

## Steve Gili

---

**From:** Andy Thomson  
**Sent:** Tuesday, March 18, 2014 10:53 AM  
**To:** Jeff Wendt (jeff.wendt@wyo.gov); Kirk Billings (kirk.billings@wyo.gov); Tony Hoyt (tony.hoyt@wyo.gov); fred.dilella@wyo.gov  
**Cc:** Steve Gili  
**Subject:** Black Butte Mine Exceedence

All,

On March, 2014, Black Butte Mine recorded a high concentration of the ambient air standard for particulate matter of 150 micrograms per cubic meter for a 24 hour average concentration at the Leucite TEOM and at Pit 10 TEOM. IML has validated the data and it shows an average concentration of 202.6 micrograms per cubic meter at Pit 10 TEOM and 242.4 micrograms per cubic meter at Leucite TEOM. This email will constitute the required notification from Black Butte to the WYDEQ of an exceedance.

We will be submitting exceptional events packages for each of these events.

Please let me know if you have any questions or need additional information.

Andy Thomson  
Environmental Engineer

Black Butte Coal

T: (307)352-6212

C: (307)350-5214

[a.thomson@aecoal.com](mailto:a.thomson@aecoal.com)

P.O. Box 98

Point of Rocks, WY 82942



# Black Butte Coal Mine Exceptional Events Documentation for the Event on March 17, 2014 Pit 10 TEOM Location

Produced by:

Black Butte Coal Company

July 30, 2014



## EXECUTIVE SUMMARY

On March 17, 2014 the Pit 10 TEOM located at Black Butte mine in Sweetwater County, Wyoming recorded 24-hour average concentrations of  $202.6 \mu\text{g}/\text{m}^3$ . This reading is in exceedance of the federal 24-hour PM10 standard. Black Butte believes that this exceedance is the result of an Exceptional Event as determined by the Environmental Protection Agency.

On March 22, 2007 the EPA promulgated the Exceptional Events Rule (EER) to address exceptional events in 40 CFR Parts 50 and 51. The EER allows for states and tribes to “flag” air quality monitoring data as an exceptional event and exclude that data from use in the determination of exceedances or violations of the National Ambient Air Quality Standards (NAAQS), provided the EPA concurs with the demonstration submitted.

This report is intended to provide documentation and support that the exceedance of the  $150 \mu\text{g}/\text{m}^3$  24 hr PM10 standard that occurred at the Black Butte Mine on March 17, 2014 qualifies as an exceptional event under the EER by meeting all requirements set forth in 40 CFR Part 50.14(c)(3)(iii). Black Butte Coal Company contends that the exceedance that was measured on March 17, 2014 was a result of natural events that were not reasonably controllable or preventable and were far outside normal historical fluctuations of wind and PM10 readings.

Section I of this report provides a history and basic information of the Black Butte mine. As well as providing some background as to when operations were taking place at the Black Butte Mine.

Section II of this report is a narrative of events that lead up to and during the event in question. It includes information from notes, reports and eye-witness accounts taken before and during the event.

Section III of this report details the wind event that occurred on March 17, 2014 and provides the explanation that “the event affected air quality”. This section provides evidence that it was a “natural event”. It also clearly demonstrates the clear causal relationship between the abnormally high wind speeds and the abnormally high PM10 readings recorded at the Pit 10 TEOM and the Upwind TEOM.

Section IV of this report provides the factual evidence that despite taking all possible and required actions to prevent and control the event, the event on March 17, 2014 was not reasonably controllable or preventable.

Section V of this report provides the graphical data evidence that the event on March 17, 2014 caused measurement concentrations beyond normal historical fluctuations.

Section VI of this report builds upon the data provided in Sections II through V to provide clear evidence that no exceedance on March 17, 2014 would have occurred “but for” the presence of the natural event.

Section VII of this report provides conclusions and summarizes the exceptional event and how they relate to the rules and requirements in the EER.

## Table of Contents

EXCEPTIONAL EVENT RULE (EER) REQUIREMENTS.....	1
I. BACKGROUND INFORMATION FOR THE EVENT.....	2
Mine Description, History and Location.....	2
Operational Activities Taking Place during the Event.....	3
II. NARRATIVE OF ACTIONS LEADING UP TO AND DURING THE EVENT.....	5
March 17, 2014 Events and conditions.....	5
III. WEATHER CONDITIONS AND ITS EFFECT ON AIR QUALITY.....	12
Wind speed on March 17, 2014 .....	12
PM10 Hourly and 24-Hour concentrations on March 17, 2014 .....	12
Upwind TEOM data from march 17, 2014.....	13
IV. NOT REASONABLY CONTROLLABLE OR PREVENTABLE.....	15
Best Available Control Measures taken.....	15
Best Available Control Technology.....	18
V. NORMAL HISTORICAL FLUCTUATIONS.....	19
Hourly Historical Fluctuations.....	19
Maximum Wind Speed Historical Fluctuations.....	19
VI. "BUT FOR" ANALYSIS.....	20
VII. CONCLUSIONS.....	21

## List of Figures

Figure I.1 Map of Leucite Mine permit boundary, pit limits and Monitoring Site Locations.....	3
Figure I.2 Aerial Photo of Pit 10 and equipment locations....	4
Figure II.1-6 Photo's of Pit 10 on March 17, 2014 ....	6-11
Figure III.1 Graph of wind speed, direction and PM10 at Pit 10 TEOM....	12
Figure III.2 Graph of Upwind TEOM hourly PM10 readings on March 17, 2014.....	14
Figure IV.1 Air Quality Action Plan for Black Butte Coal....	15

## List of Tables

Table III.1	Wind speed and Hourly PM10 at Pit 10 TEOM....	13
Table III.2	Wind speed, Hourly and 24 hour PM10 readings and Upwind TEOM.....	14
Table IV.1	Wind speed, hourly and 24 hr PM10 and Actions taken....	16

## **List of Appendices**

**Appendix A** – Wind and PM10 data compiled by Intermountain Labs for the Pit 10 TEOM location on March 17, 2014

**Appendix B** – Action Plan Event Logs for March 17, 2014

## **DOCUMENTATION REQUIREMENTS OF THE EXCEPTIONAL EVENTS RULE (EER)**

Section 50.14(c)(3)(iii) of the EER states that in order to justify excluding air quality monitoring data, evidence must be provided to satisfy the following elements:

1. The event satisfies the criteria set forth in 40 CFR 501(j) that:
  - a. The event affected air quality,
  - b. The event was not reasonably controllable or preventable, and
  - c. The event was caused by human activity unlikely to recur in a particular location or was a natural event;
2. There is a clear causal relationship between the measurement under consideration and the event;
3. The event is associated with a measurement concentration in excess of normal historical fluctuations;
4. There would have been no exceedance or violation but for the event.

Section I of this report provides a history and basic information of the Black Butte mine. As well as providing a background as to what, why and when operations were taking place in Pit 10.

Section II of this report is a narrative of events that lead up to and during the event in question. It includes information from notes, reports and eye-witness accounts taken before and during the event.

Section III of this report details the model of the high wind event that occurred on March 17, 2014 and provides the explanation that “the event affected air quality”. This section provides evidence that it was a “natural event”. It also clearly demonstrates the clear causal relationship to high wind event and the measurements taken on the 17<sup>th</sup> that resulted in the exceedance of the 24-hour PM10 standard.

Section IV of this report provides the factual evidence that despite taking all possible and required actions to prevent and control the event, the event on March 17, 2014 was not reasonably controllable or preventable.

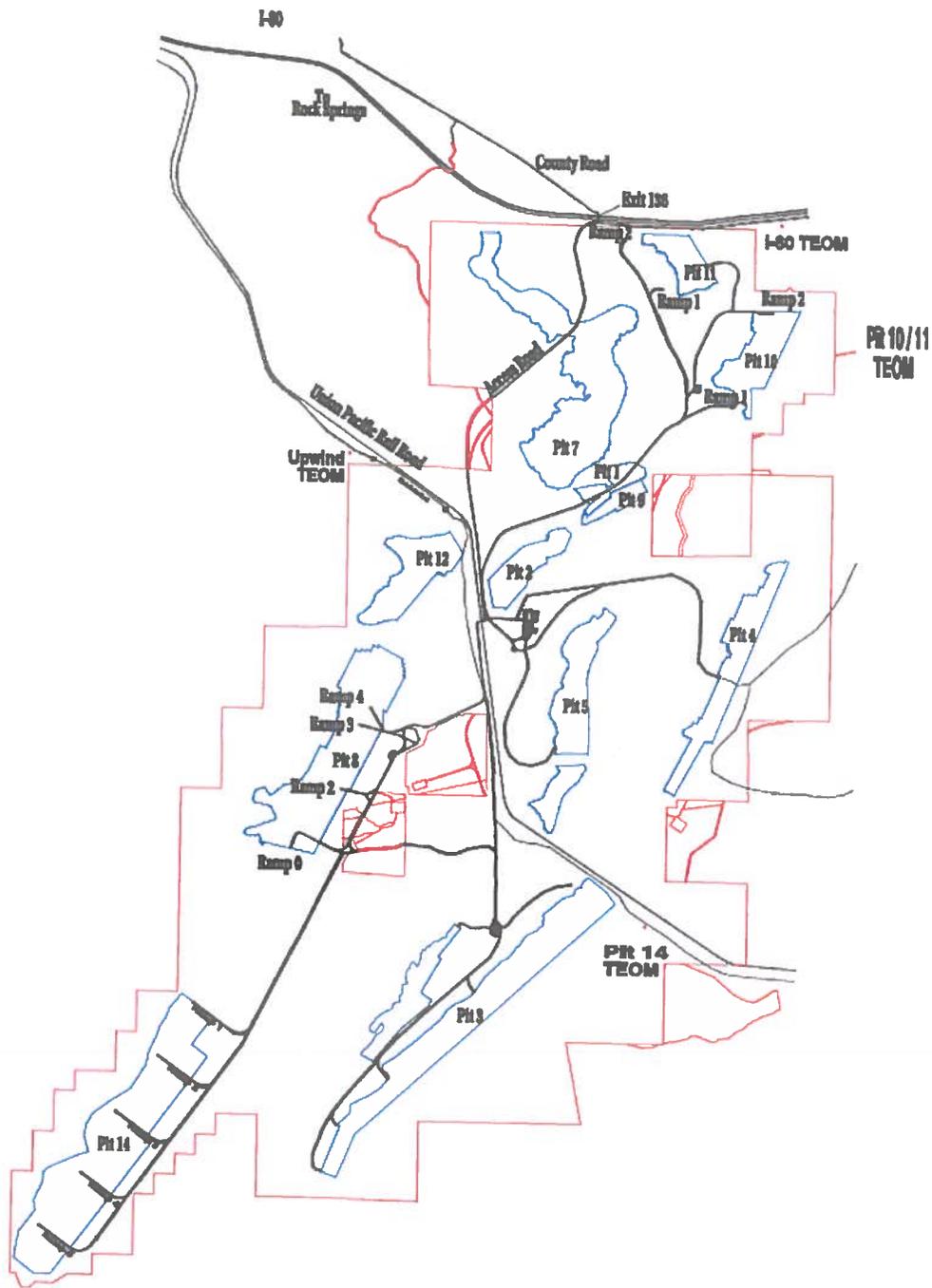
Section V of this report provides the graphical data evidence that the event on March 17, 2014 caused measurement concentrations beyond normal historical fluctuations.

Section VI of this report builds upon the data provided in Sections II through V to provide clear evidence that no exceedance on March 17, 2014 would have occurred but for the presence of the natural event.

Section VII of this report provides conclusions and summarizes the exceptional event and how they relate to the rules and requirements in the EER.

## **I. BACKGROUND INFORMATION FOR THE EVENT**

Black Butte Coal mine, located in Sweetwater County, Wyoming is a surface coal mining operation with annual production between 2 and 6 million tons per year. Mining operations consist of multiple open cut pits of varying depth, seam quality and thickness. Overburden removal is primarily done by two BE 1570 draglines, one 17 yard Komatsu PC2000 Hydraulic excavator, a Cat 992 Front-end loader, a Komatsu WA900 front-end loader and a fleet of Cat 777 haul trucks. Production and maintenance operations run 24 hours a day, 7 days and week on 12 hour shifts. Shift start and stop times are from 6 to 6. Due to multiple pits and the large permit area of Black Butte the mines air quality is monitored by 4 TEOM's at various locations of the mine's boundary. Active mining operations are being done in Pit's 10, 11 and 14. Reclamation activities are taking place in Pit's 3, 5, 8 and 9. No production operations are currently taking place in those pits. The mine is bi-sected by the Union Pacific (UP) main line. Dragline #1 operates on the Northeast side of the UP line in Pits 10 and 11, and Dragline #2 operates on the southwest side of the UP line in Pit 14. Figure I.1 shows the current pit boundaries and TEOM locations.



**Figure I.1**

On the day of the event, March 17, 2014, Dragline #1 was located in Pit 10 in a production capacity uncovering coal. A D11 dozer, was building dragline pad in Pit 10 to the north of the dragline. A second D11 was dragging the highwall in Pit 10 to the north of the dragline. Highwall dragging is a work practice where a large section of chain is run over the highwall and drug with a dozer. This is done for safety reasons to remove sections of loose rock on the highwall prior to anyone working below. A DM3

north end of Pit 10. At 12:00 am on the 17<sup>th</sup> a truck operation was occurring in Pit 10 with a coal haul. This was ended at 6:00 am when the shift ended and operation shifted as scheduled to Pit 14. Figure I.2 shows the location of operations prior to and during the date of March 17, 2014.



Figure I.2

Dragline #2 was working in Pit 14 uncovering coal. Truck operations were occurring in Pit 14 Ramp 3 with an interburden haul and Pit 14 Ramp 5 with a coal haul. Both water trucks were in operation on the 17<sup>th</sup> with the bulk of their time spent in Pit 10 trying to control dust.

## II. NARRATIVE OF ACTIONS LEADING UP TO AND DURING THE EVENT

Dayshift on March 17, 2014 began at 6:00 am. Operations were scheduled to take place in Pit 10 with Dragline #1, 2 D11 dozers, 1 DM3 overburden drill and the powder crew loading holes. Operations were also planned to be run in Pit 14 with Dragline #2 and the truck fleet hauling coal out of Ramp 5 and interburden in ramp 3.5. At the start of the shift both water trucks were assigned to operators with the plan for both trucks to cover both Pit 10 and Pit 14. Between midnight and 6:00 am wind speeds had been relatively low. The max hourly wind speed between these hours was 13.1mph. The forecast had been for high winds on the 17<sup>th</sup> which was the main reason truck operations were planned to be moved to Pit 14. The mine had significant experience and knew that despite all efforts eventually truck operations would be shutdown on Pit 10 once the winds picked up. The expectations was that we would also eventually need to shutdown Dragline #1, the 2 D11 dozers and the DM3 drill in Pit 10 as well but since they cannot be moved with the speed of the truck fleet we planned to at least get a few hours of production out of these machines prior to the expected high winds.

By 10:00 am wind speeds began to pick up and, as expected, so did the PM10 readings at the Pit 10 TEOM. Readings did not reach an action level until 12:00 pm when the hourly reading at the Pit 10 TEOM was 533.8. However, Dragline #1, both D11 dozers, the DM3 drill and the powder crew had already shutdown operations by 11:30 am. At 11:30 am it was determined through visual observations that the operations in Pit 10 coupled with the high winds were going to produce high PM10 readings. It was also determined that both water trucks were simply not able to combat all areas that were producing dust. This was due to the operational limitations of the water trucks.

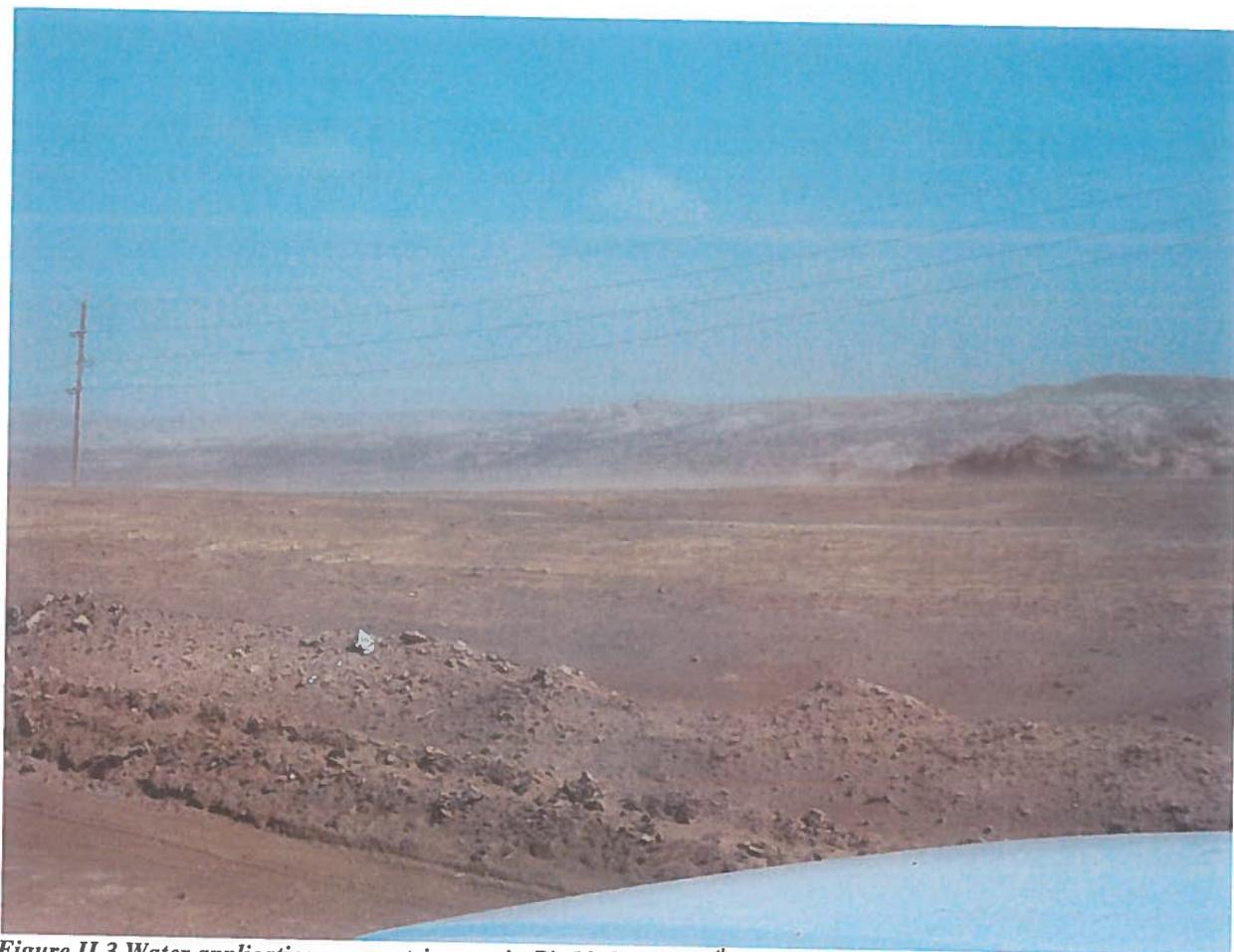
Starting at 11:00 am and continuing throughout the remainder of the day the mine experienced hourly average wind speeds in excess of 20 mph with wind gusts all above 35 mph. During the day the mine saw small short lived snow storms. None of these storms produced any measurable precipitation. Mitigation and control efforts during the day consisted of water applied by water trucks. Between 6:00 am and 6:00 pm 204,000 gallons of water were applied to the Pit 10 area. The areas treated with water consisted of the highwall, topsoil piles, out of pit spoil piles and prestrip area. Between 6:00 pm and midnight and additional 68,000 gallons were applied to these areas.



*Figure II.1 Pit 10 on March 17<sup>th</sup>.*



*Figure II.2 Water application on prestrip access road for Pit 10, March 17<sup>th</sup>.*



*Figure II.3 Water application on prestrip area in Pit 10, March 17<sup>th</sup>.*



*Figure II.4 Overburden drill pattern on highwall in Pit 10, March 17<sup>th</sup>.*



*Figure II.5 Dragline pad north of Drag #1 in Pit 10 on March 17<sup>th</sup>.*



*Figure II.6 Conditions on drill pad with loaded holes in Pit 10 on March 17<sup>th</sup>.*

### III. METEOROLOGICAL CONDITIONS ON MARCH 17, 2014 AND ITS EFFECT ON AIR QUALITY

As collected average hourly data on March 17, 2014 resulted in an average wind speed of 20.8 mph, maximum wind speed of 34.9 mph and minimum wind speed of 8.2 mph. The predominant wind direction was from the West sector with 41.7% of the possible winds coming from the West. Maximum recorded wind speed on this day was 53.6 mph, recorded at 2:00 pm. Appendix A includes charts and graphs of wind speed and direction for March 17, 2014. The mine started seeing sustained 1-hour wind speeds in excess of 20 mph at 11:00 am. Hourly wind speed readings remained above the 20 mph mark until 11:00 pm.

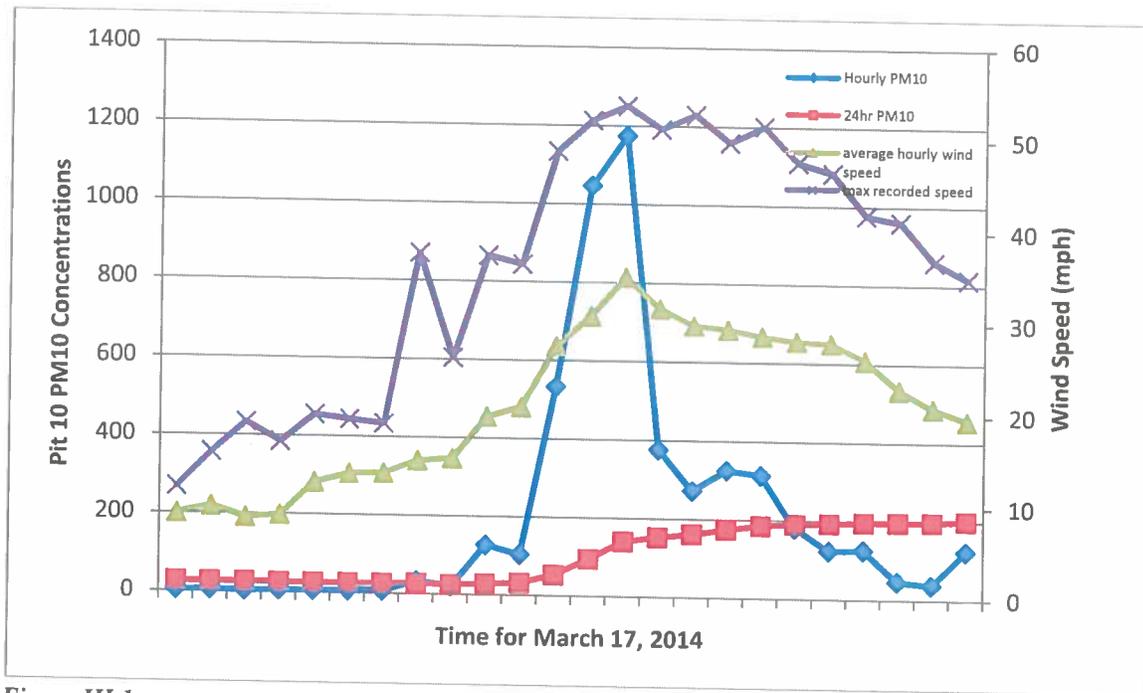


Figure III.1

Figure III.1 shows the correlation of wind speed and PM10 concentrations recorded on March 17, 2014 for the Pit 10 TEOM. As has been seen in the past once sustained wind speeds go above the 30 mph mark the approved controls utilized by Black Butte Coal begin to have diminished effectiveness.

Table III.1 provides the maximum wind speed recorded during each hour and the corresponding Hourly PM10 concentration recorded at the Pit 10 TEOM. Highlighted cells in the hourly wind speed column represent values greater than 30 mph. Highlighted cells in the hourly PM10 concentration column represent values greater than  $150 \mu\text{g}/\text{m}^3$ . Note the correlation.

Time	Hourly Wind Speed (mph)	Max Wind Speed (mph)	Pit 10 Hourly PM10 Conc.
03/17/2013 01:00 AM	8.6	11.5	4.5
03/17/2013 02:00 AM	9.4	15.3	5.8
03/17/2013 03:00 AM	8.2	18.6	3.8
03/17/2013 04:00 AM	8.5	16.5	5.9
03/17/2013 05:00 AM	12.1	19.5	6.2
03/17/2013 06:00 AM	13.1	19	6.7
03/17/2013 07:00 AM	13.2	18.6	7.2
03/17/2013 08:00 AM	14.6	37.3	33.4
03/17/2013 09:00 AM	14.9	25.9	22.1
03/17/2013 10:00 AM	19.5	37.1	127.7
03/17/2013 11:00 AM	20.6	36.2	104.4
03/17/2013 12:00 PM	27.3	48.6	533.8
03/17/2013 01:00 PM	30.6	52	1047.3
03/17/2013 02:00 PM	34.9	53.6	1175.1
03/17/2013 03:00 PM	31.5	51.1	376.9
03/17/2013 04:00 PM	29.7	52.7	273.1
03/17/2013 05:00 PM	29.3	49.7	325.9
03/17/2013 06:00 PM	28.6	51.5	314.3
03/17/2013 07:00 PM	28.1	47.6	181.3
03/17/2013 08:00 PM	27.9	46.5	124
03/17/2013 09:00 PM	26.1	41.9	126.5
03/17/2013 10:00 PM	22.9	41.2	47.6
03/17/2013 11:00 PM	20.9	36.9	39.3
03/17/2013 12:00 AM	19.6	35	125.3

*Table III.1*

100% of hourly PM10 readings at the Pit 10 TEOM that were above 150  $\mu\text{g}/\text{m}^3$  occurred when hourly wind speeds were above 25 mph. Average PM10 concentrations during the period when hourly wind speeds greater than 25 mph was 528  $\mu\text{g}/\text{m}^3$ . The average PM10 concentration for the rest of the day was 49.4  $\mu\text{g}/\text{m}^3$ .

The meteorological conditions recorded at the Black Butte mine as well as the National Weather Service's own monitoring data clearly indicate that a strong storm with extreme wind speeds moved through the area on March 17, 2014. Furthermore, when this data is cross-referenced with the PM10 data recorded at both the I-80 TEOM and the Pit 10 TEOM it becomes clear that the abnormally high PM10 concentrations recorded on March 17<sup>th</sup> were a direct result of the exceptionally strong winds.

#### UPWIND TEOM DATA

Data from the Upwind TEOM for March 17, 2014 shows the same spike in PM10 concentrations as seen at the Pit 10 TEOM. Beginning at 12:00 pm hourly PM10 readings began to exceed the 150  $\mu\text{g}/\text{m}^3$  level. This continued until 7:00 pm when they dropped to 81.8  $\mu\text{g}/\text{m}^3$ . Figure III.2 illustrates this perfectly. The trends in hourly and 24 hr readings for the Pit 10 and Upwind TEOM's are almost identical.

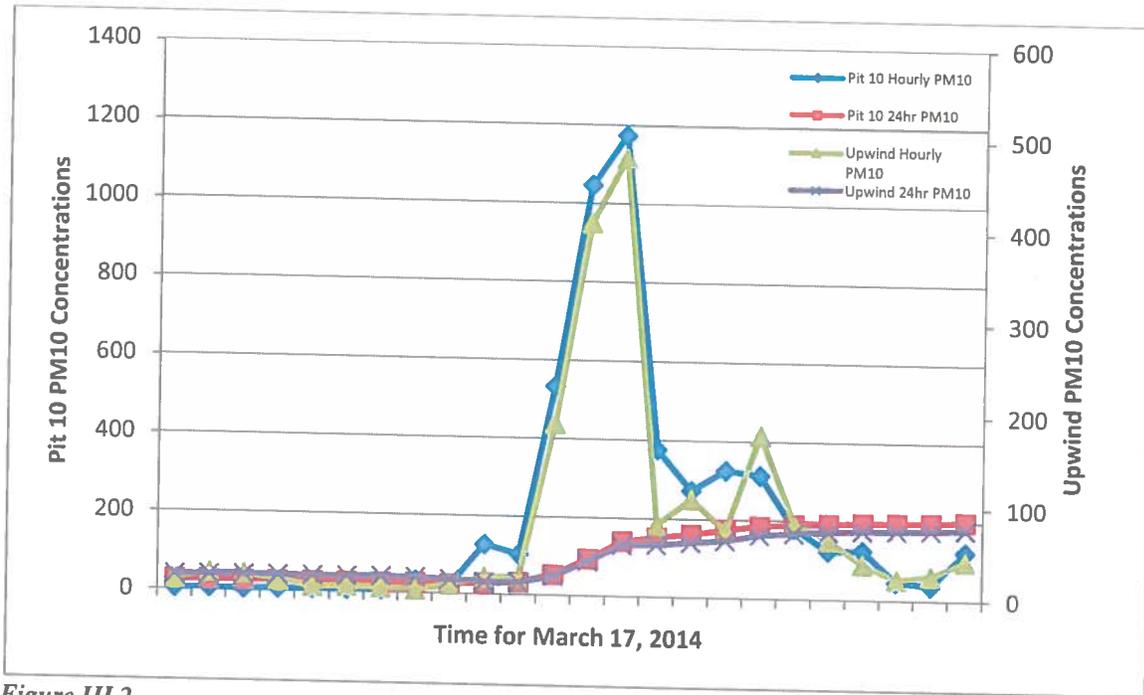


Figure III.2

Time	Hourly Wind Speed (mph)	Max Wind Speed (mph)	Hourly PM10 Concentrations	24 Hour PM10 Concentrations
03/17/2013 01:00 AM	8.6	11.5	12.5	16.7
03/17/2013 02:00 AM	9.4	15.3	19.5	17.1
03/17/2013 03:00 AM	8.2	18.6	18.1	17.4
03/17/2013 04:00 AM	8.5	16.5	12.5	17.6
03/17/2013 05:00 AM	12.1	19.5	5.1	17.6
03/17/2013 06:00 AM	13.1	19	6.3	17.5
03/17/2013 07:00 AM	13.2	18.6	5.4	17.7
03/17/2013 08:00 AM	14.6	37.3	3.7	17.5
03/17/2013 09:00 AM	14.9	25.9	10.2	15.9
03/17/2013 10:00 AM	19.5	37.1	18.5	13.3
03/17/2013 11:00 AM	20.6	36.2	20	13.8
03/17/2013 12:00 PM	27.3	48.6	188.1	21.2
03/17/2013 01:00 PM	30.6	52	407.7	37.9
03/17/2013 02:00 PM	34.9	53.6	479.4	56.4
03/17/2013 03:00 PM	31.5	51.1	79.4	57.6
03/17/2013 04:00 PM	29.7	52.7	107.8	60.4
03/17/2013 05:00 PM	29.3	49.7	73.6	63.1
03/17/2013 06:00 PM	28.6	51.5	178.4	69.6
03/17/2013 07:00 PM	28.1	47.6	81.8	72
03/17/2013 08:00 PM	27.9	46.5	65	74.3
03/17/2013 09:00 PM	26.1	41.9	39.3	75.6
03/17/2013 10:00 PM	22.9	41.2	23.2	76.1
03/17/2013 11:00 PM	20.9	36.9	27.3	76.9
03/18/2013 12:00 AM	19.6	35	43.4	77.8

Table III.2 Upwind TEOM PM10 data

#### IV. EVENT WAS NOT REASONABLY CONTROLLABLE OR PREVENTABLE

#### BEST AVAILABLE CONTROL METHODS

All controls required by the mine's Action Plan were in effect on the 17<sup>th</sup> and were followed exactly as required. Figure IV.1 is the approved Action Plan for Black Butte mine.

Monitor air dust levels throughout the day. Actions taken will be recorded and turned in to the Air Permit Coordinator. Air Permit Coordinator: <i>Andy Thomson</i> Office: <i>352-6212</i> Radio Call #: <i>24</i>				
<b>Action Plan Responses by Concentration</b> Concentrations are reported to the station website at 15 minutes after each hour (1:15pm, 2:15pm, etc) Please make every reasonable effort to respond to action plan level concentrations within 1-hour of the time a concentration in				
300 ug/m <sup>3</sup> (1 hour)	70 ug/m <sup>3</sup> (24 hour)	90 ug/m <sup>3</sup> (24 hour)	110 ug/m <sup>3</sup> (24 hour)	130 ug/m <sup>3</sup> (24 hour)
<b>Actions</b> Ensure adequate water trucks are operating in the area. Ensure problem areas are addressed. Record when and where watering activities are being done. Record total water usage in gallons, for the current shift. Take photograph's if possible.	<b>Actions</b> Ensure adequate water trucks are operating in the area. Ensure problem areas are addressed. Record estimated wind speed and direction Record weather conditions and possible external influences. Consider modifying operations contributing dust. Record actions taken. Take photograph's if possible.  <b>Shut Down</b> Consider modifying operations contributing dust.	<b>Actions</b> Notify production superintendent. Water any areas causing problems. Record actions taken. Take photograph's if possible.  <b>Shut Down</b> Special Operations occurring outside of the pit including: Topsoil strip Regrade Prestrip Topsoil laydown Topsoil pile relocation Topsoil spread Dump maintenance Ramp regrade Innerburden haul and dump out of pit Overburden stockpiling out of pit Pit 10 assist	<b>Actions</b> Production superintendent will notify mine manager. Record actions taken. Take photograph's if possible.  <b>Shut Down</b> Drill and blasting in the area  Drill pad prep	<b>Actions</b> Record time, date, and reading.  Production superintendent will notify mine manager. Take photograph's if possible.  <b>Shut Down</b> Shut down all pit operations - including but not limited to:  Dragline Dragline pad prep Hauling coal Innerburden haul in pit Ripping coal Clearing coal surface
Note: Black Butte personnel respond to the action plan in response to the calculated 24 hour average concentration (based off of 1 hour concentrations occurring since midnight of that day) reported on the main page of the station data website as a precautionary measure, while compliance to the action plan is determined by responses in comparison to the rolling 24 hour average.				

Figure IV.1

The first hourly reading on the 17<sup>th</sup> that would have initiated a response according to our Action Plan was the 12:00 pm reading of 533.8 ug/m<sup>3</sup>. The mine shut down operations in Pit 10 in response to this reading. Water trucks had already been in use in the Pit 10 area since the start of the day. Automatic

notifications were made to all required parties through the mines Air Monitoring web-based program. Even though a 1 hour reading of  $300 \mu\text{g}/\text{m}^3$  does not necessarily require the mine to shut down operations, we did. Mine operations in Pit 10 remained idled for the remainder of the day. Water trucks worked all accessible areas for the remainder of the day attempting to control fugitive dust. Table IV.1 details the mine's responses to hourly and 24 hour readings on March 17, 2014.

Date/Time	Wind Speed	Hourly PM10	24-Hour PM10	Actions	Action Plan Response
03/17/2014 01:00 AM	8.6	4.5	27.4	Drag #1 in Pit 10, 2 D11's building pad in Pit 10, Coal Haul in Pit 10, Overburden drill in Pit 10, water truck working in Pit 10.	No Action levels had been reached.
03/17/2014 02:00 AM	9.4	5.8	27.1	Same as above.	No Action levels had been reached.
03/17/2014 03:00 AM	8.2	3.8	26.7	Same as above.	No Action levels had been reached.
03/17/2014 04:00 AM	8.5	5.9	26.4	Same as above.	No Action levels had been reached.
03/17/2014 05:00 AM	12.1	6.2	26.3	Same as above.	No Action levels had been reached.
03/17/2014 06:00 AM	13.1	6.7	26.2	Same as above.	No Action levels had been reached.
03/17/2014 07:00 AM	13.2	7.2	26.1	Drag #1 in Pit 10, 1 D11 building pad in Pit 10, 1 D11 dragging highwall, Overburden drill in Pit 10, Powder crew loading holes, water truck's working in Pit 10.	No Action levels had been reached.
03/17/2014 08:00 AM	14.6	33.4	27.3	Same as above.	No Action levels had been reached.
03/17/2014 09:00 AM	14.9	22.1	25.5	Same as above.	No Action levels had been reached.
03/17/2014 10:00 AM	19.5	127.7	28.7	Same as above.	No Action levels had been reached.
03/17/2014 11:00 AM	20.6	104.4	31.8	Same as above.	No Action levels had been reached.
03/17/2014 12:00 PM	27.3	533.8	53.4	All Pit 10 operations idled. Water trucks continued to operate in Pit 10.	1 hour > 300 action level reached. All Pit 10 operations idled except for water trucks. Notifications made. Pictures taken.
03/17/2014 01:00 PM	30.6	1047.3	95.4	Same as above.	24 hour > 90 action level reached. Notifications made.
03/17/2014 02:00 PM	34.9	1175.1	141.4	Same as above.	24 hour > 130 action level reached. Notifications made
03/17/2014 03:00 PM	31.5	376.9	153.2	Same as above.	24 hour > 130 action level reached. Notifications made
03/17/2014 04:00 PM	29.7	273.1	162.2	Same as above.	24 hour > 130 action level reached. Notifications made
03/17/2014 05:00 PM	29.3	325.9	175.1	Same as above.	24 hour > 130 action level reached. Notifications made

03/17/2014 06:00 PM	28.6	314.3	185.8	Same as above.	24 hour > 130 action level reached. Notifications made
03/17/2014 07:00 PM	28.1	181.3	191	Same as above.	24 hour > 130 action level reached. Notifications made
03/17/2014 08:00 PM	27.9	124	193.7	Same as above.	24 hour > 130 action level reached. Notifications made
03/17/2014 09:00 PM	26.1	126.5	196.7	Same as above.	24 hour > 130 action level reached. Notifications made
03/17/2014 10:00 PM	22.9	47.6	197.5	Same as above.	24 hour > 130 action level reached. Notifications made
03/17/2014 11:00 PM	20.9	39.3	198.4	Same as above.	24 hour > 130 action level reached. Notifications made
03/18/2014 12:00 AM	19.6	125.3	202.6	Same as above.	24 hour > 130 action level reached. Notifications made

*Table IV.1 Hourly weather, Pit 10 PM10 concentrations, mine actions taken.*

In addition to the controls of the Action Plan the mine has requirements in our Air Quality permit, MD-7424, that are very specific to Pit 10 and Pit 11. These requirements deal with the Best Available Control Measures required to control fugitive dust emissions.

Condition 14 of this permit states, *“That Black Butte Mining Company shall treat the inactive spoil piles in Pit 10 and Pit 11 with water or chemical dust suppressants to control fugitive dust emissions on a schedule such that treatment remains a viable control measure.”*

Condition 15 of this permit states, *“That Black Butte Mining Company shall treat disturbed pre-strip areas in Pit 10 and Pit 11 with water or chemical dust suppressants to control fugitive dust emissions on a schedule such that treatment remains a viable control measure. Newly disturbed pre-strip areas in Pit 10 and Pit 11 shall be treated within seven (7) days of completion of stripping.”*

On April 25, 2013 the inactive spoil piles in Pit 11 were treated with 169 tons of magnesium Chloride chemical dust suppression. On May 1, 2013 the inactive spoils in Pit 10 were treated with 146 tons of magnesium Chloride chemical dust suppression. Again, on May 16, 2013 the inactive spoil piles in Pit 10 were treated with an additional 75 tons of Magnesium Chloride chemical dust suppression. On November 11, 2013 the inactive spoils in Pit 11 were treated with another 35 tons of magnesium Chloride chemical dust suppression. Between late April 2013 and March 2014 the inactive spoils in Pit 10 and Pit 11 had been treated with a total of 425 tons of chemical dust suppression. This is in addition to the hundreds of thousands of gallons of water that had been applied to the inactive spoils at various times during that same timeframe. The treatment of the inactive spoils with chemical dust suppression in Pit 10 and Pit 11 had been inspected by Mr. Jeff Wendt with the Wyoming Department of Environmental Quality – Air Quality Division on November 19, 2013. At that time he determined that the mine was in compliance with Condition 14 of permit MD-7424 and that the chemical suppressant was working as planned.

On May 4, 2013 the stripped areas in Pit 10 were treated with 80 tons of magnesium Chloride chemical dust suppression. On March 14, 2014 the stripped areas in Pit 10 were again treated with an additional 112 tons of Magnesium Chloride chemical dust suppression. Between May 2013 and March 14, 2014 the stripped areas in Pit 10 and Pit 11 had been treated with a total of 192 tons of chemical dust suppressant. After these areas are treated they are bermed off and posted with No Travel signs to keep from disturbing

the crust formed by the chemical. This has shown itself to very effective. On November 19, 2013 Mr. Wendt inspected these areas for treatment and determined the mine to be in compliance with Condition 15 of permit MD-7424. In fact, Condition 15 had been satisfied only 3 days before the March 17, 2014 event.

On the day of the event the mine utilized all of its fleet of water trucks to help control fugitive dust. A total of 272,000 gallons of water were applied to the inactive spoils, stripped areas and mining area in Pit 10.

The applicable BACM for Pit 10 consist of adherence to the Action Plan, shutting down active operations contributing to fugitive dust, application of water to control fugitive dust and Conditions 14 and 15 of permit MD-7424, the application of chemical dust suppression to inactive spoils and stripped areas. Black Butte employed all of the these control measures prior to and during the day of the event.

### **BEST AVAILABLE CONTROL TECHNOLOGY**

Best Available Control Technology required at Black Butte consists of the TEOM network in place at the mine and Meteorological station. The TEOM network consists of 5 TEOM's located throughout the mine. The TEOM network sends wireless information on an hourly basis to a central database located in the mine office area. Automatic notification is sent via email to Managers, engineers, supervisors and leadmen at the mine when action levels are reached. The met station is located at the office area and transmits data over a radio network to the mines central database. Data for both the TEOM's and Met station is managed and compiled by IML and downloaded to a website managed by them.

The TEOM's are calibrated on no more than a monthly basis and a quarterly report of the data quality and recordings is prepared and distributed to the WYDEQ-AQD. Calibrations of the TEOM's are primarily done by mine personnel but occasions do arise where the mine contracts that work out if needed. The mine had not found a TEOM to be out of compliance since early 2013.

Distribution, construction and maintenance of the TEOM's and Met Station are all in accordance with Black Buttes Air Quality permit MD-7424.

## V. NORMAL HISTORICAL FLUCTUATION

The Environmental Protection Agency, EPA, generally considers a 3-5 year time period when looking at Normal Historical Fluctuations. Data for this document looked at a five year time period from May 5, 2009 through May 28, 2014. During this timeframe the Pit 10 Tom recorded 40,498 valid hourly readings. Of these valid readings only 44 exceeded the 1:00 pm reading of  $1,047.5 \mu\text{g}/\text{m}^3$  reading recorded on March 17, 2014. This puts this reading in the 99.89<sup>th</sup> percentile of readings recorded at the Pit 10 TEOM. Of the 40,498 valid hourly readings at the Pit 10 TEOM there are only 36 readings that were higher than the 2:00 pm reading of  $1,175 \mu\text{g}/\text{m}^3$  recorded on March 17, 2014. This puts this reading in the 99.91<sup>st</sup> percentile of readings recorded at the Pit 10 TEOM. The hourly PM10 readings recorded between 3:00 pm and 5:00 pm on the 17<sup>th</sup> were all in the 99.4<sup>th</sup> or higher percentile of all hourly readings ever recorded at the Pit 10 TEOM. After the 5:00 pm reading it became statistically impossible for the mine to have a 24 hour reading on the 17<sup>th</sup> below the level of an exceedance. The readings that created this situation were all in the 99.4<sup>th</sup> or higher, percentile of hourly readings.

This same methodology and data interpretation was used by the Arizona Department of Environmental Quality (ADEQ) to support their conclusion that PM10 data recorded in the Phoenix area on July 2-8, 2011 should be excluded. The historical fluctuations shown by the ADEQ showed that daily maximum hourly average and 24-hour averages of PM10 concentrations seen during the time period of July 2-8 were some of the highest readings seen in the last 5 years, but not necessarily the highest seen. The ADEQ also showed that the PM10 readings during the July 2-8 period were amongst the top ten events in the last 5 years and these same readings were in the 99.5<sup>th</sup> percentile when compared to 5 year historical data. This conclusion was supported and documented by the EPA as meeting the criteria set by 40 CFR Section 50.14(c)(3)(iii) for historical fluctuations. It is the conclusion of Black Butte that the conditions recorded on March 17, 2014 present an identical statistical scenario as those presented by the ADEQ. Since, the conclusion presented by the ADEQ was ultimately supported by the EPA it must therefore be supported in this case.

Between January 1, 2009 and March 21, 2014 the Met station at Black Butte has recorded 45,101 valid hourly maximum wind speed readings. During that time, only 190 readings have been of wind speeds greater than 50 mph. This makes any reading of 50 mph in the 99.6<sup>th</sup> percentile of all readings. The PM10 readings recorded on March 17, 2014 between the hours of 1:00 pm and 5:00 pm all occurred when the maximum wind speed was greater than 50 mph. These are the same high PM10 readings that were so high they resulted in a statistical impossibility to have a 24 hour PM10 reading below  $150 \mu\text{g}/\text{m}^3$ . By the EPA's own interpretation, as shown above, data that is in the 99.5<sup>th</sup> percentile or higher is outside of normal historical fluctuations. In the case of March 17, 2014 we have both wind speeds that were outside of normal historical fluctuations and abnormal PM10 readings resulting from these abnormal winds.

Section V clearly demonstrates that the event that occurred on March 17, 2014 as a result of the abnormally high winds experienced that day was far outside normal historical fluctuations. These abnormal winds resulted in abnormally high PM10 readings. This conclusion is backed by past precedence from the State of Arizona and the EPA.

## VI. NO EXCEEDANCE OR VIOLATION BUT FOR THE EVENT

Section IV of this report clearly shows that all BACM was being utilized prior to and during the day of the event. It also demonstrates that all BACT was in use and working properly prior to and during the event. Section III of this report provided the detail to determine that there exists a clear causal relationship between the high wind events that carried PM10 particulates and the exceedance as measured by the Pit 10 TEOM. It also shows, through the data gathered at the Upwind TEOM, that virgin area outside of the mine permit boundary were experiencing identical spikes and trends in fugitive dust conditions from the extended period of high winds as was seen at the Pit 10 TEOM. Section V of this report provides overwhelming evidence that the event was far outside normal historical fluctuations seen at the Pit 10 TEOM location for Black Butte mine. Furthermore, the data presented in Section V shows that the wind speeds experienced that day were far outside of normal historical fluctuations. This conclusion is not only supported by Black Butte but also by other State Air Quality agencies as well as the Federal EPA. The overwhelming weight of the evidence provided in these sections clearly illustrates that but for the uncontrollable PM10 particulate matter carried by the high winds there would have been no exceedance of the 24-hour PM10 standard.

All reasonable controls were in place and followed before and during the event in question.

The time relationship to weather events, wind speed and direction, and the elevated PM10 data is shown in detail in Section III. Graphical evidence shown in Section III illustrates that when maximum wind speeds reached the 25 mph mark, hourly PM10 readings reached levels outside of historical fluctuations despite reasonable controls being in place at the mine. The average PM10 concentration at the Pit 10 TEOM during the hours when wind speeds were at levels normally seen, below 50 mph, was  $49.4 \mu\text{g}/\text{m}^3$ . Well below the  $150 \mu\text{g}/\text{m}^3$  exceedance level. For the timeframe when maximum wind speeds were above the 50 mph level the average PM10 concentration recorded at the Pit 10 TEOM was  $528 \mu\text{g}/\text{m}^3$ . Well above the  $150 \mu\text{g}/\text{m}^3$  exceedance level. Maximum wind speeds above 50 mph account for less than 0.42% of the total readings taken at the Black Butte Met station since 2009. Clearly demonstrating that had the abnormally high wind event not occurred the actions taken by Black Butte Coal leading up to and during the March 17<sup>th</sup> event would have easily prevented the exceedances from occurring.

## VII. CONCLUSIONS

The exceedance's that occurred on March 17, 2014 satisfies the criteria of 40 CFR 50.1(j) and meet the definition of an exceptional event.

- The event affects air quality- the information in Sections II and III provide the conclusion that the event affected air quality.
- The event is not reasonably controllable or preventable – Section IV provides the documentation that all reasonable controls and prevention measures were in place and utilized during the event.
- The event is unlikely to reoccur at a particular location or is a natural event - as shown in Section II the cause of the exceedance was high PM10 particulate matter driven by high winds during the period of March 17, 2014.

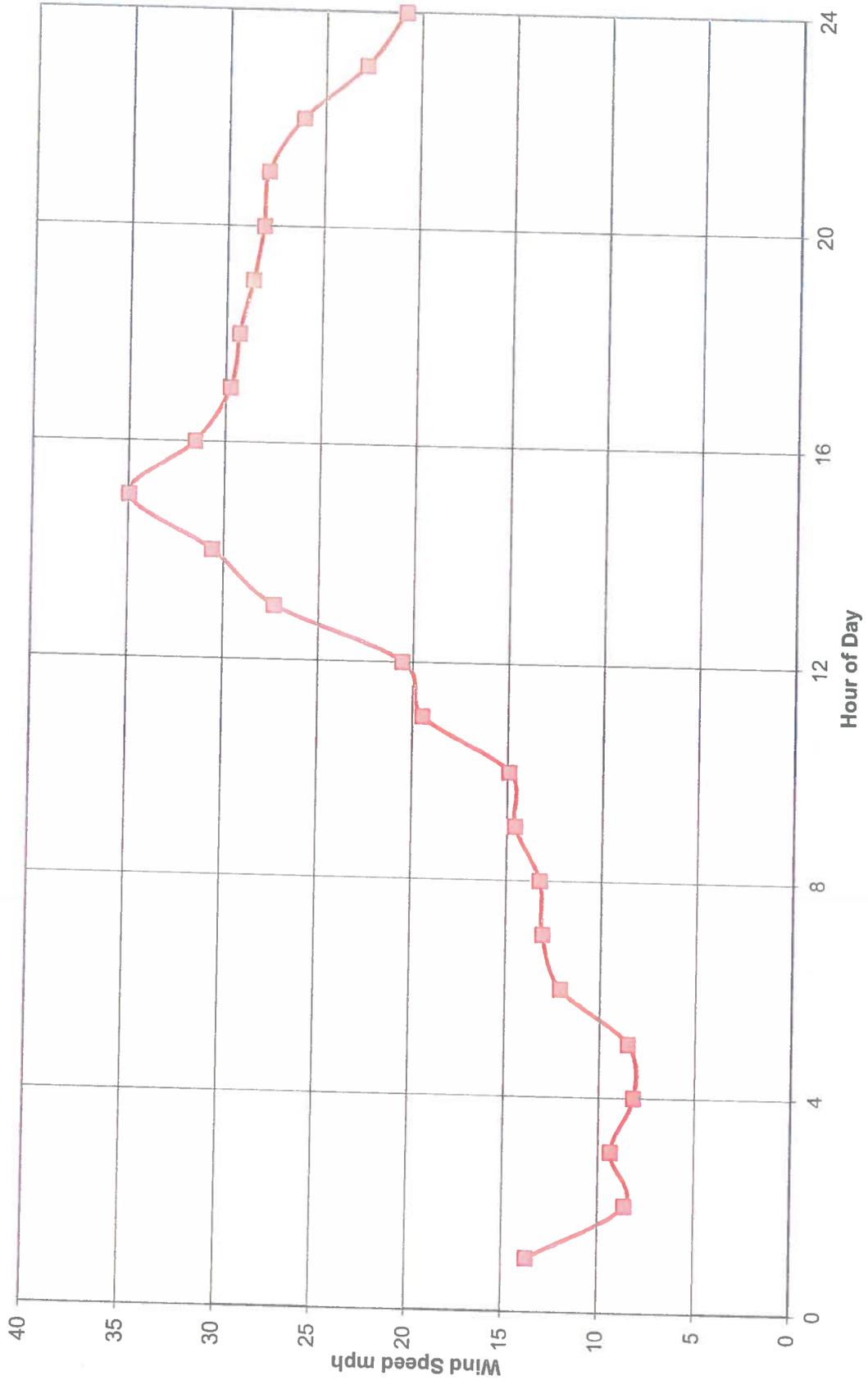
The exceedance's on March 17, 2014 of the federal 24-hour PM10 standard would not have occurred but for the high western winds driving windblown dust, based on the following evidence:

- Graphs showing the relationship of high winds, in excess of 50 mph, and the associated elevated PM10 readings at the Pit 10 TEOM.
- Photographic evidence and written notes detailing the actions taken before and during the event.
- Historical fluctuation analysis showing the atypically high PM10 concentrations associated with the high wind events.
- Wind direction and speed monitoring data from the onsite weather station.

# **APPENDIX A**

**March 17, 2014 Wind Speed, Direction and Pit 10 TEOM  
PM10 data**

### Diurnal Average Wind Speed



# Black Butte Mine

## Meteorological Data Summary

3/17/2014 - 3/17/2014

### Hourly Data

	<b>Average/Total</b>	<b>Max</b>	<b>Min</b>
Wind Speed (mph)	20.8	34.9	8.2
Sigma-Theta (°)	9.4	15.7	5.3
Temperature (C)	2.0	8.6	-3.4
Precipitation (in)	0.00	0.00	

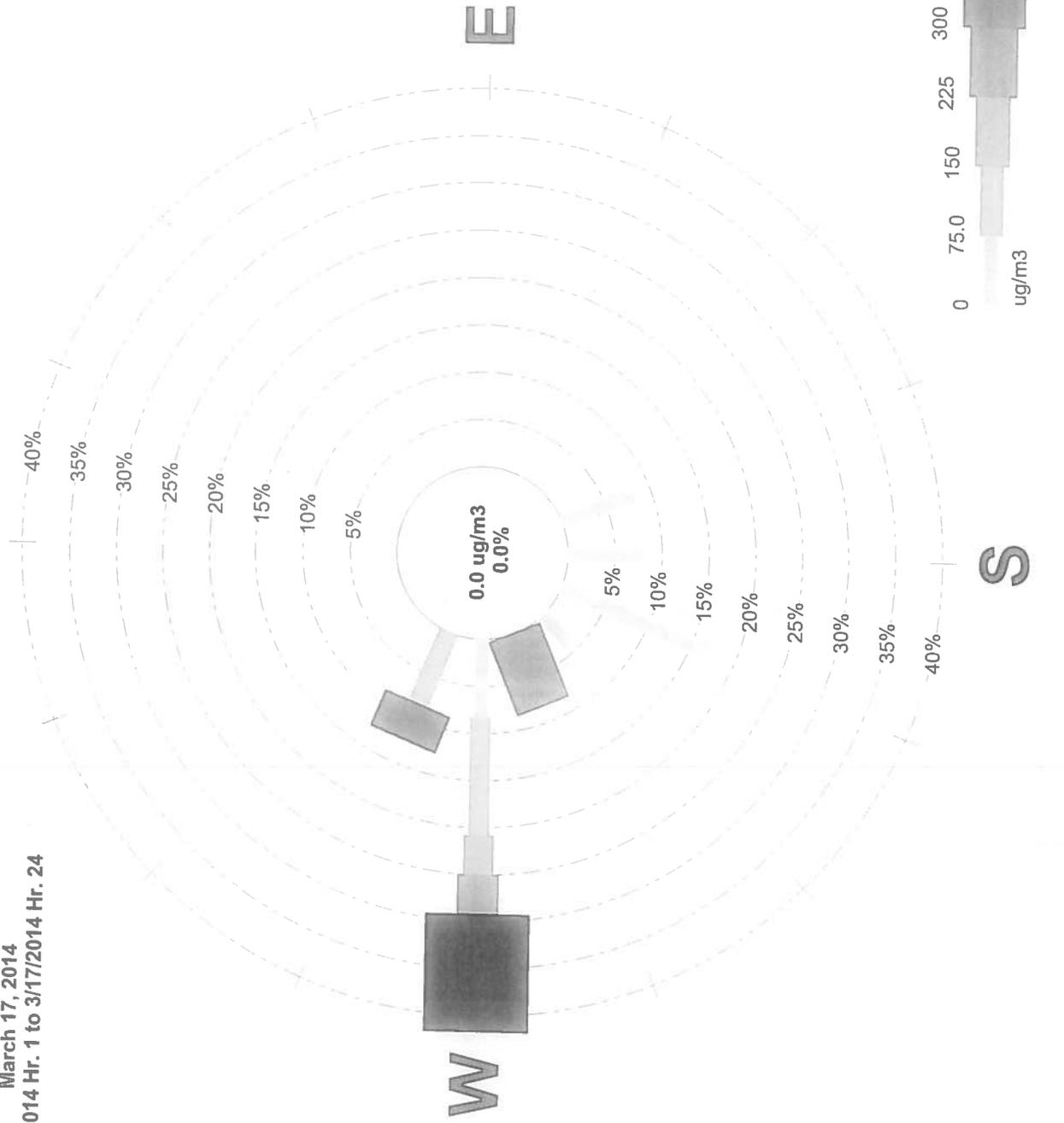
Predominant wind direction was from the W sector,  
accounting for 41.7% of the possible winds

### Data Recovery

<b>Parameter</b>	<b>Possible (hours)</b>	<b>Reported (hours)</b>	<b>Recovery</b>
Wind Speed	24	24	100.00%
Wind Direction	24	24	100.00%
Sigma-Theta	24	24	100.00%
Temperature	24	24	100.00%
Precipitation	24	24	100.00%

# TEOM PM-10 Pollution Rose Black Butte Mine - Pit 10 TEOM

March 17, 2014  
3/17/2014 Hr. 1 to 3/17/2014 Hr. 24



**TEOM PM-10 Pollution Rose  
Black Butte Mine - Pit 10 TEOM**

March 17, 2014  
3/17/2014 Hr. 1 to 3/17/2014 Hr. 24

**RELATIVE FREQUENCY (% of Recorded Winds) TABLE**

Wind Direction	0.0-75.0	75.0- 150	150- 225	225- 300	300- 375	375- 450	450- 525	525-above	Row Total
				ug/m3					
0.0 deg.(North)									0.0
22.5 deg.									0.0
45.0 deg.									0.0
67.5 deg.									0.0
90.0 deg.									0.0
112.5 deg.									0.0
135.0 deg.									0.0
157.5 deg.	8.3								8.3
180.0 deg.	8.3								8.3
202.5 deg.	16.7								16.7
225.0 deg.	4.2								4.2
247.5 deg.					8.3				8.3
270.0 deg.	8.3	12.5	4.2	4.2				12.5	41.7
292.5 deg.		8.3				4.2			12.5
315.0 deg.									0.0
337.5 deg.									0.0
	45.8	20.8	4.2	4.2	8.3	4.2	0.0	12.5	100.0

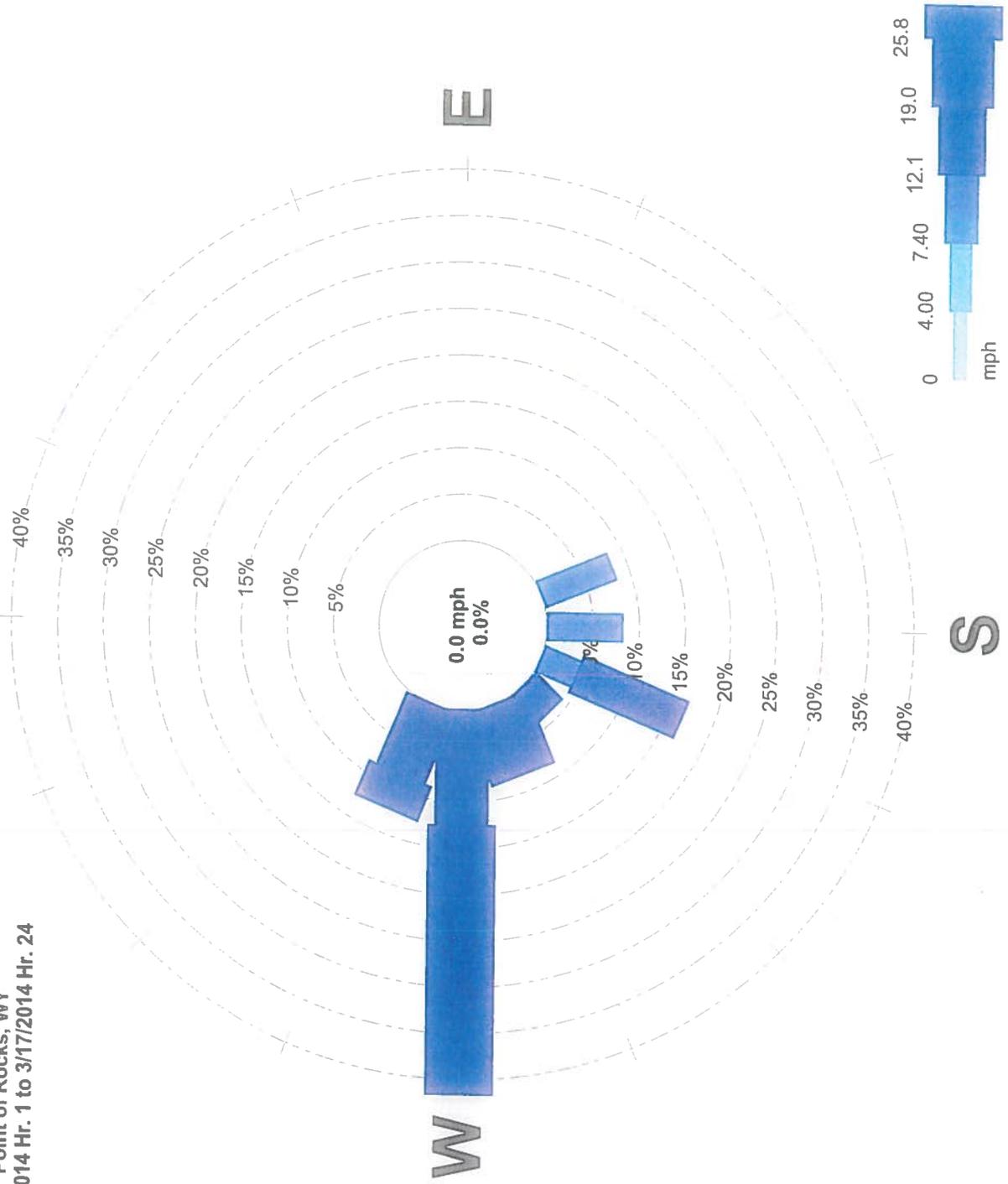
0 ug/m3 ( 0.0%)      INVALID READINGS 0

NUMBER OF POSSIBLE READINGS 24      VALID READINGS 24      DATA CAPTURE 100.00%

# Wind Rose -- March 17, 2014

## Black Butte Mine

Point of Rocks, WY  
3/17/2014 Hr. 1 to 3/17/2014 Hr. 24



**Wind Rose -- March 17, 2014**  
**Black Butte Mine**  
 Point of Rocks, WY  
 3/17/2014 Hr. 1 to 3/17/2014 Hr. 24

**RELATIVE FREQUENCY (% of Recorded Winds) TABLE**

Wind Direction	mph							Row Total
	0.0- 4.0	4.0- 7.4	7.4-12.1	12.1-19.0	19.0-25.8	25.8-100.0		
0.0 deg.(North)								0.0
22.5 deg.								0.0
45.0 deg.								0.0
67.5 deg.								0.0
90.0 deg.								0.0
112.5 deg.								0.0
135.0 deg.								0.0
157.5 deg.			8.3					8.3
180.0 deg.			8.3					8.3
202.5 deg.			4.2	12.5				16.7
225.0 deg.				4.2				4.2
247.5 deg.						8.3		8.3
270.0 deg.					12.5	29.2		41.7
292.5 deg.					8.3	4.2		12.5
315.0 deg.								0.0
337.5 deg.								0.0
<b>0 mph ( 0.0%)</b>	<b>0.0</b>	<b>0.0</b>	<b>20.8</b>	<b>16.7</b>	<b>20.8</b>	<b>41.7</b>	<b>100.0</b>	

INVALID READINGS 0

NUMBER OF POSSIBLE READINGS 24      VALID READINGS 24      DATA CAPTURE 100.00%

# **APPENDIX B**

## **Action Plan Event Log Action Report for March 17, 2014**

**Action Plan Event Log  
Action Report**

*Day Shift*

**THIS REPORT WILL BE COMPLETED IN ITS ENTIRETY BY THE ON SHIFT SUPERINTENDENT PRIOR TO LEAVING AT THE END OF THE SHIFT.**

**I. Concentrations which trigger the action plan.**

In the table below record the date, time, and concentration at which action plan levels were reached

	300 ug/m <sup>3</sup> (1-hour)			70 ug/m <sup>3</sup> (24-hour)			50 ug/m <sup>3</sup> (24-hour)			110 ug/m <sup>3</sup> (24-hour)			10 ug/m <sup>3</sup> (24-hour)		
	Date	Time	1-hour reading	Date	Time	24-hour reading	Date	Time	24-hour reading	Date	Time	24-hour reading	Date	Time	24-hour reading
Pit 10	2-17	1:00	583	2-17	1:00	71.28									
I-80															
Pit 14															
Leucite															
UPWIND															

**II. Identify problem areas, ensure problem areas are addressed, ensure adequate water trucks are operating in the areas, and record when and where watering activities were being done. Please give priority to the areas listed in the table below.**

Place an X by each area that is visibly contributing to airborne dust, and describe the severity of dust emission in Section VI of this report. Also, fill out the supplemental information for each applicable area. Take photograph's if possible.	Was the water truck requested to address this specific area?	At what time was the initial request made?	How many loads of water were applied in this area.	At what times was the water truck in this area.
_____ South half of Pit 10 highwall	Yes / No	_____ am/pm	_____ loads	
<input checked="" type="checkbox"/> Pit 10 assist bench	<input checked="" type="checkbox"/> Yes / No	7 am/pm	_____ loads	7am to 6pm
<input checked="" type="checkbox"/> Road in spoils on North side of Pit 10	<input checked="" type="checkbox"/> Yes / No	7 am/pm	_____ loads	7am to 6pm
_____ Pit 11 highwall	Yes / No	_____ am/pm	_____ loads	
_____ Pit 11 spoils	Yes / No	_____ am/pm	_____ loads	
_____ Dragline #1's pad and access road	Yes / No	_____ am/pm	_____ loads	
_____ Pit 10 inactive spoils	Yes / No	_____ am/pm	_____ loads	
_____ Pit 10 pre-strip	Yes / No	_____ am/pm	_____ loads	
_____ Pit 10 topsoil stockpiles	Yes / No	_____ am/pm	_____ loads	
_____ Pit 10 out of pit stockpiles (OOPS)	Yes / No	_____ am/pm	_____ loads	
_____ Pit 11 OOPS	Yes / No	_____ am/pm	_____ loads	
<input checked="" type="checkbox"/> Pit 11 topsoil pile	<input checked="" type="checkbox"/> Yes / No	_____ am/pm	_____ loads	6-1 (Constructors)
_____ Pit 10 hopper/stockpile	Yes / No	_____ am/pm	_____ loads	
_____ Pit 8 stilling shed/ stockpile	Yes / No	_____ am/pm	_____ loads	
<input checked="" type="checkbox"/> Pit 14 haul roads	<input checked="" type="checkbox"/> Yes / No	2 am/pm	_____ loads	7-6pm
_____ Pit 14 OOPS or topsoil stockpiles	Yes / No	_____ am/pm	_____ loads	
<input checked="" type="checkbox"/> Drag #2's pad and access road	<input checked="" type="checkbox"/> Yes / No	6:00 am/pm	_____ loads	6-6pm
_____	Yes / No	_____ am/pm	_____ loads	
_____	Yes / No	_____ am/pm	_____ loads	
_____	Yes / No	_____ am/pm	_____ loads	
_____	Yes / No	_____ am/pm	_____ loads	
_____	Yes / No	_____ am/pm	_____ loads	

Were the water trucks below available on the day of the event?	If the truck was available, please specify the time during the shift that the water truck was put into service.	If unavailable, please specify the reason. Include any WO's associated with maintenance and repairs.
19-0981	<input checked="" type="checkbox"/> Yes / No	
19-1007	<input checked="" type="checkbox"/> Yes / No	Unavailable for the shift
	Yes / No	
	Yes / No	

Action Plan Event Log  
Action Report

III. Record weather conditions and possible external influences.

In the space below, describe wind, precipitation, and other weather events as they occur throughout the day. Take photographs if possible.

High winds throughout the day. With wind gusts up to 45 mph.  
Short lived snow storms through out the day.

In the space below, describe any possible external influences. Take photographs if possible (ex. Oil equipment traffic, livestock in the area, etc.)

The well in pit 10 was being cleaned, creating alot of extra dust. This operation was shut down twice before the high team reading at 1 pm. Shut down all operations at PMH at 3 pm. High wind was causing the dust. Kept both water trucks running in both pits.

IV. Consider modifying operations contributing to dust.

In the space below, describe any modifications to operations which occurred as part of the Action Plan. Include any changes put into place in advance of events which contributed to PM10 concentrations reaching action plan levels.

Dry one out the 0-115 working in pit 10 was shut down and a second H2O Truck was started. Shut down all operations at PMH at 3 pm. Leavite had high TIEOM readings. There was no BOC operation there. 07 H2O truck put 10 loads of water in the pit 10 area and 01 H2O truck put 2 loads of water in pit 10 and 4 loads in pit 11.

V. Notify the Production Superintendent.

Please record when and how the Production Superintendent was notified.

by the radio at 1 pm

Action Plan Event Log  
Action Report

VI. Record actions taken.

In the space below, summarize all actions performed in response to the Action Plan.  
In addition, include descriptions of the sources of dust listed in section II of this report.

Phog one was shut down. 2 D-115 in p10 were shut down. The dog dropping the high wall was the main cause of the dust. He was shut down, and another water truck was put into service. Shut down P14 at 3pm. 30+ mph winds. Kept both water trucks running in P10 and P14.

## Action Plan Event Log Action Report

### VI. Photographic documentation.

*Please attached any photographs taken during the event to this section. Otherwise, submit photographs and videos of the event to the Engineering Department.*

Action Plan Event Log  
Action Report

VII. Supporting documentation

Please list any supporting documentation attached to this report. Examples include written field notes, witness accounts, and operational logs.

---

---

---

---

---

---

---

---

---

---

VII. Shut Down documentation

Please attach a completed copy of a Shut Down Report to this Action Report in order to complete the Action Plan Event Log.

Mark Campbell  
Print Name

[Signature]  
Signature

3-17-14  
Date

Please return completed copy to the Black Butte Coal Company Air Permit Coordinator (Andy Thomson)

If you have any questions on completing this form, do not hesitate to contact Andy Thomson day or night

Office: 307-352-6212  
Work Cell: (970)629-2104  
E-mail: a.thomson@aecoal.com



**Action Plan Event Log  
Action Report**

*Night Shift*

**THIS REPORT WILL BE COMPLETED IN ITS ENTIRETY BY THE ON SHIFT SUPERINTENDENT PRIOR TO LEAVING AT THE END OF THE SHIFT.**

**I. Concentrations which trigger the action plan.**

In the table below record the date, time, and concentration at which action plan levels were reached.

	200 ug/m <sup>3</sup> (1-hour)			70 ug/m <sup>3</sup> (24-hour)			50 ug/m <sup>3</sup> (24-hour)			310 ug/m <sup>3</sup> (24-hour)			15 ug/m <sup>3</sup> (24-hour)		
	Date	Time	1-hour reading	Date	Time	24-hour reading	Date	Time	24-hour reading	Date	Time	24-hour reading	Date	Time	24-hour reading
Pit 10 H80	6 PM	3-17	1659	3-17	6 PM	520									
Pit 14 Leucite	3-17	6 PM	699												
UPWIND															

**II. Identify problem areas, ensure problem areas are addressed, ensure adequate water trucks are operating in the areas, and record when and where watering activities were being done. Please give priority to the areas listed in the table below.**

Place an X by each area that is visibly contributing to airborne dust, and describe the severity of dust emission in Section VI of this report. Also, fill out the supplemental information for each applicable area. Take photograph's if possible.	Was the water truck requested to address this specific area?	At what time was the initial request made?	How many loads of water were applied in this area.	At what times was the water truck in this area.
___ South half of Pit 10 highwall	Yes / No	___ am/pm	___ loads	
<input checked="" type="checkbox"/> Pit 10 assist bench	<input checked="" type="radio"/> No	6:10 am/pm	1 loads	6-12
___ Road in spoils on North side of Pit 10	Yes / No	___ am/pm	___ loads	
___ Pit 11 highwall	Yes / No	___ am/pm	___ loads	
___ Pit 11 spoils	Yes / No	___ am/pm	___ loads	
___ Dragline #1's pad and access road	Yes / No	___ am/pm	___ loads	
___ Pit 10 inactive spoils	Yes / No	___ am/pm	___ loads	
<input checked="" type="checkbox"/> Pit 10 pre-strip	<input checked="" type="radio"/> No	6 am/pm	3 loads	6-12
___ Pit 10 topsoil stockpiles	Yes / No	___ am/pm	___ loads	
___ Pit 10 out of pit stockpiles (OOPS)	Yes / No	___ am/pm	___ loads	
___ Pit 11 OOPS	Yes / No	___ am/pm	___ loads	
___ Pit 11 topsoil pile	Yes / No	___ am/pm	___ loads	
___ Pit 10 hopper/stockpile	Yes / No	___ am/pm	___ loads	
<input checked="" type="checkbox"/> Pit 8 stilling shed/ stockpile	<input checked="" type="radio"/> No	10 am/pm	1 loads	10-12
___ Pit 14 haul roads	Yes / No	___ am/pm	___ loads	
___ Pit 14 OOPS or topsoil stockpiles	Yes / No	___ am/pm	___ loads	
___ Drag #2's pad and access road	Yes / No	___ am/pm	___ loads	
___	Yes / No	___ am/pm	___ loads	
___	Yes / No	___ am/pm	___ loads	
___	Yes / No	___ am/pm	___ loads	
___	Yes / No	___ am/pm	___ loads	
___	Yes / No	___ am/pm	___ loads	

Were the water trucks below available on the day of the event?	If the truck was available, please specify the time during the shift that the water truck was put into service.	If unavailable, please specify the reason. Include any WO's associated with maintenance and repairs.
19-0981	<input checked="" type="radio"/> Yes / No 6 PM	
19-1007	<input checked="" type="radio"/> Yes / No 6 PM	
	Yes / No	
	Yes / No	

Action Plan Event Log  
Action Report

III. Record weather conditions and possible external influences.

*In the space below, describe wind, precipitation, and other weather events as they occur throughout the day. Take photographs if possible.*

High winds all shift 20-30 mph  
Snow after 12am

*In the space below, describe any possible external influences. Take photographs if possible. (ex. Oil equipment traffic, livestock in the area, etc.)*

N/A

IV. Consider modifying operations contributing to dust.

*In the space below, describe any modifications to operations which occurred as part of the Action Plan. Include any changes put into place in advance of events which contributed to PM10 concentrations reaching action plan levels.*

V. Notify the Production Superintendent.

*Please record when and how the Production Superintendent was notified.*

Were already notified prior  
to this shift.

Action Plan Event Log  
Action Report

VI. Record actions taken.

*In the space below, summarize all actions performed in response to the Action Plan.  
In addition, include descriptions of the sources of dust listed in section II of this report.*

All mine operations were downed during the prior shift. We kept P-14 Idle until midnite then began operations. P-10 was idle the entire shift. We ran both water trucks until snow made this no longer feasible at midnite.

Action Plan Event Log  
Action Report

VI. Photographic documentation.

*Please attached any photographs taken during the event to this section. Otherwise, submit photographs and videos of the event to the Engineering Department.*

None taken (night shift)

Action Plan Event Log  
Action Report

VII. Supporting documentation

Please list any supporting documentation attached to this report. Examples include written field notes, witness accounts, and operational logs.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VII. Shut Down documentation

Please attach a completed copy of a Shut Down Report to this Action Report in order to complete the Action Plan Event Log.

Luke Howarth  
Print Name

Luke Howarth  
Signature

3-17-14  
Date

Please return completed copy to the Black Butte Coal Company Air Permit Coordinator (Andy Thomson)

If you have any questions on completing this form, do not hesitate to contact Andy Thomson day or night

Office: 307-352-6212  
Work Cell: (970)629-2104  
E-mail: a.thomson@aecoal.com

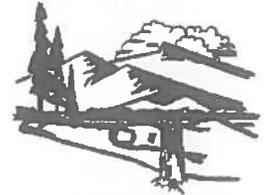
G:\Engineering\Environmental R Drive\ENV\_C1\_Air\_Emissions\Air Quality Concerns - Response\2013\F-xms\Action Plan Event Log and Shutdown Information.xlsx\Shut Down Report

# Action Plan Event Log Shut Down Report

What operations were occurring at the time PM10 concentrations reached action plan levels during the shift of the event. Please include any contractor operations.	When were operations modified or shut down?
No operations were running all had been modified (shut down) during the prior shift, we went this through out our shift.	3-17-14 Day shift
P-14 resumed operation after midnite as dust levels allowed.	
P-10 operations shut down the entire shift	



# Department of Environmental Quality



To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Matt Mead, Governor

Todd Parfitt, Director

October 10, 2014

Certified Mail Receipt Number: 7014 0510 0001 9791 8786

Mr. Steve Gili  
General Manager  
Black Butte Coal Company  
P.O. Box 98  
Point of Rocks, WY 82942

Re: Request for Flag under the Exceptional Event Rule for Pit 10 PM<sub>10</sub> March 17, 2014 Exceedance

Dear Mr. Gili,

The Air Quality Division (AQD) has reviewed the request to flag the March 17, 2014 PM<sub>10</sub> ambient monitored data at the Black Butte Mine (BBCC) as an Exceptional Event in accordance with the 40 CFR Part 50.14. Although the AQD has placed a temporary "High Wind" flag in AQS on the March 17, 2014 PM<sub>10</sub> data, with the description "Possible Exceptional Event – under evaluation by AQD", the team of AQD staff found deficiencies in the "weight of evidence" approach presented in the July 30, 2014 submittal. Supplemental information is needed before AQD can determine if all elements were addressed to exclude event-related concentrations from regulatory determinations.

The review team requests the following information to clarify the packet:

- ✓ • Please submit wind direction data for the day of the exceedance in tabular form, so that it may be compared to data in the table on page 13.
- ✓ • Page 18 references a fleet of water trucks. Please indicate how many water trucks are in the BBCC fleet and their capacity.
  - Please include information indicating how often BBCC are applying water or chemical treatment to satisfy conditions 14 and 15 of air quality permit MD-7424. Please include a chart of locations, dates, type of chemical used and quantities. Please also include information on any ripping or scarification which has taken place at the facility. Information should run from the beginning of Q3-13 through the date of the exceedance.
- ✓ • Please correct the "Best Available Control Technology" section of the packet to remove references to items which are not BACT, such as the TEOM network. Please contact Andrew Keyfauver with New Source Review should you require guidance in this matter.
- ✓ • BBCC's packet indicates that on the day of the exceedance, water trucks operated at Pit 10 and Pit 14. What was the percentage of time spent watering Pit 10?

The AQD level of review for Exceptional Event packages is greatly dependent on the level of detail and information provided by the facility in the request to flag exceedances. EPA has also provided examples of exceptional events demonstrations that meet the requirements of the draft high wind guidance. The following link <http://www.epa.gov/ttn/analysis/exevents.htm> is the best place to find examples of information that are needed to have EPA concur with an exceptional event demonstration.

Lander Field Office • 510 Meadowview Drive • Lander, WY 82520 • <http://deq.state.wy.us>

ABANDONED MINES  
(307) 332-5085  
FAX 332-7726

AIR QUALITY  
(307) 332-6755  
FAX 332-7726

LAND QUALITY  
(307) 332-3047  
FAX 332-7726

SOLID & HAZARDOUS WASTE  
(307) 332-6924  
FAX 332-7726

WATER QUALITY  
(307) 332-3144  
FAX 332-7726



# Black Butte Coal Company

P.O. Box 98  
Point Of Rocks, Wyoming 82942  
(307)382-6200  
Fax: (307)352-6234



**November 4, 2014**

Cara Keslar, Monitoring Section Supervisor  
Air Quality Division, Wyoming Department of Environmental Quality  
Herschler Building  
122 West 25<sup>th</sup> Street  
Cheyenne, WY 82002

**RE: March 17, 2014 Pit 10 TEOM PM10 Exceedance Exceptional Event -  
Additional Information Submittal**

Cara,

Enclosed is Black Buttes response to the request by the Air Quality Division for additional information regarding the March 17, 2014 Pit 10 TEOM Exceptional Event Submittal. The information is formatted to be included in the original submission packet.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Gili', written in a cursive style.

Steve Gili  
General Manager, Black Butte Coal Company

Enclosure:

the crust formed by the chemical. This has shown itself to very effective. On November 19, 2013 Mr. Wendt inspected these areas for treatment and determined the mine to be in compliance with Condition 15 of permit MD-7424. In fact, Condition 15 had been satisfied only 3 days before the March 17, 2014 event.

On the day of the event the mine utilized all of its fleet of water trucks to help control fugitive dust. A total of 272,000 gallons of water were applied to the inactive spoils, stripped areas and mining area in Pit 10.

The applicable BACM for Pit 10 consist of adherence to the Action Plan, shutting down active operations contributing to fugitive dust, application of water to control fugitive dust and Conditions 14 and 15 of permit MD-7424, the application of chemical dust suppression to inactive spoils and stripped areas. Black Butte employed all of the these control measures prior to and during the day of the event.

### **BEST AVAILABLE CONTROL TECHNOLOGY**

Best Available Control Technology required at Black Butte consists mainly of applications of water to high dust, active mining areas, chemical dust suppression to all haul roads, chemical dust suppression to inactive and prestripped areas of Pit 10 and Pit 11, straw crimped into newly topsoiled reclamation and timely planting of vegetation following reclamation activities.

All controls required by the mine's Action Plan were in effect on the 17<sup>th</sup>. All controls required by the mine's Action plan had been in effect and utilized since day one of 2014. All conditions of the mines Air Quality Permit, MD-7424 were being met. Specifically, Conditions 14, 15, 16 and 17 had been adhered to. Chemical dust suppression had been utilized in all required and needed areas of the mine since the middle of 2013. This was verified by Mr. Jeff Wendt, WYDEQ –AQD on November 19, 2013. In addition to the controls of the action plan the mine had treated prestrip areas in Pit's 10 and 11 with water to control dust. Inactive spoil piles that were accessible to a water truck had been treated as well. These areas of the mine had been treated at various times, as needed throughout the winter and spring.

The mine utilized all required controls according to our Wyoming Department of Environmental Quality – Air Quality Division approved action plan. The required control methods under the action plan are reasonable and have proven effective in the past. However, as with any control method, there exists a limit to the effectiveness. The high wind conditions that existed on the 17<sup>th</sup> overwhelmed the controls in place at the mine.

### VIII. Wind Direction Data

Time	Wind Direction (deg)	Hourly Wind Speed (mph)	Max Wind Speed (mph)	Pit 10 Hourly PM10 Conc.
03/17/2013 01:00 AM	161	8.6	11.5	4.5
03/17/2013 02:00 AM	169	9.4	15.3	5.8
03/17/2013 03:00 AM	170	8.2	18.6	3.8
03/17/2013 04:00 AM	172	8.5	16.5	5.9
03/17/2013 05:00 AM	204	12.1	19.5	6.2
03/17/2013 06:00 AM	208	13.1	19	6.7
03/17/2013 07:00 AM	200	13.2	18.6	7.2
03/17/2013 08:00 AM	211	14.6	37.3	33.4
03/17/2013 09:00 AM	217	14.9	25.9	22.1
03/17/2013 10:00 AM	265	19.5	37.1	127.7
03/17/2013 11:00 AM	284	20.6	36.2	104.4
03/17/2013 12:00 PM	275	27.3	48.6	533.8
03/17/2013 01:00 PM	276	30.6	52	1047.3
03/17/2013 02:00 PM	277	34.9	53.6	1175.1
03/17/2013 03:00 PM	284	31.5	51.1	376.9
03/17/2013 04:00 PM	272	29.7	52.7	273.1
03/17/2013 05:00 PM	257	29.3	49.7	325.9
03/17/2013 06:00 PM	258	28.6	51.5	314.3
03/17/2013 07:00 PM	262	28.1	47.6	181.3
03/17/2013 08:00 PM	267	27.9	46.5	124
03/17/2013 09:00 PM	270	26.1	41.9	126.5
03/17/2013 10:00 PM	273	22.9	41.2	47.6
03/17/2013 11:00 PM	277	20.9	36.9	39.3
03/17/2013 12:00 AM	285	19.6	35	125.3

Table VIII.1

## **IX. Water Truck Fleet**

The water truck fleet for Black Butte Coal Co. consists of two Cat 777 truck frames fitted with 17,000 gallon tanks. Both trucks are capable of spreading water out the back and sides of the tank. This allows for coverage of roads, benches, berms and stockpiles. At times Black Butte will rent a water truck. This is typically done when planned maintenance is done on one of our water trucks and the expectation is for high wind events or when we have unplanned maintenance issues that will last for more than a week and a rental water truck is available. On March 17, 2014 both 17,000 gallon water trucks were available and utilized to control fugitive dust.

## X. Condition 14 and 15 Compliance

As required by Conditions 14 of permit MD-7424, Black Butte Coal applies water or chemical dust suppression to inactive spoils in Pit 10 and Pit 11 on a schedule sufficient to control fugitive dust from the inactive spoil piles. The initial treatment of inactive spoil piles is done as soon as the last of the coal below the spoil pile is removed. In that case of dragline spoils, a road needs to be built on the top of the pile to allow for the operation of the spray truck. The act of building this road can cause rocks to roll to the pit floor. In order to keep coal removal operations taking place in the pit out of danger from falling rocks we construct this road after the final coal is removed. If coal removal is to be delayed by any more than a week in either Pit 10 or Pit 11 due to low coal demands or other operational issues, we will construct the spoil top access road prior to removal of final coal, while the pit floor is coned off. Any rocks or spoil that rolls to the pit floor or on top of the exposed coal below is then cleaned off after road construction. When this is completed coal removal operations can continue. The inactive spoils are treated at a minimum yearly or as needed to control fugitive dust. The frequency of applications are dependent on how often the inactive spoil piles are disturbed and how well the crust that is developed by the chemical is working. Determination of this is from visual observations completed by Black Butte's environmental staff. Table X.1 shows the areas of chemical application, the dates and the quantity of chemicals used in regards to compliance with Condition 14.

Application Location	Date of Application	Area Treated (acres)	Quantity of Chemical (tons)	Type of Chemical Applied
Pit 11 Dragline Spoils	4/25/13	141	169.42	Magnesium Chloride
Pit 10 Truck Spoils	5/1/13	121	146.65	Magnesium Chloride
Pit 10 Dragline Spoils	5/16/13	49.6	75	Magnesium Chloride
Pit 11 Dragline Spoils	11/1/13	20.6	35	Magnesium Chloride
Pit 10 Dragline Spoils	8/20/14	16.1	45.02	Magnesium Chloride
Pit 11 Dragline Spoils	8/20/14	20.6	25	Magnesium Chloride

Table X.1

Condition 15 of permit MD-7424 requires that Black Butte treat all prestriped areas of Pit 10 and 11 with water or chemicals to control fugitive dust and that this is completed no more than 7 days after completion of stripping. The standard process is that water is applied to the stripped areas continuously while stripping activities are taking place. Immediately following completion of stripping a final application of water is applied to the entire stripped area. This area is then bermed off and signage is placed indicating that travel in these areas is prohibited. Chemical dust suppression is then ordered and delivery typically takes place within the next two weeks. Contractors are used to apply the chemical due to the specialized nature of the application. Due to the fact that the treatment areas are bermed off and

travel is prohibited the crust formed by the chemical has not shown itself to deteriorate. Additionally, we typically strip areas shortly before active mining operations will take place so prestripped areas do not remain inactive for very long. As a result additional applications of chemical have not been required. Table X.2 shows the areas of chemical application, that dates and quantity of chemical used in regards to compliance with Condition 15.

<b>Application Location</b>	<b>Date of Application</b>	<b>Area Treated (acres)</b>	<b>Quantity of Chemical (tons)</b>	<b>Type of Chemical Applied</b>
Pit 10 Prestrip	5/4/13	20.4	80	Magnesium Chloride
Pit 10 Prestrip	3/14/14	26.8	112	Magnesium Chloride
Pit 11 Prestrip	3/28/14	10.4	75	Magnesium Chloride
Pit 11 Prestrip	4/11/14	29	113	Magnesium Chloride

*Table X.2*

On November 19, 2013 a representative of the Wyoming Department of Environmental Quality – Air Quality Division, Mr. Jeff Wendt, completed an inspection of Black Butte mine. Mr. Wendt travelled to both Pit 10 and Pit 11. While touring the Pit 11 Inactive Spoils, it is noted on page 2 of his inspection report that Mr. Wendt found “an excellent hard shell crust as a result of the treatments that have been applied.” Mr. Wendt also noted that winds were around 10-20 mph but no fugitive dust was noted. This agrees with the same facts that Black Butte has noted for years. All required and reasonable control measures work well when winds are below the 30 mph mark. When wind speeds exceed 30 mph control of fugitive dust at Black Butte can become problematic. A copy of page 2 of Mr. Wendt’s inspection notes is included in Appendix D.

## **XI. Water Truck Operation in Pit 10**

On March 17, 2014 both BBCC water trucks were in operation. The trucks spent 61% of the total operating time on the 17 working on controlling fugitive dust in Pit 10. The other 39% of operating time was spent controlling fugitive dust in Pit 14. The first load of water was not sent to Pit 14 until 2:00 pm. By this time all possible areas in Pit 10 had received several loads of water and all that was required in Pit 10 were a few spot applications. As detailed in Table VIII.1 by 3:00 pm the hourly PM10 concentrations began to drop however the hourly readings prior to that were off high enough value that the drop in readings from 3:00 pm to midnight were not sufficient to overcome the earlier severe readings.

## **XII. Condition 19 Compliance**

Condition 19 of permit MD-7424 requires that BBC rip or chisel the surface or plant a temporary vegetative cover to recently regraded or topsoiled areas that will sit idle for an extended period of time in order to stabilize against wind erosion. Prior to 2013, all regraded and topsoiled areas in Pit 10 had permanent vegetative cover already planted and growing. In 2014, an area 50 acres in size was regraded and topsoiled. This area received an application of straw mulch and was seeded with native grasses and shrubs.

Beginning in 2013 Black Butte Coal began a process of applying straw mulch to newly topsoiled reclamation areas. The project was implemented to accomplish two goals; 1) Help control fugitive dust that is generated from newly topsoiled and seeded reclamation prior to germination and growth of the planted grasses and shrubs and 2) Help retain snow on the newly seeded reclamation areas. The project involves using either a crimper or a disk to cut weed free and seed free straw into the newly applied topsoil and then drilling seed into the topsoil. The straw helps to disrupt the wind flow over the relatively smooth topsoil. This helps to reduce the amount of fugitive dust and provides vegetation for the snow to catch behind rather than blow away during the high wind winter months. Topsoil is typically spread during the spring and summer months at Black Butte and seeding is typically done in the summer and fall months. The application of the straw mulch is done following the spreading of topsoil and verification of depths. Within 1 to 2 weeks following the application of the straw, seeding of native grass and shrubs is done in these areas.

Black Butte has been and is in complete compliance with Condition 19 of our air quality permit.