

**TINTINA RESOURCES, INC.  
BLACK BUTTE COPPER PROJECT  
AMBIENT AIR  
MONITORING PROGRAM  
Quarterly Data Report  
Fourth Quarter 2012**

*Prepared for:*

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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 *Quality Assurance Project Plan*, the *State of Montana Ambient Air Monitoring Program Quality Assurance Project Plan*, the Environmental Protection Agency's *Quality Assurance Handbook for Air Pollution Measurement Systems: Volume II, Ambient Air Specific Methods (April 1994)*, and EPA's *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, Part 1, Ambient Air Quality Monitoring Program Quality System Development (March 1998)*.

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## **APPENDICES**

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Appendix A: Meteorological Data

## 1.0 INTRODUCTION

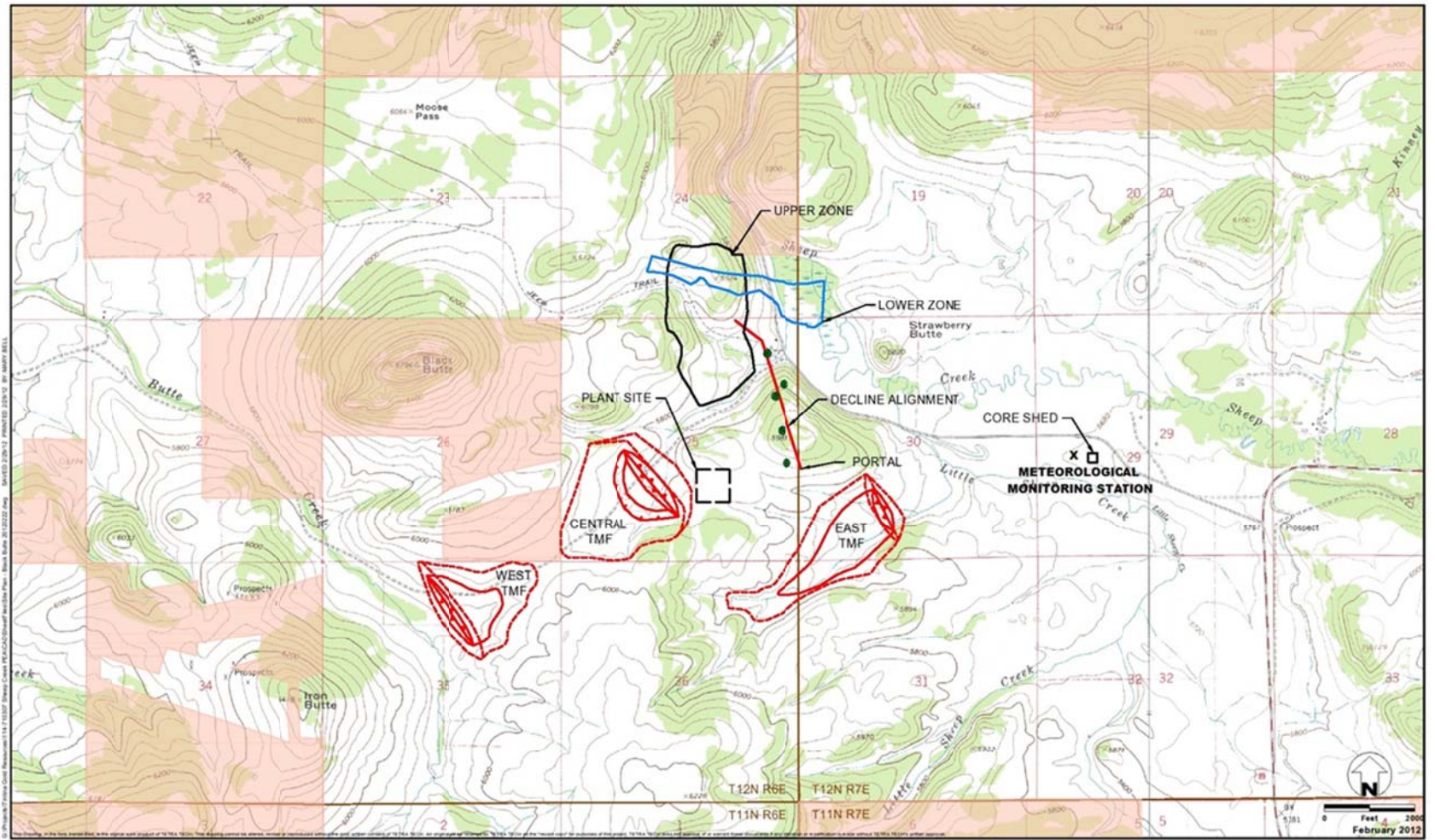
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Tintina Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. 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 site of 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 2012. 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.

**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**

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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.

### **3.0 CALIBRATION DATA**

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There were no calibrations performed during the fourth quarter.

Meteorological system calibration is performed:

- No later than 180 days after the most recent calibration that indicated the meteorological system response to be acceptable;
- After an interruption of more than a few days in meteorological system operation;
- Following any repairs which might affect meteorological system calibration;
- Following a physical relocation of the meteorological system; or
- After any other indication of significant inaccuracy of the meteorological system, such as failed system.

## **4.0 PERFORMANCE AUDIT DATA**

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Chris Hiltunen of Bison Engineering, Inc. (Bison) conducted performance audits of the meteorological system at the site during the fourth quarter. All of the system audits generally produced results within the recommended tolerance limits. The Bison report of the audits is presented in Appendix B.



## 5.0 DATA COMPLETENESS

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The meteorological percentages of data recovery achieved during the fourth quarter of 2012 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 meteorological parameters at Black Butte.

**Table 1. Monthly Data Completeness**

<b>October 2012</b>					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
<b>Black Butte Copper Project Met Tower</b>					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
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
<b>Total</b>	<b>7,440</b>	<b>7,440</b>	<b>100.0</b>	<b>0</b>	<b>100.0</b>

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

<b>November 2012</b>					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
<b>Black Butte Copper Project Met Tower</b>					
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)**

<b>December 2012</b>					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
<b>Black Butte Copper Project Met Tower</b>					
Wind Speed	744	741	99.6	3	100.0
Wind Direction	744	740	99.5	3	99.9
Standard Deviation	744	740	99.5	3	99.9
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	741	99.6	3	100.0
<b>Total</b>	<b>7,440</b>	<b>7,408</b>	<b>99.6</b>	<b>30</b>	<b>100.0</b>

**Table 2. Quarterly Data Completeness**

<b>Fourth Quarter 2012</b>					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
<b>Black Butte Copper Project Met Tower</b>					
Wind Speed	2,208	2,205	99.9	3	100.0
Wind Direction	2,208	2,204	99.8	3	100.0
Standard Deviation	2,208	2,204	99.8	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	2,205	99.9	3	100.0
<b>Total</b>	<b>22,080</b>	<b>22,048</b>	<b>99.9</b>	<b>30</b>	<b>100.0</b>

## 6.0 MONITORING DATA

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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 all parameters in the monitoring system. In addition, the average, maximum, and minimum values for each parameter for each day are listed (for wind direction, the prevailing wind direction for the day is given). For those hours with missing data, a code is given that explains the reason the data were missing. These codes are given in Table 3.

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

**Table 3. Missing Data Codes**

<b>Mnemonic Code</b>	<b>Description</b>	<b>Equivalent EPA Null Value Reason Code</b>
Sc	Scheduled but not collected	9972
Ti	Sample time out of limits	9973
Fi	Filter damage	9976
Op	Voided by operator	9978
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 2012																		
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	1.2	0.9	1.1	2.4	2.0	2.4	2.7	1.9	1.6	0.8	0.7	0.0	0.8	0.4	1.2	1.2	21.4
	1.1 - 2.0	0.8	0.1	0.9	1.3	3.9	3.8	3.8	2.3	1.1	0.4	0.5	0.9	1.3	1.1	0.5	0.4	23.3
	2.1 - 3.0	0.3	0.1	0.7	0.9	3.4	1.3	1.5	0.8	0.4	0.9	0.3	1.5	2.3	1.5	1.5	0.5	17.9
	3.1 - 4.0	0.4	0.3	0.1	0.4	1.5	0.0	0.0	0.7	0.0	0.1	0.7	1.1	2.3	1.2	1.5	0.7	10.9
	4.1 - 5.0	0.1	0.1	0.0	0.0	0.3	0.1	0.1	0.9	0.4	0.3	0.1	1.1	2.2	0.8	0.8	0.5	7.9
	5.1 - 6.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.3	0.0	0.7	2.4	0.5	0.4	0.7	6.0
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5	0.8	2.4	1.1	0.5	0.1	5.8
	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	0.3	1.2	0.4	0.1	0.0	2.0
	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	1.1	0.3	0.1	0.0	1.7
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3	0.0	0.0	1.2
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.3	0.0	0.0	1.2
	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	0.3	0.0	0.0	0.0	0.3
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	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	3.1	1.6	2.8	5.1	11.0	7.7	8.1	7.7	3.5	2.8	2.8	6.7	18.4	7.8	6.7	4.2	100.0	
Average Speed	2.2	1.7	1.5	1.5	2.1	1.5	1.4	2.6	1.6	2.4	3.0	4.2	5.4	4.4	3.3	2.9	3.1	



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

November 2012																		
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	0.8	0.8	0.7	1.8	0.7	1.8	3.2	0.8	0.4	0.0	0.1	0.3	0.3	0.8	1.1	14.9
	1.1 - 2.0	0.8	0.1	1.5	1.3	3.8	4.9	7.2	2.8	1.9	0.7	0.7	0.7	0.8	0.6	1.1	0.6	29.4
	2.1 - 3.0	0.0	0.0	0.3	1.1	3.8	3.1	1.4	0.8	0.6	0.6	0.0	0.7	1.8	1.1	0.8	0.1	16.1
	3.1 - 4.0	0.0	0.0	0.0	0.3	1.3	0.6	0.6	1.3	0.7	0.4	0.4	0.8	1.8	1.5	0.4	0.4	10.4
	4.1 - 5.0	0.0	0.0	0.0	0.3	0.0	0.3	0.4	1.3	0.6	1.0	0.3	0.4	1.9	1.0	0.7	0.0	8.1
	5.1 - 6.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	1.4	0.7	0.1	0.6	0.8	3.9	1.8	0.7	0.1	10.6
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.7	0.0	0.4	1.5	1.1	1.0	0.0	6.0
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.1	0.1	0.1	0.7	0.0	0.1	0.0	1.8
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.6	0.1	0.8	0.0	0.0	2.1
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	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	0.1	0.0	0.0	0.0	0.0	0.1	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	1.9	1.0	2.6	3.8	10.6	9.6	11.5	11.8	6.4	4.2	2.5	4.9	12.9	8.3	5.7	2.4	100.0	
Average Speed	0.9	0.9	1.3	2.2	2.0	2.1	1.7	2.9	3.5	3.9	4.5	4.6	4.6	4.7	3.6	1.9	3.1	

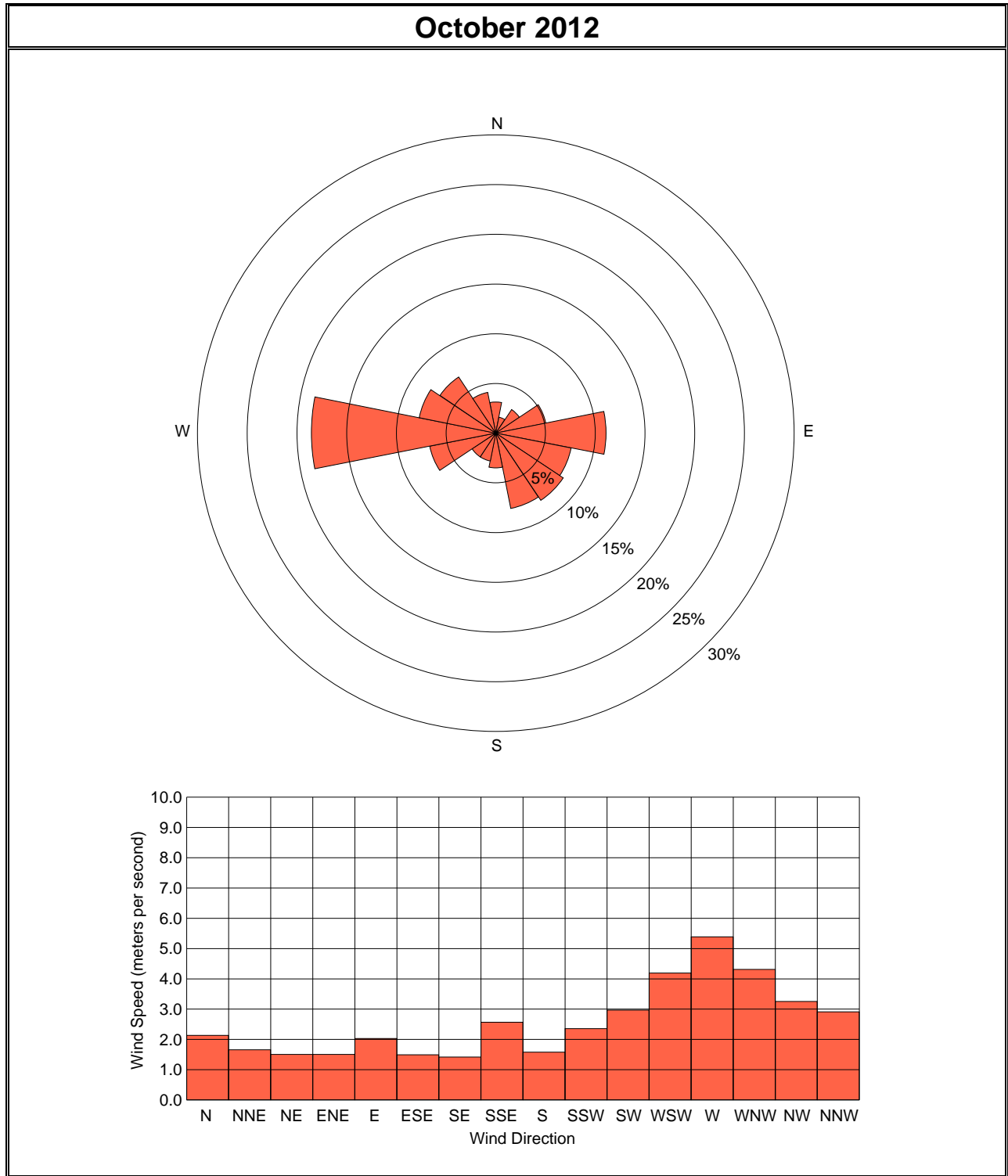
**Table 6. Monthly Wind Rose Summary, Black Butte Copper Project Met Tower**

December 2012																		
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	1.9	1.9	2.7	2.8	3.6	4.5	3.5	0.5	0.8	0.1	0.1	0.3	0.5	1.5	1.3	27.9
	1.1 - 2.0	0.1	0.1	1.2	2.6	2.7	4.7	3.8	1.5	0.7	0.4	0.3	0.5	1.3	0.8	1.1	0.3	22.1
	2.1 - 3.0	0.0	0.0	0.1	0.3	1.6	2.7	0.9	0.7	0.1	0.1	0.7	1.2	1.9	1.9	0.5	0.4	13.2
	3.1 - 4.0	0.0	0.0	0.0	0.0	1.1	0.5	0.4	0.7	0.3	0.9	0.0	1.1	3.0	2.0	0.3	0.0	10.3
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.5	0.4	0.0	1.2	0.8	0.4	0.8	0.8	1.5	1.1	0.1	0.0	7.7
	5.1 - 6.0	0.0	0.0	0.0	0.3	0.3	0.0	0.1	0.3	0.3	0.9	0.4	0.5	1.3	1.1	0.1	0.0	5.7
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.1	0.3	3.2	0.4	0.1	0.0	5.4
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.3	0.5	3.0	0.4	0.0	0.0	5.0
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.3	0.9	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	0.1	0.0	0.0	0.3	0.1	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	0.1	0.0	0.0	0.0	0.1
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	1.9	2.0	3.2	5.8	9.0	12.0	9.7	8.4	3.6	5.0	2.7	5.4	17.0	8.4	3.8	2.0	100.0	
Average Speed	0.7	0.6	1.0	1.3	2.0	1.7	1.4	2.3	4.1	4.4	4.2	4.2	5.2	3.7	1.9	1.1	2.8	

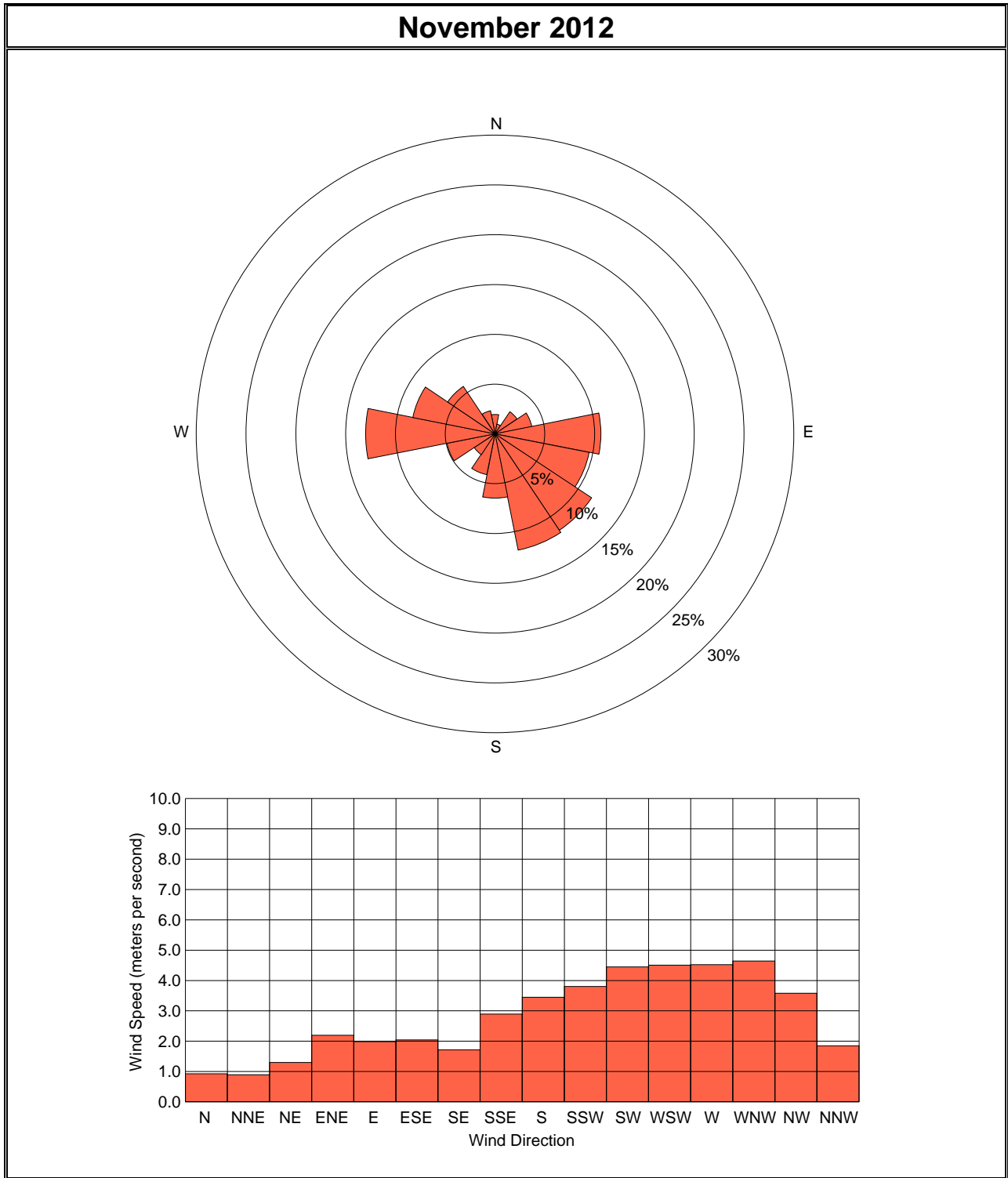
**Table 7. Quarterly Wind Rose Summary, Black Butte Copper Project Met Tower**

Fourth Quarter 2012																		
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	1.2	1.3	2.0	2.2	2.3	3.0	2.9	1.0	0.7	0.3	0.1	0.5	0.4	1.2	1.2	21.5
	1.1 - 2.0	0.6	0.1	1.2	1.7	3.4	4.4	4.9	2.2	1.2	0.5	0.5	0.7	1.2	0.8	0.9	0.4	24.9
	2.1 - 3.0	0.1	0.0	0.4	0.8	2.9	2.4	1.3	0.8	0.4	0.5	0.3	1.1	2.0	1.5	1.0	0.4	15.7
	3.1 - 4.0	0.1	0.1	0.0	0.2	1.3	0.4	0.3	0.9	0.3	0.5	0.4	1.0	2.4	1.6	0.7	0.4	10.5
	4.1 - 5.0	0.0	0.0	0.0	0.1	0.3	0.3	0.2	1.1	0.6	0.5	0.4	0.8	1.9	1.0	0.5	0.2	7.9
	5.1 - 6.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.8	0.3	0.5	0.3	0.7	2.5	1.1	0.4	0.3	7.4
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.2	0.5	2.4	0.9	0.5	0.0	5.7
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.1	0.3	1.6	0.3	0.1	0.0	2.9
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.4	0.7	0.4	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	0.0	0.4	0.1	0.0	0.0	0.7
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	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	0.0	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	0.1	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	0.1	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	2.3	1.5	2.9	4.9	10.2	9.8	9.8	9.3	4.5	4.0	2.7	5.7	16.1	8.2	5.4	2.9	100.0	
Average Speed	1.4	1.1	1.3	1.6	2.0	1.8	1.5	2.6	3.2	3.7	3.9	4.3	5.1	4.3	3.1	2.2	3.0	

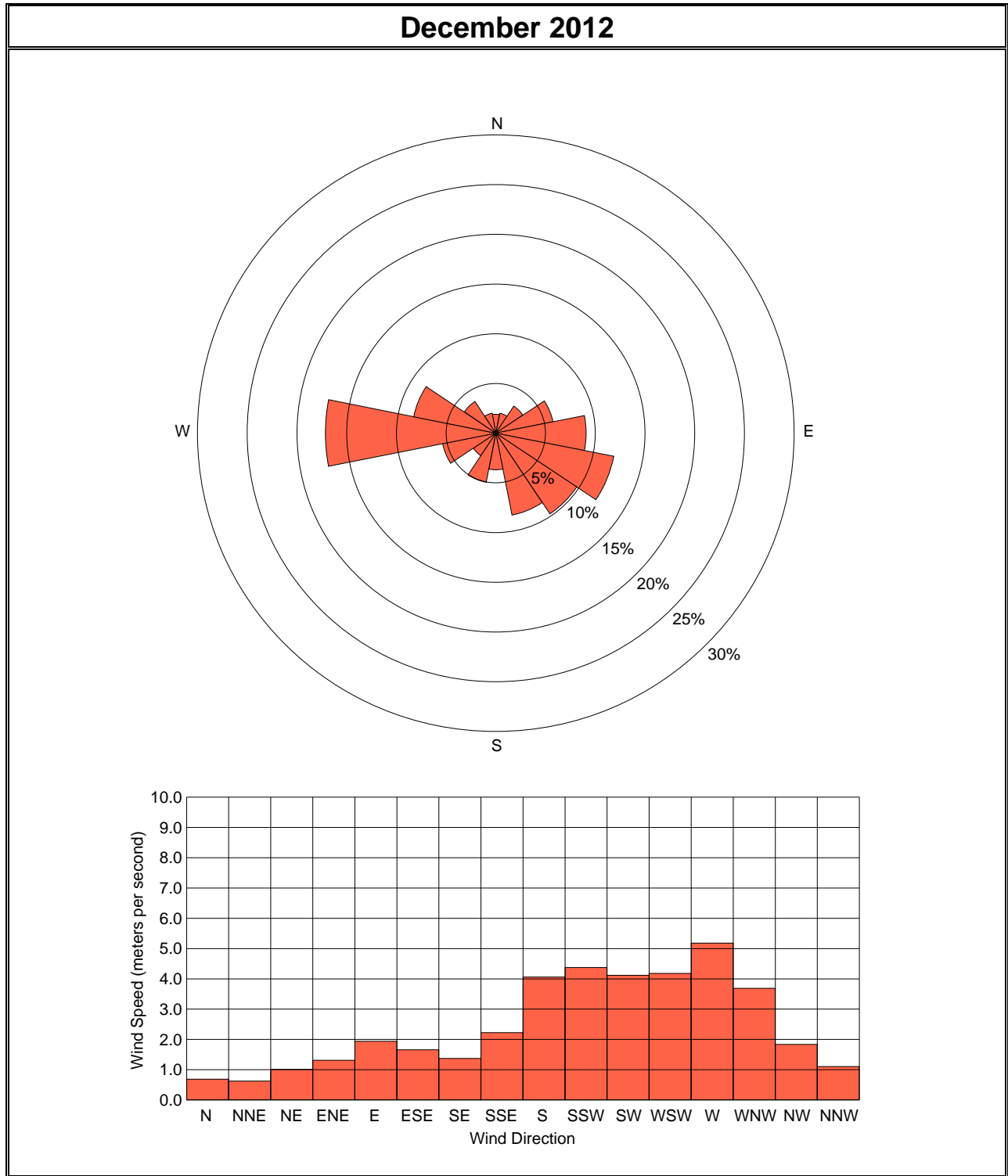
**Figure 2. Monthly Wind Rose, Black Butte Copper Project Met Tower**



**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**

