

**TINTINA RESOURCES, INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
Third Quarter 2015**

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November 15, 2015

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: Evaporation and Precipitation Summary

1.0 INTRODUCTION

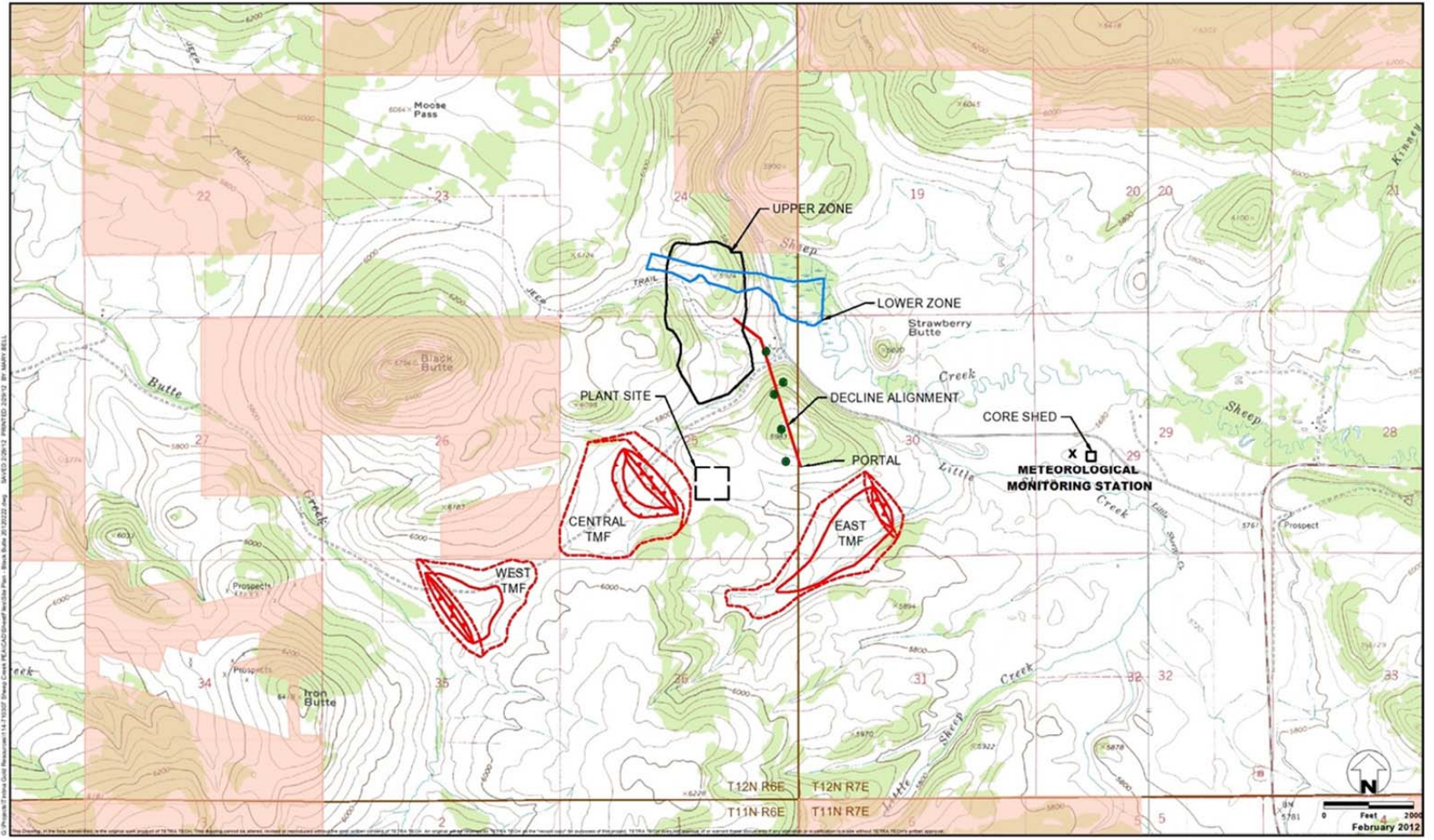
Tintina Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately characterize 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 2015. 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



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 parameters were in full operation and producing valid data by April 30, 2012.

Steve Heck of Bison conducted performance audits of the meteorological system on September 8, 2015, 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.

3.0 CALIBRATION DATA

As discussed in Section 4.0, the system's as-found condition was audited on September 8, 2015. See audit form in Appendix B for the results of the calibration.

The aspirator's fans were replaced following the audit as part of the preventive maintenance program.

4.0 PERFORMANCE AUDIT DATA

Steve Heck of Bison conducted performance audits of the meteorological system on September 8, 2015, and made any necessary calibration adjustments to the meteorological system following the audits. 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 2015 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 99.9 percent for wind speed and 100.0 percent for all other parameters at the site. The loss of data was due to the wind speed cups being frozen in place because of weather.

Table 1. Monthly Data Completeness

July 2015					
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 2015					
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 2015					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	712	98.9	5	99.6
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	7,147	99.3	50	100.0

Table 2. Quarterly Data Completeness

Third Quarter 2015					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,208	2,200	99.6	5	99.9
Wind Direction	2,208	2,203	99.8	5	100.0
Standard Deviation	2,208	2,203	99.8	5	100.0
Temperature 9 Meters	2,208	2,203	99.8	5	100.0
Temperature 2 Meters	2,208	2,203	99.8	5	100.0
Temperature Delta T	2,208	2,203	99.8	5	100.0
Solar Radiation	2,208	2,203	99.8	5	100.0
Barometric Pressure	2,208	2,203	99.8	5	100.0
Relative Humidity	2,208	2,203	99.8	5	100.0
Precipitation	2,208	2,203	99.8	5	100.0
Total	22,080	22,027	99.8	50	100.0

Table 3. Periods of Missing Data

Third Quarter 2015						
Starting Date/Hour	Ending Date/Hour	Site	Parameter	Total Hours	Percent of Month	Circumstance
Sept 17/5	Sept 17/7	Met Tower	Wind Speed	3	0.14	Missing data: Cups frozen in place.

6.0 MONITORING DATA

The hourly data values collected at the monitoring sites 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 4.

Monthly and quarterly wind rose distributions from the monitoring site are presented in Tables 5 through 8. 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 similar to those reported by the automated rain gauge.

Table 4. 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 5. Monthly Wind Rose Summary, Black Butte Copper Project Met Tower

July 2015																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	1.1	0.9	0.7	0.9	0.7	1.1	1.6	0.5	0.1	0.0	0.3	0.0	0.3	0.0	0.9	1.2	10.3
	1.1 - 2.0	0.7	1.1	2.3	3.4	4.6	5.2	3.6	1.3	0.5	0.0	0.4	0.5	0.5	1.2	1.2	0.7	27.3
	2.1 - 3.0	0.8	0.4	0.3	1.9	4.0	3.2	0.9	0.5	0.8	0.3	0.5	0.7	0.9	1.7	3.0	0.9	21.0
	3.1 - 4.0	0.3	0.1	0.0	0.9	1.9	0.4	0.5	0.5	0.7	0.3	0.5	1.2	2.4	3.9	2.3	1.2	17.2
	4.1 - 5.0	0.3	0.1	0.1	0.0	0.5	0.0	0.3	0.5	0.4	0.1	0.3	1.1	2.6	2.4	1.3	0.1	10.2
	5.1 - 6.0	0.0	0.1	0.1	0.0	0.0	0.0	0.3	0.0	0.4	0.1	0.3	1.2	2.4	1.1	0.7	0.0	6.7
	6.1 - 7.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.5	0.3	0.7	0.3	3.1
	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	1.6	0.4	0.3	0.1	2.4
	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	0.3	0.3	0.1	0.4	0.7	1.7
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	3.1	3.0	3.5	7.1	11.7	9.9	7.3	3.5	3.0	0.8	2.6	5.0	12.5	11.2	10.8	5.2	100.0	
Average Speed	2.0	2.0	1.7	2.0	2.3	1.9	1.9	2.3	3.1	3.7	3.4	4.2	4.9	3.8	3.5	3.4	3.0	

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

August 2015																			
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	1.5	1.3	1.5	1.3	2.4	0.9	0.8	0.8	0.7	0.1	0.3	0.0	0.4	0.4	0.5	1.2	14.2	
	1.1 - 2.0	1.2	0.7	1.7	3.2	6.2	6.6	4.2	2.0	0.5	0.3	0.5	0.1	0.7	0.1	0.5	0.9	29.6	
	2.1 - 3.0	0.4	0.3	0.3	2.7	3.8	2.8	0.8	0.5	0.7	0.3	0.5	0.7	0.8	0.4	0.9	0.5	16.4	
	3.1 - 4.0	0.0	0.0	0.0	1.2	1.7	0.0	1.2	0.4	0.4	0.4	0.5	1.2	3.5	2.3	1.1	0.5	14.5	
	4.1 - 5.0	0.0	0.1	0.0	0.1	0.7	0.1	0.5	0.5	0.1	0.3	1.1	0.9	1.3	0.5	1.6	0.1	8.2	
	5.1 - 6.0	0.1	0.0	0.0	0.0	0.1	0.0	0.9	0.4	0.0	0.1	0.3	1.3	1.2	0.8	1.7	0.4	7.5	
	6.1 - 7.0	0.1	0.1	0.0	0.1	0.0	0.0	0.7	0.4	0.3	0.0	0.3	0.3	0.9	0.7	0.8	0.1	4.8	
	7.1 - 8.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.3	1.3	0.7	0.1	0.0	3.1	
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.1	0.5	0.3	0.0	0.0	1.3	
	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	0.0	0.1	0.1	0.0	0.0	0.3	
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	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	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	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	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	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	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	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	0.0	
Calm																		0.0	
Total	3.4	2.7	3.5	8.7	14.9	10.5	9.4	5.4	2.7	1.7	3.6	5.0	10.9	6.3	7.4	3.9	100.0		
Average Speed	1.6	1.8	1.2	2.1	2.1	1.8	2.9	2.9	2.6	3.8	3.7	4.6	4.7	4.6	4.2	2.3	3.0		

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

September 2015																		
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	1.8	1.3	2.4	1.7	2.7	1.8	0.8	1.1	0.1	0.1	0.6	0.1	0.6	0.4	1.4	17.8
	1.1 - 2.0	1.0	0.6	1.1	3.2	6.0	4.4	4.6	2.2	1.1	0.4	0.1	1.0	1.0	1.0	1.0	0.6	29.4
	2.1 - 3.0	0.3	0.0	0.3	1.0	3.2	1.3	0.6	1.3	0.7	0.0	0.6	0.8	1.0	1.4	1.4	0.3	14.0
	3.1 - 4.0	0.1	0.0	0.0	0.6	1.3	0.6	0.4	0.7	0.6	0.3	0.1	1.0	2.7	2.2	1.3	0.4	12.2
	4.1 - 5.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	1.1	0.6	0.4	0.7	1.4	1.3	1.7	0.7	0.1	8.4
	5.1 - 6.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.8	0.1	0.0	0.4	1.7	2.8	1.4	0.3	0.0	7.7
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.1	0.7	0.8	1.3	0.4	0.3	0.0	4.4
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	1.0	1.1	0.6	0.1	0.0	3.4
	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	1.1	0.1	0.0	0.0	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	0.1	0.3	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	0.3	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	2.4	2.4	2.7	7.4	12.4	8.8	7.4	7.6	4.5	1.7	3.2	8.6	13.2	9.4	5.5	2.8	100.0	
Average Speed	1.6	0.9	1.3	1.6	1.9	1.6	1.5	3.0	2.5	4.0	4.9	4.5	5.2	3.9	3.2	1.6	2.9	

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

Third Quarter 2015																		
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	1.4	1.1	1.5	1.6	1.5	1.4	0.7	0.6	0.1	0.2	0.2	0.3	0.3	0.6	1.3	14.1
	1.1 - 2.0	1.0	0.8	1.7	3.3	5.6	5.4	4.1	1.9	0.7	0.2	0.4	0.5	0.7	0.8	0.9	0.7	28.7
	2.1 - 3.0	0.5	0.2	0.3	1.9	3.7	2.5	0.8	0.8	0.7	0.2	0.5	0.7	0.9	1.2	1.8	0.6	17.2
	3.1 - 4.0	0.1	0.0	0.0	0.9	1.6	0.3	0.7	0.5	0.5	0.3	0.4	1.1	2.9	2.8	1.5	0.7	14.7
	4.1 - 5.0	0.1	0.1	0.0	0.1	0.5	0.0	0.3	0.7	0.4	0.3	0.7	1.1	1.7	1.5	1.2	0.1	9.0
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.2	0.1	0.3	1.4	2.1	1.1	0.9	0.1	7.3
	6.1 - 7.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.4	0.4	1.2	0.5	0.6	0.1	4.1
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.4	1.4	0.5	0.2	0.0	3.0
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.6	0.2	0.1	0.2	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	0.1	0.2	0.0	0.0	0.0	0.4
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	3.0	2.7	3.2	7.8	13.0	9.8	8.0	5.5	3.4	1.4	3.1	6.1	12.2	9.0	7.9	4.0	100.0	
Average Speed	1.7	1.6	1.4	1.9	2.1	1.7	2.2	2.8	2.7	3.9	4.0	4.4	4.9	4.0	3.6	2.6	3.0	

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

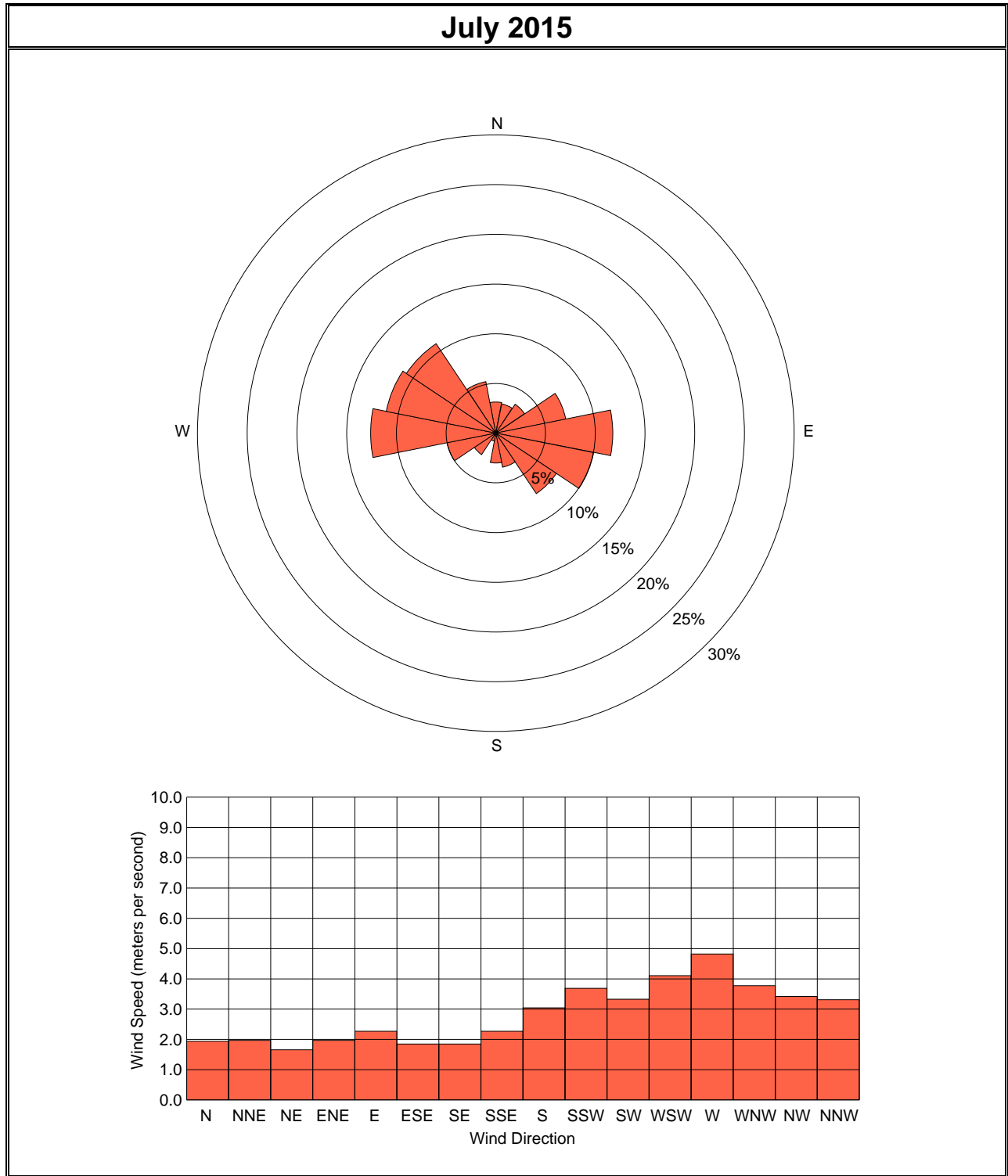


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

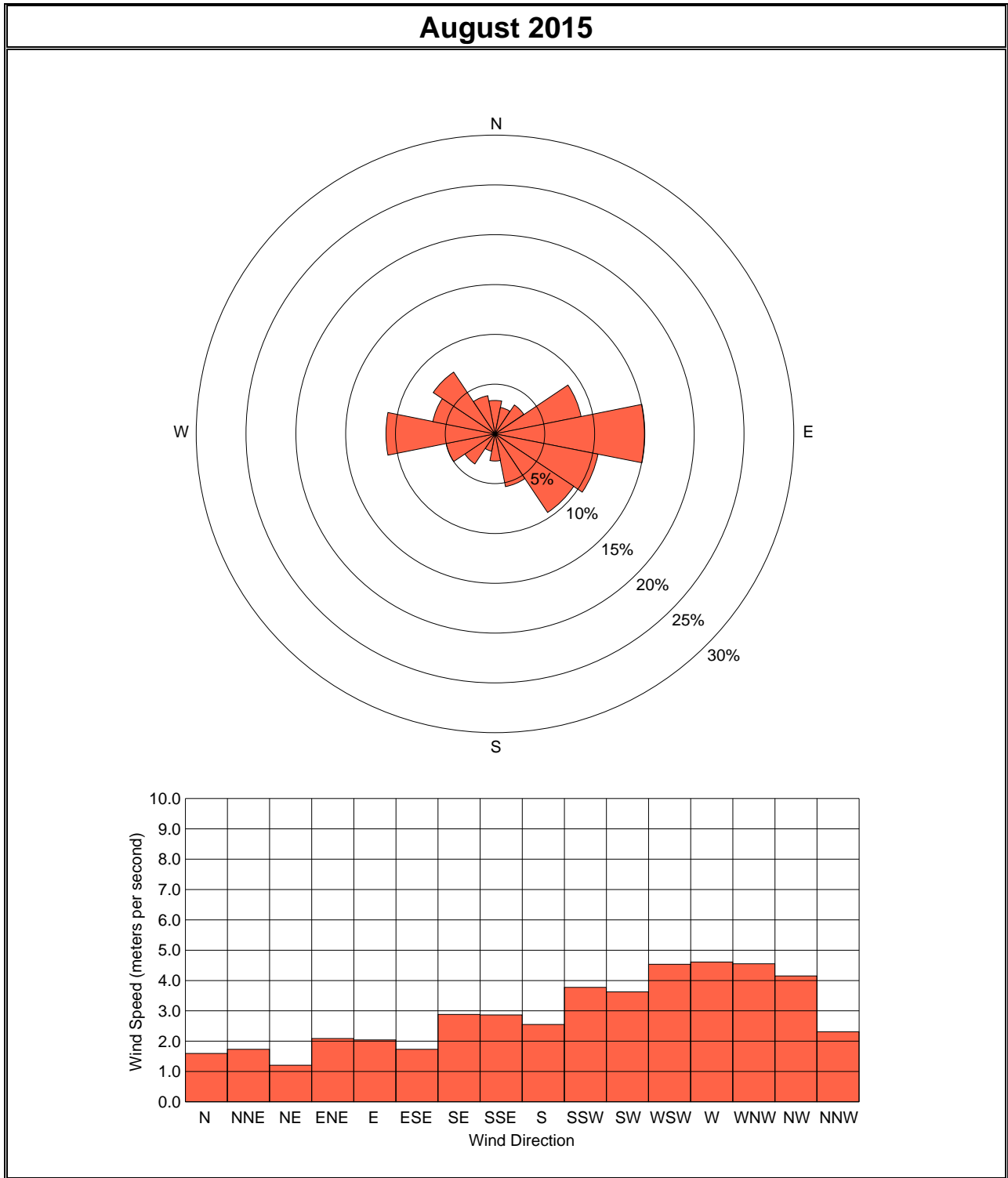


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

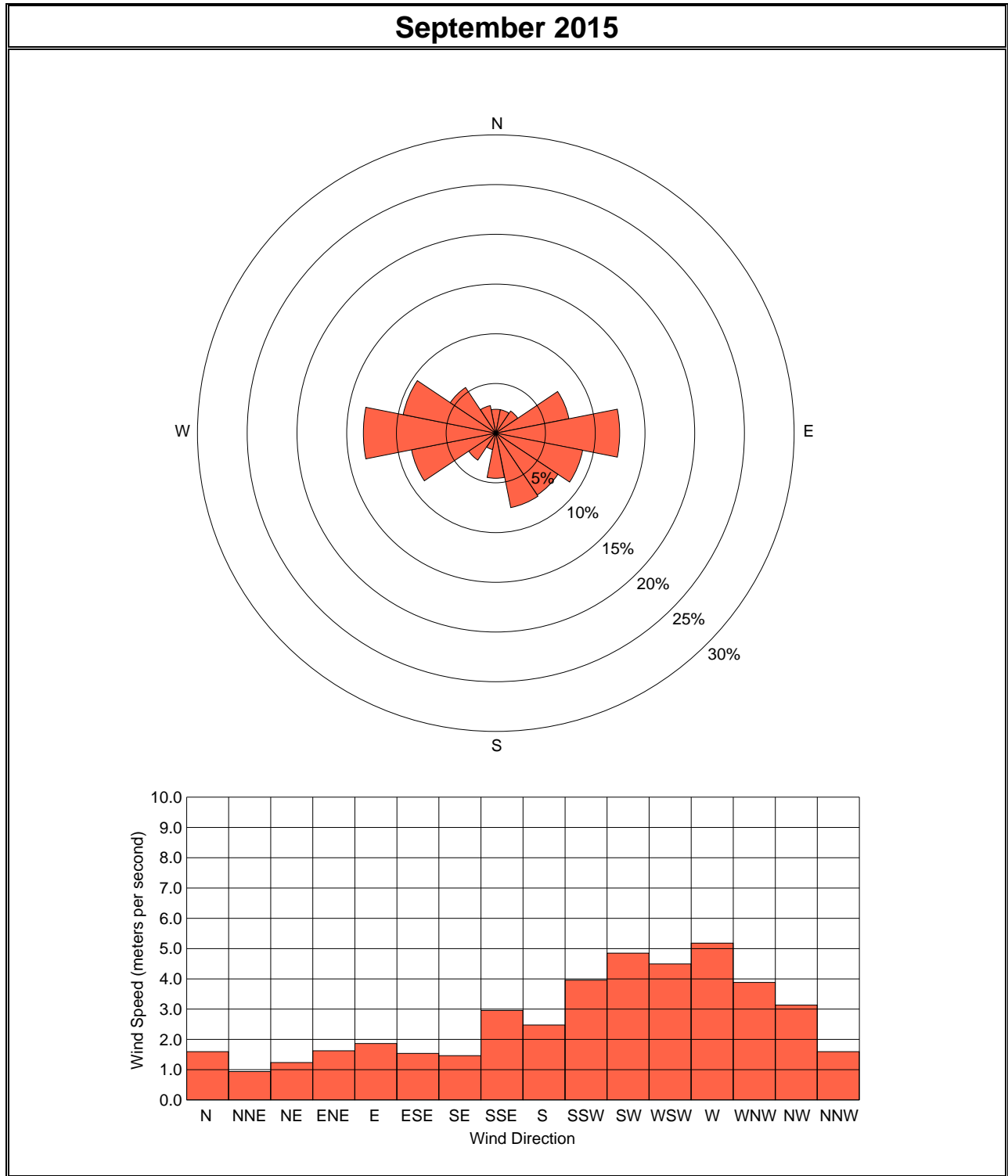
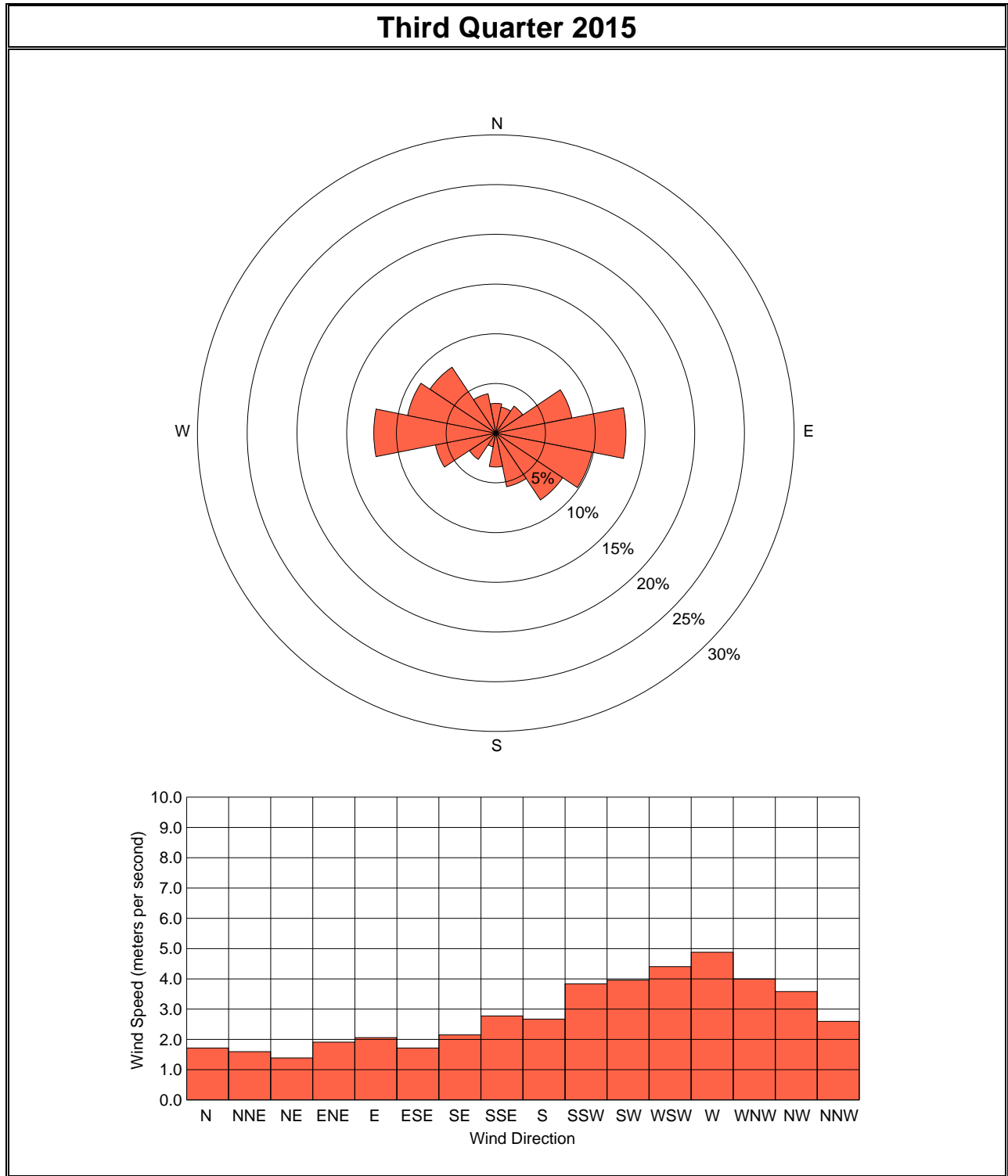


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, THIRD QUARTER 2015**

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
July 2015

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	1.0	1.0	1.2	1.1	0.9	0.6	0.7	1.5	3.9	4.1	4.9	4.5	4.9	4.1	3.1	3.2	6.2	5.9	4.7	1.6	3.0	1.7	1.1	2.8	6.2	0.6
2	1.3	1.4	0.8	0.6	1.1	0.7	0.7	0.8	1.1	1.3	2.2	2.8	3.3	3.7	2.7	2.8	2.8	3.2	4.0	3.6	3.6	1.8	2.6	2.8	2.2	4.0	0.6
3	1.8	3.2	1.8	1.5	1.9	1.3	0.9	0.6	0.9	1.2	1.9	3.4	3.5	3.0	2.4	2.8	2.4	2.1	2.3	1.3	2.1	2.0	1.4	1.5	2.0	3.5	0.6
4	1.2	1.0	1.0	0.9	1.4	0.9	0.6	0.7	1.2	3.3	3.7	3.0	3.6	2.9	2.7	2.2	3.8	3.7	2.8	2.6	2.1	2.1	1.3	3.3	2.2	3.8	0.6
5	5.8	8.7	6.8	6.5	4.2	2.3	3.2	3.5	3.1	3.1	3.9	3.5	2.8	3.3	3.5	2.2	2.8	1.8	3.3	2.3	3.4	2.0	1.4	1.7	3.5	8.7	1.4
6	2.1	0.9	0.9	0.9	0.8	1.1	1.5	1.4	4.0	4.1	4.0	4.8	4.3	4.0	2.0	1.5	2.2	2.3	2.3	2.0	1.5	1.5	1.3	0.9	2.2	4.8	0.8
7	1.0	1.7	1.7	1.2	1.1	1.0	1.3	0.5	1.9	4.1	4.7	1.5	1.8	2.3	5.8	4.2	5.0	3.5	2.2	1.9	1.4	1.7	1.2	1.7	2.3	5.8	0.5
8	1.4	1.8	1.3	1.0	0.5	1.3	0.6	0.7	1.5	2.6	2.6	2.9	2.4	2.2	2.2	2.6	3.4	4.9	5.8	5.1	3.2	1.3	1.2	1.5	2.3	5.8	0.5
9	1.6	1.6	2.3	2.4	2.3	2.0	1.1	0.5	0.8	1.1	1.9	1.7	2.0	2.6	2.2	2.4	2.6	2.2	2.6	1.8	3.4	1.8	3.2	4.5	2.1	4.5	0.5
10	3.8	2.4	1.7	2.1	2.9	1.8	1.0	0.7	1.9	2.6	1.9	1.9	3.0	4.4	4.5	3.3	2.5	3.0	2.1	1.1	2.6	3.4	3.5	2.4	2.5	4.5	0.7
11	2.7	3.0	1.5	1.4	1.6	1.8	1.8	3.1	3.1	2.0	2.2	3.8	3.1	3.2	5.9	4.0	5.0	5.7	6.0	4.0	1.7	1.4	1.4	1.1	2.9	6.0	1.1
12	1.1	1.3	1.7	1.3	2.3	2.0	5.4	6.0	7.3	7.6	8.6	8.4	7.0	6.0	7.8	7.7	7.6	7.2	6.6	4.5	3.3	2.2	3.1	2.2	4.9	8.6	1.1
13	1.9	1.2	1.4	1.1	0.9	1.8	1.1	1.2	2.3	4.7	5.3	4.5	4.8	4.9	5.5	3.3	3.2	3.1	1.5	7.6	2.4	2.6	1.4	1.8	2.9	7.6	0.9
14	1.4	1.1	1.1	1.5	1.8	2.3	1.2	0.9	2.5	4.5	5.2	5.2	4.5	4.3	4.6	3.9	2.9	3.5	2.4	1.7	2.7	2.6	2.6	2.4	2.8	5.2	0.9
15	2.0	1.1	1.2	1.5	1.3	1.0	0.7	1.1	1.1	1.1	2.8	3.7	4.7	4.2	3.9	3.8	4.0	1.6	1.2	3.0	1.6	2.7	2.4	2.4	2.3	4.7	0.7
16	1.8	1.8	1.5	1.3	0.9	1.0	0.6	0.9	2.4	5.5	7.2	6.8	6.1	6.7	8.1	8.8	7.6	7.6	7.0	6.3	6.9	2.9	1.4	1.9	4.3	8.8	0.6
17	1.9	1.6	1.2	0.9	0.7	0.9	0.7	4.4	8.4	7.7	7.6	7.7	7.9	8.1	8.1	8.4	8.8	9.0	8.5	7.3	5.9	6.1	5.5	4.4	5.5	9.0	0.7
18	3.8	3.5	2.6	3.8	2.6	3.1	3.7	3.8	4.2	3.5	3.4	3.4	3.4	3.4	3.0	3.5	3.5	2.6	1.8	1.1	2.6	2.7	2.6	1.9	3.1	4.2	1.1
19	1.8	0.8	1.0	1.0	1.1	0.8	0.8	0.6	3.5	4.2	4.5	4.1	4.0	3.8	3.8	2.6	3.1	2.3	3.7	3.2	0.9	1.1	2.0	2.1	2.4	4.5	0.6
20	1.5	1.9	2.0	1.5	2.0	1.6	1.0	0.7	1.4	2.8	3.0	3.3	3.8	3.4	4.4	4.1	4.5	5.1	3.7	3.8	4.0	4.5	2.1	1.6	2.8	5.1	0.7
21	2.3	2.4	3.4	2.2	1.7	1.6	1.0	0.9	1.8	3.6	4.0	4.9	4.2	5.1	5.3	5.7	6.3	5.0	3.5	2.6	2.9	3.4	2.6	3.0	3.3	6.3	0.9
22	3.3	2.4	1.8	2.0	1.5	0.9	1.3	1.2	0.8	1.5	1.8	1.9	4.2	4.2	6.1	2.6	2.6	4.0	5.6	4.5	2.0	2.9	2.6	1.4	2.6	6.1	0.8
23	1.4	1.2	1.6	2.1	1.3	1.1	0.4	0.6	4.5	3.4	3.3	3.9	3.1	4.1	3.5	3.3	8.9	5.8	2.3	2.0	1.8	3.2	2.4	2.7	2.8	8.9	0.4
24	2.6	2.7	2.7	2.2	1.7	2.1	0.9	1.1	1.1	3.0	4.8	5.5	5.6	5.7	4.1	2.8	3.5	4.2	3.6	2.5	4.6	3.1	3.2	2.9	3.2	5.7	0.9
25	2.5	2.8	2.5	1.6	1.5	1.5	1.4	1.1	1.2	4.6	5.3	4.8	5.0	5.9	4.3	6.2	5.0	5.1	2.3	3.1	2.7	3.4	2.6	2.6	3.3	6.2	1.1
26	1.8	1.5	1.3	1.7	0.9	0.7	1.0	1.3	0.9	3.4	5.2	4.4	4.6	4.1	7.5	6.5	3.3	2.3	4.4	3.1	2.9	2.2	2.2	1.5	2.9	7.5	0.7
27	1.6	2.5	1.5	5.0	2.9	3.0	3.7	2.5	4.1	2.4	4.6	7.4	5.0	3.3	2.3	3.8	4.2	4.7	5.4	5.7	5.7	5.3	5.2	5.6	4.1	7.4	1.5
28	5.6	5.8	5.8	5.4	3.4	2.8	2.4	2.9	3.6	5.4	6.4	6.8	6.4	5.7	6.1	6.0	7.0	7.1	6.4	4.8	1.8	2.7	2.9	2.3	4.8	7.1	1.8
29	1.9	1.3	1.3	1.3	1.1	1.4	1.0	0.9	3.1	5.4	5.2	4.8	6.1	5.5	5.4	5.2	5.0	5.5	4.2	3.2	2.7	4.1	2.3	2.1	3.3	6.1	0.9
30	1.5	1.7	1.3	1.3	1.2	0.5	0.9	0.8	0.5	2.1	3.6	3.8	3.5	3.7	2.5	3.1	3.2	2.7	1.3	1.4	3.3	3.8	3.0	1.6	2.2	3.8	0.5
31	0.9	0.7	1.2	2.1	1.8	1.5	1.1	0.9	0.7	1.9	4.3	4.4	3.9	3.4	3.7	4.4	4.0	3.3	2.6	1.1	2.8	4.1	3.3	2.5	2.5	4.4	0.7
Avg	2.1	2.1	1.9	2.0	1.7	1.5	1.4	1.5	2.5	3.5	4.2	4.3	4.3	4.3	4.5	4.1	4.3	4.2	3.8	3.3	2.9	2.8	2.4	2.3	3.0	6.0	0.8
Max	5.8	8.7	6.8	6.5	4.2	3.1	5.4	6.0	8.4	7.7	8.6	8.4	7.9	8.1	8.1	8.8	8.9	9.0	8.5	7.6	6.9	6.1	5.5	5.6	5.5	9.0	1.8
Min	0.9	0.7	0.8	0.6	0.5	0.5	0.4	0.5	0.5	1.1	1.8	1.5	1.8	2.2	2.0	1.5	2.2	1.6	1.2	1.1	0.9	1.1	1.2	0.9	2.0	3.5	0.4

A-1

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
August 2015

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	1.9	1.7	1.2	0.9	1.1	1.5	0.6	0.6	0.6	1.4	4.0	4.1	5.5	8.0	8.6	6.7	6.6	6.4	5.1	1.7	3.1	3.7	2.7	2.3	3.3	8.6	0.6
2	1.8	1.2	0.8	0.9	0.9	0.6	0.5	0.5	0.8	1.7	2.7	3.3	3.4	3.0	2.4	2.2	1.9	1.3	1.6	2.2	2.5	3.3	2.2	2.3	1.8	3.4	0.5
3	2.0	0.7	0.6	0.7	1.6	1.1	0.4	0.2	1.4	5.9	7.7	8.7	8.6	7.0	6.2	6.0	6.5	6.8	5.9	5.8	1.8	1.3	3.3	1.8	3.8	8.7	0.2
4	1.1	1.2	1.9	2.2	1.5	1.3	1.0	1.4	1.2	1.4	1.1	3.4	2.7	2.2	3.0	4.6	2.0	2.8	1.8	1.6	2.4	5.0	4.2	2.4	2.2	5.0	1.0
5	3.9	2.7	2.2	3.2	1.7	1.4	1.2	0.6	0.7	1.6	2.2	3.7	2.9	3.1	4.0	6.8	6.1	3.8	2.3	1.7	1.6	1.1	1.7	1.5	2.6	6.8	0.6
6	1.8	1.5	1.5	1.1	1.5	1.4	0.6	0.8	4.6	7.5	7.2	7.8	8.3	7.4	7.1	8.6	8.9	9.8	7.3	5.6	5.5	2.8	4.2	3.4	4.8	9.8	0.6
7	2.8	2.0	2.0	1.1	1.2	0.9	1.1	0.6	3.6	5.2	4.0	5.2	4.3	3.2	3.4	2.9	1.8	1.4	3.0	3.3	2.9	1.0	2.1	1.5	2.5	5.2	0.6
8	2.7	1.9	2.2	1.4	1.4	0.7	1.1	1.4	5.1	6.0	4.6	3.4	2.5	5.2	5.1	4.7	4.8	3.8	3.3	2.1	2.0	1.9	2.1	1.8	3.0	6.0	0.7
9	1.8	1.6	1.6	0.9	0.6	0.9	0.6	0.7	1.2	2.4	3.2	3.9	3.7	3.6	3.4	3.6	2.9	1.9	2.2	2.0	2.6	2.9	2.1	2.4	2.2	3.9	0.6
10	0.9	1.2	1.6	2.5	2.6	1.9	1.7	1.1	1.5	3.5	4.1	3.0	3.8	2.5	4.5	4.2	4.7	4.9	4.7	3.5	5.6	4.4	1.5	2.6	3.0	5.6	0.9
11	2.3	1.8	0.8	0.6	0.8	1.1	1.0	0.5	0.5	1.1	2.8	3.1	3.2	4.3	3.4	3.1	2.8	0.9	0.8	2.5	2.8	1.5	1.8	1.6	1.9	4.3	0.5
12	0.9	0.6	0.6	0.7	0.8	0.5	0.4	0.5	1.0	1.0	2.9	3.3	4.1	1.7	3.3	4.3	3.9	2.8	2.6	3.8	2.6	2.3	3.5	2.6	2.1	4.3	0.4
13	2.7	2.9	2.3	1.9	1.7	1.8	1.0	0.9	0.9	1.7	1.8	2.3	3.9	4.4	4.2	4.6	3.6	3.3	2.4	2.2	2.2	1.7	1.6	1.1	2.4	4.6	0.9
14	1.3	1.3	1.4	1.4	1.7	1.7	1.7	1.0	0.7	2.8	8.1	6.7	4.1	6.6	7.8	5.9	5.0	5.2	5.3	4.0	2.3	1.2	2.9	1.6	3.4	8.1	0.7
15	2.0	1.5	1.2	2.7	2.0	1.5	3.3	3.9	5.3	9.0	8.8	8.0	7.9	7.5	6.3	7.1	6.3	6.7	5.5	4.2	1.7	1.1	1.7	1.6	4.4	9.0	1.1
16	1.4	1.3	1.2	1.1	1.0	1.9	1.8	1.8	2.4	3.5	3.7	2.4	3.4	4.0	4.6	3.5	3.7	2.4	2.5	2.4	2.6	2.8	1.2	1.3	2.4	4.6	1.0
17	1.2	1.2	1.1	0.9	0.9	0.7	0.7	0.6	0.6	1.9	2.7	1.3	6.4	5.0	5.7	5.0	4.7	2.6	2.1	2.0	3.6	3.1	2.7	1.9	2.4	6.4	0.6
18	2.5	2.1	1.2	1.6	1.3	1.5	1.0	0.7	5.2	5.2	4.3	4.8	5.2	5.5	5.1	4.7	4.8	3.8	3.4	2.0	1.7	2.7	2.2	2.3	3.1	5.5	0.7
19	1.3	1.6	1.3	0.9	1.4	1.3	0.7	0.6	0.7	1.4	3.2	4.8	5.2	5.8	6.4	6.1	5.2	4.6	4.2	3.7	1.8	3.5	3.0	1.8	2.9	6.4	0.6
20	1.5	1.2	1.3	0.9	0.9	1.0	0.7	0.5	0.4	1.6	3.1	3.2	4.0	5.3	6.2	6.1	5.5	4.4	2.3	1.3	1.5	2.8	2.1	1.6	2.5	6.2	0.4
21	1.6	1.0	0.7	1.0	1.3	1.2	1.4	0.6	0.4	3.1	6.9	5.1	6.2	8.2	5.8	7.4	7.1	7.9	7.7	6.9	7.1	5.8	5.2	4.0	4.3	8.2	0.4
22	5.4	5.7	5.5	4.5	4.2	4.9	6.4	5.3	4.0	4.6	4.7	6.0	5.9	6.1	5.1	5.2	4.3	3.6	3.1	1.5	3.0	3.7	3.5	2.3	4.5	6.4	1.5
23	1.9	1.8	1.9	1.8	1.9	1.2	1.5	0.4	0.4	0.3	1.3	3.8	3.8	4.0	3.6	2.2	3.5	2.8	2.3	2.0	2.3	2.2	1.3	1.3	2.1	4.0	0.3
24	2.1	1.6	1.6	1.6	1.9	1.7	1.3	0.6	0.4	1.4	1.1	1.8	3.2	4.3	4.2	4.0	4.4	3.0	1.7	1.1	2.3	3.5	2.8	1.9	2.2	4.4	0.4
25	1.4	1.3	0.7	0.6	1.1	1.2	0.9	0.3	0.4	0.4	1.5	2.8	4.2	4.6	5.2	5.6	4.5	3.7	1.4	3.9	1.4	1.3	0.8	0.9	2.1	5.6	0.3
26	1.7	1.3	1.3	0.7	1.3	0.6	1.1	0.8	0.5	0.8	2.7	3.3	4.2	3.9	3.1	3.3	3.0	2.5	4.0	3.6	2.5	2.7	2.1	1.8	2.2	4.2	0.5
27	1.4	1.0	1.2	1.2	1.0	0.9	3.1	2.4	1.5	1.9	1.6	1.7	1.7	3.6	4.6	4.0	3.2	2.6	1.1	3.1	3.3	3.0	2.0	2.6	2.2	4.6	0.9
28	2.3	2.2	1.6	1.5	1.1	1.0	1.2	0.7	0.6	0.8	3.5	3.2	4.1	4.0	4.2	3.3	4.3	2.9	1.3	3.0	1.7	1.6	1.7	1.6	2.2	4.3	0.6
29	1.8	1.1	0.8	1.8	1.1	1.4	1.2	0.7	0.8	4.0	5.2	6.2	6.3	5.8	6.5	6.6	7.3	6.7	3.3	3.0	4.1	2.4	2.5	2.4	3.5	7.3	0.7
30	1.3	1.8	2.7	2.0	1.4	3.5	2.7	3.5	2.0	3.8	6.3	4.7	3.8	7.1	7.2	6.2	6.3	4.7	9.3	4.7	7.2	7.0	6.4	3.6	4.6	9.3	1.3
31	5.7	6.7	5.3	2.3	5.6	4.0	2.1	3.6	6.0	8.0	5.8	6.6	6.0	5.0	5.7	5.5	6.0	5.0	4.0	2.1	3.6	3.2	1.9	1.1	4.6	8.0	1.1
Avg	2.1	1.8	1.7	1.5	1.6	1.5	1.4	1.2	1.8	3.1	4.0	4.2	4.6	4.9	5.0	5.0	4.7	4.0	3.5	3.0	2.9	2.8	2.5	2.0	3.0	6.1	0.7
Max	5.7	6.7	5.5	4.5	5.6	4.9	6.4	5.3	6.0	9.0	8.8	8.7	8.6	8.2	8.6	8.6	8.9	9.8	9.3	6.9	7.2	7.0	6.4	4.0	4.8	9.8	1.5
Min	0.9	0.6	0.6	0.6	0.6	0.5	0.4	0.2	0.4	0.3	1.1	1.3	1.7	1.7	2.4	2.2	1.8	0.9	0.8	1.1	1.4	1.0	0.8	0.9	1.8	3.4	0.2

A-2

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
September 2015

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.2	1.5	1.0	1.5	1.3	1.2	1.3	0.7	2.2	5.8	5.1	4.4	5.6	6.1	5.0	4.4	4.0	3.5	1.3	2.0	2.1	2.2	1.0	4.2	2.9	6.1	0.7
2	5.4	1.7	1.1	1.9	1.1	1.6	1.4	1.0	3.4	6.9	6.4	9.1	8.8	7.2	6.0	5.6	3.6	3.9	2.9	1.6	0.9	1.2	1.1	1.0	3.5	9.1	0.9
3	1.4	1.5	1.5	1.5	1.4	1.0	2.1	1.4	3.6	4.9	4.8	5.7	4.6	3.7	4.7	5.3	6.1	3.9	4.4	5.3	2.0	1.8	1.6	2.1	3.2	6.1	1.0
4	1.1	3.2	1.1	1.1	1.1	1.3	1.2	1.9	1.5	1.2	2.1	1.0	1.3	3.6	3.9	2.8	3.3	5.3	4.7	2.1	1.7	2.0	3.2	1.7	2.2	5.3	1.0
5	2.3	2.8	1.9	1.3	2.5	4.2	3.4	3.7	3.9	4.3	4.4	6.2	4.0	4.1	2.7	2.9	6.9	6.1	2.5	2.3	2.9	2.4	0.9	2.2	3.4	6.9	0.9
6	2.2	1.5	1.4	1.2	2.0	3.1	3.3	2.6	6.3	9.7	7.7	8.1	9.1	8.0	7.4	6.7	5.7	5.8	3.3	3.0	2.8	2.2	1.5	1.4	4.4	9.7	1.2
7	2.1	1.4	3.9	1.8	2.5	2.0	2.3	2.7	4.4	5.4	8.2	9.6	8.4	7.9	6.5	5.2	5.8	5.2	4.2	2.8	1.9	3.0	2.6	2.1	4.2	9.6	1.4
8	1.7	1.2	1.2	0.9	1.0	0.8	0.5	0.6	1.9	6.4	Au	Au	Au	Au	Au	6.8	4.8	2.3	0.6	1.1	1.4	2.2	1.4	2.8	2.1	6.8	0.5
9	1.6	1.6	1.0	0.8	1.2	2.6	1.0	1.4	2.3	5.9	5.2	4.5	5.5	4.6	4.2	5.7	6.4	4.7	2.0	1.5	2.5	1.9	1.8	1.7	3.0	6.4	0.8
10	0.7	0.6	0.6	1.0	1.1	0.7	0.7	0.5	0.7	2.5	4.2	5.0	4.9	4.7	4.5	5.4	4.8	4.3	3.2	1.6	1.6	1.7	1.2	1.5	2.4	5.4	0.5
11	0.8	0.8	1.0	1.6	1.4	1.4	1.0	1.0	0.5	0.6	2.2	3.5	2.6	3.1	2.7	2.6	2.5	2.4	1.2	2.7	3.3	2.2	1.9	1.0	1.8	3.5	0.5
12	1.3	1.4	1.6	0.8	0.7	1.3	0.6	0.4	0.4	2.2	3.6	3.8	3.8	3.8	3.9	4.2	4.8	4.2	2.2	2.1	2.2	2.3	1.3	1.4	2.3	4.8	0.4
13	1.2	1.0	0.8	0.9	0.9	0.9	1.1	0.7	0.6	5.8	7.3	9.4	9.3	8.3	8.6	9.0	8.4	7.1	3.6	3.2	1.0	2.3	2.4	2.0	4.0	9.4	0.6
14	1.4	1.4	1.3	1.3	1.3	0.9	0.7	0.8	1.4	2.1	2.3	2.4	5.5	6.5	4.3	3.3	2.5	7.3	6.1	2.6	5.1	2.3	0.9	1.6	2.7	7.3	0.7
15	0.8	1.5	4.5	2.3	1.4	1.1	3.7	6.3	4.9	1.6	4.1	4.8	5.3	5.9	4.7	4.4	3.1	2.4	1.5	1.9	1.9	2.2	1.2	1.9	3.1	6.3	0.8
16	2.0	1.5	0.9	2.9	4.3	3.9	2.2	4.5	3.4	0.6	0.5	3.2	3.2	3.6	3.4	5.7	2.7	3.2	1.8	1.1	1.1	0.7	1.2	0.8	2.4	5.7	0.5
17	0.5	0.2	1.2	0.9	Wx	Wx	Wx	0.4	0.8	1.2	1.7	4.5	3.5	3.4	3.6	2.7	4.0	4.0	2.6	1.2	1.5	2.4	2.0	0.8	2.1	4.5	0.2
18	0.5	0.4	0.2	0.4	0.3	0.4	0.4	0.3	1.0	5.1	6.7	6.0	7.3	7.2	7.1	6.9	5.1	3.3	1.5	1.4	1.3	1.4	1.6	1.7	2.8	7.3	0.2
19	0.8	1.2	1.1	1.6	0.9	1.8	2.4	2.0	3.8	7.1	10.1	10.5	9.0	8.5	7.8	7.6	9.2	6.5	3.5	2.0	2.1	1.9	1.1	1.6	4.3	10.5	0.8
20	2.1	1.4	1.4	1.8	2.3	2.2	1.3	1.3	2.6	7.6	5.3	5.5	5.1	5.2	6.8	6.8	5.0	5.1	4.4	4.6	5.2	2.8	0.8	1.7	3.7	7.6	0.8
21	1.0	0.8	1.4	2.9	4.3	2.0	2.7	3.9	5.6	6.2	7.4	7.1	6.7	6.8	5.9	4.8	3.7	3.8	2.0	2.0	3.2	1.5	3.7	4.2	3.9	7.4	0.8
22	3.5	4.1	3.4	4.2	5.4	6.8	5.9	6.7	7.1	6.8	5.2	3.7	3.3	3.3	2.5	4.2	5.2	4.3	2.1	1.9	1.8	1.1	1.8	1.5	4.0	7.1	1.1
23	1.7	1.1	1.2	1.1	0.7	1.0	0.7	1.0	0.7	0.7	1.0	3.9	3.3	3.9	3.9	3.0	2.6	2.1	1.9	3.9	3.1	1.0	0.8	0.6	1.9	3.9	0.6
24	1.1	0.9	0.6	0.6	1.1	0.9	1.0	0.4	0.7	0.6	1.6	3.0	3.2	3.6	4.3	4.6	3.0	1.6	2.8	2.4	0.8	0.8	0.6	1.9	1.8	4.6	0.4
25	1.6	1.9	1.7	1.9	1.7	1.4	1.2	1.2	0.7	0.6	4.9	5.8	6.4	7.5	6.2	5.9	4.9	1.9	3.7	3.3	1.7	2.0	1.4	2.0	3.0	7.5	0.6
26	1.9	1.4	1.7	2.0	1.4	2.2	2.1	1.9	1.3	1.1	4.0	4.6	4.7	5.5	7.6	7.1	6.0	2.6	3.0	3.7	4.0	1.1	1.8	1.4	3.1	7.6	1.1
27	1.2	1.2	1.5	1.3	1.2	0.8	0.6	0.7	1.2	3.2	4.2	4.5	5.7	7.1	5.8	7.1	6.6	5.2	2.3	2.3	1.3	1.2	0.9	1.0	2.8	7.1	0.6
28	0.5	0.6	0.5	1.0	0.9	0.4	0.5	1.1	0.7	1.1	1.5	2.3	4.3	3.6	3.7	3.3	2.8	1.4	2.7	3.2	2.2	1.0	0.9	1.3	1.7	4.3	0.4
29	1.8	1.7	2.0	1.7	1.4	1.4	0.7	1.2	0.6	1.7	5.4	5.8	6.0	6.0	7.4	6.8	5.6	3.9	1.9	2.7	3.5	1.6	1.9	1.1	3.1	7.4	0.6
30	1.0	0.8	0.9	0.9	1.0	0.3	0.8	1.1	0.6	0.5	3.0	3.7	3.7	5.1	3.9	3.7	3.4	1.5	3.3	3.5	2.5	1.7	1.4	0.9	2.0	5.1	0.3
Avg	1.5	1.4	1.5	1.5	1.6	1.7	1.6	1.8	2.3	3.6	4.5	5.2	5.3	5.4	5.1	5.2	4.8	4.0	2.8	2.5	2.3	1.8	1.5	1.7	2.9	6.7	0.7
Max	5.4	4.1	4.5	4.2	5.4	6.8	5.9	6.7	7.1	9.7	10.1	10.5	9.3	8.5	8.6	9.0	9.2	7.3	6.1	5.3	5.2	3.0	3.7	4.2	4.4	10.5	1.4
Min	0.5	0.2	0.2	0.4	0.3	0.3	0.4	0.3	0.4	0.5	0.5	1.0	1.3	3.1	2.5	2.6	2.5	1.4	0.6	1.1	0.8	0.7	0.6	0.6	1.7	3.5	0.2

A-3

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
July 2015

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	125	358	87	136	116	85	14	353	301	310	309	317	315	321	321	348	18	17	32	65	69	24	338	13
2	168	130	358	127	8	85	330	314	324	292	283	254	274	3	353	338	338	207	137	124	91	100	78	92	18
3	112	95	108	77	81	62	137	131	12	311	323	291	258	286	298	280	293	312	326	344	111	81	77	91	28
4	111	1	6	29	102	58	218	318	354	300	290	286	307	286	291	308	272	256	268	136	103	112	78	297	322
5	310	333	336	342	336	323	324	337	347	284	239	262	283	276	302	319	10	286	280	334	318	330	286	273	310
6	291	233	124	148	19	102	98	105	175	163	152	157	158	163	149	14	315	326	326	88	124	123	109	119	128
7	17	85	48	118	107	43	182	358	345	299	267	283	35	325	321	355	350	57	64	68	53	75	93	118	36
8	73	104	63	88	70	139	314	307	96	179	167	183	259	173	188	250	62	136	144	142	141	54	162	110	131
9	143	141	73	93	86	110	56	33	328	335	353	37	106	154	78	113	171	187	242	169	183	115	101	90	105
10	104	112	123	65	74	91	101	318	134	206	264	282	61	322	47	324	25	307	331	167	85	97	96	129	76
11	80	78	150	64	89	129	141	147	175	255	302	296	333	318	272	222	270	263	221	167	113	116	163	182	175
12	137	136	97	117	93	92	262	260	264	268	257	260	265	287	266	270	279	287	282	293	299	96	80	53	265
13	82	101	79	103	76	91	302	31	355	306	290	283	301	270	318	336	346	334	319	280	118	64	305	118	356
14	108	159	54	80	85	89	144	145	307	285	259	251	271	273	273	232	216	200	168	105	81	112	103	79	152
15	71	36	60	75	102	123	167	315	312	25	346	304	292	267	295	301	283	130	322	317	127	95	107	92	19
16	110	116	136	113	133	142	116	150	311	272	267	275	274	275	282	313	314	312	314	318	315	194	218	120	251
17	84	67	80	56	108	139	333	249	258	268	280	274	290	305	322	333	331	329	331	330	321	324	304	292	320
18	279	283	297	276	306	299	273	285	286	313	322	308	293	306	336	295	300	319	271	218	117	90	74	65	301
19	83	38	57	61	71	8	109	16	303	292	312	301	319	327	321	313	273	321	350	27	279	142	102	76	360
20	47	63	78	52	68	103	39	348	99	133	293	264	266	237	260	261	252	176	60	79	83	94	110	111	80
21	100	100	82	92	101	74	141	101	146	256	262	239	274	252	249	173	227	180	173	132	111	108	111	107	145
22	78	120	98	57	113	70	141	303	341	314	287	297	279	271	292	315	280	229	198	165	125	102	98	127	126
23	146	96	159	132	95	139	264	173	270	284	261	257	290	258	221	245	272	45	140	137	122	91	110	121	175
24	105	113	103	80	102	125	118	171	159	215	247	258	276	230	283	28	297	280	264	252	141	89	93	94	159
25	98	94	81	91	114	92	27	131	242	251	242	224	245	241	176	218	280	264	10	130	109	78	92	64	136
26	86	14	63	89	153	311	123	144	338	182	169	186	193	228	273	323	323	253	323	58	94	226	21	77	113
27	20	356	135	293	344	307	63	155	292	233	299	284	308	299	280	281	299	297	288	294	289	278	271	274	296
28	271	268	276	291	303	314	322	306	333	297	274	274	280	284	277	267	271	266	275	278	255	117	91	92	285
29	76	46	49	38	19	44	34	131	307	257	260	273	265	271	257	256	257	261	271	260	102	79	54	97	327
30	108	79	142	98	120	8	128	333	334	351	256	289	310	285	285	261	245	278	276	247	105	88	80	69	333
31	62	322	44	72	52	47	111	339	2	354	278	297	280	307	295	297	285	299	267	227	88	85	80	95	353
Prev	92	84	77	79	81	80	103	348	319	278	276	272	284	278	287	294	294	279	291	172	104	95	90	95	349

Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
August 2015

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	86	96	74	72	98	109	215	349	19	351	300	267	289	276	277	290	312	322	312	336	95	81	84	88	8
2	81	80	51	83	99	80	98	104	180	307	304	300	298	318	342	12	1	345	324	116	100	85	89	88	48
3	115	166	130	82	97	38	88	358	58	150	147	144	147	148	139	138	142	145	141	133	195	261	144	146	131
4	105	54	56	104	116	67	36	176	79	105	227	144	137	149	232	103	118	111	187	136	129	83	82	124	115
5	72	91	93	76	110	137	149	307	286	147	47	320	330	264	327	307	303	299	309	265	270	121	116	70	5
6	112	58	108	11	66	128	62	50	286	260	278	265	253	269	263	266	277	281	281	305	313	326	83	79	312
7	57	108	94	80	122	84	29	345	289	254	249	275	265	295	286	336	337	262	356	58	67	225	80	76	3
8	110	105	106	111	92	38	129	144	143	146	143	183	196	165	156	151	155	148	145	143	146	102	102	84	132
9	43	69	126	157	335	125	106	287	329	302	294	280	268	274	264	264	278	259	279	44	136	71	31	69	316
10	168	147	146	120	109	119	79	115	113	173	158	160	163	176	189	149	138	140	139	148	202	84	90	71	138
11	119	137	112	72	99	101	133	180	17	23	320	268	292	265	344	320	210	207	337	74	102	51	85	124	83
12	44	31	13	343	350	1	69	268	134	322	171	300	320	4	240	260	274	240	246	209	92	122	126	102	333
13	102	86	96	92	81	118	181	167	167	143	58	274	253	255	243	213	232	213	172	118	91	97	118	166	149
14	156	113	116	101	106	92	122	101	50	122	143	77	85	174	197	223	239	321	86	82	71	3	93	138	110
15	122	119	158	58	67	77	301	279	287	282	272	271	261	272	267	294	296	322	325	29	214	352	84	95	306
16	317	165	221	8	179	108	103	358	156	145	144	149	266	304	303	298	313	330	108	119	96	119	138	117	134
17	131	116	55	66	336	101	347	146	91	5	182	139	328	323	324	309	306	6	36	67	93	84	79	103	55
18	77	85	60	58	135	126	135	342	302	320	318	300	304	314	323	321	314	314	287	309	106	96	111	83	4
19	29	83	108	62	117	154	118	268	16	29	270	264	249	254	265	259	256	263	252	253	186	78	81	87	228
20	100	39	100	85	83	70	87	67	352	131	271	275	260	242	251	266	257	247	240	159	113	76	97	60	105
21	126	89	122	31	124	103	103	271	352	272	261	255	286	282	275	289	298	303	325	350	14	355	329	320	321
22	279	275	278	278	305	316	308	310	312	314	321	306	295	317	336	329	334	336	329	105	91	73	80	107	322
23	105	89	95	92	83	72	90	324	338	83	15	269	262	272	287	227	283	288	305	92	109	81	98	75	54
24	68	93	115	112	127	128	134	6	14	145	41	344	252	209	257	222	221	215	211	140	79	87	71	84	121
25	66	53	44	40	90	154	122	149	357	312	348	250	216	219	235	273	275	294	337	79	296	164	1	348	340
26	94	87	96	25	122	52	116	73	57	10	271	265	267	277	278	289	319	359	63	76	77	76	95	101	53
27	95	93	135	122	36	28	143	279	78	54	123	254	235	222	222	247	258	225	155	85	81	97	96	101	126
28	64	68	55	80	73	51	118	111	27	1	269	268	235	216	236	210	218	180	127	92	75	89	67	94	98
29	63	132	99	82	106	142	177	175	282	127	138	147	141	143	132	147	195	22	70	57	61	72	68	71	113
30	134	148	87	61	147	304	256	125	148	170	230	257	254	238	226	235	188	232	300	306	285	263	268	246	227
31	282	294	290	142	316	280	295	259	267	246	256	241	252	264	252	261	269	286	272	279	85	77	113	43	271
Prev	92	95	97	76	93	91	110	340	12	34	259	258	259	255	262	264	267	278	294	89	101	81	89	91	96

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
September 2015

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	78	83	124	144	99	128	316	249	253	238	226	242	239	243	230	198	223	284	82	95	103	348	165	183
2	160	309	109	84	41	113	123	178	126	180	214	234	229	233	253	239	254	352	34	55	26	28	308	245	190
3	251	176	145	126	139	33	273	138	105	154	165	153	149	285	281	270	266	336	349	312	323	359	294	231	233
4	259	288	338	3	268	150	180	358	131	284	324	332	293	324	346	307	81	65	72	51	204	22	89	115	350
5	346	101	257	311	156	167	166	148	152	155	243	291	318	308	112	147	248	299	84	89	66	96	96	85	136
6	69	130	89	101	271	275	264	232	248	262	256	259	262	254	255	256	256	274	269	294	299	129	124	123	249
7	97	105	289	307	237	105	111	67	296	290	278	258	267	265	253	277	272	289	284	295	94	102	90	85	281
8	69	79	129	89	130	164	179	95	37	263	Au	Au	Au	Au	Au	276	288	317	285	152	143	79	75	69	105
9	106	89	92	357	129	82	84	83	324	279	282	289	286	301	291	281	278	301	270	129	95	80	71	95	19
10	70	350	18	54	68	55	63	24	12	301	265	267	286	283	300	266	296	327	59	31	131	91	45	71	10
11	341	22	25	59	83	74	60	141	317	64	303	308	280	263	285	251	251	277	253	96	82	90	118	66	15
12	65	74	107	54	82	107	86	66	351	318	267	266	269	262	270	253	252	255	248	130	81	85	87	108	71
13	79	112	16	59	68	49	95	54	21	277	266	261	274	271	261	278	283	283	298	301	69	99	158	218	330
14	144	124	107	99	98	107	112	356	347	354	310	175	230	235	279	290	190	207	173	149	277	174	137	128	161
15	246	160	221	339	149	299	287	310	317	50	265	253	276	253	267	264	261	268	241	145	113	121	60	112	255
16	309	276	242	324	308	327	59	88	79	79	173	298	300	325	294	277	312	284	277	343	185	116	113	78	315
17	102	178	5	27	35	148	57	340	213	147	280	274	290	297	246	300	300	188	157	166	93	99	107	125	153
18	109	145	125	149	250	140	161	172	80	254	257	255	248	247	247	259	272	263	254	205	163	139	119	118	196
19	149	137	141	122	72	107	84	85	290	259	269	270	266	274	265	262	255	275	267	167	131	129	113	110	186
20	96	83	87	124	74	87	75	93	185	248	264	242	221	241	236	221	212	251	249	257	268	260	182	251	210
21	220	181	147	261	265	282	296	308	291	280	282	279	276	286	298	304	313	326	302	137	122	96	130	160	269
22	167	170	191	190	168	164	167	166	168	167	161	138	169	159	168	202	161	166	154	125	119	103	82	8	157
23	80	26	101	131	108	125	140	180	119	112	9	249	244	265	281	255	226	229	90	81	107	22	18	334	114
24	351	358	60	59	103	127	122	119	285	32	188	168	178	205	175	196	186	189	112	113	151	130	107	141	136
25	128	109	100	97	86	67	58	134	329	339	175	185	200	205	224	221	219	189	101	104	51	128	75	82	125
26	96	133	82	102	92	124	149	150	155	167	240	225	258	273	283	288	298	291	311	71	78	74	100	72	131
27	78	94	103	100	189	106	106	85	322	305	291	255	278	262	292	306	306	325	317	96	163	75	283	147	337
28	58	110	63	76	64	344	45	150	280	53	337	355	315	319	278	261	281	249	113	98	109	47	53	66	35
29	84	90	114	88	114	124	36	163	309	4	267	267	289	264	268	280	262	251	174	100	83	84	66	81	97
30	106	85	113	102	143	114	142	147	331	334	302	285	278	300	259	255	259	203	99	71	75	72	54	295	96
Prev	93	106	98	79	113	106	108	111	318	286	262	256	262	267	265	262	259	268	262	105	106	92	88	107	173

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
July 2015

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

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
August 2015

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

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
September 2015

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	30	53	28	42	34	51	82	89	17	26	29	26	22	22	32	35	30	34	50	47	37	71	13	40	89	13
2	12	99	53	34	32	42	41	81	86	16	23	16	18	20	27	22	36	60	61	74	92	64	76	83	49	99	12
3	73	48	35	51	77	78	83	72	38	16	32	13	22	62	32	16	15	49	38	47	60	75	73	70	49	83	13
4	71	16	68	66	86	64	103	89	80	55	15	39	38	14	24	60	18	10	12	57	102	81	16	86	53	103	10
5	63	26	81	34	23	12	9	13	12	14	75	16	14	14	87	40	37	36	17	30	39	57	72	46	36	87	9
6	52	72	65	63	41	19	12	36	16	12	16	17	19	18	15	18	15	13	10	10	22	58	27	39	29	72	10
7	40	57	20	48	54	44	34	25	46	20	14	13	15	15	13	17	12	13	12	66	39	18	33	31	29	66	12
8	49	44	38	60	36	54	80	79	97	16	Au	Au	Au	Au	Au	15	12	13	80	29	42	49	56	21	46	97	12
9	24	48	47	87	44	44	57	42	50	16	17	18	23	23	32	16	13	15	51	42	26	40	21	33	35	87	13
10	63	51	72	45	46	57	70	87	57	25	25	21	25	23	23	20	17	34	41	56	37	34	51	31	42	87	17
11	31	43	28	30	40	47	37	24	77	70	78	21	52	49	45	39	26	12	55	27	13	26	20	29	38	78	12
12	38	38	36	29	43	48	49	72	70	49	26	30	29	31	32	24	15	11	68	30	26	26	43	30	37	72	11
13	39	53	41	48	48	68	67	86	72	18	16	12	16	16	15	16	13	11	11	22	66	47	77	91	40	91	11
14	48	27	27	32	41	43	72	34	45	35	55	94	29	15	28	13	89	17	9	18	47	90	64	72	44	94	9
15	92	62	62	103	36	71	19	16	15	80	13	14	19	14	21	16	14	13	37	24	21	49	74	47	39	103	13
16	60	55	78	10	15	19	47	10	11	60	65	26	18	11	26	11	21	17	33	53	91	64	45	76	38	91	10
17	92	82	78	66	37	44	84	88	64	49	86	22	19	22	20	57	60	57	9	14	27	23	17	25	48	92	9
18	32	66	96	24	92	43	85	86	76	16	12	14	18	14	15	14	13	12	18	39	40	27	23	30	38	96	12
19	51	35	55	74	89	27	47	29	49	13	12	12	15	15	15	14	10	12	20	59	59	39	69	39	36	89	10
20	40	63	49	34	53	56	88	73	88	13	19	25	22	28	18	15	15	23	10	9	10	19	54	23	35	88	9
21	50	61	76	23	13	54	26	16	13	17	15	14	18	25	17	20	19	7	20	65	71	43	29	13	30	76	7
22	17	10	19	17	10	7	7	7	7	8	15	24	23	22	45	20	27	10	20	38	21	52	51	69	23	69	7
23	72	81	34	35	58	42	66	79	68	82	95	28	45	35	29	38	31	33	78	12	22	64	82	70	53	95	12
24	50	39	68	71	64	24	34	52	56	82	82	28	21	24	22	25	15	60	21	23	71	67	100	31	47	100	15
25	27	24	32	30	36	34	39	36	50	59	25	19	16	17	21	18	16	24	12	14	69	43	55	30	31	69	12
26	26	23	31	39	48	28	18	18	62	74	59	16	17	16	17	14	10	12	13	38	31	84	64	54	34	84	10
27	34	33	45	52	95	67	51	95	33	28	22	23	18	14	18	17	18	7	20	34	67	87	91	63	43	95	7
28	93	92	64	37	42	55	61	30	42	78	46	89	28	24	37	31	32	48	23	12	24	30	41	29	45	93	12
29	23	31	20	30	30	27	58	42	50	81	21	16	20	21	18	15	16	8	82	21	12	29	34	37	31	82	8
30	36	67	64	65	27	82	54	36	41	96	44	24	36	24	33	26	27	61	21	19	31	68	96	82	48	96	19
Avg	48	49	51	46	47	44	52	51	52	41	36	25	23	22	26	23	23	24	31	34	44	50	54	46	39	87	11
Max	93	99	96	103	95	82	103	95	97	96	95	94	52	62	87	60	89	61	82	74	102	90	100	91	53	103	19
Min	12	10	19	10	10	7	7	7	7	8	12	12	14	11	13	11	10	7	9	9	10	18	16	13	23	66	7

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
July 2015

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	5	94	250	425	594	745	820	869	808	948	832	594	531	351	208	51	3	0	0	0	339	948	0
2	0	0	0	0	6	76	210	418	583	733	853	914	934	937	538	668	567	348	222	68	3	0	0	0	337	937	0
3	0	0	0	0	4	75	226	403	576	727	846	947	992	951	757	546	470	349	221	71	4	0	0	0	340	992	0
4	0	0	0	0	4	83	238	414	584	740	852	940	926	938	843	664	574	406	160	59	6	0	0	0	351	940	0
5	0	0	0	0	1	14	115	88	102	81	121	116	152	120	95	55	90	47	16	12	1	0	0	0	51	152	0
6	0	0	0	0	1	22	69	290	335	291	353	431	512	437	328	592	476	355	225	71	2	0	0	0	200	592	0
7	0	0	0	0	3	51	208	344	502	452	169	314	689	633	560	675	538	154	81	35	3	0	0	0	225	689	0
8	0	0	0	0	4	79	229	403	547	616	910	983	1017	979	904	812	586	442	259	57	3	0	0	0	368	1017	0
9	0	0	0	0	3	45	167	320	490	648	771	850	917	926	863	737	586	413	235	47	3	0	0	0	334	926	0
10	0	0	0	0	4	45	229	413	576	594	737	622	322	99	57	224	144	175	140	53	3	0	0	0	185	737	0
11	0	0	0	0	0	15	69	92	86	131	187	318	388	646	528	321	345	284	144	50	2	0	0	0	150	646	0
12	0	0	0	0	2	45	104	162	181	289	432	358	637	437	784	584	586	402	241	77	2	0	0	0	222	784	0
13	0	0	0	0	4	23	115	274	549	732	861	611	753	799	713	551	581	393	41	1	0	0	0	0	292	861	0
14	0	0	0	0	1	71	157	358	552	637	840	908	765	735	443	346	298	143	59	28	3	0	0	0	264	908	0
15	0	0	0	0	3	72	62	89	102	545	657	846	508	451	670	434	151	144	140	37	4	0	0	0	205	846	0
16	0	0	0	0	2	48	179	368	511	611	554	425	585	400	342	512	351	238	239	72	2	0	0	0	227	611	0
17	0	0	0	0	2	35	202	417	559	641	742	664	791	560	600	416	216	178	96	28	1	0	0	0	256	791	0
18	0	0	0	0	0	34	68	64	200	284	478	682	668	907	788	726	550	350	184	69	2	0	0	0	252	907	0
19	0	0	0	0	2	73	228	398	564	719	625	494	449	484	504	611	438	258	129	67	2	0	0	0	252	719	0
20	0	0	0	0	1	61	214	388	557	712	730	919	611	969	661	611	357	153	115	44	1	0	0	0	296	969	0
21	0	0	0	0	2	57	191	375	548	706	802	931	681	545	253	419	526	295	126	62	1	0	0	0	272	931	0
22	0	0	0	0	1	58	251	230	174	178	194	492	929	578	390	383	318	222	161	18	0	0	0	0	191	929	0
23	0	0	0	0	0	5	31	63	126	194	408	684	668	452	709	531	150	52	82	26	1	0	0	0	174	709	0
24	0	0	0	0	1	56	211	380	557	692	804	925	685	507	545	419	383	238	210	46	0	0	0	0	277	925	0
25	0	0	0	0	1	60	202	375	545	700	788	480	642	401	570	505	524	107	130	17	0	0	0	0	252	788	0
26	0	0	0	0	0	54	199	369	415	492	755	667	526	708	667	575	307	67	61	22	0	0	0	0	245	755	0
27	0	0	0	0	0	16	33	54	82	82	78	43	40	51	133	83	64	80	34	9	0	0	0	0	37	133	0
28	0	0	0	0	0	6	54	103	213	430	424	505	399	575	700	720	335	277	223	46	1	0	0	0	209	720	0
29	0	0	0	0	0	52	206	377	549	705	822	845	933	896	836	701	547	378	201	46	0	0	0	0	337	933	0
30	0	0	0	0	0	48	199	373	548	703	823	898	926	896	821	701	546	376	202	45	0	0	0	0	338	926	0
31	0	0	0	0	0	42	203	373	491	697	829	913	934	899	822	702	549	374	202	46	0	0	0	0	337	934	0
Avg	0	0	0	0	2	49	165	297	419	532	621	664	671	641	589	530	409	260	154	45	2	0	0	0	252	795	0
Max	0	0	0	0	6	94	251	425	594	745	910	983	1017	979	904	812	586	442	259	77	6	0	0	0	368	1017	0
Min	0	0	0	0	0	5	31	54	82	81	78	43	40	51	57	55	64	47	16	1	0	0	0	0	37	133	0

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
August 2015

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	39	202	374	539	693	817	892	916	878	783	442	378	369	188	32	0	0	0	0	314	916	0
2	0	0	0	0	0	40	139	316	490	655	764	872	926	881	797	653	503	290	140	26	0	0	0	0	312	926	0
3	0	0	0	0	1	41	158	324	473	560	771	813	856	845	662	628	523	227	125	31	0	0	0	0	293	856	0
4	0	0	0	0	0	11	71	153	110	182	216	418	425	680	110	21	273	319	143	27	0	0	0	0	132	680	0
5	0	0	0	0	0	39	116	171	211	154	223	628	786	631	387	223	188	53	18	11	0	0	0	0	160	786	0
6	0	0	0	0	0	23	175	344	522	685	811	761	909	792	741	694	531	360	180	30	0	0	0	0	315	909	0
7	0	0	0	0	0	29	181	360	536	692	817	900	937	897	804	694	529	355	178	23	0	0	0	0	331	937	0
8	0	0	0	0	0	11	55	124	289	365	180	161	148	229	221	169	103	60	37	11	0	0	0	0	90	365	0
9	0	0	0	0	0	8	153	340	514	665	791	876	912	884	824	696	536	361	181	17	0	0	0	0	323	912	0
10	0	0	0	0	0	23	158	328	504	655	782	869	847	686	822	743	280	115	80	14	0	0	0	0	288	869	0
11	0	0	0	0	0	19	152	331	502	660	780	849	884	864	782	628	458	299	139	13	0	0	0	0	307	884	0
12	0	0	0	0	0	18	88	142	178	123	101	254	864	835	769	649	434	140	12	12	0	0	0	0	192	864	0
13	0	0	0	0	0	18	135	304	441	613	706	784	731	757	712	591	425	291	107	10	0	0	0	0	276	784	0
14	0	0	0	0	0	9	64	132	239	324	115	468	862	838	685	221	21	8	60	8	0	0	0	0	169	862	0
15	0	0	0	0	0	9	88	245	393	517	672	722	747	755	676	562	415	278	113	12	0	0	0	0	259	755	0
16	0	0	0	0	0	3	23	158	282	179	618	515	631	685	668	301	389	117	67	11	0	0	0	0	194	685	0
17	0	0	0	0	0	8	46	147	249	93	150	309	289	599	477	294	281	290	90	9	0	0	0	0	139	599	0
18	0	0	0	0	0	2	26	93	160	62	292	375	416	428	347	271	287	175	122	8	0	0	0	0	128	428	0
19	0	0	0	0	0	10	149	311	478	629	758	807	830	801	733	613	442	265	91	6	0	0	0	0	288	830	0
20	0	0	0	0	0	7	88	241	394	463	519	668	741	685	543	522	352	196	75	9	0	0	0	0	229	741	0
21	0	0	0	0	0	2	59	193	364	486	517	337	513	438	281	429	300	185	76	4	0	0	0	0	174	517	0
22	0	0	0	0	0	5	85	117	98	285	228	690	531	757	760	628	471	298	118	5	0	0	0	0	212	760	0
23	0	0	0	0	0	7	102	256	408	571	703	772	811	789	694	562	407	240	81	4	0	0	0	0	267	811	0
24	0	0	0	0	0	6	92	251	416	575	704	644	762	557	573	489	193	112	75	2	0	0	0	0	227	762	0
25	0	0	0	0	0	5	81	230	401	571	678	762	757	733	692	530	346	214	70	3	0	0	0	0	253	762	0
26	0	0	0	0	0	3	47	186	418	568	664	743	775	737	542	390	416	225	52	4	0	0	0	0	240	775	0
27	0	0	0	0	0	1	1	67	103	165	210	282	268	583	482	311	247	93	49	2	0	0	0	0	119	583	0
28	0	0	0	0	0	5	48	181	363	561	725	747	668	637	661	359	253	80	27	0	0	0	0	0	221	747	0
29	0	0	0	0	0	2	19	171	205	273	369	491	399	315	474	341	93	46	17	0	0	0	0	0	134	491	0
30	0	0	0	0	0	0	8	26	247	601	697	664	629	657	519	395	170	107	9	0	0	0	0	0	197	697	0
31	0	0	0	0	0	4	84	252	469	532	717	773	821	798	702	568	407	230	54	0	0	0	0	0	267	821	0
Avg	0	0	0	0	0	13	93	222	355	457	551	640	696	698	610	472	344	206	89	11	0	0	0	0	227	752	0
Max	0	0	0	0	1	41	202	374	539	693	817	900	937	897	824	743	536	369	188	32	0	0	0	0	331	937	0
Min	0	0	0	0	0	0	1	26	98	62	101	161	148	229	110	21	21	8	9	0	0	0	0	0	90	365	0

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Tintina Resources, Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (watts m²)
September 2015

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0	0	0	0	0	3	80	281	452	609	734	816	842	841	554	425	364	292	82	1	0	0	0	0	266	842	0
2	0	0	0	0	0	2	70	258	451	513	548	794	659	786	286	289	114	82	25	0	0	0	0	0	203	794	0
3	0	0	0	0	0	1	94	290	336	448	654	334	827	552	451	242	67	37	9	0	0	0	0	0	181	827	0
4	0	0	0	0	0	0	18	40	44	37	65	100	223	230	316	270	123	13	22	0	0	0	0	0	63	316	0
5	0	0	0	0	0	0	13	133	264	353	129	91	86	105	140	313	88	28	21	0	0	0	0	0	74	353	0
6	0	0	0	0	0	1	27	120	347	436	566	740	781	797	545	520	214	99	32	0	0	0	0	0	218	797	0
7	0	0	0	0	0	1	71	148	215	182	273	660	586	429	361	305	147	49	17	0	0	0	0	0	144	660	0
8	0	0	0	0	0	3	85	211	368	378	Au	Au	Au	Au	Au	290	89	68	7	0	0	0	0	0	79	378	0
9	0	0	0	0	0	1	60	239	358	338	411	516	706	641	578	478	240	82	18	0	0	0	0	0	194	706	0
10	0	0	0	0	0	1	60	232	385	560	682	775	779	731	644	508	355	184	28	0	0	0	0	0	247	779	0
11	0	0	0	0	0	0	67	236	411	567	680	744	758	725	642	541	339	179	28	0	0	0	0	0	247	758	0
12	0	0	0	0	0	1	64	235	410	565	692	768	790	746	655	520	357	179	22	0	0	0	0	0	250	790	0
13	0	0	0	0	0	1	56	222	396	552	682	760	781	737	644	509	344	144	8	0	0	0	0	0	243	781	0
14	0	0	0	0	0	1	56	306	463	487	616	587	646	442	234	144	44	13	5	0	0	0	0	0	169	646	0
15	0	0	0	0	0	0	1	36	46	94	254	283	497	618	350	169	158	49	2	0	0	0	0	0	107	618	0
16	0	0	0	0	0	0	2	21	61	83	116	130	118	132	126	51	212	103	10	0	0	0	0	0	49	212	0
17	0	0	0	0	0	0	29	191	297	343	724	620	671	408	263	413	63	32	15	0	0	0	0	0	170	724	0
18	0	0	0	0	0	0	12	93	355	406	383	336	764	573	543	308	174	97	7	0	0	0	0	0	169	764	0
19	0	0	0	0	0	0	36	208	381	533	655	723	722	553	494	284	285	112	4	0	0	0	0	0	208	723	0
20	0	0	0	0	0	0	44	183	378	371	419	744	683	681	616	411	277	151	8	0	0	0	0	0	207	744	0
21	0	0	0	0	0	0	39	204	371	359	440	601	719	708	592	498	205	108	4	0	0	0	0	0	202	719	0
22	0	0	0	0	0	0	33	197	367	516	639	706	718	677	462	355	153	90	6	0	0	0	0	0	205	718	0
23	0	0	0	0	0	0	17	194	360	512	634	700	715	674	575	441	278	107	4	0	0	0	0	0	217	715	0
24	0	0	0	0	0	0	43	187	328	469	528	646	508	619	541	442	181	69	2	0	0	0	0	0	190	646	0
25	0	0	0	0	0	0	29	179	326	480	630	683	708	652	573	443	208	54	1	0	0	0	0	0	207	708	0
26	0	0	0	0	0	0	13	85	202	206	190	240	235	407	257	261	229	91	3	0	0	0	0	0	101	407	0
27	0	0	0	0	0	0	20	163	346	459	606	701	630	345	375	405	264	90	2	0	0	0	0	0	184	701	0
28	0	0	0	0	0	0	33	126	356	498	657	651	697	651	555	425	258	82	1	0	0	0	0	0	208	697	0
29	0	0	0	0	0	0	29	183	354	511	629	691	696	647	552	417	250	78	1	0	0	0	0	0	210	696	0
30	0	0	0	0	0	0	20	166	336	491	605	671	684	639	544	389	212	37	0	0	0	0	0	0	200	684	0
Avg	0	0	0	0	0	1	41	179	325	412	512	580	629	577	464	369	210	93	13	0	0	0	0	0	181	663	0
Max	0	0	0	0	0	3	94	306	463	609	734	816	842	841	655	541	364	292	82	1	0	0	0	0	266	842	0
Min	0	0	0	0	0	0	1	21	44	37	65	91	86	105	126	51	44	13	0	0	0	0	0	0	49	212	0

APPENDIX B: PERFORMANCE AUDIT REPORTS
THIRD QUARTER 2015



BISON ENGINEERING, INC.

Bison Engineering

Preliminary Meteorological Parameters Audit / Calibration Form
(No calibration adjustments required from as-found condition of sensors)

Audit Dates: 09/08/15 Audit Start Time : 10:15 MST Audit End Time : 15:05 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: 91255639 Temperature Sensor: Climatronics 100093
 Last certified: 4/21/2015 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
0.07	0.19	0.12	0.23	0.16	-0.04
18.93	18.86	-0.07	18.90	-0.03	-0.04
37.14	37.34	0.20	37.35	0.21	-0.01

Replaced both aspirator fan motors after audit; existing fans were working correctly.

Wind Direction

Sensor height: 9 Meter Sensor (Make/model number): Climatronics/ WMIII Serial Number : 1849 Crossarm orientation (from solar sighting): 179.3 / 359.3 Location used for solar calculation N 46 deg 46 min, W 110 deg 53 min Calculated sun azimuth at 1037 MST 143.2 degress Sensor response aligned with crossarm (as found): 0.1 Sensor response aligned with crossarm (as left): 0.3 Linearity Audit Device: Climatronics 101966, SN 70	Setpoint	<u>Linearity Check from DAS (as found)</u>			
		Clockwise	Counter-CW	Diff CW	Diff CCW
	0	0.1	0.1	0.1	0.1
	30	31.3	31.4	1.3	1.4
	60	60.2	60.2	0.2	0.2
	90	89.6	89.6	-0.4	-0.4
	120	121.2	121.0	1.2	1.0
	150	150.3	150.3	0.3	0.3
	180	180.2	180.1	0.2	0.1
	210	209.8	209.6	-0.2	-0.4
	240	239.6	239.5	-0.4	-0.5
	270	269.1	268.9	-0.9	-1.1
	300	299.5	299.3	-0.5	-0.7
	330	329.5	329.3	-0.5	-0.7
			Max Diff	1.3	1.4

Threshold Torque: 0.04 oz.-in.
(Waters Model 366-1 torque watch)

Wind Speed

Sensor height: 9 Meter
 Sensor (Make/model number): Climatronics/ WMIII
 Serial Number : 1849
 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: <0.003 oz.-in.
(Waters Model 366-3 torque watch)

Relative Humidity

Audit Device: Assmann Psychrometer, thermometer calibrations checked June 2015

Audit Dry-Bulb: 16.2 BP = 24.46 in. Hg
Audit Wet-Bulb: 8.0
Audit RH: 34.3 %RH
Station RH: 34.1 %RH
Diff: -0.2 %RH

Solar Radiation

Audit Device: Eppley Pyranometer, SN 16166F3 (certified by Eppley August 2015)

Time (MST)	CTS Value (W/m ²)	Site Value (W/m ²)	Diff. (%)	Diff. (% FS)
1410	727	728	0.1	0.1
1438	657	657	0.0	0.0

Barometric Pressure

Audit Device: Wallace & Tiernan Model FA185260, S/N LL03297.
Checked against Bison Mercury barometer (Butte) on 09/07/2015

Audit Value: 24.46 in Hg
Station Value: 24.49 in Hg
Diff: 0.03 in Hg


Precipitation

Rain Gauge = Met One Model 375
Level checked OK
Wind Screen in place
8" opening

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 : 

**APPENDIX C: EVAPORATION AND PRECIPITATION
SUMMARY, THIRD QUARTER 2015**

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
7/1/2015	1530		3.201				
7/6/2015	1000	2.292	2.292	0.05	0.03	0.959	0.909
7/7/2015	1030	2.058	2.058	0.00	0.00	0.234	0.234
7/9/2015	1000	1.700	3.500	0.00	0.00	0.358	0.358
7/13/2015	0900	2.968	2.968	0.15	0.13	0.682	0.532
7/15/2015	0915	2.950	2.950	0.27	0.35	0.288	0.018
7/20/2015	1000	2.038	2.038	0.05	0.04	0.962	0.912
7/22/2015	1000	1.550	3.500	0.05	0.00	0.538	0.488
7/24/2015	1230	3.520	3.520	0.25	0.22	0.230	-0.020
7/28/2015	0900	3.662	3.662	0.95	0.92	0.808	-0.142
7/29/2015	1155	3.428	3.428	0.00	0.00	0.234	0.234
7/30/2015	1300	3.170	3.170	0.00	0.00	0.258	0.258
TOTAL FOR JULY 1 - JULY 30				1.77	1.69	5.55	3.78

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
7/30/2015	1200		3.170				
8/3/2015	1420	1.910	3.500	0.00	0.00	1.260	1.260
8/4/2015	1300	3.194	3.194	0.00	0.00	0.306	0.306
8/5/2015	1015	3.186	3.186	0.09	0.08	0.098	0.008
8/6/2015	1005	3.052	3.052	0.00	0.00	0.134	0.134
8/10/2015	1330	2.142	2.142	0.00	0.00	0.910	0.910
8/14/2015	0845	1.215	3.500	0.00	0.00	0.927	0.927
8/17/2015	0830	3.054	3.054	0.20	0.20	0.646	0.446
8/20/2015	1030	2.732	2.732	0.05	0.04	0.372	0.322
8/24/2015	0900	2.184	2.184	0.04	0.03	0.588	0.548
8/26/2015	1130	1.584	3.500	0.00	0.00	0.600	0.600
8/28/2015	1300	3.148	3.148	0.00	0.00	0.352	0.352
8/31/2015	0930	2.728	2.728	0.25	0.23	1.022	0.772
TOTAL FOR JULY 30 - AUGUST 31				0.63	0.58	7.22	6.59

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
8/31/2015	0930		2.728				
9/1/2015	1420	2.470	3.500	0.00	0.00	0.258	0.258
9/4/2015	1300	1.976	1.976	0.15	0.12	1.674	1.524
9/8/2015	1015	2.015	2.015	0.41	0.38	0.371	-0.039
9/10/2015	1005	1.798	1.798	0.00	0.00	0.217	0.217
9/15/2015	1330	1.018	3.500	0.27	0.25	1.050	0.780
9/17/2015	0845	4.358	3.500	0.95	0.89	0.092	-0.858
9/21/2015	0830	2.958	2.958	0.06	0.05	0.602	0.542
9/23/2015	1030	2.971	2.971	0.00	0.00	-0.013	-0.013
9/25/2015	0900	2.464	2.464	0.00	0.00	0.507	0.507
9/28/2015	1130	1.996	1.996	0.00	0.00	0.468	0.468
9/29/2015	1300	1.744	1.744	0.00	0.00	0.252	0.252
9/30/2015	0930	1.692	1.692	0.00	0.00	0.304	0.304
TOTAL FOR AUGUST 31 - SEPTEMBER 30				1.84	1.69	5.78	3.94