.9	0.8	1.1	1.2	0.8	1.0	0.6	0.6	0.9	0.7	0.6	1.0	1.6	0.3

A-1

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
November 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0.8	0.6	1.1	0.9	0.7	0.8	0.4	0.6	0.6	0.7	1.4	3.4	4.3	5.6	4.3	2.5	1.8	1.1	0.8	0.9	0.9	1.0	1.0	0.6	1.5	5.6	0.4
2	0.7	0.6	0.7	1.4	1.3	2.1	2.0	1.1	1.6	2.4	1.6	6.2	7.2	6.3	6.9	6.2	6.7	6.3	6.9	7.6	6.3	5.0	3.3	4.3	3.9	7.6	0.6
3	4.0	3.7	3.5	3.2	2.7	1.1	0.5	0.4	0.5	0.5	0.6	1.7	3.0	4.6	5.1	3.9	4.6	2.9	3.0	2.1	2.0	2.8	4.1	2.8	2.6	5.1	0.4
4	2.1	2.0	2.1	2.9	1.6	1.0	1.6	1.9	1.4	3.2	5.6	4.4	4.4	4.8	5.5	6.3	9.4	9.1	6.1	6.3	4.5	4.4	3.2	3.0	4.0	9.4	1.0
5	4.2	4.2	3.2	1.1	1.7	0.9	1.1	0.8	0.8	2.5	4.6	3.8	4.7	5.5	4.6	4.5	2.7	1.3	0.6	0.8	1.0	0.3	0.7	0.8	2.4	5.5	0.3
6	1.3	1.7	2.1	1.6	1.5	2.8	2.4	2.9	2.4	2.0	2.2	2.8	3.0	3.3	2.1	2.2	0.7	0.8	0.6	1.0	1.3	0.8	0.7	0.6	1.8	3.3	0.6
7	0.6	0.5	0.9	2.4	2.0	2.4	1.7	1.9	1.9	2.5	3.1	3.5	3.6	3.9	4.0	3.8	3.4	2.3	1.7	0.9	0.8	0.3	0.4	0.3	2.0	4.0	0.3
8	0.4	0.5	0.7	0.5	0.4	0.6	0.8	0.6	0.5	0.3	0.5	1.5	3.9	4.5	4.5	4.6	2.9	3.0	1.3	1.1	0.7	1.5	1.2	0.6	1.5	4.6	0.3
9	0.8	0.8	0.6	0.6	0.7	0.6	0.7	0.7	0.5	0.3	0.4	0.5	0.7	1.0	0.9	0.8	0.9	1.3	1.2	2.7	1.6	1.8	3.7	4.3	1.2	4.3	0.3
10	4.5	5.4	7.7	5.8	5.0	4.2	3.3	2.9	2.9	5.6	4.9	6.1	6.1	6.7	6.8	6.3	5.1	3.4	4.0	2.5	0.9	1.1	0.9	0.7	4.3	7.7	0.7
11	0.7	1.2	1.5	0.5	0.6	0.6	0.6	0.4	0.2	0.2	0.2	0.5	3.3	4.3	5.0	6.8	4.9	2.0	3.5	4.0	2.3	2.2	1.1	1.1	2.0	6.8	0.2
12	1.2	0.8	1.0	0.7	0.8	0.9	0.9	0.7	0.6	0.6	0.9	1.0	3.1	2.8	2.3	2.2	2.0	2.3	3.2	1.3	1.0	1.1	1.6	0.9	1.4	3.2	0.6
13	1.0	0.7	0.6	0.8	0.5	0.7	0.7	0.6	0.7	0.6	0.5	0.6	0.5	0.7	0.9	2.1	3.0	2.4	1.6	1.4	1.5	1.4	1.6	1.5	1.1	3.0	0.5
14	1.7	1.6	1.3	1.5	1.0	1.0	1.0	0.9	0.8	0.9	0.6	1.7	5.6	4.9	2.1	1.5	0.9	1.6	1.6	4.6	5.8	5.4	4.8	6.6	2.5	6.6	0.6
15	9.3	7.4	8.4	8.4	7.9	4.1	3.0	1.7	2.1	1.3	3.8	5.3	6.1	5.7	6.1	3.9	2.3	1.5	1.8	2.0	2.2	1.4	3.2	2.8	4.2	9.3	1.3
16	7.0	6.4	6.5	6.5	6.2	4.0	3.0	5.1	7.0	8.0	8.7	6.4	5.3	5.7	5.9	6.1	5.9	4.0	2.7	2.7	3.5	2.2	2.0	2.1	5.1	8.7	2.0
17	1.0	0.6	1.8	0.7	1.0	1.3	1.3	2.6	4.2	3.5	3.2	1.6	1.9	2.9	1.8	1.5	0.8	1.9	1.4	0.9	0.9	0.8	0.9	0.7	1.6	4.2	0.6
18	0.9	0.6	0.7	0.7	0.6	0.7	0.9	0.8	0.7	0.8	0.9	1.8	4.4	3.5	2.2	1.6	1.4	1.3	1.3	1.1	1.3	0.9	0.9	0.9	1.3	4.4	0.6
19	1.1	1.1	1.1	1.5	2.0	1.6	1.3	1.8	1.4	1.1	0.8	1.1	2.4	2.5	2.2	1.5	1.9	2.1	2.5	2.0	1.6	1.2	1.8	1.2	1.6	2.5	0.8
20	0.9	0.3	0.6	0.8	0.8	0.9	1.1	1.2	0.7	0.4	0.4	Au	Au	Au	1.1	1.1	2.5	3.1	2.1	1.5	1.4	1.3	1.0	1.3	1.2	3.1	0.3
21	1.4	1.4	1.6	1.9	2.0	1.9	1.5	1.7	1.7	1.1	0.6	1.1	1.3	2.7	3.5	2.0	1.9	3.9	4.0	2.6	2.4	2.0	1.6	1.7	2.0	4.0	0.6
22	1.7	2.5	1.4	1.5	1.1	1.4	1.1	1.2	1.8	3.3	4.4	3.4	5.8	5.7	4.4	2.6	1.5	1.5	1.9	1.7	1.4	1.4	1.4	1.6	2.3	5.8	1.1
23	1.6	1.1	1.6	3.0	2.2	2.7	2.9	4.4	6.7	5.3	5.3	4.4	5.0	3.2	2.9	3.2	1.5	1.3	1.3	1.5	1.3	1.7	1.2	2.6	2.8	6.7	1.1
24	2.2	1.0	1.0	0.9	1.2	0.9	3.5	5.1	6.9	5.1	4.8	5.6	5.0	4.7	5.4	3.6	2.3	1.8	1.3	0.8	0.9	0.8	0.8	0.7	2.8	6.9	0.7
25	0.8	0.9	0.6	0.8	1.1	1.5	1.1	0.9	1.1	0.7	1.6	3.4	4.8	5.7	4.6	5.1	2.8	2.0	2.5	2.2	2.1	1.5	1.5	1.5	2.1	5.7	0.6
26	1.2	1.3	0.7	0.8	0.7	0.6	0.7	0.7	0.6	0.5	0.6	1.3	1.4	1.3	1.8	1.5	1.6	2.1	1.8	1.7	0.9	1.2	0.9	0.9	1.1	2.1	0.5
27	0.8	1.3	1.2	1.6	1.0	1.6	2.2	1.2	2.2	1.4	2.7	2.7	2.3	4.6	5.0	3.7	2.5	3.1	2.3	3.7	3.0	2.1	1.1	1.6	2.3	5.0	0.8
28	1.4	1.9	3.1	4.3	3.8	5.5	3.7	3.0	1.4	3.7	6.5	7.5	6.3	6.7	5.7	5.3	2.0	1.3	1.3	0.8	1.1	1.1	0.9	1.3	3.3	7.5	0.8
29	1.2	0.9	1.3	1.3	1.6	0.9	0.7	0.7	0.4	0.6	0.5	0.9	1.0	0.7	1.3	0.9	1.7	1.9	1.7	1.9	1.9	1.9	2.0	1.5	1.2	2.0	0.4
30	1.6	1.5	1.8	1.3	1.2	1.4	0.6	0.8	1.0	0.7	0.7	4.0	7.3	5.1	3.8	3.2	2.1	1.3	1.2	1.4	0.8	0.3	0.2	0.6	1.8	7.3	0.2
Avg	1.9	1.8	2.0	2.0	1.8	1.7	1.5	1.6	1.8	2.0	2.4	3.0	3.9	4.1	3.8	3.3	2.8	2.5	2.2	2.2	1.9	1.7	1.7	1.7	2.3	5.4	0.6
Max	9.3	7.4	8.4	8.4	7.9	5.5	3.7	5.1	7.0	8.0	8.7	7.5	7.3	6.7	6.9	6.8	9.4	9.1	6.9	7.6	6.3	5.4	4.8	6.6	5.1	9.4	2.0
Min	0.4	0.3	0.6	0.5	0.4	0.6	0.4	0.4	0.2	0.2	0.2	0.5	0.5	0.7	0.9	0.8	0.7	0.8	0.6	0.8	0.7	0.3	0.2	0.3	1.1	2.0	0.2

A-2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
December 2018

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	0.4	0.2	0.2	1.0	1.2	1.0	1.1	0.9	2.0	2.2	2.5	4.4	4.9	4.5	3.4	2.0	0.9	1.0	1.1	1.1	0.5	0.5	0.3	0.3	1.6	4.9	0.2
2	0.3	0.3	0.3	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	0.5	1.5	2.2	2.4	1.2	2.0	1.1	0.8	1.4	1.2	0.8	0.7	1.1	2.4	0.3
3	1.6	1.8	1.1	1.1	0.7	0.5	0.4	0.7	0.7	1.6	1.3	1.5	3.4	3.9	3.5	3.1	1.6	1.3	1.5	2.2	3.0	2.7	2.1	2.1	1.8	3.9	0.4
4	4.0	4.7	4.3	4.0	3.5	2.2	1.3	1.4	1.3	1.6	4.5	4.7	5.2	4.7	5.3	3.8	2.9	1.2	1.7	2.6	2.3	2.2	2.0	2.3	3.1	5.3	1.2
5	2.0	2.7	2.3	3.2	2.3	1.7	1.5	2.1	1.5	0.7	1.6	6.2	5.2	5.1	6.2	4.6	3.8	1.8	1.3	1.0	0.9	1.5	1.1	1.3	2.6	6.2	0.7
6	1.2	1.3	0.9	1.0	1.0	1.1	0.9	0.9	0.6	0.5	0.4	0.5	0.6	2.1	3.1	2.0	1.3	2.0	1.5	1.6	1.4	1.7	1.4	1.5	1.3	3.1	0.4
7	1.2	1.1	0.8	0.7	0.8	1.2	1.0	1.2	1.3	0.9	1.2	2.5	4.5	4.3	4.0	2.9	1.3	2.1	1.5	1.6	2.0	1.5	0.9	1.4	1.7	4.5	0.7
8	1.0	0.9	1.0	1.3	1.0	1.1	1.2	1.4	1.0	0.7	0.5	1.1	4.0	4.8	4.8	3.6	2.5	1.6	3.4	2.4	3.0	2.8	2.3	2.0	2.1	4.8	0.5
9	1.5	1.5	1.0	0.6	0.7	0.8	0.8	0.5	0.6	0.3	0.3	0.6	0.7	1.1	1.9	1.7	2.0	2.4	1.9	2.2	1.5	1.6	1.5	1.6	1.2	2.4	0.3
10	1.3	2.2	1.3	2.1	1.0	1.7	1.9	1.3	1.7	0.8	0.8	0.9	1.2	4.0	4.2	2.7	2.4	2.3	1.4	3.3	2.4	2.6	4.1	5.1	2.2	5.1	0.8
11	5.1	4.0	1.3	2.2	2.2	1.1	2.0	1.9	3.4	4.2	5.7	4.4	3.6	4.8	5.5	3.9	3.4	2.8	6.5	7.2	7.7	6.1	6.6	7.0	4.3	7.7	1.1
12	2.5	3.8	6.4	5.8	6.9	1.3	1.4	5.5	7.2	10.3	10.2	10.3	8.2	9.0	6.7	6.1	8.7	8.0	5.0	4.6	1.3	2.8	5.3	1.7	5.8	10.3	1.3
13	1.5	3.3	4.6	4.2	3.0	4.1	3.9	1.3	1.9	1.2	3.1	3.7	3.9	6.1	3.7	1.6	1.5	2.3	4.6	2.4	1.2	1.4	1.4	1.9	2.8	6.1	1.2
14	2.0	2.3	2.2	2.9	2.7	2.1	1.4	3.7	3.0	4.6	4.2	3.9	3.3	3.6	5.1	5.6	2.7	2.5	4.2	2.3	2.6	5.8	5.8	3.0	3.4	5.8	1.4
15	2.1	2.1	4.9	5.1	6.6	6.3	6.2	6.3	5.9	5.9	6.0	6.8	8.5	5.4	4.2	2.5	2.5	3.7	2.2	2.1	2.5	1.8	2.0	1.8	4.3	8.5	1.8
16	1.5	1.4	1.8	1.6	1.5	1.6	1.5	2.5	3.2	2.4	3.2	3.8	4.9	4.7	3.3	2.7	2.8	3.3	4.5	5.8	2.2	4.0	4.4	5.4	3.1	5.8	1.4
17	5.2	5.0	4.1	1.0	0.8	0.9	0.9	1.5	1.2	1.8	1.3	0.9	1.1	3.2	3.7	2.1	1.6	1.3	1.1	0.7	0.9	1.0	1.6	1.0	1.8	5.2	0.7
18	1.4	1.4	1.6	1.5	3.3	5.3	4.9	4.7	4.4	4.4	6.7	5.7	9.3	11.6	9.0	6.9	8.3	6.5	3.3	6.4	6.8	7.1	8.8	8.9	5.8	11.6	1.4
19	6.8	8.3	8.2	5.5	5.9	3.7	4.6	7.3	7.4	6.5	8.3	7.7	8.6	9.1	8.2	7.1	6.4	5.1	3.9	3.9	3.4	4.9	3.4	1.8	6.1	9.1	1.8
20	2.0	1.6	2.1	1.4	1.2	1.0	1.1	1.4	2.1	2.7	3.3	3.4	3.4	3.6	4.0	4.6	3.2	3.6	1.6	1.9	3.8	9.3	7.5	6.8	3.2	9.3	1.0
21	6.0	5.4	3.1	7.8	8.5	6.9	8.5	10.2	8.6	6.9	9.8	10.5	9.3	9.4	8.2	7.2	6.7	4.9	5.8	7.2	7.5	5.1	3.3	2.2	7.0	10.5	2.2
22	1.9	1.2	0.7	0.8	0.9	1.1	1.0	0.5	0.5	2.4	5.8	7.4	7.4	6.2	5.9	4.0	1.8	1.5	1.1	2.1	2.0	1.7	1.1	1.1	2.5	7.4	0.5
23	0.9	1.2	1.7	2.2	2.7	3.3	3.1	2.7	2.2	2.9	2.4	1.4	1.7	1.9	5.7	5.4	5.8	5.9	3.0	1.9	1.8	1.4	1.7	2.4	2.7	5.9	0.9
24	2.9	1.8	1.2	1.8	2.9	2.2	1.2	2.8	2.6	1.8	1.3	1.1	1.0	2.3	3.0	2.7	1.3	0.8	0.8	0.9	0.8	1.2	1.3	0.8	1.7	3.0	0.8
25	0.8	1.5	2.8	3.0	1.9	1.0	1.1	0.8	1.1	0.7	0.6	0.7	3.5	4.6	4.1	4.5	5.2	2.5	2.8	1.1	0.8	1.3	2.5	1.2	2.1	5.2	0.6
26	0.7	0.7	1.5	1.2	1.1	0.8	0.7	1.1	0.6	1.9	0.9	0.7	2.3	3.0	2.9	1.5	2.7	1.7	1.0	0.9	1.3	0.8	0.3	0.2	1.3	3.0	0.2
27	0.6	0.6	0.5	0.7	0.6	0.8	0.4	0.5	0.3	0.6	0.5	1.2	2.7	3.0	3.6	3.0	2.9	2.3	0.6	1.3	0.8	0.7	0.4	0.6	1.2	3.6	0.3
28	1.0	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	0.5	2.8	5.0	4.5	5.8	5.2	3.0	2.0	1.1	1.7	2.7	1.9	1.2	1.6	2.7	5.8	0.5
29	2.3	2.3	1.5	1.5	1.0	1.2	1.0	3.8	3.0	3.1	2.3	3.0	2.5	4.9	6.0	4.0	2.1	2.3	2.4	2.5	4.6	5.6	3.4	2.1	2.8	6.0	1.0
30	6.1	8.9	7.6	5.4	4.0	3.4	6.5	6.3	4.8	5.8	5.0	5.1	4.1	5.8	9.4	13.0	7.7	6.6	5.6	5.7	6.9	6.5	4.9	4.9	6.3	13.0	3.4
31	4.0	3.1	3.7	4.8	3.5	2.8	2.1	2.6	2.9	2.5	2.3	2.1	2.3	2.1	2.1	1.5	1.3	1.2	0.7	1.3	1.1	1.5	1.8	1.3	2.3	4.8	0.7
Avg	2.3	2.6	2.5	2.6	2.5	2.1	2.2	2.7	2.7	2.8	3.2	3.6	4.1	4.7	4.8	4.0	3.3	2.9	2.5	2.7	2.6	2.9	2.7	2.5	3.0	6.1	1.0
Max	6.8	8.9	8.2	7.8	8.5	6.9	8.5	10.2	8.6	10.3	10.2	10.5	9.3	11.6	9.4	13.0	8.7	8.0	6.5	7.2	7.7	9.3	8.8	8.9	7.0	13.0	3.4
Min	0.3	0.2	0.2	0.6	0.6	0.5	0.4	0.5	0.3	0.3	0.3	0.5	0.5	1.1	1.9	1.5	0.9	0.8	0.6	0.7	0.5	0.5	0.3	0.2	1.1	2.4	0.2

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
October 2018

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	147	190	150	145	181	142	130	152	138	168	187	220	251	223	235	234	210	206	107	110	116	136	262	61	171
2	162	174	41	130	130	82	134	183	233	154	174	144	184	208	238	265	238	100	137	148	157	186	127	149	162
3	311	310	298	292	286	300	297	307	310	311	288	282	279	327	325	301	220	120	155	147	148	140	138	138	282
4	147	149	129	120	14	139	348	174	142	334	347	298	303	321	292	319	308	326	301	296	328	312	320	324	318
5	321	313	271	259	270	268	296	304	305	283	268	266	251	267	249	243	257	234	115	120	141	132	113	131	258
6	145	142	132	74	104	143	180	55	117	148	169	144	145	119	253	33	272	313	225	213	307	205	131	215	156
7	270	161	118	174	355	275	299	295	291	256	243	259	151	220	89	19	201	102	174	143	71	99	53	63	184
8	319	156	160	115	150	67	304	281	21	313	222	264	319	348	69	154	144	160	79	293	335	156	147	151	153
9	142	136	153	153	150	121	120	129	139	147	146	155	156	148	157	159	147	149	136	141	158	143	115	113	142
10	114	107	116	151	147	153	148	148	153	134	144	147	132	123	143	150	149	161	157	153	151	155	156	162	144
11	161	171	165	158	224	308	4	295	299	283	283	282	303	312	323	294	290	252	227	248	104	125	125	147	255
12	139	125	121	82	86	90	88	113	314	268	263	267	260	272	256	258	245	254	249	289	309	289	347	339	270
13	350	3	357	347	5	351	1	349	336	334	334	349	335	325	338	338	333	292	287	313	341	333	340	341	338
14	333	335	327	322	333	324	267	231	298	294	294	291	297	291	288	291	281	274	246	115	103	90	38	42	307
15	55	85	132	319	351	136	86	47	70	10	290	288	263	253	253	260	261	265	79	54	60	51	32	12	15
16	350	92	291	83	64	24	36	53	90	327	295	265	251	264	262	272	264	222	85	74	74	78	32	51	15
17	118	140	137	143	109	148	119	141	186	301	110	141	162	150	189	192	196	89	89	74	72	85	64	38	127
18	99	52	113	120	103	93	31	111	82	43	286	282	255	278	267	262	258	265	40	73	94	81	58	19	60
19	51	122	332	137	119	102	77	221	169	360	288	260	245	272	286	291	307	278	119	75	94	88	49	129	92
20	118	114	121	91	89	135	128	151	125	331	132	267	270	262	256	258	233	201	97	100	68	99	72	103	129
21	117	54	89	67	121	119	144	12	321	329	323	25	283	286	287	279	272	40	35	359	97	96	22	68	30
22	102	357	140	138	132	129	135	127	37	149	163	159	161	163	156	156	158	153	119	123	128	107	120	52	131
23	3	298	352	108	69	175	136	117	130	309	15	339	282	327	221	214	216	154	135	126	102	85	100	88	107
24	116	135	108	141	143	150	110	114	46	30	254	259	255	257	254	251	232	262	122	46	355	115	25	80	135
25	127	150	130	169	263	85	137	88	36	283	270	271	254	258	261	264	275	273	255	120	92	93	85	127	188
26	237	31	138	286	291	293	278	227	145	266	278	261	281	276	281	266	263	258	254	266	263	266	273	243	265
27	64	136	255	276	265	276	296	298	304	306	293	283	256	254	248	255	250	247	180	108	116	53	100	134	260
28	158	154	139	152	167	146	150	74	112	197	205	197	218	221	227	210	207	240	305	304	276	293	299	265	204
29	191	153	162	270	334	264	280	125	244	299	280	284	275	288	281	273	270	261	288	104	224	180	285	287	260
30	284	292	299	160	59	151	24	299	304	281	276	263	271	261	257	270	275	272	272	273	275	280	285	265	277
31	200	169	236	187	124	167	129	170	278	245	243	271	290	305	251	222	294	341	325	339	140	140	357	236	236
Prev	121	127	135	140	106	133	99	136	57	297	259	261	254	265	256	257	246	238	153	106	98	115	62	92	202

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
November 2018

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	61	103	12	38	86	129	291	150	249	73	280	295	298	323	331	299	233	186	90	356	41	62	120	204	22
2	139	207	110	99	164	98	155	92	132	342	152	265	269	267	250	264	270	274	278	299	301	302	303	283	246
3	278	285	279	282	290	303	286	187	118	73	61	285	279	280	277	277	281	266	269	251	239	242	235	228	269
4	245	218	217	184	109	154	135	209	165	269	271	263	270	271	271	273	279	274	270	284	278	292	298	314	252
5	293	268	277	228	134	149	134	331	92	279	282	306	297	324	296	293	281	210	194	138	153	191	176	292	249
6	252	297	295	278	287	279	279	263	286	264	279	275	262	254	254	307	268	221	283	66	78	215	45	266	275
7	162	166	158	304	270	278	271	296	294	300	295	280	260	271	263	270	272	284	243	237	144	218	61	342	265
8	204	137	122	89	197	132	157	96	120	40	78	314	292	301	307	291	291	302	175	276	4	99	111	108	123
9	23	122	86	72	98	129	126	150	217	34	210	276	35	105	311	135	146	139	103	92	79	93	271	292	108
10	297	291	295	300	301	281	290	295	296	295	293	301	315	310	310	316	307	291	309	329	301	109	142	207	298
11	88	50	63	22	124	177	152	195	20	352	146	265	290	304	341	7	354	283	340	346	306	334	114	149	4
12	61	67	118	118	76	143	140	112	92	114	132	50	300	315	329	345	353	59	69	25	37	354	42	3	57
13	46	46	32	17	6	57	78	97	119	133	154	114	8	36	85	74	92	114	141	138	152	151	155	148	93
14	115	138	137	138	151	127	97	149	149	225	87	213	295	291	292	272	232	32	50	263	265	270	275	272	202
15	287	296	291	286	288	296	82	155	339	48	279	269	263	272	267	266	272	104	54	255	79	24	267	254	290
16	282	285	275	276	279	300	324	307	325	319	314	307	300	312	330	325	284	308	306	271	265	264	272	251	295
17	219	37	309	176	109	110	87	71	83	76	72	62	360	311	278	276	297	96	82	85	108	133	152	114	86
18	143	300	143	153	105	104	169	28	144	86	7	336	309	299	300	281	176	107	115	117	144	216	112	121	127
19	43	71	103	103	82	49	56	65	26	133	295	11	296	282	314	332	49	94	58	51	23	8	65	36	42
20	12	55	58	98	78	96	118	136	141	174	215	Au	Au	Au	113	110	88	94	110	72	102	127	106	145	106
21	129	147	113	130	132	128	138	115	121	130	103	332	351	185	170	97	91	64	88	89	104	73	137	65	111
22	69	90	104	111	144	104	104	113	72	100	109	145	193	222	197	130	140	97	80	107	102	124	109	102	116
23	82	44	70	138	164	260	280	285	280	264	249	253	235	189	203	252	283	177	105	129	64	128	146	77	194
24	111	121	352	292	288	252	321	330	355	354	347	306	321	315	282	263	274	272	312	225	164	114	262	174	296
25	169	142	128	107	126	111	155	108	88	117	328	280	281	270	262	257	258	249	105	87	63	102	82	45	126
26	98	108	99	86	79	143	95	157	111	227	34	17	351	357	315	281	263	107	108	138	115	130	140	87	99
27	183	130	240	141	149	139	133	134	268	55	169	349	287	293	284	229	223	253	290	266	271	287	143	123	215
28	300	302	273	271	280	257	269	262	222	305	260	261	272	262	265	265	256	182	165	196	156	98	156	129	247
29	124	147	66	51	128	139	149	125	128	183	244	332	345	325	49	287	95	104	100	105	99	68	80	94	100
30	81	103	109	78	45	104	101	100	124	300	21	130	138	150	158	157	170	283	189	147	160	314	7	146	120
Prev	111	108	92	107	123	138	133	132	116	29	282	299	297	289	285	282	265	194	101	120	102	117	127	141	187

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
December 2018

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	150	184	270	193	301	308	327	318	267	279	285	263	268	261	265	307	229	131	93	120	123	139	141	180	239
2	99	137	110	116	81	334	41	92	7	113	51	22	359	298	280	261	223	84	17	339	347	101	103	43	51
3	279	253	81	151	81	155	28	91	107	158	141	327	266	269	276	260	290	283	287	273	271	281	278	273	265
4	258	257	268	271	275	276	207	142	150	256	257	267	266	266	273	256	245	182	94	96	117	106	119	113	228
5	62	84	65	43	48	102	55	144	138	128	341	328	321	292	334	311	268	271	136	62	330	118	71	159	51
6	133	132	172	153	149	137	115	88	132	182	87	14	25	333	304	300	171	89	38	42	51	77	110	145	104
7	142	148	102	125	148	138	151	152	168	175	100	110	147	147	146	156	167	108	94	73	105	147	135	127	134
8	103	93	25	88	69	101	64	93	110	30	25	44	267	252	255	269	247	120	98	66	55	67	86	39	71
9	39	75	127	116	168	143	176	128	156	213	220	336	355	39	140	173	123	119	115	143	141	132	152	135	133
10	141	141	138	111	135	116	118	135	139	177	329	107	345	287	299	298	264	293	358	275	281	300	292	266	237
11	298	273	156	114	89	117	245	243	264	264	261	260	263	241	215	184	157	138	191	192	195	184	200	216	211
12	216	221	225	224	221	331	224	266	271	269	272	277	280	286	282	274	277	276	270	280	26	327	288	316	271
13	275	272	240	240	250	247	270	147	140	154	200	192	199	203	186	171	276	296	237	44	69	139	85	108	206
14	101	108	113	116	115	113	110	97	112	86	93	110	127	139	148	154	124	93	89	123	111	138	146	72	114
15	78	92	188	211	274	247	264	268	256	286	263	269	267	270	252	281	303	304	259	121	93	110	104	130	249
16	142	135	130	122	117	145	159	138	110	125	155	156	173	157	174	173	120	95	92	87	132	94	79	189	133
17	187	98	157	326	299	157	171	99	82	91	88	67	341	306	293	290	304	166	125	296	218	197	194	164	170
18	122	141	169	214	175	175	185	194	176	193	197	201	217	219	226	219	222	221	247	265	263	273	274	275	211
19	276	278	277	273	266	270	279	272	275	262	265	272	275	274	277	279	282	285	272	266	271	284	268	113	273
20	122	107	97	73	90	106	138	145	143	119	99	111	126	138	134	131	153	160	141	155	159	195	195	172	133
21	185	151	200	266	282	268	262	270	267	280	270	263	265	270	273	271	272	270	275	285	283	292	304	257	266
22	290	318	5	95	81	41	24	95	197	257	264	263	268	284	267	263	292	204	145	113	86	91	117	155	240
23	142	140	127	136	123	117	123	121	124	120	75	102	40	57	212	215	204	210	226	174	171	105	93	228	139
24	268	21	305	304	271	254	157	90	68	68	62	15	258	251	255	252	302	191	199	34	145	114	118	126	235
25	359	110	84	66	135	310	93	127	142	323	77	18	143	165	168	165	163	140	169	251	114	114	64	287	120
26	147	140	78	36	336	272	57	96	23	67	65	106	273	239	251	294	226	145	125	144	156	153	160	20	117
27	126	198	338	23	336	105	287	113	143	27	316	302	325	282	276	285	294	308	15	263	191	259	62	88	316
28	47	82	39	76	107	152	197	261	119	178	47	278	260	256	259	270	271	313	320	44	100	111	104	62	86
29	287	287	29	41	91	130	66	290	320	291	338	272	276	275	274	275	226	115	234	269	270	251	223	237	277
30	225	231	234	210	226	261	275	281	267	256	273	288	277	349	350	339	335	337	335	347	342	339	345	358	297
31	6	359	351	15	3	9	321	285	262	305	278	268	268	282	285	275	289	219	176	143	102	122	104	129	304
Prev	147	142	124	118	125	157	156	141	154	197	327	300	275	263	253	254	245	188	157	107	126	135	125	148	188

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
October 2018

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	34	52	16	25	49	67	67	62	31	22	27	29	25	19	31	22	21	15	33	18	26	37	81	65	36	81	15
2	45	57	77	42	47	46	49	77	68	44	87	15	21	16	64	17	34	33	25	31	43	74	48	28	45	87	15
3	64	27	18	12	17	10	8	9	12	20	18	25	26	46	38	59	91	49	8	13	12	20	20	20	27	91	8
4	11	10	20	35	40	85	79	86	65	84	40	38	30	11	23	16	14	34	35	28	20	25	19	16	36	86	10
5	17	33	55	22	9	12	19	26	16	13	16	18	19	21	18	18	13	26	45	35	42	29	25	18	24	55	9
6	38	19	37	65	31	26	61	66	41	32	17	28	37	84	42	68	26	27	55	34	49	75	22	52	43	84	17
7	31	35	90	51	63	31	51	24	16	27	80	81	36	55	64	65	35	20	60	82	83	54	48	59	52	90	16
8	98	42	98	34	11	54	49	55	65	27	54	70	10	25	56	6	12	40	43	71	38	16	10	15	42	98	6
9	13	10	7	8	10	19	25	21	15	16	18	7	11	13	7	6	14	19	17	18	8	15	12	9	13	25	6
10	16	12	16	15	14	8	7	10	6	17	17	10	11	16	13	8	7	7	6	8	7	7	6	6	10	17	6
11	5	8	9	9	52	55	77	72	34	23	19	14	17	15	14	18	13	16	8	59	38	21	25	50	28	77	5
12	71	39	41	58	47	50	48	51	51	18	16	15	14	17	15	14	9	9	12	14	14	65	34	25	31	71	9
13	16	16	21	18	16	17	18	19	12	13	12	16	19	12	17	12	15	17	19	15	16	15	13	15	16	21	12
14	12	13	9	8	9	15	21	90	36	19	18	15	14	17	17	15	16	19	41	52	31	52	39	26	25	90	8
15	41	47	63	82	78	63	37	29	19	51	16	24	24	18	12	14	14	10	97	37	29	39	28	32	38	97	10
16	53	67	85	79	84	62	44	22	57	52	34	38	25	25	24	20	13	70	17	18	14	36	44	68	44	85	13
17	34	53	63	57	86	24	29	68	54	50	89	35	34	23	31	16	11	86	15	11	22	25	24	35	41	89	11
18	23	53	29	21	43	49	71	75	72	81	54	24	20	26	21	14	9	50	37	18	37	36	22	22	38	81	9
19	45	66	68	22	51	59	32	69	50	62	49	24	15	29	17	14	8	84	32	16	18	25	51	13	38	84	8
20	49	47	45	54	50	18	51	40	90	69	47	40	18	13	16	13	22	94	28	26	40	53	53	64	43	94	13
21	39	58	81	63	24	62	16	100	58	28	78	42	57	25	11	12	18	71	56	32	42	38	43	81	47	100	11
22	52	73	41	74	25	50	85	99	76	34	7	9	9	9	7	6	6	18	16	21	26	38	32	62	36	99	6
23	67	71	97	46	80	72	38	73	46	50	38	57	29	36	28	17	26	12	33	16	24	23	27	43	44	97	12
24	39	28	46	28	52	78	65	68	94	61	35	16	17	14	15	14	10	43	20	34	61	74	57	41	42	94	10
25	27	62	84	55	30	58	49	69	97	12	13	14	14	12	13	10	11	13	49	21	46	63	47	79	40	97	10
26	95	96	83	43	7	11	23	68	74	18	20	14	15	14	14	12	15	15	15	15	12	11	23	38	31	96	7
27	56	66	54	15	11	10	9	10	10	11	16	16	17	15	13	11	9	53	65	25	39	35	47	22	26	66	9
28	33	22	15	23	52	48	51	80	35	82	11	12	15	11	13	16	15	40	12	15	30	72	19	48	32	82	11
29	35	67	59	96	56	20	33	89	60	33	16	20	15	13	12	14	10	12	27	80	63	94	62	46	43	96	10
30	34	13	13	79	53	55	82	65	20	21	16	13	12	12	12	12	11	12	9	10	10	10	10	32	26	82	9
31	41	29	26	34	65	66	53	54	19	19	16	21	13	15	23	45	33	14	21	97	101	81	54	82	43	101	13
Avg	40	42	47	41	41	42	43	56	45	36	32	26	21	22	23	19	18	33	31	31	34	41	34	39	35	81	10
Max	98	96	98	96	86	85	85	100	97	84	89	81	57	84	64	68	91	94	97	97	101	94	81	82	52	101	17
Min	5	8	7	8	7	8	7	9	6	11	7	7	9	9	7	6	6	7	6	8	7	7	6	6	10	17	5

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
November 2018

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	68	94	55	33	97	72	101	81	78	69	60	17	13	9	10	31	26	82	75	27	67	49	48	87	56	101	9
2	56	94	68	39	90	29	69	77	85	93	89	12	11	14	11	11	10	10	16	19	11	13	23	9	40	94	9
3	11	8	16	10	9	87	45	40	39	39	60	26	12	10	9	10	12	15	12	15	15	17	13	12	23	87	8
4	23	24	29	25	44	50	17	37	59	45	11	14	12	14	13	10	10	9	10	11	12	11	18	9	22	59	9
5	16	14	12	70	28	39	47	67	85	35	14	25	12	12	21	11	15	60	80	43	13	94	52	41	38	94	11
6	23	25	23	26	26	24	18	17	15	17	27	25	15	9	13	13	70	30	65	97	94	75	75	67	37	97	9
7	52	41	43	20	22	24	25	17	29	11	15	21	15	16	19	19	14	27	48	67	66	84	43	69	34	84	11
8	98	78	32	64	101	73	69	72	50	94	56	23	9	8	9	7	12	9	88	37	41	36	47	65	49	101	7
9	66	84	66	80	54	82	64	76	93	88	86	80	100	71	49	88	59	54	73	70	70	83	13	16	69	100	13
10	11	10	7	7	12	10	12	12	15	12	11	11	11	9	9	11	11	8	16	65	65	53	69	70	22	70	7
11	83	57	87	76	36	77	55	51	61	74	30	85	14	18	19	10	22	39	30	40	53	30	50	45	48	87	10
12	62	76	70	78	95	56	48	56	90	89	103	79	28	18	26	14	36	44	29	29	32	92	71	83	59	103	14
13	51	62	77	74	68	75	76	88	73	72	64	63	93	77	50	59	19	25	40	25	35	25	24	30	56	93	19
14	33	58	47	39	70	65	79	61	69	96	89	70	15	9	21	32	57	65	70	19	15	13	14	9	46	96	9
15	8	12	13	9	9	20	26	88	42	51	28	12	9	12	9	16	53	55	99	27	62	52	22	34	32	99	8
16	14	11	11	10	9	26	18	13	11	10	11	15	14	22	12	13	16	15	15	11	14	26	30	13	15	30	9
17	45	82	12	58	41	25	50	26	13	9	10	19	27	16	33	44	70	30	29	52	32	40	41	86	37	86	9
18	47	88	59	67	71	91	73	88	97	92	82	48	10	14	20	39	77	37	27	41	21	73	48	44	56	97	10
19	40	64	62	26	32	50	47	46	53	81	70	40	49	17	30	29	40	37	34	41	38	54	32	52	44	81	17
20	56	63	50	34	50	42	38	17	51	42	76	Au	Au	Au	48	40	40	24	26	40	42	29	53	29	42	76	17
21	24	29	31	12	17	14	18	27	22	25	87	51	29	64	33	38	45	58	41	36	40	53	73	68	39	87	12
22	45	22	60	43	42	48	67	87	55	17	21	10	20	16	45	22	17	43	67	44	37	47	53	62	41	87	10
23	67	90	84	24	32	20	23	18	12	10	13	19	15	37	59	40	63	52	82	31	80	41	37	18	40	90	10
24	26	60	74	59	53	56	29	24	15	26	21	11	14	17	19	18	16	17	65	62	67	61	78	60	40	78	11
25	37	48	36	49	49	33	68	71	77	79	63	13	16	18	13	11	7	38	15	43	48	33	46	56	40	79	7
26	59	74	82	48	61	79	73	72	68	99	82	35	39	46	21	26	51	27	35	27	57	49	89	83	58	99	21
27	74	89	84	35	58	20	84	58	56	30	61	93	37	21	16	15	28	20	26	11	22	78	88	21	47	93	11
28	50	62	15	13	11	9	18	18	56	59	13	9	15	10	11	10	45	40	29	60	20	84	70	54	33	84	9
29	59	37	64	62	60	68	77	59	97	69	92	35	44	42	26	65	37	20	26	21	27	31	35	57	50	97	20
30	39	30	24	53	42	50	99	79	56	89	58	45	11	10	8	12	66	34	56	44	46	40	63	29	45	99	8
Avg	45	53	46	41	46	47	51	51	54	54	50	35	24	23	23	25	35	34	44	39	41	49	47	46	42	88	11
Max	98	94	87	80	101	91	101	88	97	99	103	93	100	77	59	88	77	82	99	97	94	94	89	87	69	103	21
Min	8	8	7	7	9	9	12	12	11	9	10	9	9	8	8	7	7	8	10	11	11	11	13	9	15	30	7

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
December 2018

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	10	26	62	54	17	19	14	27	14	15	18	10	12	7	10	34	53	42	43	40	59	57	25	51	30	62	7
2	90	59	56	51	86	47	59	51	55	39	46	37	38	22	12	8	64	20	81	54	49	32	55	84	50	90	8
3	29	37	59	28	80	72	52	55	81	28	12	97	11	13	14	8	13	23	24	36	12	9	12	25	35	97	8
4	10	10	14	12	16	35	30	43	40	37	17	17	16	15	15	28	15	52	54	31	55	50	41	41	29	55	10
5	52	29	44	21	41	25	53	48	59	68	60	13	13	14	29	22	17	49	52	95	72	27	54	35	41	95	13
6	46	46	48	22	25	19	40	34	80	66	50	76	34	26	13	22	71	39	33	41	31	36	21	19	39	80	13
7	15	58	83	62	71	74	41	29	41	81	61	38	7	7	6	7	49	58	41	35	38	53	76	63	46	83	6
8	82	87	81	79	81	52	72	70	80	90	95	87	19	13	14	10	21	69	29	27	21	29	45	41	54	95	10
9	43	31	27	36	35	39	42	55	38	72	93	59	63	21	31	30	17	24	24	28	28	29	30	41	39	93	17
10	36	20	41	32	65	40	26	17	25	51	62	46	56	12	13	28	30	46	96	15	22	29	17	13	35	96	12
11	12	39	30	41	31	54	20	28	15	17	13	22	23	20	12	18	17	22	40	27	37	48	13	10	25	54	10
12	84	32	14	13	24	65	49	15	13	12	11	14	10	10	10	10	9	9	11	27	101	57	21	73	29	101	9
13	81	20	14	16	19	14	37	41	41	73	20	27	18	14	17	69	83	95	34	102	73	65	52	21	44	102	14
14	40	38	21	18	24	28	42	26	22	17	14	21	9	14	11	7	18	60	22	18	51	35	15	26	25	60	7
15	70	71	17	34	18	26	14	11	16	13	14	17	13	15	16	59	34	38	50	57	71	45	54	37	34	71	11
16	30	47	39	49	37	35	45	19	26	20	19	21	11	8	28	33	19	16	21	20	40	30	40	45	29	49	8
17	24	29	33	98	78	80	97	42	45	41	59	78	49	18	10	22	22	68	77	61	82	68	65	35	53	98	10
18	56	48	52	62	24	13	14	15	14	14	12	26	13	10	11	15	10	10	25	18	14	13	10	11	21	62	10
19	11	11	12	13	12	15	17	12	13	10	10	12	12	12	11	11	10	11	11	10	18	11	34	22	13	34	10
20	45	44	27	52	78	85	63	22	15	19	38	22	9	12	13	14	23	35	27	37	56	7	7	8	32	85	7
21	13	9	32	12	10	13	11	12	11	11	14	12	10	12	13	12	11	11	11	8	7	15	30	40	14	40	7
22	19	54	59	46	26	44	67	52	85	45	12	11	11	12	16	13	37	84	52	21	43	62	55	44	40	85	11
23	53	28	46	15	23	23	24	24	20	37	10	61	19	82	17	18	8	7	31	52	98	53	46	63	36	98	7
24	16	84	75	51	20	25	41	33	26	37	33	52	31	16	11	10	46	53	70	69	67	89	85	48	45	89	10
25	85	38	30	41	27	82	72	68	43	78	68	41	92	10	10	7	6	21	47	65	55	23	49	34	46	92	6
26	21	44	11	44	42	56	54	71	98	18	47	78	47	15	8	43	20	48	24	23	24	56	39	62	41	98	8
27	40	80	72	45	80	84	40	77	66	85	58	29	10	14	20	14	20	56	61	32	25	45	90	43	49	90	10
28	55	51	50	70	36	51	63	79	33	89	77	28	12	16	14	10	14	37	68	38	27	44	61	66	45	89	10
29	41	30	53	40	85	54	96	33	26	20	64	27	27	21	11	11	80	54	97	44	32	19	41	55	44	97	11
30	15	8	11	10	27	36	16	13	9	9	12	16	15	31	26	13	12	10	6	9	9	8	11	11	14	36	6
31	13	17	11	13	13	14	28	11	22	12	32	23	17	28	14	33	30	35	78	11	52	29	26	23	24	78	11
Avg	40	40	39	38	40	43	43	37	38	39	37	36	23	17	15	21	28	39	43	37	44	38	39	38	36	79	10
Max	90	87	83	98	86	85	97	79	98	90	95	97	92	82	31	69	83	95	97	102	101	89	90	84	54	102	17
Min	10	8	11	10	10	13	11	11	9	9	10	10	7	7	6	7	6	7	6	8	7	7	7	8	13	34	6

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
October 2018

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	-0.6	-1.8	-2.4	-2.6	-3.1	-3.2	-3.8	-1.8	3.2	7.1	8.9	10.5	11.7	12.1	12.9	13.4	13.2	12.5	10.6	8.2	7.4	6.5	6.4	8.4	5.6	13.4	-3.8
2	10.7	9.7	8.1	7.4	7.2	7.4	6.5	6.3	6.6	7.8	9.0	10.5	11.6	12.1	12.2	12.3	9.9	8.6	8.4	8.2	7.7	7.3	5.7	3.8	8.5	12.3	3.8
3	4.9	5.5	5.5	4.4	2.6	1.3	-0.5	-1.8	-2.8	-1.7	0.1	1.8	3.3	4.7	6.0	6.8	7.1	4.8	2.0	1.0	0.0	-0.6	-0.8	-1.2	2.2	7.1	-2.8
4	-1.6	-1.7	-1.7	-2.5	-3.8	-4.3	-4.8	-3.8	-2.2	-0.3	1.6	2.8	4.8	3.7	3.5	2.7	1.8	0.8	0.5	0.3	0.2	0.2	0.3	0.2	-0.1	4.8	-4.8
5	0.3	0.2	0.3	0.5	0.6	0.5	0.3	0.2	0.3	1.1	1.9	2.4	3.1	4.3	5.1	5.4	5.2	3.7	0.6	-0.1	-1.3	-1.2	-1.3	-1.5	1.3	5.4	-1.5
6	-1.4	-2.0	-1.6	-0.9	-0.4	-0.2	0.0	0.4	0.9	1.9	2.6	3.5	4.5	4.6	4.7	5.0	3.7	3.4	3.0	2.0	1.3	1.3	1.0	1.1	1.6	5.0	-2.0
7	1.2	1.3	1.4	1.4	1.5	1.5	1.5	1.5	1.2	0.3	0.7	1.4	1.6	2.6	2.6	3.2	3.9	3.6	2.6	1.8	1.3	0.3	-0.2	-0.7	1.6	3.9	-0.7
8	-0.6	-0.3	-0.4	-0.6	-1.0	-1.0	-0.8	-0.4	1.1	2.5	4.4	5.4	4.9	5.4	5.4	3.7	2.4	1.7	1.5	1.2	1.1	1.2	1.0	1.2	1.6	5.4	-1.0
9	1.0	1.0	0.4	0.0	-0.1	0.2	0.3	0.3	0.5	0.8	1.4	1.0	1.3	1.6	0.6	0.0	0.5	0.0	0.2	0.1	-0.4	-0.3	-0.3	-0.3	0.4	1.6	-0.4
10	-0.6	-0.7	-0.8	-1.1	-1.4	-1.8	-2.1	-1.9	-1.7	-1.2	-0.7	-0.3	-0.1	0.1	-0.1	-0.5	-0.9	-1.3	-2.0	-1.9	-1.9	-2.1	-2.4	-2.5	-1.2	0.1	-2.5
11	-2.6	-2.6	-2.5	-2.4	-2.4	-2.4	-2.2	-2.0	-1.6	-0.9	0.0	1.0	1.1	1.3	1.5	2.3	2.0	1.6	0.9	0.5	-1.9	-2.9	-4.6	-5.8	-1.0	2.3	-5.8
12	-6.1	-6.4	-6.1	-4.6	-3.0	-3.3	-4.3	-3.5	1.8	3.8	5.3	6.3	7.2	8.3	9.1	9.1	8.8	8.1	7.8	7.9	6.8	5.7	4.5	3.0	2.8	9.1	-6.4
13	1.8	0.0	-1.4	-2.1	-2.9	-3.6	-4.1	-4.2	-4.7	-5.4	-5.7	-5.3	-5.2	-5.8	-5.7	-5.3	-5.5	-5.5	-5.5	-5.7	-6.2	-6.6	-7.1	-7.0	-4.5	1.8	-7.1
14	-6.9	-6.8	-6.9	-7.1	-7.1	-7.0	-7.3	-7.6	-6.0	-4.3	-3.2	-2.4	-1.4	-0.6	0.4	0.5	0.5	-0.3	-1.8	-3.0	-5.4	-6.0	-6.9	-7.1	-4.3	0.5	-7.6
15	-7.4	-7.8	-7.5	-6.6	-5.8	-5.5	-5.1	-4.4	-1.8	0.9	2.2	3.8	5.0	6.1	6.6	6.9	6.6	5.5	3.1	-0.5	-1.1	-1.9	-2.3	-2.6	-0.6	6.9	-7.8
16	-3.1	-2.3	-0.9	-0.2	-0.5	-0.7	-0.8	-1.6	1.4	5.1	7.9	9.6	10.6	11.2	11.6	11.6	11.2	8.4	3.9	1.9	0.7	-1.3	-2.7	-3.2	3.2	11.6	-3.2
17	-4.2	-4.7	-5.1	-5.6	-5.8	-5.9	-6.4	-5.3	-1.7	4.0	10.0	12.2	13.6	14.5	15.1	15.3	14.8	10.2	4.6	3.1	1.7	0.2	-0.5	-1.7	3.0	15.3	-6.4
18	-3.1	-3.5	-3.9	-3.9	-4.6	-4.8	-5.4	-4.2	-1.1	5.6	10.1	11.3	12.2	13.6	14.5	14.5	13.7	11.0	9.0	3.7	1.8	0.0	-0.6	-2.0	3.5	14.5	-5.4
19	-2.2	-1.7	-1.1	-0.9	-0.8	-1.4	-2.3	-2.0	0.0	6.0	10.3	11.5	12.2	12.8	13.6	14.0	13.4	11.1	5.7	3.5	1.0	-0.3	-1.4	-2.9	4.1	14.0	-2.9
20	-3.0	-3.2	-3.8	-3.7	-3.9	-3.8	-4.3	-4.2	-0.1	6.3	12.9	15.2	16.1	16.7	17.3	17.4	16.6	13.4	7.5	4.1	2.5	0.4	-0.5	-0.9	4.8	17.4	-4.3
21	-1.7	-1.9	-3.5	-3.7	-3.5	-3.7	-3.8	-3.9	-1.0	4.2	10.5	14.0	15.8	16.2	16.3	16.5	15.4	12.5	9.7	6.7	4.3	0.9	-1.0	-2.2	4.7	16.5	-3.9
22	-3.5	-4.0	-4.3	-4.8	-5.0	-5.9	-5.7	-5.3	-1.0	8.3	10.5	11.6	12.6	13.1	13.5	12.8	11.4	8.8	8.4	7.2	7.2	5.3	3.8	1.6	4.0	13.5	-5.9
23	-0.3	-1.6	-2.5	-3.3	-4.4	-4.0	-4.6	-4.7	-0.8	4.6	10.8	14.5	15.9	16.4	17.0	16.0	14.0	8.6	6.7	4.2	2.2	1.1	-0.1	-1.5	4.3	17.0	-4.7
24	-1.9	-2.2	-2.4	-3.2	-3.2	-3.7	-4.2	-3.8	-0.9	4.4	9.7	10.5	11.4	11.9	12.6	12.3	11.5	9.1	5.6	2.9	2.5	1.1	-0.1	-0.9	3.3	12.6	-4.2
25	-1.7	-2.1	-2.1	0.3	5.4	3.8	0.4	-1.2	2.9	7.0	7.7	8.5	9.3	9.4	9.3	9.4	8.1	7.6	6.2	4.3	2.1	1.0	-0.9	-0.4	3.9	9.4	-2.1
26	0.4	1.3	1.7	6.1	7.8	7.9	7.0	5.4	5.1	6.0	6.9	8.4	8.6	9.5	9.8	9.8	9.9	9.7	9.8	9.8	9.6	9.4	9.3	8.7	7.4	9.9	0.4
27	7.3	5.3	6.5	8.6	7.8	7.2	6.0	5.3	5.5	5.9	6.6	7.7	8.3	8.8	9.1	9.2	8.5	6.4	2.3	-0.4	-2.7	-3.6	-5.0	-5.5	4.8	9.2	-5.5
28	-5.0	-4.3	-3.9	-2.5	-1.1	-0.7	0.5	1.5	4.3	9.7	12.1	13.0	13.2	13.5	13.7	13.4	12.5	11.3	7.3	6.5	5.5	4.3	3.9	3.2	5.5	13.7	-5.0
29	2.8	2.3	1.8	1.8	2.0	1.5	1.0	0.1	1.3	2.1	3.0	3.8	4.4	4.0	3.7	3.7	3.0	1.5	0.9	-0.1	-0.4	-1.1	-0.5	-0.6	1.8	4.4	-1.1
30	-0.2	-0.3	-0.6	-1.4	-1.3	-1.9	-2.1	-1.5	-0.4	0.2	1.3	2.0	2.3	2.6	2.7	2.7	2.4	1.6	1.3	0.9	0.6	0.3	-0.1	-0.8	0.4	2.7	-2.1
31	-2.0	-2.8	-2.1	-2.2	-3.6	-2.4	-1.6	-2.0	-0.2	0.8	1.0	0.7	-1.0	-1.6	-1.4	-1.8	-1.8	-1.8	-1.8	-1.6	-1.3	-1.2	-0.3	-0.2	-1.3	1.0	-3.6
Avg	-0.9	-1.2	-1.3	-1.1	-1.1	-1.3	-1.7	-1.6	0.3	3.0	5.2	6.4	7.1	7.5	7.8	7.8	7.2	5.7	3.8	2.5	1.4	0.6	-0.1	-0.7	2.3	8.5	-3.6
Max	10.7	9.7	8.1	8.6	7.8	7.9	7.0	6.3	6.6	9.7	12.9	15.2	16.1	16.7	17.3	17.4	16.6	13.4	10.6	9.8	9.6	9.4	9.3	8.7	8.5	17.4	3.8
Min	-7.4	-7.8	-7.5	-7.1	-7.1	-7.0	-7.3	-7.6	-6.0	-5.4	-5.7	-5.3	-5.2	-5.8	-5.7	-5.3	-5.5	-5.5	-5.5	-5.7	-6.2	-6.6	-7.1	-7.1	-4.5	0.1	-7.8

A-10

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
November 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-1.6	-3.9	-5.7	-5.8	-7.4	-9.1	-9.7	-8.5	-8.1	-5.7	-2.4	0.7	2.1	2.3	2.7	2.5	1.9	0.8	0.4	0.1	0.3	0.4	0.4	0.4	-2.2	2.7	-9.7
2	0.4	0.4	0.7	1.7	2.7	2.8	4.1	4.3	5.6	5.5	5.0	6.9	6.6	5.9	5.5	5.4	5.4	4.8	4.3	3.6	2.4	1.1	0.4	0.0	3.6	6.9	0.0
3	-0.4	-0.5	-0.6	-0.6	-0.5	-0.6	-0.6	-0.7	-0.6	-0.1	0.4	0.9	1.6	2.5	2.5	2.2	2.2	1.8	1.7	1.4	1.2	1.4	1.8	1.9	0.8	2.5	-0.7
4	2.0	1.6	0.8	0.8	0.5	0.3	0.3	0.7	0.5	1.9	2.9	2.6	3.0	3.0	3.6	4.0	4.1	3.8	3.2	3.1	2.6	2.0	1.9	1.7	2.1	4.1	0.3
5	1.0	0.2	0.0	-1.4	-3.3	-4.3	-4.4	-3.7	-2.3	-0.3	0.7	1.0	1.4	1.4	0.9	-0.1	-0.5	-1.5	-2.6	-3.3	-3.3	-3.4	-2.8	-2.8	-1.4	1.4	-4.4
6	-2.5	-3.0	-3.6	-3.8	-3.8	-4.4	-4.5	-5.7	-6.3	-6.5	-6.1	-6.2	-6.3	-6.5	-6.0	-5.8	-6.3	-7.0	-7.5	-7.1	-6.9	-6.6	-6.3	-6.0	-5.6	-2.5	-7.5
7	-6.0	-6.1	-6.4	-6.2	-6.9	-8.0	-8.6	-8.9	-8.7	-9.1	-9.2	-9.9	-10.4	-9.8	-9.6	-10.5	-10.8	-11.4	-12.1	-12.8	-13.1	-15.3	-18.0	-20.6	-10.4	-6.0	-20.6
8	-21.8	-23.0	-23.7	-24.5	-24.2	-24.7	-24.6	-24.9	-23.1	-19.7	-15.3	-9.8	-6.8	-5.2	-4.7	-4.2	-4.7	-6.0	-6.9	-9.8	-11.8	-11.9	-13.6	-15.5	-15.0	-4.2	-24.9
9	-16.7	-17.5	-17.8	-18.5	-18.3	-19.1	-19.2	-18.7	-18.1	-15.2	-11.4	-8.6	-6.5	-3.2	-2.6	-2.2	-2.5	-3.1	-3.2	-2.9	-3.0	-2.8	-1.0	-2.0	-9.8	-1.0	-19.2
10	-2.9	-2.9	-3.3	-3.5	-3.7	-3.9	-4.1	-4.4	-4.1	-3.7	-3.6	-3.2	-3.1	-3.3	-3.7	-4.1	-4.8	-5.8	-6.4	-7.8	-8.7	-10.7	-12.8	-13.1	-5.3	-2.9	-13.1
11	-12.4	-13.4	-14.6	-16.0	-16.3	-16.2	-15.8	-14.2	-13.3	-12.5	-10.8	-8.0	-6.0	-5.5	-5.0	-5.4	-6.1	-6.9	-7.6	-7.9	-8.3	-9.0	-12.1	-15.6	-10.8	-5.0	-16.3
12	-16.9	-17.8	-18.7	-20.2	-21.6	-21.9	-22.2	-22.7	-22.1	-19.0	-15.1	-9.7	-5.7	-5.0	-4.2	-3.9	-4.7	-6.7	-7.5	-8.6	-10.5	-11.7	-13.1	-12.3	-13.4	-3.9	-22.7
13	-13.7	-14.4	-14.7	-14.8	-15.0	-15.0	-15.2	-14.6	-13.2	-11.6	-8.8	-5.7	-2.8	-0.2	2.6	1.5	-0.7	-3.0	-4.5	-6.5	-6.9	-7.4	-7.7	-8.0	-8.3	2.6	-15.2
14	-7.6	-7.4	-8.3	-8.0	-8.4	-9.2	-8.5	-8.0	-7.5	-6.2	-4.6	-0.4	6.1	6.5	6.8	6.4	5.4	2.0	1.7	5.0	5.0	4.6	4.4	3.8	-1.1	6.8	-9.2
15	3.2	2.9	3.1	3.1	2.9	2.1	-0.1	0.2	0.6	2.1	3.4	4.0	4.0	4.4	4.4	4.0	3.9	2.8	2.4	3.0	2.7	1.6	4.0	4.7	2.9	4.7	-0.1
16	4.8	4.7	4.5	4.2	2.7	2.2	1.4	1.7	0.3	-1.8	-4.7	-6.3	-7.5	-7.9	-8.2	-8.7	-10.0	-9.9	-10.0	-10.5	-11.5	-11.5	-11.7	-12.5	-4.4	4.8	-12.5
17	-12.9	-12.6	-12.5	-12.6	-14.2	-16.7	-17.2	-15.1	-13.8	-11.8	-10.0	-8.5	-7.7	-7.4	-7.3	-7.4	-8.6	-12.3	-14.5	-16.4	-17.5	-18.8	-18.6	-19.7	-13.1	-7.3	-19.7
18	-20.5	-20.7	-20.6	-20.6	-20.3	-19.9	-19.0	-17.2	-14.8	-12.3	-9.4	-4.2	-1.5	-1.0	-0.9	-1.2	-2.8	-3.8	-4.2	-5.6	-5.8	-5.4	-4.9	-4.5	-10.0	-0.9	-20.7
19	-4.4	-4.1	-4.1	-5.0	-7.6	-9.1	-10.2	-11.4	-11.1	-9.1	-5.9	-1.8	1.1	1.9	2.3	2.4	0.3	-3.9	-4.7	-5.8	-6.0	-6.9	-8.5	-9.3	-5.0	2.4	-11.4
20	-9.9	-10.9	-10.8	-10.8	-10.9	-11.1	-11.1	-11.6	-10.8	-8.0	-5.4	Au	Au	Au	7.4	6.5	1.5	-0.9	-3.3	-4.0	-5.5	-7.0	-8.1	-8.5	-6.3	7.4	-11.6
21	-9.6	-9.5	-10.3	-9.8	-9.4	-9.6	-9.5	-9.7	-9.2	-6.6	-3.2	-0.3	4.6	9.1	8.5	6.9	6.4	2.8	0.7	-0.6	-1.7	-0.2	-2.3	-3.0	-2.7	9.1	-10.3
22	-1.2	1.4	-0.2	-2.5	-5.0	-5.6	-5.4	-4.5	-3.6	2.3	3.8	4.0	4.7	4.3	2.4	1.2	0.6	-1.0	-2.4	-3.4	-3.7	-5.1	-6.7	-7.6	-1.4	4.7	-7.6
23	-7.2	-6.8	-2.7	-0.7	-0.9	-0.9	-1.2	-0.9	-0.4	-0.5	0.1	0.6	1.1	0.9	1.4	1.6	1.1	-1.1	-2.6	-3.1	-3.2	-4.1	-4.1	-3.1	-1.5	1.6	-7.2
24	-3.1	-3.4	-3.3	-3.5	-3.7	-3.6	-2.3	-2.4	-3.5	-4.3	-3.5	-3.5	-3.7	-3.0	-3.9	-4.6	-4.7	-5.0	-5.3	-5.7	-6.4	-6.4	-6.7	-8.6	-4.3	-2.3	-8.6
25	-9.1	-9.1	-8.4	-7.3	-7.4	-9.5	-11.1	-13.0	-13.6	-12.5	-7.0	-3.9	-3.2	-2.7	-2.4	-2.3	-3.4	-5.1	-8.1	-10.3	-11.0	-11.6	-13.0	-12.8	-8.2	-2.3	-13.6
26	-13.3	-13.8	-14.3	-14.5	-14.7	-15.1	-15.0	-15.3	-14.5	-12.1	-8.2	-3.5	1.3	2.1	2.5	2.2	0.9	-0.6	-3.4	-4.6	-6.2	-7.6	-6.3	-5.4	-7.5	2.5	-15.3
27	-3.9	-3.6	-3.2	-2.3	-1.2	-1.0	0.2	0.6	2.0	1.8	3.2	3.7	4.8	5.7	5.6	5.1	4.3	4.2	3.8	3.5	3.1	2.8	1.8	1.2	1.8	5.7	-3.9
28	1.1	1.6	2.2	2.0	1.9	1.6	1.1	0.6	-0.2	0.8	1.8	2.0	2.1	2.1	1.9	1.8	0.9	0.0	-1.0	-1.7	-2.3	-2.1	-3.8	-5.4	0.4	2.2	-5.4
29	-6.5	-8.2	-9.0	-9.7	-10.3	-11.3	-11.5	-10.8	-11.1	-9.8	-8.1	-5.9	-2.2	-0.2	0.5	1.0	-1.8	-4.9	-6.6	-8.2	-9.0	-9.3	-10.1	-10.9	-7.2	1.0	-11.5
30	-11.1	-11.7	-12.5	-12.8	-12.2	-12.2	-11.6	-11.3	-11.4	-9.7	-6.3	-0.1	1.9	0.9	0.9	0.5	-0.9	-2.4	-3.6	-4.2	-4.0	-4.6	-4.6	-4.6	-6.1	1.9	-12.8
Avg	-6.8	-7.0	-7.3	-7.5	-7.9	-8.4	-8.5	-8.3	-7.9	-6.5	-4.6	-2.5	-0.9	-0.3	0.1	-0.2	-1.1	-2.6	-3.7	-4.4	-5.0	-5.5	-6.1	-6.6	-5.0	1.2	-11.2
Max	4.8	4.7	4.5	4.2	2.9	2.8	4.1	4.3	5.6	5.5	5.0	6.9	6.6	9.1	8.5	6.9	6.4	4.8	4.3	5.0	5.0	4.6	4.4	4.7	3.6	9.1	0.3
Min	-21.8	-23.0	-23.7	-24.5	-24.2	-24.7	-24.6	-24.9	-23.1	-19.7	-15.3	-9.9	-10.4	-9.8	-9.6	-10.5	-10.8	-12.3	-14.5	-16.4	-17.5	-18.8	-18.6	-20.6	-15.0	-7.3	-24.9

A-11

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 9 Meters (degrees Celsius)
December 2018

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	-4.4	-4.3	-4.3	-4.3	-4.3	-4.3	-4.4	-4.5	-4.5	-4.1	-3.8	-3.5	-3.3	-3.2	-3.1	-3.2	-4.6	-8.1	-10.8	-12.5	-12.8	-14.8	-16.2	-17.3	-6.7	-3.1	-17.3
2	-17.6	-17.3	-17.4	-17.6	-18.5	-19.2	-19.1	-19.6	-20.1	-17.9	-14.8	-11.1	-8.3	-6.7	-6.4	-6.8	-8.1	-9.1	-9.2	-8.7	-7.7	-7.9	-7.8	-7.6	-12.7	-6.4	-20.1
3	-7.4	-7.5	-7.5	-7.5	-7.6	-7.7	-7.9	-7.9	-8.0	-7.6	-7.2	-6.7	-6.5	-6.6	-6.7	-6.6	-6.8	-7.0	-7.1	-7.2	-7.1	-7.3	-7.3	-7.2	-7.2	-6.5	-8.0
4	-7.1	-7.1	-7.1	-7.2	-7.5	-8.3	-9.3	-9.9	-11.5	-8.9	-7.1	-6.4	-5.7	-5.3	-5.0	-5.0	-6.2	-7.9	-9.7	-11.5	-14.0	-15.2	-14.9	-13.6	-8.8	-5.0	-15.2
5	-11.7	-13.3	-14.6	-15.6	-15.9	-18.9	-19.7	-18.0	-14.7	-13.2	-9.8	-8.7	-9.3	-9.1	-9.8	-10.7	-13.0	-14.7	-16.3	-18.8	-20.2	-21.2	-22.5	-23.0	-15.1	-8.7	-23.0
6	-24.3	-24.7	-24.5	-24.6	-25.3	-25.3	-24.6	-24.4	-24.3	-22.1	-18.5	-14.6	-11.1	-8.6	-8.1	-8.3	-10.1	-14.7	-15.8	-17.0	-18.4	-19.4	-20.4	-20.5	-18.7	-8.1	-25.3
7	-21.2	-20.6	-20.4	-20.1	-19.7	-20.1	-19.9	-20.6	-19.7	-16.5	-11.6	-4.7	-2.1	-1.3	-1.0	-1.3	-4.2	-6.5	-10.2	-11.8	-13.4	-15.1	-15.8	-17.1	-13.1	-1.0	-21.2
8	-17.3	-18.0	-17.6	-17.9	-17.5	-17.8	-17.8	-17.6	-18.2	-16.2	-12.3	-6.0	-2.0	-1.6	-1.6	-2.0	-3.6	-5.7	-9.7	-10.9	-11.4	-12.8	-14.0	-14.6	-11.8	-1.6	-18.2
9	-15.1	-15.7	-16.7	-16.9	-17.3	-18.2	-18.9	-19.4	-18.8	-17.2	-13.5	-10.0	-5.7	-2.3	-0.3	-0.8	-3.9	-7.5	-9.4	-10.5	-10.5	-11.0	-10.2	-9.6	-11.6	-0.3	-19.4
10	-9.6	-9.1	-7.5	-8.8	-8.8	-10.0	-10.8	-11.1	-10.9	-9.9	-8.3	-4.5	-1.2	1.7	1.7	1.2	0.5	0.0	-0.4	-1.1	-1.4	-1.8	-1.9	-2.5	-4.8	1.7	-11.1
11	-2.8	-3.9	-6.4	-9.1	-8.4	-8.8	-6.0	-5.4	-4.6	-3.7	-2.6	-1.9	-1.4	-0.6	-0.2	-0.7	-1.3	-1.2	0.0	0.2	0.3	-0.1	0.0	0.2	-2.9	0.3	-9.1
12	0.4	1.4	1.6	0.7	-0.5	-0.5	-1.0	-0.6	-0.8	-1.1	-1.3	-0.9	-1.0	-1.3	-1.5	-1.5	-2.3	-2.9	-3.5	-3.9	-6.2	-6.1	-5.0	-6.6	-1.8	1.6	-6.6
13	-6.3	-5.2	-4.8	-4.9	-4.7	-4.3	-3.8	-4.9	-5.7	-4.3	-2.9	-2.4	-2.0	-1.2	-0.9	-1.3	-1.5	-1.8	-1.3	-2.0	-3.0	-5.2	-4.4	-3.8	-3.4	-0.9	-6.3
14	-3.5	-4.3	-4.8	-5.9	-6.2	-6.3	-5.6	-6.3	-6.4	-4.6	-2.2	1.5	3.4	4.5	5.0	4.0	2.9	-0.8	-0.1	1.0	0.2	2.6	2.0	2.4	-1.1	5.0	-6.4
15	-0.3	0.9	3.2	2.4	0.8	-0.3	-1.1	-0.5	-1.0	-0.9	-0.7	-0.5	-0.6	-0.4	-0.6	-0.9	-0.4	-1.1	-2.5	-4.4	-6.8	-8.9	-10.4	-11.1	-1.9	3.2	-11.1
16	-11.4	-11.3	-11.7	-10.8	-10.0	-9.7	-10.0	-8.5	-7.5	-3.9	1.8	4.0	5.6	6.0	7.4	7.3	5.9	4.9	0.3	-1.1	-1.3	0.6	0.8	5.0	-2.0	7.4	-11.7
17	4.5	3.3	2.0	0.4	-0.6	-1.1	-1.4	-0.8	-1.1	-0.1	1.7	2.6	3.5	4.9	4.8	4.2	3.3	2.5	1.6	0.9	1.4	0.6	-0.9	-3.2	1.4	4.9	-3.2
18	-4.6	-5.2	-6.0	-4.1	-0.2	0.8	0.9	0.6	1.0	1.9	3.3	4.2	4.9	4.6	3.8	3.5	3.5	2.9	1.9	2.1	2.1	1.9	1.3	0.8	1.1	4.9	-6.0
19	0.9	0.7	0.7	0.0	0.0	-0.2	0.0	-0.1	-0.8	-0.9	0.0	0.3	0.6	0.5	0.2	-0.2	-0.7	-0.9	-1.2	-1.6	-1.6	-1.7	-2.4	-4.3	-0.5	0.9	-4.3
20	-7.1	-8.6	-10.3	-10.8	-11.6	-12.3	-12.2	-11.3	-10.2	-6.9	-3.2	0.2	1.8	2.4	3.7	4.1	2.8	2.7	1.6	-0.1	1.3	4.0	4.2	4.5	-3.0	4.5	-12.3
21	4.1	3.6	3.1	1.3	-0.5	-1.3	-1.7	-2.0	-2.5	-2.6	-2.7	-2.6	-2.4	-2.7	-3.0	-3.6	-4.7	-5.5	-5.3	-5.6	-6.0	-6.6	-7.1	-7.2	-2.6	4.1	-7.2
22	-8.1	-8.9	-9.7	-9.7	-9.5	-10.0	-8.9	-8.6	-9.1	-7.5	-6.5	-6.2	-6.0	-5.6	-4.8	-4.7	-5.3	-6.1	-8.8	-12.1	-14.3	-15.3	-16.5	-17.0	-9.1	-4.7	-17.0
23	-17.3	-16.9	-16.1	-15.6	-13.4	-12.4	-11.8	-10.7	-9.0	-6.3	-5.1	-3.5	-2.5	-1.1	-0.4	0.0	-0.1	-0.3	-0.6	-1.2	-2.0	-2.2	-3.0	-2.2	-6.4	0.0	-17.3
24	-1.9	-2.4	-2.6	-2.3	-1.9	-2.4	-3.5	-4.4	-5.4	-5.5	-4.7	-3.5	-2.5	-1.7	-1.4	-1.4	-2.7	-3.6	-3.8	-3.6	-5.1	-6.0	-8.7	-9.1	-3.8	-1.4	-9.1
25	-10.0	-11.1	-10.3	-10.0	-11.1	-10.7	-10.4	-10.6	-10.8	-9.8	-7.7	-4.8	-3.3	-3.5	-3.8	-3.6	-4.6	-5.9	-6.2	-7.2	-7.7	-7.6	-7.3	-7.2	-7.7	-3.3	-11.1
26	-7.2	-7.3	-7.6	-7.9	-8.3	-9.0	-10.3	-12.1	-12.2	-10.9	-9.6	-7.9	-6.9	-6.5	-6.4	-6.3	-6.6	-9.2	-10.6	-12.3	-13.0	-14.4	-14.9	-14.8	-9.7	-6.3	-14.9
27	-14.2	-13.7	-13.2	-12.6	-12.4	-12.3	-12.0	-11.9	-11.7	-11.0	-9.4	-7.6	-7.1	-7.1	-7.6	-8.5	-9.1	-9.2	-9.9	-10.3	-10.6	-11.0	-11.5	-11.4	-10.6	-7.1	-14.2
28	-12.4	-13.7	-13.4	-13.3	-13.2	-13.0	-12.7	-12.5	-12.2	-11.6	-10.6	-9.0	-8.4	-8.1	-7.7	-7.8	-8.5	-9.3	-10.3	-11.0	-13.1	-15.0	-15.1	-11.9	-11.4	-7.7	-15.1
29	-8.4	-7.9	-7.8	-8.2	-9.3	-8.4	-7.0	-5.5	-5.7	-4.8	-4.1	-3.0	-2.2	-0.8	-0.1	0.1	-0.7	-1.3	-0.9	0.9	1.6	1.9	1.8	1.6	-3.3	1.9	-9.3
30	1.5	1.3	1.4	1.1	1.0	0.6	0.8	0.8	0.2	-0.9	-2.0	-2.1	-2.6	-3.1	-6.1	-8.8	-10.2	-11.2	-12.6	-14.2	-15.3	-15.9	-16.3	-17.1	-5.4	1.5	-17.1
31	-17.6	-18.0	-18.2	-18.4	-18.5	-18.7	-18.7	-18.7	-18.9	-18.6	-18.1	-17.3	-16.8	-16.1	-15.5	-15.2	-15.2	-15.6	-15.9	-16.2	-17.2	-20.4	-23.1	-24.8	-18.0	-15.2	-24.8
Avg	-8.3	-8.5	-8.7	-9.0	-9.1	-9.4	-9.3	-9.3	-9.2	-8.0	-6.2	-4.4	-3.3	-2.6	-2.4	-2.7	-3.7	-5.0	-6.0	-6.8	-7.5	-8.1	-8.6	-8.7	-6.9	-1.5	-13.3
Max	4.5	3.6	3.2	2.4	1.0	0.8	0.9	0.8	1.0	1.9	3.3	4.2	5.6	6.0	7.4	7.3	5.9	4.9	1.9	2.1	2.1	4.0	4.2	5.0	1.4	7.4	-3.2
Min	-24.3	-24.7	-24.5	-24.6	-25.3	-25.3	-24.6	-24.4	-24.3	-22.1	-18.5	-17.3	-16.8	-16.1	-15.5	-15.2	-15.2	-15.6	-16.3	-18.8	-20.2	-21.2	-23.1	-24.8	-18.7	-15.2	-25.3

A-12

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
October 2018

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	-0.9	-2.3	-3.2	-3.4	-4.1	-4.4	-4.7	-2.1	3.4	7.6	9.6	11.1	12.4	12.7	13.4	13.8	13.1	12.0	9.8	7.8	6.8	6.0	5.9	7.2	5.3	13.8	-4.7
2	9.4	8.9	7.1	6.9	6.7	6.7	6.1	6.1	6.6	7.9	9.1	10.6	11.6	12.1	12.3	12.1	9.5	8.3	8.1	7.9	7.2	6.7	4.7	2.8	8.1	12.3	2.8
3	4.4	5.4	5.3	4.3	2.5	1.1	-0.7	-1.8	-2.6	-1.1	0.9	2.7	4.2	5.5	6.8	7.5	7.3	4.6	1.7	0.5	-0.5	-1.1	-1.4	-1.5	2.3	7.5	-2.6
4	-1.9	-2.1	-2.3	-3.5	-4.6	-5.0	-5.8	-3.7	-2.0	0.1	1.9	3.2	5.3	4.1	3.7	2.8	1.8	0.7	0.5	0.3	0.2	0.2	0.2	0.2	-0.2	5.3	-5.8
5	0.3	0.1	0.2	0.4	0.6	0.4	0.2	0.1	0.4	1.4	2.4	2.8	3.6	4.9	5.8	6.0	5.4	3.3	0.4	-0.7	-2.0	-1.9	-1.8	-1.8	1.3	6.0	-2.0
6	-1.9	-2.4	-2.0	-1.1	-0.5	-0.3	-0.1	0.4	1.1	2.1	2.8	3.8	4.8	4.8	5.0	5.2	3.8	3.4	3.0	2.0	1.3	1.4	1.0	1.2	1.6	5.2	-2.4
7	1.3	1.4	1.5	1.5	1.6	1.5	1.5	1.5	1.3	0.4	0.8	1.6	1.8	2.8	2.8	3.6	4.2	3.7	2.5	1.6	0.9	0.0	-0.4	-0.7	1.6	4.2	-0.7
8	-0.5	-0.4	-0.6	-0.9	-1.3	-1.2	-0.8	-0.4	1.6	3.2	4.9	6.1	5.2	5.8	5.8	3.9	2.5	1.8	1.6	1.1	1.1	1.1	1.0	1.1	1.7	6.1	-1.3
9	1.0	0.9	0.4	0.0	-0.1	0.1	0.2	0.4	0.7	1.1	1.9	1.6	1.9	2.1	1.0	0.3	0.7	0.1	0.1	0.1	-0.4	-0.3	-0.3	-0.3	0.5	2.1	-0.4
10	-0.7	-0.8	-0.8	-1.2	-1.4	-1.8	-2.1	-1.8	-1.4	-0.7	-0.1	0.6	0.8	0.7	0.3	-0.2	-0.7	-1.2	-2.0	-1.9	-1.8	-2.1	-2.3	-2.4	-1.0	0.8	-2.4
11	-2.5	-2.5	-2.4	-2.3	-2.3	-2.3	-2.1	-1.9	-1.3	-0.4	0.6	1.9	1.6	1.8	1.9	2.8	2.3	1.2	-0.1	-0.1	-3.0	-4.6	-6.2	-7.1	-1.1	2.8	-7.1
12	-7.2	-7.8	-7.6	-6.7	-5.0	-4.7	-5.6	-4.3	1.8	4.3	5.9	7.0	8.0	9.2	9.8	9.5	8.9	7.5	6.8	7.5	6.1	4.9	3.9	2.7	2.3	9.8	-7.8
13	1.7	-0.1	-1.4	-2.1	-2.8	-3.6	-4.0	-4.0	-4.4	-5.1	-5.3	-4.8	-4.6	-5.2	-5.2	-5.0	-5.3	-5.3	-5.5	-5.7	-6.2	-6.6	-7.1	-7.0	-4.4	1.7	-7.1
14	-6.9	-6.8	-6.9	-7.1	-7.1	-7.1	-7.3	-7.5	-5.6	-3.8	-2.8	-1.9	-0.9	0.1	1.3	1.1	0.9	-0.7	-2.8	-4.8	-6.6	-6.4	-7.4	-7.5	-4.4	1.3	-7.5
15	-8.0	-8.3	-7.5	-6.5	-5.8	-6.1	-5.6	-4.5	-1.6	1.1	2.8	4.7	5.9	7.0	7.3	7.5	6.9	4.7	1.6	-1.0	-1.5	-2.3	-3.0	-3.4	-0.7	7.5	-8.3
16	-3.4	-2.6	-1.3	-0.8	-0.8	-1.1	-1.5	-1.9	1.7	5.9	8.7	10.4	11.5	12.0	12.4	12.3	11.4	7.2	3.0	1.7	0.1	-2.9	-3.8	-4.7	3.1	12.4	-4.7
17	-5.8	-6.1	-6.6	-7.0	-7.3	-7.4	-7.9	-6.4	-1.5	4.8	10.5	12.8	14.2	15.2	15.6	15.8	14.8	8.6	4.0	2.5	1.0	-1.5	-2.1	-3.2	2.4	15.8	-7.9
18	-4.9	-5.0	-5.6	-5.6	-6.1	-6.3	-6.5	-5.3	-0.6	6.2	10.8	12.2	13.1	14.5	15.3	15.1	13.8	10.2	7.0	3.0	0.8	-1.2	-1.6	-2.8	2.9	15.3	-6.5
19	-3.4	-2.4	-1.8	-1.8	-1.8	-2.9	-3.5	-2.9	0.1	6.7	11.0	12.3	13.0	13.7	14.4	14.5	13.4	9.2	4.1	2.9	-0.3	-2.2	-3.0	-4.2	3.5	14.5	-4.2
20	-4.3	-4.8	-5.1	-5.3	-5.1	-5.4	-5.9	-5.0	0.2	6.9	13.4	15.9	16.9	17.5	18.1	17.9	16.7	11.8	6.2	2.4	1.3	-0.8	-2.2	-3.1	4.1	18.1	-5.9
21	-3.3	-3.9	-5.1	-5.3	-5.5	-5.2	-5.7	-5.0	-0.8	4.9	11.1	14.5	16.4	17.0	16.7	16.7	15.2	11.7	8.7	4.9	2.8	-1.1	-2.4	-4.0	3.9	17.0	-5.7
22	-5.2	-5.6	-6.0	-6.7	-6.7	-7.4	-7.3	-6.3	-0.4	8.5	11.2	12.4	13.5	14.0	14.2	13.2	11.5	7.9	6.8	5.2	5.8	2.8	0.6	-1.2	3.1	14.2	-7.4
23	-1.9	-3.1	-4.2	-4.8	-5.9	-6.1	-6.4	-5.8	-0.5	5.4	11.5	15.2	16.7	17.2	17.6	16.3	13.0	7.3	5.1	1.7	0.0	-0.6	-2.3	-3.2	3.4	17.6	-6.4
24	-3.4	-3.9	-4.1	-4.8	-5.0	-5.3	-5.8	-5.1	-0.7	4.9	10.3	11.1	12.3	12.6	13.4	12.7	11.5	7.9	4.1	2.0	1.7	-0.7	-1.3	-2.4	2.6	13.4	-5.8
25	-2.9	-3.4	-3.1	-0.5	4.4	2.2	-1.7	-2.5	2.7	7.4	8.4	9.3	10.1	10.0	9.8	9.8	8.0	7.3	5.6	3.3	1.4	0.2	-1.7	-0.8	3.5	10.1	-3.4
26	0.1	1.0	1.3	5.2	7.4	7.5	6.4	5.0	5.1	6.0	7.0	9.1	8.9	9.6	9.8	9.8	9.9	9.5	9.7	9.6	9.5	9.3	9.0	8.2	7.2	9.9	0.1
27	6.5	4.8	5.9	8.5	7.7	7.0	5.8	5.1	5.3	6.0	7.0	8.4	9.0	9.6	9.7	9.7	8.4	5.3	0.8	-1.4	-4.3	-4.8	-6.5	-7.1	4.4	9.7	-7.1
28	-6.1	-5.9	-4.7	-3.2	-1.9	-1.6	-0.4	0.6	3.6	9.8	12.5	13.7	13.5	13.7	13.9	13.4	12.3	11.1	6.9	6.1	5.2	3.9	3.7	3.0	5.1	13.9	-6.1
29	2.5	2.0	1.5	1.3	1.5	0.8	0.7	-0.1	1.6	2.4	3.5	4.1	5.0	4.2	3.9	3.7	3.0	1.5	0.6	-0.7	-1.0	-2.3	-0.9	-0.9	1.6	5.0	-2.3
30	-0.4	-0.4	-0.9	-1.9	-1.7	-2.6	-2.6	-1.7	-0.4	0.4	1.6	2.3	2.4	2.7	2.8	2.9	2.4	1.5	1.2	0.8	0.5	0.1	-0.4	-1.4	0.3	2.9	-2.6
31	-3.0	-4.1	-3.4	-4.6	-4.8	-3.5	-2.3	-3.1	-0.3	1.1	1.3	1.1	-0.7	-1.3	-1.3	-1.7	-1.7	-1.8	-1.8	-1.7	-1.5	-1.4	-0.5	-0.7	-1.7	1.3	-4.8
Avg	-1.7	-1.9	-2.0	-1.9	-1.8	-2.1	-2.4	-2.1	0.4	3.4	5.7	7.0	7.7	8.1	8.3	8.2	7.3	5.2	3.2	1.8	0.8	-0.3	-0.9	-1.5	2.0	9.0	-4.5
Max	9.4	8.9	7.1	8.5	7.7	7.5	6.4	6.1	6.6	9.8	13.4	15.9	16.9	17.5	18.1	17.9	16.7	12.0	9.8	9.6	9.5	9.3	9.0	8.2	8.1	18.1	2.8
Min	-8.0	-8.3	-7.6	-7.1	-7.3	-7.4	-7.9	-7.5	-5.6	-5.1	-5.3	-4.8	-4.6	-5.2	-5.2	-5.0	-5.3	-5.3	-5.5	-5.7	-6.6	-6.6	-7.4	-7.5	-4.4	0.8	-8.3

A-13

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
November 2018

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	-2.9	-5.4	-7.7	-8.4	-10.2	-11.0	-11.5	-10.1	-9.2	-6.4	-3.4	0.8	2.2	2.4	2.7	2.4	1.7	0.7	0.4	0.2	0.2	0.3	0.4	0.3	-3.0	2.7	-11.5
2	0.3	0.4	0.5	1.1	2.0	2.1	3.3	3.3	4.7	4.4	4.4	6.4	6.2	5.5	5.3	5.1	5.1	4.6	4.1	3.4	2.2	0.9	0.3	0.0	3.2	6.4	0.0
3	-0.4	-0.6	-0.7	-0.6	-0.6	-0.8	-0.8	-0.9	-0.7	0.0	0.6	1.0	1.6	2.5	2.4	2.2	2.1	1.7	1.5	1.0	1.0	1.3	1.7	1.7	0.7	2.5	-0.9
4	1.7	1.3	0.7	0.7	0.4	0.3	0.3	0.7	0.4	1.7	2.7	2.5	2.8	2.8	3.4	3.7	3.9	3.5	3.0	2.9	2.4	1.5	1.5	1.3	1.9	3.9	0.3
5	0.9	0.1	-0.3	-2.3	-4.9	-5.5	-5.4	-4.1	-2.7	-0.2	0.8	1.2	1.6	1.5	1.1	0.1	-0.4	-1.8	-3.1	-3.9	-3.8	-3.5	-3.0	-2.9	-1.7	1.6	-5.5
6	-2.6	-3.0	-3.6	-3.9	-3.8	-4.4	-4.5	-5.6	-6.2	-6.3	-5.8	-5.8	-6.1	-6.2	-5.7	-5.5	-6.0	-7.1	-7.7	-7.2	-7.0	-6.6	-6.2	-6.0	-5.5	-2.6	-7.7
7	-5.9	-6.1	-6.6	-6.1	-6.9	-7.9	-8.5	-8.8	-8.4	-8.7	-8.8	-9.7	-10.2	-9.5	-9.4	-10.3	-10.8	-11.6	-12.5	-13.2	-13.9	-17.2	-19.9	-22.3	-10.6	-5.9	-22.3
8	-23.9	-24.9	-25.6	-26.2	-26.2	-26.5	-26.4	-26.5	-23.8	-19.5	-14.8	-9.3	-6.2	-5.1	-4.8	-4.3	-5.2	-7.4	-8.9	-11.8	-12.7	-14.3	-15.4	-17.0	-16.1	-4.3	-26.5
9	-18.3	-19.6	-19.9	-20.4	-20.3	-20.6	-20.9	-20.5	-18.7	-15.0	-11.3	-8.7	-6.3	-3.2	-2.6	-2.3	-2.9	-3.4	-3.4	-3.1	-3.4	-3.3	-1.2	-2.1	-10.5	-1.2	-20.9
10	-2.9	-3.0	-3.3	-3.6	-3.7	-3.9	-4.2	-4.4	-4.1	-3.6	-3.5	-3.0	-2.8	-3.1	-3.6	-4.1	-4.9	-6.0	-7.2	-8.7	-9.8	-12.0	-14.0	-14.0	-5.6	-2.8	-14.0
11	-13.3	-14.3	-16.1	-17.1	-17.7	-17.0	-16.0	-14.2	-13.2	-12.3	-10.8	-7.8	-5.8	-5.3	-4.9	-5.6	-6.3	-7.2	-8.4	-8.1	-8.5	-9.9	-14.5	-17.4	-11.3	-4.9	-17.7
12	-18.1	-18.9	-20.3	-21.8	-23.4	-23.7	-24.0	-24.4	-23.0	-18.7	-15.1	-9.6	-5.4	-4.6	-3.8	-4.2	-5.5	-7.7	-7.8	-9.3	-11.7	-12.8	-14.4	-13.6	-14.2	-3.8	-24.4
13	-14.8	-15.5	-15.9	-16.3	-16.2	-16.4	-16.6	-16.0	-14.7	-12.3	-9.1	-6.5	-2.7	-0.3	1.9	1.2	-1.1	-4.3	-6.4	-8.6	-8.9	-9.8	-10.0	-10.0	-9.6	1.9	-16.6
14	-9.3	-9.4	-10.3	-10.2	-10.2	-11.1	-10.1	-9.5	-8.8	-7.0	-4.9	-1.9	5.6	6.0	6.4	6.1	4.6	1.0	0.0	4.4	4.7	4.4	4.1	3.4	-2.2	6.4	-11.1
15	2.8	2.6	2.8	2.8	2.5	1.3	-0.6	-0.9	0.1	2.3	3.6	4.1	3.9	4.4	4.3	3.8	3.7	2.1	1.6	2.2	1.8	0.8	3.3	4.5	2.5	4.5	-0.9
16	4.5	4.3	4.3	3.9	2.5	1.9	1.2	1.5	0.2	-1.8	-4.6	-6.0	-7.2	-7.7	-8.1	-8.5	-9.8	-9.8	-9.9	-10.4	-11.4	-11.4	-11.6	-12.7	-4.4	4.5	-12.7
17	-12.9	-12.5	-12.5	-12.6	-15.1	-18.6	-17.7	-15.0	-13.7	-11.7	-9.8	-8.1	-7.3	-6.9	-6.9	-7.2	-9.0	-13.7	-16.2	-17.8	-19.2	-20.6	-20.9	-21.5	-13.6	-6.9	-21.5
18	-22.2	-22.3	-22.2	-22.2	-22.1	-21.5	-20.5	-17.9	-15.6	-12.8	-9.6	-3.9	-1.3	-0.8	-0.8	-1.4	-3.5	-4.0	-4.5	-6.5	-6.2	-5.9	-5.2	-4.8	-10.7	-0.8	-22.3
19	-4.5	-4.2	-4.3	-5.9	-8.8	-10.3	-11.4	-12.8	-11.7	-9.2	-5.4	-2.2	1.4	2.2	2.4	2.4	-0.9	-4.4	-5.6	-6.8	-7.0	-8.3	-10.3	-10.7	-5.7	2.4	-12.8
20	-11.2	-11.9	-12.3	-12.4	-12.3	-12.8	-12.7	-13.6	-12.1	-8.5	-5.4	Au	Au	Au	7.5	5.5	0.5	-1.7	-4.9	-5.6	-7.4	-8.7	-9.7	-10.5	-7.6	7.5	-13.6
21	-11.6	-11.5	-12.4	-11.7	-11.1	-11.6	-11.7	-12.0	-10.8	-6.8	-4.2	-0.1	4.4	9.0	7.7	6.2	4.8	1.8	0.2	-1.1	-3.1	-3.2	-4.0	-4.6	-4.1	9.0	-12.4
22	-4.0	-0.9	-2.8	-5.1	-7.6	-7.6	-6.8	-5.8	-4.9	1.3	3.5	3.8	4.6	4.1	2.4	1.2	0.1	-1.4	-3.0	-4.0	-4.4	-6.4	-8.4	-9.4	-2.6	4.6	-9.4
23	-8.0	-7.6	-3.8	-1.3	-1.4	-1.2	-1.5	-1.2	-0.6	-0.5	0.0	0.7	1.1	0.9	1.4	1.6	0.6	-1.8	-3.4	-4.0	-3.7	-5.0	-4.8	-3.5	-2.0	1.6	-8.0
24	-3.5	-4.0	-3.6	-3.7	-4.2	-4.1	-2.7	-2.5	-3.5	-4.1	-3.3	-3.3	-3.4	-2.7	-3.7	-4.4	-4.6	-5.0	-5.3	-6.0	-6.8	-6.7	-7.4	-9.6	-4.5	-2.5	-9.6
25	-9.7	-9.5	-8.7	-8.2	-9.7	-11.7	-13.4	-14.9	-15.4	-13.1	-7.6	-3.7	-2.8	-2.4	-2.1	-2.2	-4.1	-6.3	-9.3	-11.4	-12.4	-12.9	-14.2	-13.8	-9.1	-2.1	-15.4
26	-14.6	-14.9	-15.7	-16.1	-16.0	-16.4	-16.4	-16.6	-15.3	-12.1	-8.3	-3.6	1.7	2.2	2.3	1.9	0.2	-1.7	-4.5	-6.5	-7.9	-8.5	-6.6	-5.4	-8.3	2.3	-16.6
27	-4.2	-3.9	-3.8	-3.3	-1.9	-1.7	-0.6	-0.3	1.3	1.5	3.1	3.7	4.6	5.5	5.3	4.9	3.9	3.9	3.4	3.1	2.8	2.6	1.4	0.8	1.3	5.5	-4.2
28	0.8	1.3	1.9	1.7	1.5	1.3	0.9	0.4	-0.9	0.9	1.9	2.1	2.1	2.1	2.0	1.8	0.4	-1.3	-1.5	-2.1	-3.0	-3.4	-5.1	-6.8	-0.0	2.1	-6.8
29	-8.1	-9.5	-10.5	-10.8	-11.3	-12.6	-12.7	-11.9	-11.6	-10.0	-8.2	-5.6	-2.0	-0.2	0.6	1.3	-2.5	-6.0	-7.9	-9.7	-10.7	-10.9	-11.6	-12.2	-8.1	1.3	-12.7
30	-12.8	-13.6	-14.5	-14.4	-13.8	-13.5	-12.8	-12.2	-12.5	-9.8	-5.9	-0.3	2.1	0.9	0.9	0.2	-1.5	-2.9	-5.0	-5.0	-4.6	-4.9	-4.9	-4.8	-6.9	2.1	-14.5
Avg	-7.6	-7.9	-8.2	-8.5	-9.0	-9.5	-9.5	-9.2	-8.5	-6.6	-4.6	-2.5	-0.8	-0.2	0.1	-0.3	-1.6	-3.2	-4.4	-5.1	-5.7	-6.5	-7.0	-7.5	-5.6	1.2	-12.4
Max	4.5	4.3	4.3	3.9	2.5	2.1	3.3	3.3	4.7	4.4	4.4	6.4	6.2	9.0	7.7	6.2	5.1	4.6	4.1	4.4	4.7	4.4	4.1	4.5	3.2	9.0	0.3
Min	-23.9	-24.9	-25.6	-26.2	-26.2	-26.5	-26.4	-26.5	-23.8	-19.5	-15.1	-9.7	-10.2	-9.5	-9.4	-10.3	-10.8	-13.7	-16.2	-17.8	-19.2	-20.6	-20.9	-22.3	-16.1	-6.9	-26.5

A-14

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature 2 Meters (degrees Celsius)
December 2018

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	-4.5	-4.5	-4.3	-4.4	-4.3	-4.4	-4.5	-4.6	-4.5	-4.0	-3.6	-3.3	-3.1	-3.1	-3.0	-3.2	-6.1	-9.7	-12.4	-14.2	-15.0	-17.2	-17.9	-18.9	-7.3	-3.0	-18.9
2	-19.5	-19.3	-19.7	-19.7	-20.3	-20.7	-21.5	-21.8	-21.8	-18.3	-14.9	-10.8	-7.7	-6.1	-5.8	-6.9	-8.7	-9.8	-9.2	-8.8	-7.9	-7.9	-7.9	-7.7	-13.4	-5.8	-21.8
3	-7.4	-7.5	-7.5	-7.5	-7.7	-7.9	-8.0	-8.1	-8.1	-7.5	-7.0	-6.4	-6.3	-6.4	-6.5	-6.5	-6.8	-7.1	-7.2	-7.4	-7.2	-7.3	-7.4	-7.3	-7.3	-6.3	-8.1
4	-7.1	-7.2	-7.2	-7.3	-7.6	-8.9	-10.7	-11.7	-14.1	-9.5	-7.0	-6.2	-5.6	-5.1	-4.9	-5.1	-7.0	-9.0	-11.7	-12.9	-14.9	-16.2	-16.5	-15.4	-9.5	-4.9	-16.5
5	-13.5	-15.1	-15.6	-16.4	-16.7	-20.4	-21.2	-18.6	-14.9	-13.1	-9.5	-8.5	-9.1	-8.7	-9.7	-10.8	-13.2	-15.5	-18.0	-20.4	-21.4	-23.0	-24.0	-24.7	-15.9	-8.5	-24.7
6	-25.6	-26.3	-26.0	-26.7	-27.0	-27.0	-26.6	-26.2	-25.5	-22.2	-18.7	-14.7	-10.5	-8.2	-7.9	-8.4	-11.2	-15.7	-17.2	-18.0	-20.4	-21.1	-22.1	-22.2	-19.8	-7.9	-27.0
7	-23.1	-22.2	-21.5	-21.6	-21.1	-21.6	-21.3	-22.3	-21.6	-18.1	-12.5	-5.4	-1.7	-1.1	-0.9	-1.5	-5.5	-7.4	-11.4	-13.4	-15.3	-17.0	-18.2	-19.1	-14.4	-0.9	-23.1
8	-19.0	-19.8	-19.3	-19.6	-19.4	-19.4	-19.6	-19.1	-19.6	-16.3	-12.0	-7.0	-1.8	-1.4	-1.5	-2.1	-4.6	-7.2	-10.8	-11.3	-12.0	-13.6	-14.9	-15.7	-12.8	-1.4	-19.8
9	-16.4	-17.1	-18.4	-19.3	-19.8	-20.7	-20.8	-20.9	-20.6	-17.8	-13.8	-10.1	-5.5	-2.3	-0.2	-0.9	-4.9	-9.1	-11.5	-12.4	-12.8	-12.8	-12.2	-10.8	-13.0	-0.2	-20.9
10	-11.1	-10.6	-8.8	-10.3	-10.5	-11.7	-12.7	-13.1	-12.3	-10.8	-8.5	-4.6	-1.3	1.8	1.6	0.6	0.0	-0.1	-0.6	-1.2	-1.6	-2.2	-2.1	-2.8	-5.5	1.8	-13.1
11	-3.3	-4.7	-8.2	-10.5	-10.5	-10.8	-8.2	-6.4	-5.0	-3.8	-2.7	-1.7	-1.3	-0.4	-0.1	-0.8	-1.6	-1.7	-0.3	0.1	0.1	-0.3	-0.2	0.0	-3.4	0.1	-10.8
12	0.1	1.1	1.3	0.6	-0.5	-0.7	-1.1	-0.7	-0.9	-1.2	-1.5	-1.0	-1.1	-1.4	-1.7	-1.7	-2.6	-3.2	-4.0	-4.5	-7.5	-7.0	-5.4	-7.5	-2.2	1.3	-7.5
13	-7.3	-5.9	-5.3	-5.2	-5.0	-4.9	-4.2	-5.7	-6.6	-4.9	-3.0	-2.6	-2.1	-1.4	-1.2	-1.9	-2.2	-3.3	-2.8	-2.8	-4.2	-6.4	-6.3	-5.5	-4.2	-1.2	-7.3
14	-5.3	-5.5	-5.7	-6.7	-7.0	-7.5	-7.2	-6.9	-7.0	-5.1	-2.7	1.0	3.3	4.4	4.7	3.1	1.7	-2.4	-1.1	-0.5	-1.2	2.1	1.5	1.7	-2.0	4.7	-7.5
15	-1.6	-0.5	2.6	2.0	0.6	-0.4	-1.3	-0.7	-1.3	-1.0	-0.8	-0.6	-0.7	-0.5	-0.7	-1.3	-0.8	-2.4	-4.2	-5.9	-8.2	-9.9	-11.7	-13.0	-2.6	2.6	-13.0
16	-13.3	-13.2	-13.5	-12.7	-11.3	-11.4	-11.8	-11.1	-9.1	-4.2	1.2	3.7	5.3	5.8	7.4	7.0	4.8	3.6	-0.9	-1.9	-3.3	-0.9	-0.3	3.8	-3.2	7.4	-13.5
17	3.9	1.8	0.6	-0.7	-1.5	-2.3	-2.3	-1.6	-1.7	-0.5	1.3	2.2	3.2	4.6	4.7	4.1	2.7	2.1	1.1	0.6	0.7	-0.2	-2.6	-4.3	0.7	4.7	-4.3
18	-6.1	-6.7	-7.9	-6.4	-1.5	0.3	0.2	0.0	0.4	1.6	3.2	4.2	4.8	4.5	3.7	3.4	3.4	2.8	1.7	1.9	1.9	1.7	1.1	0.6	0.5	4.8	-7.9
19	0.6	0.5	0.4	-0.2	-0.2	-0.5	-0.3	-0.3	-0.9	-1.0	0.0	0.3	0.6	0.5	0.2	-0.4	-1.0	-1.4	-2.0	-2.6	-2.2	-2.3	-3.2	-6.1	-0.9	0.6	-6.1
20	-8.1	-9.8	-11.5	-12.0	-12.5	-13.5	-13.0	-12.4	-11.3	-7.2	-3.4	0.0	1.7	2.3	3.5	3.9	2.3	2.1	0.7	-2.0	-0.5	3.5	3.5	4.0	-3.7	4.0	-13.5
21	3.6	3.0	2.5	1.1	-0.6	-1.4	-1.9	-2.1	-2.6	-2.8	-2.7	-2.4	-2.2	-2.5	-3.0	-3.6	-5.0	-5.9	-5.5	-5.9	-6.3	-7.0	-7.8	-7.7	-2.9	3.6	-7.8
22	-8.7	-9.4	-10.3	-10.8	-10.5	-10.4	-9.6	-9.1	-9.6	-7.6	-6.3	-6.0	-6.0	-5.6	-4.6	-4.6	-5.7	-6.7	-10.2	-13.3	-15.2	-16.5	-17.7	-18.3	-9.7	-4.6	-18.3
23	-18.2	-18.2	-17.3	-16.6	-13.9	-12.8	-12.3	-10.8	-9.4	-6.5	-5.1	-3.3	-2.3	-0.9	-0.3	0.0	-0.2	-0.5	-0.9	-1.7	-2.3	-2.6	-3.3	-2.8	-6.8	0.0	-18.2
24	-2.3	-2.9	-3.2	-2.7	-2.2	-2.9	-4.0	-4.8	-5.6	-5.5	-4.6	-3.3	-2.2	-1.3	-1.0	-1.3	-3.3	-4.4	-4.4	-4.0	-6.1	-7.1	-9.7	-10.2	-4.1	-1.0	-10.2
25	-11.1	-12.4	-11.2	-10.2	-12.0	-11.5	-11.0	-11.5	-11.5	-10.0	-7.6	-4.2	-2.7	-3.1	-3.6	-3.5	-4.7	-6.3	-6.6	-7.5	-8.2	-7.8	-7.3	-7.3	-8.0	-2.7	-12.4
26	-7.6	-7.7	-8.0	-8.2	-9.0	-10.1	-11.1	-13.3	-12.5	-10.8	-9.4	-7.7	-6.5	-6.1	-6.2	-6.2	-7.2	-10.3	-11.8	-13.5	-13.8	-15.4	-16.0	-15.3	-10.2	-6.1	-16.0
27	-14.6	-14.0	-13.6	-13.0	-12.6	-12.4	-12.1	-11.9	-11.7	-10.7	-8.7	-7.0	-6.8	-6.7	-7.4	-8.4	-9.3	-9.4	-10.0	-10.3	-10.7	-11.2	-11.6	-11.5	-10.7	-6.7	-14.6
28	-13.0	-14.6	-13.7	-13.4	-13.0	-12.8	-12.7	-12.5	-12.1	-11.4	-10.5	-8.7	-8.1	-7.9	-7.5	-7.7	-8.7	-10.2	-11.2	-12.6	-14.7	-15.5	-15.3	-12.1	-11.7	-7.5	-15.5
29	-8.4	-7.9	-7.9	-8.6	-9.7	-8.7	-7.4	-5.6	-5.7	-4.7	-3.9	-2.9	-2.2	-0.9	-0.1	0.0	-1.3	-1.9	-1.6	0.5	1.3	1.7	1.6	1.4	-3.5	1.7	-9.7
30	1.3	1.1	1.2	1.0	0.8	0.4	0.6	0.6	0.0	-0.9	-2.0	-2.0	-2.7	-3.1	-6.1	-8.8	-10.2	-11.2	-12.6	-14.1	-15.2	-15.9	-16.3	-16.9	-5.5	1.3	-16.9
31	-17.5	-17.9	-18.1	-18.3	-18.3	-18.5	-18.6	-18.6	-18.7	-18.3	-17.7	-16.9	-16.5	-15.7	-15.1	-15.0	-15.2	-15.9	-16.1	-16.6	-17.8	-22.1	-25.2	-27.1	-18.2	-15.0	-27.1
Avg	-9.2	-9.5	-9.5	-9.8	-9.8	-10.2	-10.2	-10.1	-9.9	-8.2	-6.3	-4.4	-3.1	-2.5	-2.4	-2.9	-4.3	-5.7	-6.9	-7.6	-8.4	-8.9	-9.5	-9.6	-7.4	-1.5	-14.6
Max	3.9	3.0	2.6	2.0	0.8	0.4	0.6	0.6	0.4	1.6	3.2	4.2	5.3	5.8	7.4	7.0	4.8	3.6	1.7	1.9	1.9	3.5	3.5	4.0	0.7	7.4	-4.3
Min	-25.6	-26.3	-26.0	-26.7	-27.0	-27.0	-26.6	-26.2	-25.5	-22.2	-18.7	-16.9	-16.5	-15.7	-15.1	-15.0	-15.2	-15.9	-18.0	-20.4	-21.4	-23.0	-25.2	-27.1	-19.8	-15.0	-27.1

A-15

Sandfire Resources America Inc. Black Butte Copper Project Met Tower Air Monitoring Summary Temperature Delta T (degrees Celsius) October 2018

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	0.31	0.54	0.80	0.81	1.06	1.21	0.96	0.24	-0.20	-0.44	-0.66	-0.64	-0.73	-0.53	-0.48	-0.34	0.08	0.47	0.81	0.39	0.59	0.49	0.50	1.18	0.27	1.21	-0.73
2	1.28	0.78	1.00	0.53	0.53	0.73	0.37	0.26	-0.02	-0.09	-0.04	-0.09	0.06	-0.04	-0.11	0.18	0.41	0.27	0.32	0.31	0.54	0.55	0.98	0.96	0.40	1.28	-0.11
3	0.50	0.11	0.16	0.12	0.15	0.24	0.17	-0.01	-0.22	-0.64	-0.85	-0.97	-0.91	-0.81	-0.79	-0.69	-0.26	0.18	0.29	0.55	0.51	0.47	0.59	0.29	-0.08	0.59	-0.97
4	0.38	0.33	0.61	0.92	0.74	0.68	1.01	-0.07	-0.16	-0.37	-0.33	-0.43	-0.48	-0.31	-0.22	-0.14	-0.01	0.04	0.03	0.01	0.00	0.00	0.03	0.01	0.09	1.01	-0.48
5	0.03	0.09	0.10	0.06	0.07	0.05	0.09	0.01	-0.06	-0.28	-0.54	-0.39	-0.49	-0.62	-0.70	-0.63	-0.24	0.48	0.22	0.52	0.73	0.69	0.55	0.40	0.01	0.73	-0.70
6	0.51	0.37	0.34	0.25	0.03	0.07	0.05	-0.03	-0.15	-0.13	-0.17	-0.29	-0.33	-0.22	-0.28	-0.19	-0.05	0.05	0.00	-0.02	0.05	-0.02	-0.04	-0.07	-0.01	0.51	-0.33
7	-0.06	-0.06	-0.06	-0.08	-0.05	-0.02	0.00	-0.07	-0.09	-0.05	-0.15	-0.19	-0.23	-0.17	-0.21	-0.40	-0.28	-0.07	0.17	0.24	0.35	0.30	0.24	0.02	-0.04	0.35	-0.40
8	-0.04	0.05	0.23	0.32	0.33	0.12	0.02	-0.02	-0.52	-0.65	-0.53	-0.67	-0.30	-0.42	-0.45	-0.19	-0.16	-0.09	-0.01	0.07	0.01	0.10	0.03	0.08	-0.11	0.33	-0.67
9	0.06	0.11	0.03	0.00	0.06	0.06	0.03	-0.06	-0.17	-0.31	-0.50	-0.55	-0.59	-0.45	-0.39	-0.26	-0.17	-0.06	0.02	0.00	0.00	0.02	0.01	0.01	-0.13	0.11	-0.59
10	0.05	0.10	0.06	0.02	0.00	0.02	-0.01	-0.10	-0.32	-0.50	-0.64	-0.90	-0.88	-0.65	-0.47	-0.33	-0.17	-0.10	0.00	-0.02	-0.04	-0.06	-0.08	-0.08	-0.21	0.10	-0.90
11	-0.09	-0.09	-0.10	-0.11	-0.10	-0.08	-0.05	-0.10	-0.22	-0.47	-0.57	-0.90	-0.55	-0.43	-0.39	-0.45	-0.28	0.34	1.04	0.61	1.06	1.72	1.66	1.27	0.11	1.72	-0.90
12	1.16	1.35	1.54	2.08	2.03	1.43	1.30	0.75	-0.01	-0.42	-0.59	-0.68	-0.77	-0.90	-0.70	-0.33	-0.16	0.60	0.93	0.36	0.67	0.79	0.62	0.28	0.47	2.08	-0.90
13	0.07	0.09	-0.02	-0.03	-0.05	-0.06	-0.06	-0.14	-0.21	-0.32	-0.35	-0.53	-0.53	-0.57	-0.49	-0.30	-0.18	-0.13	-0.08	0.02	0.00	-0.01	-0.03	0.02	-0.16	0.09	-0.57
14	0.02	0.02	0.02	0.00	0.01	0.08	0.01	-0.06	-0.39	-0.50	-0.43	-0.44	-0.54	-0.77	-0.85	-0.62	-0.37	0.36	1.00	1.78	1.21	0.33	0.54	0.49	0.04	1.78	-0.85
15	0.58	0.52	0.03	-0.09	0.02	0.57	0.49	0.13	-0.21	-0.27	-0.66	-0.91	-0.90	-0.86	-0.62	-0.55	-0.29	0.86	1.48	0.51	0.38	0.42	0.70	0.76	0.09	1.48	-0.91
16	0.38	0.26	0.45	0.51	0.39	0.42	0.68	0.35	-0.34	-0.73	-0.78	-0.79	-0.84	-0.85	-0.81	-0.64	-0.26	1.23	0.85	0.24	0.54	1.62	1.02	1.46	0.18	1.62	-0.85
17	1.63	1.36	1.43	1.47	1.51	1.51	1.45	1.06	-0.17	-0.76	-0.54	-0.59	-0.62	-0.68	-0.53	-0.48	-0.01	1.58	0.60	0.65	0.74	1.76	1.67	1.52	0.65	1.76	-0.76
18	1.77	1.51	1.65	1.69	1.46	1.47	1.14	1.14	-0.44	-0.54	-0.67	-0.84	-0.87	-0.87	-0.76	-0.53	-0.07	0.75	2.01	0.71	1.03	1.20	1.08	0.88	0.58	2.01	-0.87
19	1.23	0.70	0.69	0.96	0.97	1.51	1.16	0.90	-0.07	-0.70	-0.71	-0.79	-0.84	-0.88	-0.82	-0.51	0.01	1.82	1.56	0.57	1.41	1.96	1.59	1.39	0.55	1.96	-0.88
20	1.22	1.63	1.38	1.51	1.24	1.64	1.56	0.82	-0.37	-0.61	-0.48	-0.70	-0.81	-0.82	-0.73	-0.48	-0.04	1.60	1.29	1.63	1.21	1.22	1.71	2.19	0.70	2.19	-0.82
21	1.65	2.01	1.59	1.63	2.06	1.53	1.89	1.10	-0.24	-0.72	-0.60	-0.49	-0.56	-0.82	-0.45	-0.27	0.19	0.79	0.99	1.77	1.54	2.08	1.42	1.79	0.83	2.08	-0.82
22	1.72	1.66	1.71	1.95	1.70	1.58	1.62	0.97	-0.65	-0.14	-0.68	-0.85	-0.92	-0.85	-0.73	-0.45	-0.02	0.94	1.60	1.92	1.40	2.48	3.17	2.82	0.91	3.17	-0.92
23	1.56	1.44	1.62	1.48	1.52	2.10	1.79	1.14	-0.32	-0.76	-0.74	-0.69	-0.79	-0.81	-0.59	-0.34	0.97	1.34	1.62	2.50	2.30	1.71	2.16	1.70	0.91	2.50	-0.81
24	1.47	1.65	1.77	1.53	1.76	1.52	1.57	1.31	-0.15	-0.50	-0.60	-0.66	-0.87	-0.67	-0.79	-0.46	0.05	1.24	1.50	0.92	0.84	1.81	1.21	1.48	0.71	1.81	-0.87
25	1.19	1.30	0.95	0.93	1.03	1.57	2.14	1.29	0.18	-0.38	-0.66	-0.79	-0.78	-0.63	-0.50	-0.35	0.11	0.24	0.59	0.99	0.64	0.79	0.73	0.37	0.46	2.14	-0.79
26	0.30	0.33	0.38	0.96	0.43	0.43	0.58	0.40	0.00	-0.06	-0.15	-0.65	-0.30	-0.16	-0.03	0.01	0.04	0.19	0.17	0.13	0.12	0.16	0.28	0.48	0.17	0.96	-0.65
27	0.84	0.56	0.63	0.15	0.10	0.14	0.27	0.20	0.14	-0.11	-0.41	-0.68	-0.74	-0.75	-0.64	-0.44	0.03	1.07	1.47	1.02	1.57	1.17	1.54	1.57	0.36	1.57	-0.75
28	1.07	1.57	0.80	0.65	0.84	0.82	0.92	0.85	0.71	-0.04	-0.35	-0.61	-0.27	-0.14	-0.18	-0.01	0.26	0.20	0.34	0.43	0.24	0.39	0.20	0.27	0.37	1.57	-0.61
29	0.28	0.24	0.33	0.47	0.49	0.69	0.38	0.33	-0.23	-0.29	-0.48	-0.32	-0.51	-0.19	-0.22	-0.08	-0.01	0.02	0.22	0.66	0.59	1.21	0.42	0.35	0.18	1.21	-0.51
30	0.19	0.11	0.28	0.53	0.41	0.72	0.54	0.25	-0.06	-0.19	-0.29	-0.34	-0.11	-0.13	-0.13	-0.17	0.00	0.18	0.10	0.11	0.11	0.16	0.29	0.60	0.13	0.72	-0.34
31	0.99	1.29	1.27	2.31	1.20	1.09	0.71	1.07	0.06	-0.36	-0.30	-0.35	-0.33	-0.30	-0.15	-0.08	-0.05	-0.03	0.00	0.09	0.18	0.21	0.21	0.54	0.39	2.31	-0.36
Avg	0.72	0.71	0.70	0.76	0.71	0.77	0.73	0.45	-0.16	-0.40	-0.50	-0.60	-0.59	-0.56	-0.49	-0.34	-0.03	0.53	0.68	0.63	0.66	0.83	0.81	0.81	0.28	1.39	-0.70
Max	1.77	2.01	1.77	2.31	2.06	2.10	2.14	1.31	0.71	-0.04	-0.04	-0.09	0.06	-0.04	-0.03	0.18	0.97	1.82	2.01	2.50	2.30	2.48	3.17	2.82	0.91	3.17	-0.11
Min	-0.09	-0.09	-0.10	-0.11	-0.10	-0.08	-0.06	-0.14	-0.65	-0.76	-0.85	-0.97	-0.92	-0.90	-0.85	-0.69	-0.37	-0.13	-0.08	-0.02	-0.04	-0.06	-0.08	-0.08	-0.21	0.09	-0.97

A-16

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
November 2018

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.34	1.53	2.03	2.58	2.89	1.89	1.71	1.67	1.12	0.68	1.01	-0.08	-0.10	-0.04	-0.04	0.12	0.17	0.04	0.02	-0.02	0.05	0.07	0.04	0.06	0.78	2.89	-0.10
2	0.07	0.03	0.12	0.61	0.70	0.71	0.80	1.05	0.92	1.08	0.62	0.53	0.45	0.37	0.20	0.25	0.25	0.21	0.24	0.24	0.15	0.12	0.04	0.01	0.41	1.08	0.01
3	0.00	0.02	0.07	0.05	0.06	0.14	0.13	0.20	0.05	-0.01	-0.14	-0.14	-0.01	-0.01	0.02	0.01	0.10	0.12	0.14	0.34	0.21	0.16	0.14	0.17	0.08	0.34	-0.14
4	0.23	0.29	0.11	0.09	0.03	0.02	0.03	0.09	0.03	0.19	0.25	0.16	0.19	0.24	0.21	0.30	0.26	0.23	0.20	0.26	0.27	0.46	0.35	0.36	0.20	0.46	0.02
5	0.18	0.04	0.39	0.94	1.60	1.16	1.07	0.40	0.43	-0.03	-0.07	-0.11	-0.13	-0.09	-0.16	-0.16	-0.05	0.32	0.50	0.58	0.52	0.04	0.18	0.10	0.32	1.60	-0.16
6	0.04	0.00	0.00	0.06	0.01	-0.03	0.01	-0.07	-0.15	-0.17	-0.34	-0.37	-0.24	-0.26	-0.26	-0.26	-0.33	0.13	0.14	0.14	0.10	0.03	-0.10	-0.04	-0.08	0.14	-0.37
7	-0.05	0.04	0.13	-0.05	-0.07	-0.08	-0.10	-0.13	-0.26	-0.34	-0.36	-0.26	-0.21	-0.24	-0.21	-0.10	0.00	0.21	0.40	0.42	0.72	1.89	1.83	1.68	0.20	1.89	-0.36
8	2.07	1.89	1.75	1.74	2.03	1.87	1.75	1.52	0.70	-0.21	-0.47	-0.49	-0.55	-0.12	0.09	0.14	0.56	1.48	2.01	2.05	0.95	2.42	1.84	1.51	1.11	2.42	-0.55
9	1.57	2.10	2.16	1.87	2.07	1.52	1.67	1.80	0.63	-0.16	-0.05	0.09	-0.14	0.00	-0.03	0.09	0.33	0.29	0.17	0.21	0.43	0.51	0.27	0.12	0.73	2.16	-0.16
10	0.04	0.04	0.01	0.10	0.03	0.01	0.10	0.06	-0.01	-0.04	-0.10	-0.20	-0.25	-0.16	-0.09	0.00	0.08	0.22	0.76	0.95	1.12	1.35	1.12	0.89	0.25	1.35	-0.25
11	0.84	0.85	1.38	1.11	1.45	0.88	0.27	-0.01	-0.10	-0.16	-0.05	-0.15	-0.20	-0.25	-0.05	0.14	0.17	0.27	0.74	0.22	0.27	0.86	2.41	1.76	0.53	2.41	-0.25
12	1.20	1.13	1.58	1.61	1.81	1.82	1.85	1.72	0.99	-0.26	0.03	-0.15	-0.31	-0.38	-0.42	0.33	0.78	1.03	0.31	0.71	1.14	1.16	1.36	1.26	0.85	1.85	-0.42
13	1.06	1.12	1.23	1.49	1.26	1.38	1.38	1.34	1.48	0.72	0.25	0.81	-0.11	0.08	0.69	0.32	0.44	1.37	1.93	2.13	2.06	2.42	2.22	2.11	1.22	2.42	-0.11
14	1.71	1.96	1.92	2.12	1.83	1.85	1.60	1.53	1.29	0.77	0.32	1.48	0.46	0.47	0.36	0.35	0.76	1.03	1.70	0.56	0.35	0.25	0.26	0.39	1.06	2.12	0.25
15	0.43	0.38	0.32	0.32	0.39	0.78	0.51	1.19	0.48	-0.18	-0.13	-0.03	0.09	0.00	0.09	0.18	0.24	0.62	0.75	0.73	0.87	0.81	0.69	0.21	0.41	1.19	-0.18
16	0.34	0.31	0.24	0.24	0.20	0.22	0.23	0.20	0.05	0.00	-0.10	-0.25	-0.34	-0.22	-0.15	-0.15	-0.10	-0.10	-0.09	-0.14	-0.10	-0.10	-0.10	0.15	0.01	0.34	-0.34
17	0.06	-0.07	-0.03	-0.01	0.95	1.88	0.44	-0.07	-0.07	-0.04	-0.13	-0.35	-0.42	-0.43	-0.38	-0.20	0.35	1.42	1.72	1.40	1.75	1.79	2.26	1.80	0.57	2.26	-0.43
18	1.76	1.57	1.57	1.53	1.73	1.59	1.50	0.70	0.82	0.49	0.17	-0.29	-0.23	-0.18	-0.10	0.23	0.73	0.22	0.27	0.96	0.37	0.48	0.29	0.24	0.68	1.76	-0.29
19	0.16	0.19	0.23	0.93	1.14	1.19	1.25	1.44	0.63	-0.02	-0.59	0.40	-0.34	-0.32	-0.14	-0.02	1.22	0.51	0.93	0.99	1.03	1.44	1.75	1.37	0.64	1.75	-0.59
20	1.37	1.05	1.55	1.62	1.41	1.68	1.66	2.00	1.35	0.38	0.02	Au	Au	Au	-0.04	1.04	0.91	0.78	1.63	1.64	1.89	1.70	1.55	2.01	1.30	2.01	-0.04
21	1.98	2.05	2.17	1.89	1.72	2.01	2.23	2.31	1.62	0.15	0.99	-0.12	0.13	0.07	0.70	0.69	1.54	0.99	0.48	0.46	1.44	3.08	1.71	1.64	1.33	3.08	-0.12
22	2.82	2.37	2.60	2.62	2.61	2.06	1.38	1.25	1.44	1.05	0.27	0.19	0.04	0.13	0.02	0.03	0.47	0.46	0.60	0.65	0.72	1.30	1.64	1.78	1.19	2.82	0.02
23	0.75	0.82	1.09	0.62	0.57	0.23	0.35	0.31	0.18	0.03	0.02	-0.09	-0.04	0.01	-0.02	-0.03	0.44	0.74	0.77	0.87	0.50	0.83	0.71	0.41	0.42	1.09	-0.09
24	0.35	0.60	0.31	0.24	0.43	0.46	0.39	0.18	0.00	-0.13	-0.17	-0.23	-0.24	-0.37	-0.20	-0.13	-0.05	-0.05	0.00	0.31	0.42	0.25	0.69	1.00	0.17	1.00	-0.37
25	0.69	0.48	0.24	0.97	2.27	2.11	2.27	1.84	1.79	0.65	0.61	-0.18	-0.40	-0.34	-0.25	-0.11	0.72	1.14	1.17	1.11	1.37	1.29	1.24	1.02	0.90	2.27	-0.40
26	1.26	1.12	1.45	1.56	1.27	1.24	1.41	1.25	0.76	-0.06	0.01	0.11	-0.39	-0.14	0.20	0.29	0.67	1.02	1.09	1.87	1.69	0.86	0.37	0.08	0.79	1.87	-0.39
27	0.32	0.31	0.67	1.07	0.74	0.70	0.85	0.91	0.65	0.31	0.09	0.00	0.14	0.18	0.34	0.27	0.36	0.29	0.37	0.34	0.29	0.22	0.44	0.39	0.43	1.07	0.00
28	0.37	0.32	0.31	0.26	0.41	0.27	0.19	0.20	0.70	-0.10	-0.17	-0.10	-0.03	0.03	-0.07	0.09	0.43	1.24	0.44	0.43	0.74	1.29	1.36	1.45	0.42	1.45	-0.17
29	1.59	1.37	1.49	1.11	1.01	1.36	1.20	1.14	0.54	0.14	0.14	-0.36	-0.11	0.00	-0.11	-0.28	0.69	1.08	1.26	1.51	1.71	1.55	1.44	1.33	0.87	1.71	-0.36
30	1.78	1.91	2.05	1.60	1.64	1.25	1.14	0.97	1.09	0.16	-0.38	0.16	-0.19	-0.02	-0.01	0.35	0.58	0.59	1.39	0.77	0.56	0.25	0.27	0.14	0.75	2.05	-0.38
Avg	0.88	0.86	0.97	1.03	1.14	1.07	0.98	0.90	0.64	0.16	0.05	-0.00	-0.12	-0.07	0.01	0.13	0.42	0.60	0.73	0.76	0.79	0.96	0.94	0.85	0.61	1.70	-0.22
Max	2.82	2.37	2.60	2.62	2.89	2.11	2.27	2.31	1.79	1.08	1.01	1.48	0.46	0.47	0.70	1.04	1.54	1.48	2.01	2.13	2.06	3.08	2.41	2.11	1.33	3.08	0.25
Min	-0.05	-0.07	-0.03	-0.05	-0.07	-0.08	-0.10	-0.13	-0.26	-0.34	-0.59	-0.49	-0.55	-0.43	-0.42	-0.28	-0.33	-0.10	-0.09	-0.14	-0.10	-0.10	-0.10	-0.04	-0.08	0.14	-0.59

A-17

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Temperature Delta T (degrees Celsius)
December 2018

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	0.18	0.04	0.10	0.01	0.03	0.12	0.15	0.02	-0.10	-0.21	-0.16	-0.20	-0.07	-0.04	0.04	1.57	1.55	1.64	1.68	2.13	2.36	1.67	1.61	0.59	2.36	-0.21
2	1.92	1.99	2.27	2.15	1.86	1.42	2.43	2.20	1.70	0.38	0.12	-0.26	-0.61	-0.58	-0.65	0.11	0.67	0.67	0.06	0.07	0.08	-0.03	0.08	0.08	0.76	2.43	-0.65
3	0.01	-0.05	-0.01	0.00	0.07	0.16	0.12	0.12	0.01	-0.12	-0.15	-0.28	-0.21	-0.13	-0.12	-0.06	0.07	0.11	0.13	0.12	0.08	0.05	0.09	0.06	0.00	0.16	-0.28
4	0.06	0.07	0.07	0.07	0.10	0.55	1.36	1.75	2.59	0.61	-0.08	-0.14	-0.13	-0.15	-0.05	0.03	0.84	1.13	1.96	1.47	0.88	0.94	1.61	1.74	0.72	2.59	-0.15
5	1.72	1.89	1.05	0.75	0.78	1.50	1.52	0.65	0.21	-0.06	-0.26	-0.23	-0.15	-0.35	-0.06	0.16	0.21	0.70	1.66	1.64	1.27	1.73	1.58	1.64	0.81	1.89	-0.35
6	1.27	1.61	1.57	2.05	1.69	1.69	2.02	1.72	1.21	0.11	0.12	0.06	-0.54	-0.33	-0.20	0.13	1.03	1.07	1.32	0.97	1.96	1.72	1.62	1.66	1.06	2.05	-0.54
7	1.85	1.59	1.08	1.56	1.37	1.47	1.40	1.76	1.91	1.65	0.90	0.67	-0.27	-0.25	-0.18	0.16	1.29	0.90	1.34	1.64	1.90	1.93	2.39	2.06	1.25	2.39	-0.27
8	1.66	1.86	1.74	1.75	1.91	1.57	1.85	1.42	1.49	0.16	-0.32	1.07	-0.18	-0.18	-0.08	0.12	0.93	1.52	1.07	0.39	0.51	0.83	0.95	1.16	0.97	1.91	-0.32
9	1.29	1.43	1.64	2.39	2.44	2.51	1.90	1.48	1.73	0.67	0.35	0.11	-0.15	-0.03	-0.12	0.10	1.09	1.57	2.11	1.86	2.28	1.82	1.95	1.19	1.32	2.51	-0.15
10	1.48	1.50	1.27	1.50	1.69	1.69	1.82	2.02	1.43	0.88	0.12	0.07	0.11	-0.07	0.06	0.58	0.44	0.20	0.16	0.09	0.17	0.33	0.25	0.32	0.75	2.02	-0.07
11	0.57	0.81	1.86	1.40	2.06	2.02	2.10	0.95	0.43	0.11	0.01	-0.21	-0.15	-0.19	-0.09	0.11	0.34	0.47	0.29	0.18	0.16	0.21	0.22	0.26	0.58	2.10	-0.21
12	0.31	0.28	0.22	0.15	0.05	0.15	0.16	0.09	0.11	0.15	0.15	0.05	0.08	0.12	0.19	0.19	0.28	0.29	0.41	0.57	1.31	0.85	0.40	0.91	0.31	1.31	0.05
13	0.96	0.59	0.44	0.35	0.32	0.62	0.40	0.80	0.89	0.68	0.18	0.13	0.10	0.16	0.31	0.61	0.69	1.52	1.52	0.86	1.24	1.23	1.86	1.66	0.75	1.86	0.10
14	1.77	1.19	0.91	0.77	0.84	1.19	1.58	0.63	0.63	0.44	0.57	0.51	0.09	0.08	0.21	0.97	1.21	1.56	0.94	1.53	1.53	0.55	0.57	0.63	0.87	1.77	0.08
15	1.34	1.37	0.56	0.39	0.17	0.16	0.29	0.18	0.26	0.16	0.10	0.10	0.18	0.08	0.15	0.32	0.40	1.31	1.78	1.57	1.43	0.97	1.27	1.85	0.68	1.85	0.08
16	1.90	1.90	1.79	1.84	1.24	1.75	1.81	2.54	1.68	0.37	0.63	0.32	0.23	0.25	0.08	0.34	1.10	1.33	1.23	0.80	2.05	1.54	1.08	1.18	1.21	2.54	0.08
17	0.60	1.49	1.39	1.09	0.90	1.18	0.96	0.72	0.60	0.35	0.41	0.40	0.28	0.27	0.11	0.15	0.67	0.44	0.50	0.32	0.62	0.89	1.73	1.18	0.72	1.73	0.11
18	1.47	1.48	1.87	2.29	1.31	0.51	0.61	0.64	0.61	0.24	0.06	-0.02	0.04	0.14	0.09	0.10	0.15	0.13	0.21	0.21	0.19	0.21	0.24	0.28	0.54	2.29	-0.02
19	0.27	0.27	0.28	0.27	0.20	0.33	0.35	0.20	0.16	0.10	0.00	-0.05	-0.01	0.03	0.07	0.19	0.35	0.44	0.80	0.97	0.64	0.57	0.77	1.84	0.38	1.84	-0.05
20	0.97	1.21	1.16	1.17	0.91	1.10	0.82	1.01	1.11	0.33	0.16	0.21	0.07	0.11	0.17	0.22	0.56	0.64	0.86	1.84	1.76	0.53	0.73	0.47	0.76	1.84	0.07
21	0.51	0.64	0.62	0.20	0.10	0.10	0.12	0.12	0.08	0.14	0.06	-0.16	-0.21	-0.14	-0.07	0.05	0.26	0.44	0.22	0.31	0.30	0.47	0.70	0.50	0.22	0.70	-0.21
22	0.58	0.53	0.60	1.08	0.98	0.35	0.66	0.57	0.58	0.03	-0.12	-0.15	-0.05	-0.04	-0.23	-0.10	0.44	0.65	1.35	1.15	0.92	1.22	1.24	1.24	0.56	1.35	-0.23
23	0.88	1.26	1.32	1.06	0.52	0.37	0.54	0.14	0.47	0.20	0.00	-0.12	-0.12	-0.22	-0.06	0.09	0.18	0.22	0.36	0.44	0.30	0.49	0.32	0.60	0.38	1.32	-0.22
24	0.39	0.43	0.58	0.42	0.34	0.50	0.59	0.42	0.21	0.05	-0.09	-0.18	-0.23	-0.33	-0.37	-0.14	0.57	0.80	0.59	0.37	1.01	1.11	1.02	0.97	0.38	1.11	-0.37
25	1.25	1.31	0.90	0.23	0.87	0.79	0.52	0.87	0.66	0.20	-0.14	-0.64	-0.65	-0.38	-0.14	-0.09	0.15	0.36	0.35	0.38	0.49	0.18	0.05	0.10	0.32	1.31	-0.65
26	0.40	0.40	0.35	0.28	0.68	1.02	0.82	1.20	0.32	-0.11	-0.13	-0.18	-0.31	-0.31	-0.20	-0.09	0.67	1.10	1.16	1.22	0.81	0.97	1.10	0.53	0.49	1.22	-0.31
27	0.41	0.26	0.36	0.46	0.27	0.11	0.10	0.06	0.00	-0.23	-0.69	-0.64	-0.34	-0.38	-0.26	-0.01	0.26	0.15	0.08	0.05	0.11	0.22	0.22	0.09	0.03	0.46	-0.69
28	0.54	0.96	0.25	0.10	-0.05	-0.11	-0.06	-0.04	-0.10	-0.12	-0.15	-0.25	-0.25	-0.25	-0.19	-0.02	0.28	0.95	0.91	1.56	1.62	0.63	0.24	0.28	0.28	1.62	-0.25
29	0.00	0.00	0.02	0.40	0.40	0.29	0.37	0.08	-0.01	-0.08	-0.16	-0.09	-0.04	0.02	0.06	0.17	0.53	0.63	0.68	0.33	0.26	0.21	0.28	0.27	0.19	0.68	-0.16
30	0.16	0.17	0.14	0.15	0.11	0.25	0.22	0.14	0.21	0.04	0.01	-0.02	0.06	-0.01	0.01	0.05	-0.02	-0.01	0.00	-0.02	-0.09	-0.05	-0.06	-0.10	0.06	0.25	-0.10
31	-0.10	-0.10	-0.11	-0.10	-0.10	-0.10	-0.11	-0.13	-0.14	-0.31	-0.27	-0.41	-0.29	-0.41	-0.39	-0.18	0.00	0.29	0.19	0.30	0.60	1.68	2.07	2.26	0.17	2.26	-0.41
Avg	0.86	0.92	0.85	0.85	0.78	0.81	0.88	0.79	0.68	0.22	0.04	-0.02	-0.12	-0.11	-0.06	0.14	0.56	0.75	0.83	0.80	0.92	0.85	0.91	0.92	0.58	1.67	-0.20
Max	1.92	1.99	2.27	2.39	2.44	2.51	2.43	2.54	2.59	1.65	0.90	1.07	0.28	0.27	0.31	0.97	1.57	1.57	2.11	1.86	2.28	2.36	2.39	2.26	1.32	2.59	0.11
Min	-0.10	-0.10	-0.11	-0.10	-0.10	-0.11	-0.11	-0.13	-0.14	-0.31	-0.69	-0.64	-0.65	-0.58	-0.65	-0.18	-0.02	-0.01	0.00	-0.02	-0.09	-0.05	-0.06	-0.10	0.00	0.16	-0.69

A-18

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
October 2018

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	14	162	336	489	613	655	603	443	397	309	84	31	0	0	0	0	0	0	172	655	0
2	0	0	0	0	0	0	2	25	46	82	77	109	86	116	135	49	25	5	0	0	0	0	0	0	32	135	0
3	0	0	0	0	0	0	6	73	185	496	611	693	710	668	575	437	178	31	0	0	0	0	0	0	194	710	0
4	0	0	0	0	0	0	7	68	71	257	139	246	221	95	47	29	19	3	0	0	0	0	0	0	50	257	0
5	0	0	0	0	0	0	1	14	55	314	392	262	379	401	529	409	156	37	0	0	0	0	0	0	123	529	0
6	0	0	0	0	0	0	2	33	71	80	98	257	275	149	184	93	26	5	0	0	0	0	0	0	53	275	0
7	0	0	0	0	0	0	3	17	31	65	91	82	162	76	113	312	183	18	0	0	0	0	0	0	48	312	0
8	0	0	0	0	0	0	3	85	322	332	604	597	116	222	260	48	31	9	0	0	0	0	0	0	110	604	0
9	0	0	0	0	0	0	3	41	78	163	304	301	328	198	169	94	53	11	0	0	0	0	0	0	73	328	0
10	0	0	0	0	0	0	3	39	129	243	341	471	412	282	158	81	24	9	0	0	0	0	0	0	91	471	0
11	0	0	0	0	0	0	1	24	69	182	290	530	252	204	177	238	147	30	0	0	0	0	0	0	89	530	0
12	0	0	0	0	0	0	7	120	236	383	472	556	573	610	465	260	163	39	0	0	0	0	0	0	162	610	0
13	0	0	0	0	0	0	2	34	64	126	163	273	256	240	202	82	25	5	0	0	0	0	0	0	61	273	0
14	0	0	0	0	0	0	2	39	232	382	301	367	491	537	506	333	198	27	0	0	0	0	0	0	142	537	0
15	0	0	0	0	0	0	4	54	213	185	394	616	621	607	321	284	175	28	0	0	0	0	0	0	146	621	0
16	0	0	0	0	0	0	2	90	264	418	535	603	617	574	479	340	175	20	0	0	0	0	0	0	172	617	0
17	0	0	0	0	0	0	2	75	278	425	542	611	625	583	485	342	174	18	0	0	0	0	0	0	173	625	0
18	0	0	0	0	0	0	2	76	266	423	542	611	625	580	483	341	170	10	0	0	0	0	0	0	172	625	0
19	0	0	0	0	0	0	1	34	226	406	527	593	604	558	463	322	160	14	0	0	0	0	0	0	163	604	0
20	0	0	0	0	0	0	2	74	248	400	517	587	603	560	465	327	160	11	0	0	0	0	0	0	165	603	0
21	0	0	0	0	0	0	3	68	211	323	451	435	503	498	322	242	133	12	0	0	0	0	0	0	133	503	0
22	0	0	0	0	0	0	1	68	242	394	509	577	585	541	444	306	141	7	0	0	0	0	0	0	159	585	0
23	0	0	0	0	0	0	1	78	237	387	502	564	565	545	437	235	68	3	0	0	0	0	0	0	151	565	0
24	0	0	0	0	0	0	1	51	219	329	476	458	539	453	477	282	97	2	0	0	0	0	0	0	141	539	0
25	0	0	0	0	0	0	0	56	220	375	493	553	529	421	338	254	45	1	0	0	0	0	0	0	137	553	0
26	0	0	0	0	0	0	0	13	48	87	230	600	176	141	63	50	21	0	0	0	0	0	0	0	60	600	0
27	0	0	0	0	0	0	0	24	145	229	421	554	567	528	423	293	125	2	0	0	0	0	0	0	138	567	0
28	0	0	0	0	0	0	0	35	164	198	361	516	252	164	178	91	23	0	0	0	0	0	0	0	83	516	0
29	0	0	0	0	0	0	0	55	241	207	362	233	401	136	150	73	22	0	0	0	0	0	0	0	78	401	0
30	0	0	0	0	0	0	0	16	57	112	197	204	75	88	90	134	28	1	0	0	0	0	0	0	42	204	0
31	0	0	0	0	0	0	0	28	130	239	175	170	139	95	54	16	5	0	0	0	0	0	0	0	44	239	0
Avg	0	0	0	0	0	0	2	54	172	282	378	448	416	365	309	216	98	13	0	0	0	0	0	0	115	490	0
Max	0	0	0	0	0	0	14	162	336	496	613	693	710	668	575	437	198	39	0	0	0	0	0	0	194	710	0
Min	0	0	0	0	0	0	0	13	31	65	77	82	75	76	47	16	5	0	0	0	0	0	0	0	32	135	0

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
November 2018

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	18	118	59	144	476	560	469	376	93	21	0	0	0	0	0	0	97	560	0	
2	0	0	0	0	0	0	0	5	19	36	42	77	75	77	97	38	12	0	0	0	0	0	0	20	97	0	
3	0	0	0	0	0	0	0	14	42	86	173	171	179	227	111	75	26	0	0	0	0	0	0	46	227	0	
4	0	0	0	0	0	0	0	1	12	40	68	100	116	88	94	32	21	0	0	0	0	0	0	24	116	0	
5	0	0	0	0	0	0	0	8	71	125	214	149	184	151	160	88	37	0	0	0	0	0	0	49	214	0	
6	0	0	0	0	0	0	0	2	16	28	46	86	59	61	81	48	66	1	0	0	0	0	0	21	86	0	
7	0	0	0	0	0	0	0	4	33	53	58	59	65	119	147	99	34	0	0	0	0	0	0	28	147	0	
8	0	0	0	0	0	0	0	18	154	300	411	499	469	260	236	183	75	0	0	0	0	0	0	109	499	0	
9	0	0	0	0	0	0	0	16	81	201	276	182	226	198	80	36	8	0	0	0	0	0	0	54	276	0	
10	0	0	0	0	0	0	0	15	54	120	160	345	426	342	206	97	36	0	0	0	0	0	0	75	426	0	
11	0	0	0	0	0	0	0	5	35	86	89	106	297	205	166	81	22	0	0	0	0	0	0	46	297	0	
12	0	0	0	0	0	0	0	13	153	298	407	434	367	322	366	215	54	0	0	0	0	0	0	110	434	0	
13	0	0	0	0	0	0	0	16	72	163	218	333	296	444	305	162	39	0	0	0	0	0	0	85	444	0	
14	0	0	0	0	0	0	0	7	42	154	200	288	363	321	225	144	31	0	0	0	0	0	0	74	363	0	
15	0	0	0	0	0	0	0	15	122	269	390	482	278	419	275	70	25	0	0	0	0	0	0	98	482	0	
16	0	0	0	0	0	0	0	4	23	109	242	302	312	255	183	112	12	0	0	0	0	0	0	65	312	0	
17	0	0	0	0	0	0	0	5	53	245	314	284	260	244	277	204	42	0	0	0	0	0	0	80	314	0	
18	0	0	0	0	0	0	0	4	71	206	328	432	445	337	222	105	20	0	0	0	0	0	0	90	445	0	
19	0	0	0	0	0	0	0	5	131	279	378	448	460	417	322	192	38	0	0	0	0	0	0	111	460	0	
20	0	0	0	0	0	0	0	4	56	238	370	Au	Au	Au	323	192	37	0	0	0	0	0	0	58	370	0	
21	0	0	0	0	0	0	0	3	74	257	365	480	496	423	147	111	11	0	0	0	0	0	0	99	496	0	
22	0	0	0	0	0	0	0	3	29	65	84	96	204	89	100	53	19	0	0	0	0	0	0	31	204	0	
23	0	0	0	0	0	0	0	1	40	130	153	183	164	74	116	96	31	0	0	0	0	0	0	41	183	0	
24	0	0	0	0	0	0	0	1	22	96	174	158	218	321	122	38	4	0	0	0	0	0	0	48	321	0	
25	0	0	0	0	0	0	0	2	31	152	250	270	517	423	317	198	26	0	0	0	0	0	0	91	517	0	
26	0	0	0	0	0	0	0	3	53	241	348	417	383	191	110	56	8	0	0	0	0	0	0	75	417	0	
27	0	0	0	0	0	0	0	1	45	109	109	181	138	146	79	26	7	0	0	0	0	0	0	35	181	0	
28	0	0	0	0	0	0	0	2	63	258	378	293	261	113	241	86	5	0	0	0	0	0	0	71	378	0	
29	0	0	0	0	0	0	0	1	50	125	157	298	277	147	246	167	21	0	0	0	0	0	0	62	298	0	
30	0	0	0	0	0	0	0	1	44	199	351	419	383	180	145	49	7	0	0	0	0	0	0	74	419	0	
Avg	0	0	0	0	0	0	0	7	60	158	230	278	292	244	196	105	27	0	0	0	0	0	0	66	333	0	
Max	0	0	0	0	0	0	0	18	154	300	411	499	560	469	376	215	75	1	0	0	0	0	0	111	560	0	
Min	0	0	0	0	0	0	0	1	12	28	42	59	59	61	79	26	4	0	0	0	0	0	0	20	86	0	

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
December 2018

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	12	30	55	91	114	55	50	143	24	0	0	0	0	0	0	0	24	143	0
2	0	0	0	0	0	0	0	0	21	54	98	203	384	378	290	109	8	0	0	0	0	0	0	0	64	384	0
3	0	0	0	0	0	0	0	0	10	75	206	182	163	110	98	74	7	0	0	0	0	0	0	0	39	206	0
4	0	0	0	0	0	0	0	2	71	214	320	393	422	384	293	169	17	0	0	0	0	0	0	0	95	422	0
5	0	0	0	0	0	0	0	1	28	100	225	433	270	419	223	97	22	0	0	0	0	0	0	0	76	433	0
6	0	0	0	0	0	0	0	1	64	222	320	396	420	382	293	169	18	0	0	0	0	0	0	0	95	420	0
7	0	0	0	0	0	0	0	2	61	203	329	400	420	382	293	159	15	0	0	0	0	0	0	0	94	420	0
8	0	0	0	0	0	0	0	1	43	194	312	390	411	374	286	162	16	0	0	0	0	0	0	0	91	411	0
9	0	0	0	0	0	0	0	2	51	188	298	383	400	342	267	146	12	0	0	0	0	0	0	0	87	400	0
10	0	0	0	0	0	0	0	0	33	127	247	304	334	383	214	70	7	0	0	0	0	0	0	0	72	383	0
11	0	0	0	0	0	0	0	1	59	194	296	387	296	314	199	31	3	0	0	0	0	0	0	0	74	387	0
12	0	0	0	0	0	0	0	0	14	66	162	460	295	153	164	138	18	0	0	0	0	0	0	0	61	460	0
13	0	0	0	0	0	0	0	0	24	46	84	85	91	72	52	21	7	0	0	0	0	0	0	0	20	91	0
14	0	0	0	0	0	0	0	0	21	76	155	251	245	267	238	96	18	0	0	0	0	0	0	0	57	267	0
15	0	0	0	0	0	0	0	0	24	61	84	106	103	116	72	40	17	0	0	0	0	0	0	0	26	116	0
16	0	0	0	0	0	0	0	0	40	228	138	137	236	223	286	114	17	0	0	0	0	0	0	0	59	286	0
17	0	0	0	0	0	0	0	1	9	67	92	89	121	161	204	103	8	0	0	0	0	0	0	0	36	204	0
18	0	0	0	0	0	0	0	0	29	139	214	233	205	100	83	51	5	0	0	0	0	0	0	0	44	233	0
19	0	0	0	0	0	0	0	0	19	161	304	379	401	321	220	85	5	0	0	0	0	0	0	0	79	401	0
20	0	0	0	0	0	0	0	0	46	133	134	192	129	135	120	116	9	0	0	0	0	0	0	0	42	192	0
21	0	0	0	0	0	0	0	0	13	68	218	441	424	397	291	159	9	0	0	0	0	0	0	0	84	441	0
22	0	0	0	0	0	0	0	0	14	41	163	248	158	231	295	168	21	0	0	0	0	0	0	0	56	295	0
23	0	0	0	0	0	0	0	0	6	49	119	121	119	229	113	50	11	0	0	0	0	0	0	0	34	229	0
24	0	0	0	0	0	0	0	0	12	56	100	140	170	235	245	156	10	0	0	0	0	0	0	0	47	245	0
25	0	0	0	0	0	0	0	0	16	108	194	360	347	297	159	101	14	0	0	0	0	0	0	0	67	360	0
26	0	0	0	0	0	0	0	0	13	50	113	182	191	211	125	44	21	0	0	0	0	0	0	0	40	211	0
27	0	0	0	0	0	0	0	0	18	93	234	216	190	175	101	49	11	0	0	0	0	0	0	0	45	234	0
28	0	0	0	0	0	0	0	0	5	34	68	118	142	152	146	104	31	0	0	0	0	0	0	0	33	152	0
29	0	0	0	0	0	0	0	0	8	64	119	98	54	50	41	25	2	0	0	0	0	0	0	0	19	119	0
30	0	0	0	0	0	0	0	0	6	39	85	127	155	98	79	53	8	0	0	0	0	0	0	0	27	155	0
31	0	0	0	0	0	0	0	0	14	94	202	298	231	222	163	74	14	0	0	0	0	0	0	0	55	298	0
Avg	0	0	0	0	0	0	0	0	26	106	183	253	246	238	184	99	13	0	0	0	0	0	0	0	56	290	0
Max	0	0	0	0	0	0	0	2	71	228	329	460	424	419	295	169	31	0	0	0	0	0	0	0	95	460	0
Min	0	0	0	0	0	0	0	0	5	30	55	85	54	50	41	21	2	0	0	0	0	0	0	0	19	91	0

A-21

**Sandfire Resources America Inc.
 Black Butte Copper Project Met Tower Air Monitoring Summary
 Barometric Pressure (InHg)
 October 2018**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	24.39	24.39	24.39	24.39	24.39	24.40	24.39	24.41	24.42	24.42	24.42	24.42	24.40	24.39	24.37	24.37	24.36	24.37	24.37	24.37	24.36	24.36	24.36	24.39	24.42	24.36	
2	24.35	24.34	24.33	24.31	24.31	24.30	24.29	24.29	24.29	24.28	24.26	24.24	24.23	24.22	24.21	24.20	24.19	24.17	24.15	24.13	24.11	24.09	24.08	24.07	24.23	24.35	24.07
3	24.08	24.11	24.12	24.16	24.21	24.26	24.30	24.35	24.40	24.43	24.45	24.45	24.44	24.43	24.42	24.42	24.42	24.41	24.41	24.42	24.42	24.41	24.41	24.39	24.35	24.45	24.08
4	24.38	24.36	24.34	24.33	24.31	24.29	24.29	24.28	24.26	24.25	24.25	24.23	24.23	24.22	24.22	24.22	24.23	24.24	24.26	24.28	24.29	24.29	24.31	24.32	24.28	24.38	24.22
5	24.32	24.33	24.33	24.34	24.35	24.37	24.38	24.40	24.41	24.41	24.42	24.42	24.42	24.43	24.42	24.42	24.42	24.42	24.41	24.41	24.41	24.40	24.38	24.37	24.39	24.43	24.32
6	24.36	24.36	24.35	24.35	24.36	24.35	24.35	24.35	24.36	24.36	24.36	24.36	24.36	24.35	24.35	24.36	24.37	24.39	24.40	24.42	24.42	24.43	24.43	24.43	24.37	24.43	24.35
7	24.43	24.43	24.43	24.44	24.44	24.44	24.45	24.45	24.46	24.47	24.47	24.46	24.45	24.44	24.45	24.45	24.46	24.45	24.45	24.45	24.45	24.45	24.44	24.44	24.45	24.47	24.43
8	24.43	24.43	24.42	24.41	24.41	24.42	24.43	24.44	24.45	24.44	24.43	24.42	24.41	24.40	24.40	24.39	24.40	24.41	24.40	24.40	24.40	24.40	24.39	24.38	24.41	24.45	24.38
9	24.37	24.35	24.34	24.34	24.33	24.33	24.33	24.33	24.33	24.34	24.34	24.34	24.33	24.34	24.35	24.35	24.37	24.38	24.39	24.40	24.40	24.41	24.42	24.42	24.36	24.42	24.33
10	24.41	24.40	24.40	24.40	24.40	24.40	24.40	24.40	24.40	24.41	24.41	24.40	24.40	24.39	24.39	24.38	24.38	24.38	24.39	24.39	24.39	24.39	24.39	24.39	24.40	24.41	24.38
11	24.39	24.38	24.37	24.37	24.37	24.36	24.37	24.38	24.39	24.39	24.39	24.38	24.38	24.36	24.36	24.36	24.36	24.35	24.35	24.35	24.35	24.35	24.37	24.37	24.37	24.39	24.35
12	24.38	24.38	24.38	24.37	24.37	24.36	24.36	24.36	24.36	24.36	24.35	24.33	24.31	24.28	24.27	24.27	24.26	24.26	24.24	24.24	24.25	24.26	24.26	24.28	24.31	24.38	24.24
13	24.30	24.32	24.33	24.33	24.33	24.33	24.36	24.38	24.40	24.41	24.43	24.43	24.44	24.45	24.46	24.47	24.48	24.49	24.51	24.53	24.55	24.55	24.56	24.57	24.43	24.57	24.30
14	24.58	24.58	24.59	24.59	24.60	24.61	24.61	24.61	24.61	24.62	24.61	24.60	24.60	24.60	24.59	24.59	24.58	24.58	24.57	24.58	24.59	24.59	24.60	24.60	24.60	24.62	24.57
15	24.60	24.60	24.60	24.60	24.61	24.62	24.63	24.64	24.66	24.67	24.68	24.68	24.67	24.66	24.66	24.66	24.65	24.65	24.64	24.64	24.65	24.66	24.67	24.68	24.64	24.68	24.60
16	24.68	24.69	24.70	24.70	24.71	24.71	24.72	24.73	24.75	24.75	24.75	24.74	24.73	24.72	24.71	24.71	24.71	24.71	24.72	24.72	24.72	24.73	24.73	24.73	24.72	24.75	24.68
17	24.74	24.74	24.74	24.74	24.74	24.73	24.73	24.73	24.72	24.72	24.72	24.70	24.68	24.66	24.64	24.63	24.62	24.61	24.61	24.60	24.59	24.58	24.57	24.56	24.67	24.74	24.56
18	24.56	24.55	24.54	24.54	24.54	24.53	24.53	24.52	24.53	24.54	24.53	24.52	24.51	24.50	24.49	24.49	24.49	24.51	24.53	24.53	24.54	24.55	24.57	24.58	24.53	24.58	24.49
19	24.60	24.61	24.62	24.63	24.64	24.66	24.67	24.69	24.71	24.72	24.72	24.72	24.71	24.70	24.69	24.69	24.70	24.70	24.69	24.70	24.70	24.70	24.69	24.69	24.68	24.72	24.60
20	24.69	24.69	24.68	24.68	24.67	24.67	24.67	24.66	24.66	24.65	24.64	24.62	24.60	24.58	24.56	24.56	24.55	24.54	24.54	24.55	24.54	24.54	24.54	24.54	24.61	24.69	24.54
21	24.54	24.53	24.54	24.54	24.53	24.53	24.53	24.52	24.52	24.52	24.52	24.51	24.50	24.49	24.48	24.48	24.48	24.49	24.50	24.50	24.51	24.52	24.53	24.54	24.51	24.54	24.48
22	24.55	24.55	24.56	24.56	24.56	24.56	24.56	24.56	24.57	24.57	24.57	24.56	24.55	24.54	24.53	24.52	24.53	24.53	24.53	24.53	24.53	24.52	24.51	24.50	24.54	24.57	24.50
23	24.50	24.50	24.49	24.48	24.47	24.46	24.46	24.45	24.45	24.44	24.43	24.42	24.40	24.38	24.37	24.37	24.38	24.38	24.38	24.38	24.38	24.38	24.38	24.38	24.42	24.50	24.37
24	24.37	24.37	24.37	24.37	24.38	24.39	24.39	24.40	24.41	24.42	24.42	24.41	24.39	24.38	24.37	24.37	24.37	24.37	24.37	24.37	24.39	24.39	24.39	24.40	24.39	24.42	24.37
25	24.40	24.40	24.42	24.43	24.43	24.43	24.42	24.43	24.45	24.46	24.46	24.46	24.45	24.44	24.44	24.44	24.46	24.46	24.46	24.45	24.45	24.44	24.42	24.42	24.44	24.46	24.40
26	24.42	24.41	24.41	24.42	24.42	24.42	24.42	24.43	24.45	24.46	24.46	24.45	24.44	24.42	24.41	24.41	24.40	24.39	24.38	24.38	24.37	24.36	24.35	24.33	24.41	24.46	24.33
27	24.32	24.31	24.32	24.32	24.32	24.33	24.35	24.38	24.41	24.43	24.45	24.46	24.45	24.45	24.45	24.46	24.47	24.48	24.49	24.48	24.48	24.48	24.49	24.49	24.42	24.49	24.31
28	24.46	24.45	24.43	24.41	24.39	24.38	24.38	24.37	24.36	24.36	24.35	24.33	24.31	24.30	24.30	24.28	24.28	24.28	24.31	24.30	24.32	24.31	24.32	24.31	24.35	24.46	24.28
29	24.32	24.32	24.31	24.29	24.29	24.29	24.30	24.31	24.33	24.34	24.34	24.34	24.33	24.34	24.35	24.36	24.37	24.39	24.40	24.41	24.42	24.41	24.42	24.42	24.35	24.42	24.29
30	24.42	24.42	24.43	24.43	24.44	24.44	24.44	24.45	24.47	24.47	24.47	24.47	24.46	24.45	24.45	24.45	24.46	24.46	24.47	24.47	24.47	24.48	24.47	24.46	24.45	24.48	24.42
31	24.46	24.45	24.43	24.41	24.39	24.39	24.38	24.37	24.37	24.35	24.34	24.33	24.31	24.29	24.28	24.27	24.26	24.26	24.26	24.27	24.26	24.27	24.28	24.28	24.33	24.46	24.26
Avg	24.45	24.44	24.44	24.44	24.44	24.44	24.45	24.45	24.46	24.47	24.47	24.46	24.45	24.44	24.43	24.43	24.43	24.44	24.44	24.44	24.44	24.44	24.44	24.44	24.45	24.50	24.38
Max	24.74	24.74	24.74	24.74	24.74	24.73	24.73	24.73	24.75	24.75	24.75	24.74	24.73	24.72	24.71	24.71	24.71	24.71	24.72	24.72	24.72	24.73	24.73	24.73	24.72	24.75	24.68
Min	24.08	24.11	24.12	24.16	24.21	24.26	24.29	24.28	24.26	24.25	24.25	24.23	24.23	24.22	24.21	24.20	24.19	24.17	24.15	24.13	24.11	24.09	24.08	24.07	24.23	24.35	24.07

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
November 2018

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	24.28	24.28	24.30	24.30	24.32	24.33	24.35	24.36	24.37	24.38	24.39	24.40	24.40	24.40	24.40	24.40	24.40	24.40	24.40	24.39	24.38	24.36	24.35	24.34	24.36	24.40	24.28
2	24.32	24.31	24.30	24.28	24.26	24.24	24.22	24.19	24.16	24.14	24.14	24.12	24.11	24.12	24.12	24.14	24.14	24.16	24.18	24.21	24.25	24.28	24.30	24.34	24.21	24.34	24.11
3	24.36	24.37	24.38	24.39	24.40	24.40	24.41	24.42	24.44	24.44	24.44	24.44	24.42	24.42	24.42	24.41	24.42	24.41	24.41	24.40	24.38	24.35	24.35	24.33	24.40	24.44	24.33
4	24.30	24.27	24.23	24.20	24.17	24.15	24.12	24.09	24.07	24.05	24.04	24.03	24.01	24.00	24.00	24.01	24.02	24.03	24.06	24.07	24.09	24.11	24.12	24.13	24.10	24.30	24.00
5	24.13	24.14	24.16	24.15	24.15	24.17	24.18	24.18	24.19	24.21	24.21	24.21	24.21	24.20	24.20	24.21	24.22	24.24	24.23	24.23	24.24	24.24	24.25	24.26	24.20	24.26	24.13
6	24.26	24.27	24.28	24.28	24.29	24.30	24.30	24.32	24.34	24.36	24.36	24.37	24.37	24.37	24.38	24.40	24.41	24.42	24.42	24.43	24.43	24.43	24.43	24.43	24.36	24.43	24.26
7	24.43	24.42	24.42	24.42	24.42	24.43	24.43	24.44	24.44	24.44	24.44	24.45	24.45	24.45	24.46	24.47	24.49	24.50	24.51	24.52	24.53	24.53	24.54	24.55	24.47	24.55	24.42
8	24.55	24.54	24.55	24.55	24.55	24.55	24.55	24.55	24.57	24.58	24.57	24.56	24.55	24.54	24.54	24.54	24.55	24.57	24.58	24.60	24.61	24.62	24.63	24.64	24.57	24.64	24.54
9	24.64	24.62	24.62	24.61	24.60	24.58	24.57	24.56	24.56	24.55	24.52	24.49	24.45	24.43	24.39	24.36	24.33	24.31	24.29	24.28	24.25	24.24	24.24	24.25	24.45	24.64	24.24
10	24.25	24.26	24.27	24.28	24.29	24.31	24.32	24.34	24.36	24.38	24.40	24.41	24.42	24.42	24.42	24.43	24.45	24.47	24.50	24.51	24.52	24.54	24.55	24.55	24.40	24.55	24.25
11	24.56	24.56	24.57	24.57	24.57	24.57	24.57	24.58	24.59	24.59	24.60	24.60	24.59	24.59	24.61	24.63	24.67	24.70	24.72	24.74	24.75	24.76	24.77	24.78	24.63	24.78	24.56
12	24.79	24.78	24.77	24.76	24.75	24.74	24.73	24.73	24.74	24.75	24.74	24.73	24.72	24.71	24.71	24.71	24.72	24.73	24.73	24.74	24.74	24.75	24.76	24.77	24.74	24.79	24.71
13	24.76	24.76	24.76	24.76	24.75	24.75	24.74	24.75	24.76	24.76	24.74	24.73	24.72	24.71	24.70	24.69	24.68	24.67	24.68	24.68	24.67	24.67	24.67	24.66	24.72	24.76	24.66
14	24.65	24.64	24.63	24.62	24.60	24.60	24.59	24.60	24.60	24.59	24.58	24.56	24.54	24.52	24.51	24.50	24.48	24.46	24.46	24.48	24.48	24.49	24.50	24.50	24.55	24.65	24.46
15	24.50	24.51	24.52	24.52	24.52	24.52	24.52	24.52	24.53	24.54	24.54	24.53	24.51	24.49	24.47	24.45	24.44	24.42	24.40	24.38	24.36	24.34	24.33	24.33	24.47	24.54	24.33
16	24.31	24.30	24.29	24.29	24.29	24.30	24.30	24.31	24.35	24.39	24.42	24.46	24.49	24.50	24.51	24.53	24.54	24.55	24.56	24.56	24.57	24.58	24.59	24.60	24.44	24.60	24.29
17	24.59	24.59	24.60	24.60	24.59	24.59	24.60	24.61	24.60	24.59	24.59	24.57	24.55	24.55	24.53	24.53	24.53	24.54	24.54	24.54	24.53	24.51	24.51	24.50	24.56	24.61	24.50
18	24.49	24.48	24.47	24.46	24.45	24.44	24.44	24.44	24.44	24.44	24.42	24.41	24.41	24.40	24.41	24.41	24.41	24.42	24.42	24.44	24.45	24.46	24.47	24.47	24.44	24.49	24.40
19	24.48	24.48	24.48	24.49	24.50	24.50	24.52	24.52	24.53	24.53	24.53	24.53	24.52	24.50	24.49	24.49	24.48	24.48	24.49	24.50	24.50	24.50	24.51	24.51	24.50	24.53	24.48
20	24.51	24.51	24.51	24.51	24.50	24.50	24.50	24.50	24.50	24.49	24.48	Au	Au	Au	24.44	24.43	24.42	24.42	24.41	24.42	24.42	24.43	24.43	24.44	24.47	24.51	24.41
21	24.44	24.43	24.43	24.43	24.42	24.42	24.42	24.42	24.41	24.40	24.39	24.38	24.38	24.36	24.35	24.34	24.33	24.32	24.31	24.31	24.29	24.28	24.27	24.26	24.37	24.44	24.26
22	24.26	24.24	24.23	24.22	24.21	24.20	24.19	24.17	24.16	24.15	24.14	24.14	24.12	24.11	24.12	24.11	24.10	24.10	24.08	24.08	24.08	24.09	24.08	24.07	24.14	24.26	24.07
23	24.07	24.05	24.05	24.05	24.05	24.07	24.08	24.10	24.11	24.13	24.13	24.13	24.10	24.08	24.06	24.06	24.05	24.03	24.02	24.00	23.98	23.97	23.95	23.94	24.05	24.13	23.94
24	23.93	23.93	23.94	23.94	23.95	23.97	24.01	24.05	24.09	24.14	24.17	24.21	24.23	24.25	24.27	24.29	24.31	24.33	24.35	24.37	24.39	24.40	24.41	24.42	24.18	24.42	23.93
25	24.43	24.43	24.44	24.44	24.45	24.46	24.46	24.47	24.47	24.47	24.46	24.47	24.47	24.47	24.47	24.48	24.48	24.49	24.50	24.52	24.51	24.52	24.53	24.53	24.48	24.53	24.43
26	24.53	24.52	24.52	24.51	24.50	24.50	24.50	24.50	24.51	24.50	24.48	24.48	24.47	24.44	24.43	24.42	24.40	24.40	24.39	24.39	24.39	24.38	24.37	24.35	24.45	24.53	24.35
27	24.34	24.32	24.31	24.29	24.27	24.25	24.24	24.22	24.20	24.19	24.18	24.15	24.12	24.10	24.10	24.11	24.10	24.10	24.11	24.11	24.11	24.11	24.11	24.11	24.18	24.34	24.10
28	24.10	24.09	24.08	24.08	24.08	24.08	24.09	24.10	24.10	24.12	24.12	24.12	24.10	24.10	24.09	24.09	24.09	24.09	24.09	24.09	24.10	24.10	24.10	24.11	24.10	24.12	24.08
29	24.11	24.11	24.11	24.11	24.11	24.10	24.10	24.11	24.11	24.11	24.11	24.08	24.07	24.06	24.05	24.06	24.05	24.05	24.06	24.06	24.06	24.05	24.04	24.04	24.08	24.11	24.04
30	24.03	24.03	24.04	24.03	24.01	24.00	24.01	24.01	24.01	24.01	24.00	24.00	24.00	24.00	24.00	24.01	24.01	24.02	24.03	24.04	24.05	24.06	24.06	24.07	24.02	24.07	24.00
Avg	24.38	24.37	24.38	24.37	24.37	24.37	24.37	24.37	24.38	24.38	24.38	24.37	24.36	24.35	24.36	24.36	24.36	24.36	24.36	24.37	24.37	24.37	24.37	24.38	24.37	24.46	24.29
Max	24.79	24.78	24.77	24.76	24.75	24.75	24.74	24.75	24.76	24.76	24.74	24.73	24.72	24.71	24.71	24.71	24.72	24.73	24.73	24.74	24.75	24.76	24.77	24.78	24.74	24.79	24.71
Min	23.93	23.93	23.94	23.94	23.95	23.97	24.01	24.01	24.01	24.01	24.00	24.00	24.00	24.00	24.00	24.01	24.01	24.02	24.02	24.00	23.98	23.97	23.95	23.94	24.02	24.07	23.93

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (InHg)
December 2018

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

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
October 2018

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	89.0	89.8	90.4	90.3	90.1	90.1	89.5	84.3	75.4	64.8	59.7	49.8	43.1	42.6	40.1	38.5	38.8	41.7	55.0	65.7	69.2	74.4	76.7	72.8	67.6	90.4	38.5
2	63.4	64.8	75.8	77.7	78.5	82.0	85.0	87.9	87.6	84.7	80.1	70.1	60.6	55.0	56.0	56.3	75.7	86.1	86.9	87.0	87.9	88.1	90.4	92.8	77.5	92.8	55.0
3	92.7	90.1	89.6	85.7	79.1	75.5	79.9	78.3	78.0	70.8	63.8	57.3	48.2	40.7	38.4	35.0	36.4	57.0	67.4	71.6	77.5	80.8	81.3	83.3	69.1	92.7	35.0
4	84.0	85.2	85.0	85.9	87.7	88.6	88.2	87.0	86.0	80.2	75.7	69.8	64.6	68.2	69.1	75.5	87.6	90.4	91.3	91.7	92.2	92.6	92.7	92.7	83.8	92.7	64.6
5	92.6	92.4	91.9	91.3	88.8	88.0	87.3	86.7	85.2	81.3	76.2	71.5	64.2	56.8	50.4	44.9	47.2	58.3	80.0	84.9	87.3	88.2	88.5	87.5	78.0	92.6	44.9
6	88.8	88.8	88.9	88.8	87.1	88.2	90.1	88.9	87.3	85.1	82.2	76.6	71.6	70.7	73.3	71.3	83.3	87.1	88.4	89.3	89.9	89.8	90.8	91.2	84.9	91.2	70.7
7	91.5	91.7	91.6	91.7	91.9	92.0	91.7	91.5	90.4	91.0	90.3	89.2	89.7	86.0	85.9	82.7	77.3	83.1	89.0	90.7	91.5	91.8	92.2	92.6	89.5	92.6	77.3
8	92.8	92.8	92.7	92.9	92.8	92.9	92.8	92.9	86.3	76.3	60.3	53.1	65.1	60.2	61.4	77.0	83.5	87.7	87.6	88.7	90.1	89.9	88.4	83.7	82.6	92.9	53.1
9	82.9	81.2	84.5	85.1	82.5	76.9	75.8	76.1	75.8	74.5	70.3	74.7	72.9	68.7	75.4	78.7	72.8	75.5	71.8	70.9	76.8	71.9	68.5	68.4	75.5	85.1	68.4
10	69.6	69.3	68.4	72.4	74.3	77.6	79.3	76.5	73.6	65.2	64.2	62.2	59.9	58.6	63.8	69.3	73.4	77.1	82.7	82.1	81.8	82.0	82.7	83.9	72.9	83.9	58.6
11	84.7	84.8	84.5	84.5	84.7	85.5	85.8	86.0	82.9	76.2	67.1	59.0	59.6	54.8	53.2	42.7	46.2	53.8	67.7	70.7	79.0	83.6	86.0	86.8	72.9	86.8	42.7
12	87.1	86.3	86.3	85.2	82.8	83.2	83.8	81.3	65.8	53.2	47.9	48.0	49.2	48.6	47.2	48.6	49.8	54.3	57.7	49.0	45.9	49.9	56.0	68.1	63.1	87.1	45.9
13	74.8	68.3	68.5	69.4	64.9	65.3	66.2	66.2	67.8	70.5	66.8	65.4	63.6	64.7	63.8	65.7	71.6	76.4	80.9	81.7	75.3	74.8	78.3	69.1	70.0	81.7	63.6
14	69.1	69.3	70.8	72.3	71.4	69.9	76.4	81.1	71.4	66.7	66.6	64.6	60.1	56.9	47.3	47.2	50.6	58.1	66.7	72.8	78.5	77.8	80.5	81.2	67.8	81.2	47.2
15	81.9	83.4	83.6	84.0	82.5	83.5	82.6	79.4	70.6	59.6	50.9	45.1	41.6	39.4	37.8	37.6	39.1	45.6	56.8	69.0	71.5	74.1	75.8	76.6	64.7	84.0	37.6
16	80.4	80.8	77.9	78.2	80.1	81.1	80.0	77.3	62.5	48.0	40.5	37.2	36.6	35.8	34.1	33.9	34.9	46.6	63.9	69.3	73.8	81.6	85.7	86.4	62.8	86.4	33.9
17	87.4	87.6	87.9	87.6	87.7	87.6	87.1	85.1	72.6	61.9	39.5	30.3	26.5	22.6	23.5	24.9	26.7	42.7	58.8	64.1	69.3	75.4	78.4	80.9	62.3	87.9	22.6
18	85.5	85.2	86.5	86.4	86.2	86.7	86.8	82.7	70.2	57.2	36.4	34.0	32.0	28.7	25.3	25.4	28.7	36.6	46.3	61.9	68.5	75.2	76.7	80.2	61.2	86.8	25.3
19	82.2	82.8	80.1	82.0	82.1	85.5	85.2	84.0	71.2	46.0	33.8	30.0	31.5	30.2	25.4	22.3	22.4	30.2	47.1	53.4	63.7	71.8	74.8	79.0	58.2	85.5	22.3
20	80.3	80.6	82.2	83.7	83.9	84.8	85.0	81.4	70.0	51.1	28.5	25.9	25.5	25.2	22.7	21.0	20.3	29.1	46.0	58.4	64.8	71.3	75.6	80.1	57.4	85.0	20.3
21	80.4	81.8	84.5	85.5	84.2	82.8	83.4	80.7	72.8	58.7	41.9	30.0	25.9	25.6	24.4	23.7	27.2	36.1	43.9	52.3	54.6	67.3	69.0	72.0	57.9	85.5	23.7
22	75.1	75.1	76.4	78.2	78.5	80.2	80.6	76.2	60.6	43.0	33.2	32.7	31.5	31.0	31.5	32.8	34.8	41.9	45.3	47.2	45.9	51.2	59.6	67.3	54.6	80.6	31.0
23	72.6	76.5	79.3	81.4	83.8	85.0	85.5	83.2	68.0	55.5	38.6	29.7	30.2	29.3	25.9	28.1	37.3	54.6	60.7	72.3	78.7	81.6	85.8	87.8	63.0	87.8	25.9
24	89.2	89.8	90.3	90.0	90.1	89.8	89.8	89.4	82.9	73.4	56.4	54.0	48.6	44.4	39.5	39.9	45.4	57.5	70.2	77.4	79.1	84.1	86.8	87.7	72.7	90.3	39.5
25	88.9	88.5	88.7	86.4	55.7	61.1	71.1	72.9	58.1	42.2	39.0	35.1	33.2	35.0	35.9	36.0	41.7	45.2	52.0	59.3	65.9	70.0	76.7	77.2	59.0	88.9	33.2
26	77.2	76.4	76.5	62.8	55.4	57.7	69.7	82.4	86.6	86.0	80.9	70.5	68.4	65.4	64.8	66.3	66.9	67.6	65.1	65.5	65.7	64.0	64.4	67.3	69.7	86.6	55.4
27	74.2	80.4	75.7	63.8	69.6	71.8	80.5	83.0	76.2	66.4	57.0	43.7	41.6	36.1	35.7	33.5	33.8	42.3	58.4	68.7	76.6	81.4	82.9	85.1	63.3	85.1	33.5
28	84.7	84.3	84.2	82.1	81.3	82.9	80.7	79.2	73.4	56.2	45.0	41.5	41.8	40.4	40.2	40.4	40.0	46.6	69.4	73.1	78.5	85.8	84.2	84.3	66.7	85.8	40.0
29	85.6	85.0	85.0	83.5	78.6	76.4	73.6	77.8	64.3	63.3	58.4	54.1	50.2	52.4	55.9	57.9	64.4	78.2	80.5	82.7	81.6	80.6	81.3	82.5	72.2	85.6	50.2
30	78.5	79.1	80.1	81.6	80.4	83.4	85.2	82.8	76.4	72.8	65.8	61.2	57.4	56.1	52.8	49.4	51.8	58.6	59.4	62.6	62.9	64.1	66.1	68.9	68.2	85.2	49.4
31	73.9	78.3	76.5	78.4	79.7	78.7	71.9	72.4	61.8	53.2	51.8	56.7	79.4	88.0	88.2	89.6	90.6	91.1	91.4	91.4	91.1	91.3	90.7	90.5	79.4	91.4	51.8
Avg	82.0	82.3	82.7	82.2	80.5	81.1	82.3	81.8	74.6	65.6	57.1	52.4	50.8	49.0	48.0	48.3	51.6	59.3	67.4	71.8	74.7	77.6	79.6	80.9	69.3	87.5	43.9
Max	92.8	92.8	92.7	92.9	92.8	92.9	92.8	92.9	90.4	91.0	90.3	89.2	89.7	88.0	88.2	89.6	90.6	91.1	91.4	91.7	92.2	92.6	92.7	92.8	89.5	92.9	77.3
Min	63.4	64.8	68.4	62.8	55.4	57.7	66.2	66.2	58.1	42.2	28.5	25.9	25.5	22.6	22.7	21.0	20.3	29.1	43.9	47.2	45.9	49.9	56.0	67.3	54.6	80.6	20.3

A-25

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
November 2018

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	89.6	89.1	87.6	86.6	85.2	84.7	84.0	85.2	84.9	87.1	88.3	77.9	69.0	70.1	71.8	75.0	79.6	86.1	90.0	91.5	92.1	92.4	92.4	92.5	84.7	92.5	69.0
2	92.6	92.7	92.8	93.1	92.8	92.6	89.2	88.6	80.8	80.7	81.6	65.0	67.7	73.5	74.1	71.9	68.2	68.8	74.2	81.3	86.8	89.2	91.3	91.7	82.5	93.1	65.0
3	91.5	91.2	91.3	91.4	91.2	90.9	91.0	91.0	90.7	89.1	84.8	85.4	85.8	80.7	79.8	81.3	78.9	80.4	81.1	81.4	80.6	78.9	75.6	74.7	84.9	91.5	74.7
4	73.6	77.2	85.9	86.5	88.5	90.8	91.7	90.7	90.5	85.4	78.2	80.7	78.8	78.0	72.7	67.2	62.4	62.0	64.3	64.8	67.5	71.0	72.8	75.5	77.4	91.7	62.0
5	82.6	87.6	85.8	87.6	89.3	89.0	89.1	89.3	89.1	82.1	72.9	72.0	67.2	66.3	70.6	78.4	80.7	85.0	86.9	89.4	89.2	89.2	89.7	90.0	83.3	90.0	66.3
6	89.7	89.9	89.4	89.0	88.6	88.4	87.4	87.9	87.8	87.0	85.1	82.7	81.6	82.7	79.8	79.1	73.6	82.2	84.5	85.2	85.6	85.7	85.5	85.7	85.2	89.9	73.6
7	86.0	86.8	87.0	87.4	85.9	84.7	83.8	84.1	82.2	80.0	79.6	80.9	80.8	80.1	79.4	79.6	79.1	81.6	82.2	82.4	83.1	81.3	79.0	76.1	82.2	87.4	76.1
8	74.6	73.7	73.0	71.8	71.9	71.8	71.7	71.6	74.0	76.9	74.8	70.4	69.2	69.1	69.0	65.8	67.4	76.4	81.1	83.9	84.3	83.0	81.3	78.9	74.4	84.3	65.8
9	78.7	77.3	77.1	77.0	76.4	76.4	75.8	76.5	77.7	79.1	78.3	78.4	72.5	59.6	60.1	62.6	69.5	78.1	79.6	77.6	78.1	78.3	60.7	71.2	74.0	79.6	59.6
10	83.9	81.9	84.1	82.0	83.5	84.7	84.4	84.8	84.3	81.8	79.9	77.2	73.2	75.2	76.7	76.9	74.3	78.3	81.9	85.7	86.0	84.5	82.0	81.7	81.2	86.0	73.2
11	82.4	81.1	80.7	79.4	79.1	78.8	79.9	81.1	81.7	82.0	82.8	83.9	75.4	80.2	71.1	66.4	67.0	69.8	73.4	69.1	71.7	72.9	79.8	81.0	77.1	83.9	66.4
12	79.8	78.3	77.0	75.4	74.5	74.1	73.6	73.2	74.1	76.3	74.5	63.0	55.6	55.7	53.2	53.4	58.4	73.1	77.1	78.9	82.8	83.5	83.2	82.7	72.1	83.5	53.2
13	81.7	80.7	80.6	80.3	80.1	80.1	79.8	80.4	79.8	81.5	77.5	67.1	59.5	51.6	46.5	58.4	73.4	82.7	86.8	87.1	86.7	85.8	85.8	85.6	76.6	87.1	46.5
14	85.9	85.8	85.0	85.0	84.6	84.1	84.9	85.2	85.8	87.2	88.7	83.8	36.3	33.6	32.5	35.5	41.2	61.1	66.0	47.7	51.4	56.1	59.8	62.7	67.1	88.7	32.5
15	61.6	63.2	64.0	63.3	61.0	63.0	71.8	72.2	67.3	56.0	54.3	53.8	56.0	54.6	53.4	54.0	53.4	61.8	66.6	64.6	65.8	71.1	52.1	43.5	60.3	72.2	43.5
16	44.8	48.1	52.2	58.3	72.5	78.1	85.9	84.5	87.2	81.9	77.5	74.9	71.7	72.3	71.1	69.8	73.9	74.1	75.5	79.2	80.6	81.2	81.3	80.4	73.2	87.2	44.8
17	81.0	80.7	82.0	81.3	80.7	79.3	79.2	77.5	76.0	73.5	72.1	69.3	69.5	71.3	68.6	66.7	71.0	82.4	80.7	79.8	78.3	77.2	77.1	75.7	76.3	82.4	66.7
18	75.2	74.8	74.7	74.8	74.8	75.3	76.0	78.3	79.6	80.4	77.6	52.2	44.0	43.0	44.9	48.1	58.3	71.3	75.4	78.8	79.7	80.5	80.0	80.6	69.9	80.6	43.0
19	80.6	81.3	81.2	82.7	85.2	83.3	84.3	82.9	81.8	70.0	54.9	51.4	39.3	40.5	41.9	40.4	58.6	74.4	76.7	79.1	81.6	83.3	84.3	86.1	71.1	86.1	39.3
20	84.7	84.2	84.0	84.0	84.3	83.5	83.3	82.6	82.8	82.2	73.9	Au	Au	Au	36.4	45.4	68.4	77.6	82.5	84.7	87.3	86.9	86.1	85.5	78.6	87.3	36.4
21	85.1	84.6	83.9	84.3	84.7	84.0	83.6	83.6	84.5	86.7	80.2	62.0	43.5	23.6	23.9	28.1	32.1	47.5	58.0	60.4	62.7	57.4	56.8	61.3	64.3	86.7	23.6
22	57.0	41.7	48.4	56.9	65.3	68.0	67.4	68.9	66.6	48.6	48.8	55.3	49.9	51.8	68.1	81.2	81.7	86.1	87.3	87.7	89.1	88.5	87.8	86.4	68.3	89.1	41.7
23	87.1	86.8	87.0	83.8	86.3	84.5	81.7	72.8	62.7	65.3	61.7	56.6	52.2	55.2	52.9	51.5	56.4	65.2	71.3	74.1	74.4	78.3	79.2	74.6	70.9	87.1	51.5
24	74.1	77.8	79.4	83.6	85.1	84.6	76.3	73.2	77.1	81.1	74.1	72.5	69.1	64.6	72.7	76.5	78.3	82.8	87.1	86.8	86.7	86.8	86.4	86.2	79.3	87.1	64.6
25	85.3	84.6	85.2	85.3	85.7	84.4	83.0	81.6	80.5	80.5	74.5	66.7	62.5	61.0	60.2	60.2	65.0	70.3	78.5	81.6	84.0	82.2	82.6	82.6	77.0	85.7	60.2
26	81.4	81.2	80.4	80.1	80.4	79.5	79.9	79.3	79.5	77.8	64.8	53.5	31.2	31.9	34.2	35.4	42.7	52.7	60.6	66.9	70.4	75.5	75.1	73.6	65.3	81.4	31.2
27	70.5	73.5	74.5	73.5	69.3	71.1	67.2	67.0	60.8	59.2	57.2	58.1	57.7	57.0	59.3	59.6	62.2	63.8	65.7	69.3	72.7	71.9	77.2	80.8	66.6	80.8	57.0
28	81.7	75.9	70.6	70.8	72.1	73.4	75.6	75.4	75.0	64.3	62.3	62.1	60.8	61.5	64.1	65.3	68.4	74.7	75.5	77.6	80.8	80.7	84.5	86.0	72.5	86.0	60.8
29	86.5	87.0	84.7	84.6	84.0	82.8	82.7	83.2	83.5	84.4	84.9	80.0	71.7	63.2	55.2	47.1	64.0	76.4	79.3	83.9	84.6	84.7	83.2	84.7	78.6	87.0	47.1
30	83.0	83.6	82.5	82.4	82.8	82.3	82.4	82.5	81.8	77.2	64.0	55.2	49.7	54.0	53.7	57.7	64.3	69.2	75.6	77.3	79.2	85.2	86.3	87.9	74.2	87.9	49.7
Avg	79.7	79.4	79.7	80.1	80.9	80.9	80.9	80.5	79.7	77.5	73.7	68.7	62.1	60.8	59.9	61.3	65.7	73.2	76.8	77.9	79.5	80.1	79.3	79.5	75.0	86.1	54.8
Max	92.6	92.7	92.8	93.1	92.8	92.6	91.7	91.0	90.7	89.1	88.7	85.4	85.8	82.7	79.8	81.3	81.7	86.1	90.0	91.5	92.1	92.4	92.4	92.5	85.2	93.1	76.1
Min	44.8	41.7	48.4	56.9	61.0	63.0	67.2	67.0	60.8	48.6	48.8	51.4	31.2	23.6	23.9	28.1	32.1	47.5	58.0	47.7	51.4	56.1	52.1	43.5	60.3	72.2	23.6

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (% RH)
December 2018

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	88.2	88.4	88.3	88.2	87.9	88.1	87.8	88.0	86.2	83.9	81.5	80.8	79.1	77.3	75.8	75.5	80.9	86.3	83.1	81.7	80.5	78.5	78.2	77.3	83.0	88.4	75.5
2	76.6	76.7	76.4	76.5	75.7	75.5	74.8	74.5	78.1	86.3	76.7	71.8	66.7	65.2	70.4	75.6	83.2	83.3	81.9	82.8	83.6	81.9	81.7	82.4	77.4	86.3	65.2
3	81.5	80.4	80.3	80.7	81.3	82.2	82.3	82.4	83.0	80.5	73.4	72.4	73.9	74.9	74.9	73.5	74.8	76.6	77.0	78.3	78.3	79.5	78.8	75.4	78.2	83.0	72.4
4	70.5	67.5	64.5	62.7	61.8	63.5	67.4	67.6	70.3	57.3	55.0	52.2	49.5	48.7	47.8	45.4	49.5	53.4	60.6	66.6	70.9	74.2	74.9	73.8	61.5	74.9	45.4
5	68.1	73.3	72.8	73.3	73.1	75.9	76.9	77.2	76.6	74.6	64.6	55.3	59.9	58.2	58.5	62.7	75.9	79.9	81.1	77.2	75.9	74.6	73.5	72.9	71.3	81.1	55.3
6	71.9	71.5	71.5	70.7	70.7	70.5	70.9	71.3	72.3	73.8	75.4	73.4	62.3	50.4	47.6	46.1	55.5	69.7	72.6	74.5	76.6	76.2	76.7	76.0	68.7	76.7	46.1
7	74.7	75.5	75.5	74.9	75.2	75.2	75.3	74.6	75.4	73.8	61.5	49.0	44.7	43.6	43.6	47.6	58.4	66.9	74.9	78.1	80.8	80.9	79.4	78.8	68.3	80.9	43.6
8	78.1	76.8	77.1	77.2	77.1	76.8	77.3	77.4	77.0	78.4	78.2	66.1	55.9	56.1	55.8	56.6	63.1	72.0	78.3	79.0	79.6	80.9	80.9	81.7	73.2	81.7	55.8
9	81.2	79.9	79.1	77.9	77.9	76.6	76.6	75.9	76.3	77.2	77.3	74.1	62.8	55.9	46.0	46.0	61.7	73.5	79.1	80.1	80.3	80.5	80.3	79.3	73.1	81.2	46.0
10	79.5	78.0	75.2	77.4	77.3	78.4	79.1	80.7	79.5	73.6	64.9	54.4	48.0	38.6	42.7	47.2	53.4	58.9	61.8	68.8	69.1	70.4	69.2	68.1	66.4	80.7	38.6
11	66.4	67.5	75.3	79.6	79.6	80.0	79.7	74.6	69.6	59.1	52.7	46.0	43.4	41.0	40.7	44.1	49.7	51.9	46.1	46.7	48.9	52.4	54.0	57.2	58.6	80.0	40.7
12	59.8	58.3	58.9	65.5	75.7	76.5	82.6	78.5	66.8	57.9	55.0	51.4	49.9	51.7	51.5	49.9	51.6	55.5	57.5	56.5	64.5	63.6	59.0	64.2	60.9	82.6	49.9
13	64.0	59.8	56.4	55.8	54.3	52.7	49.0	53.3	57.3	53.5	45.0	45.1	45.2	45.7	47.3	51.4	53.5	58.4	58.6	59.9	64.0	70.7	71.4	69.3	55.9	71.4	45.0
14	68.3	67.8	66.9	70.4	68.9	68.0	64.8	64.6	65.9	60.4	53.1	41.0	34.8	32.7	33.5	37.3	39.9	53.3	50.0	48.6	53.0	41.4	43.8	41.3	52.9	70.4	32.7
15	52.3	52.9	46.3	48.8	67.7	77.4	75.7	64.0	60.6	56.7	57.3	57.0	56.6	56.3	57.6	59.0	55.3	58.6	64.6	67.7	74.2	76.4	80.4	81.2	62.7	81.2	46.3
16	83.4	81.7	81.4	80.2	78.0	80.6	80.7	82.2	81.8	74.8	56.8	46.0	38.0	36.4	29.9	29.4	35.0	38.0	53.1	57.0	58.3	50.2	49.2	37.3	59.1	83.4	29.4
17	38.8	45.2	50.6	55.9	60.8	63.9	66.6	66.2	69.8	65.3	59.5	56.9	54.4	49.5	49.4	55.2	66.3	70.7	75.5	78.5	77.9	79.3	83.2	85.6	63.5	85.6	38.8
18	87.9	88.1	87.1	88.0	76.2	69.1	66.2	64.7	60.0	54.5	49.1	47.8	47.1	52.0	60.6	66.2	67.7	72.8	83.8	77.1	65.1	58.2	57.1	57.7	66.8	88.1	47.1
19	57.6	58.9	59.1	63.9	62.9	62.0	58.3	59.5	62.9	57.9	52.1	50.5	48.2	50.0	50.8	51.4	52.5	54.0	57.0	60.3	59.8	63.0	64.6	71.6	57.9	71.6	48.2
20	76.1	80.1	80.9	81.5	82.3	82.3	82.3	81.9	81.6	76.4	66.4	56.4	52.6	53.3	50.7	50.0	55.1	54.9	57.4	64.3	58.8	43.6	43.0	43.7	64.8	82.3	43.0
21	46.2	50.0	52.5	67.6	71.4	66.3	66.1	60.2	59.9	53.0	49.1	49.6	48.1	47.5	46.1	45.2	48.6	53.0	56.1	55.4	53.8	56.2	60.7	62.1	55.2	71.4	45.2
22	64.2	66.9	70.4	73.0	74.8	75.6	74.0	72.4	75.0	68.9	62.5	57.1	57.7	55.9	51.6	48.6	51.2	55.0	62.5	71.2	74.5	76.8	79.3	79.0	66.6	79.3	48.6
23	78.7	78.3	78.7	78.6	76.6	73.0	71.9	71.3	74.3	74.8	68.1	58.7	56.4	51.7	51.7	51.8	53.3	54.8	57.1	60.4	69.7	72.8	77.9	72.7	67.2	78.7	51.7
24	70.0	73.9	75.7	75.6	73.8	74.7	78.2	79.6	79.9	79.9	77.0	74.5	72.2	68.5	64.9	66.5	72.2	76.8	80.2	78.9	83.4	85.3	85.9	85.8	76.4	85.9	64.9
25	84.8	84.5	83.1	80.6	82.0	82.4	81.6	82.2	82.0	80.6	75.3	65.1	65.9	70.5	69.2	69.7	76.6	80.1	81.4	82.9	83.9	83.3	80.9	83.5	78.8	84.8	65.1
26	85.1	86.0	84.1	83.2	84.6	85.7	84.7	83.2	82.8	82.9	82.8	77.1	70.3	67.2	67.3	66.5	66.5	74.7	78.9	80.7	81.2	81.0	80.8	80.5	79.1	86.0	66.5
27	80.7	80.8	80.9	80.9	80.7	80.7	80.7	80.3	79.7	77.7	66.2	63.9	71.4	73.6	76.1	77.4	78.8	76.9	79.2	80.9	82.0	81.8	82.4	81.4	78.1	82.4	63.9
28	80.9	81.1	80.9	80.8	80.5	80.7	80.7	80.8	80.8	79.8	78.6	73.9	70.4	65.3	65.6	65.4	67.2	71.4	73.7	75.0	78.5	79.5	79.5	76.7	76.2	81.1	65.3
29	72.3	72.4	72.3	74.3	78.7	79.2	79.4	76.7	83.7	83.8	81.8	82.0	79.7	73.7	71.5	71.2	76.2	78.9	75.5	64.1	58.8	58.5	59.6	59.9	73.5	83.8	58.5
30	58.5	59.1	60.2	61.6	61.4	62.9	63.4	62.3	64.4	71.7	81.7	79.0	77.5	70.8	71.1	66.6	63.3	62.7	63.6	63.5	65.3	64.2	64.4	64.6	66.0	81.7	58.5
31	63.1	62.8	63.9	63.1	62.6	62.5	63.8	65.8	73.0	71.2	65.7	62.5	64.0	64.9	64.2	66.4	69.0	71.6	73.3	74.7	75.7	76.9	73.5	71.9	67.8	76.9	62.5
Avg	71.3	71.7	71.8	73.2	73.9	74.2	74.2	73.4	73.8	71.0	65.9	61.0	58.3	56.4	55.9	56.9	61.5	66.0	68.9	70.0	71.2	70.7	71.1	70.7	68.0	80.8	52.1
Max	88.2	88.4	88.3	88.2	87.9	88.1	87.8	88.0	86.2	86.3	82.8	82.0	79.7	77.3	76.1	77.4	83.2	86.3	83.8	82.9	83.9	85.3	85.9	85.8	83.0	88.4	75.5
Min	38.8	45.2	46.3	48.8	54.3	52.7	49.0	53.3	57.3	53.0	45.0	41.0	34.8	32.7	29.9	29.4	35.0	38.0	46.1	46.7	48.9	41.4	43.0	37.3	52.9	70.4	29.4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (inches)
October 2018

Day	<< Hour >>																								Tot	Max			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.05	
3	0.04	0.17	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.17		
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.01	0.02	0.01	0.00	0.00	0.00	0.01	0.10	0.04		
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.05	0.03	0.02	0.00	0.00	0.00	0.00	0.16	0.05		
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.04		
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Mi	Mi	Mi	Mi	Mi	Mi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01		
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01		
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
26	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.05	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.08		
27	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01		
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.02	0.02		
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.08	0.07	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.08		
Tot	0.04	0.17	0.06	0.05	0.00	0.00	0.02	0.08	0.07	0.07	0.03	0.01	0.00	0.05	0.08	0.08	0.15	0.17	0.05	0.09	0.06	0.02	0.00	0.01	1.36	0.00			
Max	0.04	0.17	0.06	0.05	0.00	0.00	0.01	0.08	0.05	0.04	0.02	0.01	0.00	0.05	0.07	0.08	0.07	0.07	0.02	0.05	0.03	0.02	0.00	0.01	0.36	0.17			

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Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (inches)
November 2018

Day	<< Hour >>																								Tot	Max
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.04	0.05	0.06	0.05	0.25	0.06
2	0.05	0.07	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.02	0.05	0.00	0.39	0.07
3	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
4	0.00	0.00	0.00	0.00	0.01	0.06	0.04	0.03	0.02	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.06
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.07	0.04
6	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03
7	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Au	Au	Au	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.06
Tot	0.06	0.11	0.06	0.09	0.04	0.08	0.05	0.04	0.02	0.01	0.01	0.02	0.01	0.02	0.07	0.01	0.00	0.00	0.02	0.05	0.07	0.10	0.15	0.05	1.14	0.00
Max	0.05	0.07	0.06	0.07	0.03	0.06	0.04	0.03	0.02	0.01	0.01	0.02	0.01	0.01	0.06	0.01	0.00	0.00	0.01	0.04	0.04	0.05	0.06	0.05	0.39	0.07

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APPENDIX B: PERFORMANCE AUDIT REPORTS
FOURTH QUARTER 2018



BISON ENGINEERING, INC.

PRELIMINARY METEOROLOGICAL AUDIT REPORT

Client : Tintina Resources
SITE : Black Butte

DATE : 11/20/18

Audit Start Time : 11:00 MST Audit End Time : 13:00 MST
AUDITOR: Steve Heck PRECEDING CALIBRATION BY: Jeff Bell

Temperature

Audit Device : Control Company Digital Thermometer
Model Number : 4000 Serial Number : 140251289
Last certified : 04/20/18
Sensor Make : Climatronics
Model Number : 100093 Serial Number Upper: P12535 Serial Number Lower: P12535

Temperature bath results as is

	9m	9m	2m	2m	9m - 2m
Audit	DAS	DAS	DAS	DAS	DAS
Value	Value	Diff.	Value	Diff.	Diff.
oC	oC	oC	oC	oC	oC
0.03	0.17	0.14	0.17	0.14	0.00
12.27	12.29	0.02	12.27	0.00	-0.02
36.50	36.70	0.20	36.70	0.20	0.00

Wind Direction

Alignment Audit Device : Nextar
Model Number : X3-T
Linearity Audit Device : Climatronics
Model Number : 101966
Sensor height : 10 Meter
Sensor Make : Climatronics
Model Number : 102083

Serial Number : 72

Serial Number : P1336C

Linearity Check from DAS (as found)

Setpoint	Clockwise	Counter-CW	Diff CW	Diff CCW
0	0.6	0.6	0.6	0.6
30	31.4	30.0	1.4	0.0
60	62.3	61.8	2.3	1.8
90	91.6	92.2	1.6	2.2
120	121.4	122.1	1.4	2.1
150	151.6	151.9	1.6	1.9
180	181.4	181.8	1.4	1.8
210	211.3	211.1	1.3	1.1
240	241.0	241.0	1.0	1.0
270	270.8	270.9	0.8	0.9
300	300.3	300.5	0.3	0.5
330	331.4	331.4	1.4	1.4
		Max Diff	2.3	2.2

Crossarm Orientation : N-S
Magnetic Declination : 12
Measured Degrees : 0.5
Sensor response aligned with crossarm (as found) : 0.0
Sensor response aligned with crossarm (as left) : 0.0

Linearity Check from DAS (as left)

Setpoint	Clockwise	Counter-CW	Diff CW	Diff CCW
0	0.2	0.1	0.2	0.1
90	91.0	90.6	1.0	0.6
180	181.0	180.0	1.0	0.0
270	271.0	270.7	1.0	0.7
		Max Diff	1.0	0.7

Wind Speed

Audit Device : RMYoung
Model Number : 18811 Serial Number : CA02929
Last certified : 4/19/18
Sensor height : 10 Meter
Sensor Make : Climatronics
Model Number : 102083 Serial Number : P1336C

Synchronous motor checks

Known	Audit	Station	DAS
Value	Value	Value	Diff.
RPM	MPS	MPS	MPS
0	0.2	0.2	0.0
300	6.7	6.7	0.0
600	13.1	13.1	0.0
990	21.4	21.4	0.0

Relative Humidity

Audit Device : Control company Hygometer
Model Number : 4185 Serial Number : 61644981
Last certified : 4/17/18
Sensor height : 10 Meter
Sensor Make : Met One
Model Number : 083E-0-35 Serial Number : P18245

Audit	Audit	Audit
Audit RH	Station RH	Diff
%RH	%RH	%RH
41.4	43.9	2.5

Barometric Pressure

Audit Device : Delta Cal
Model Number : Delta Cal Serial Number : 999
Last certified : 05/03/18
Sensor Make : Climatronics
Model Number : 102663-G0 Serial Number : 42017

Audit	Station	Audit
Value	Value	Diff.
In Hg	In Hg	In Hg
24.39	24.47	0.08

Solar Radiation

Audit Device : Li Cor
Model Number : LI-200
Last certified : 05/21/15
Sensor Make : Met One
Model Number : 096-1

Serial Number : PY82228
uA/m² : 98.51
Serial Number : PY69829

Audit Value	DAS Station Value	DAS Diff.
w/m2	w/m2	%
450	458	1.8

Precipitation

Audit Device : Fisher Scientific
Model Number : S32814A
Last certified : NA
Sensor Make : Climatronics
Model Number : 100097-1-G0-H0
Opening : 8
Bucket Tip : 0.254
Bucket Tip Volume : 8.24
Level checked : OK
Wind Screen in place : OK

Serial Number : 250 ml
Serial Number : N3939

Known Value	Known Value	Station Value	% Diff
ML	Bucket Tips	Bucket Tips	
250.0	26	27	3.8
250.0	26	27	3.8