emailed to Kirk and Tanner on Jan. 23, 2012

On January 21, 2012 School Creek Mine's SC-2 and SC-3 samplers recorded a 24hr. average standard concentration of 223.4µg/m^3 and 226.1µg/m^3, respectively. On the morning of the 21st the average hourly wind speed reached 46 mph from the SW and winds gusted to over 62 mph from the SW. School Creek Mine adhered to the *Air Quality Action Plan* found in Appendix A of AQ Permit CT-6445. Operations were suspended in the area and water trucks were used in an attempt to control the dust. School Creek Mine will submit an Exceptional Event packet addressing the high wind event and the actions taken in response.

Peabody School Creek Mining, LLC
Caller Box 3045
Gillette, Wyoming 82717-3045
(307) 464-6774

February 14, 2012

USPS CERTIFIED MAIL: 7009 1410 0002 3473 4184

Cara Keslar
Monitoring Section Supervisor
Wyoming DEQ - Air Quality Division
122 West 25th Street
Cheyenne, WY 82002

RE: School Creek Mine, January 21, 2012 High wind event

Dear Ms. Keslar,

On January 21, 2012 School Creek Mine's (SCM) SC-2 and SC-3 samplers recorded a 24 hour average standard concentration of 223.4 STD µg/m^3 and 226.1 STD µg/m^3, respectively. The reason for the elevated concentrations recorded on 1/21/2012 was due to a high wind event.

SCM officially requests that the data on January 21, 2012 be flagged as an Exceptional Event under the Natural Events Action Plan. Supporting documentation for this request is attached. The elevated concentrations were strongly influenced by the high wind event and SCM implemented reactionary measures in an effort to reduce emissions during the event.

If you need any additional information please feel free to contact me at (307) 464-4502

Regards,

Adam Stephens
School Creek Mine

Attachments: Documentation Package

Cc: Kirk Billings (AQD – Lander), Tanner Shatto (AQD – Sheridan)
file

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Report of Elevated PM_{10} Concentrations, January 21, 2012

School Creek Mine

Samplers: SC-2 and SC-3
Date of Samples: January 21, 2012
24-hour PM_{10} concentration: 223.4ug/m^3 (STP) and 226.1ug/m^3 (STP)

All PM_{10} concentrations discussed are reported at standard temperature and pressure.

Summary

On January 21, 2012 TEOM samplers SC-2 and SC-3 recorded PM_{10} concentrations in excess of the 24-hour standard in Wyoming. High winds of significant duration and velocity were recorded at the SCM meteorological station on that same date. Analysis shows that the elevated sampler readings directly correlate with the high wind speeds.

School Creek Mine includes an existing shop and plant facility, an existing pit and reclamation and a new pit development area. To develop the new pit area a great deal of topsoil stripping and construction activities have taken place over the last 5 months (see attached map for detail of recently disturbed area in relation to monitor locations.) Within the last 5 months the mine has disturbed an area for a scoria pit, out-of-pit overburden stockpiles and a coal boxcut. In addition, other mining support areas have been stripped of topsoil and are under construction or have been recently completed. Support areas include; haul roads, access roads and drainage control structures. Also, areas around the plant and shop are being refurbished due to limited maintenance during the shutdown period.

On the day the samplers recorded elevated concentrations exceptionally high winds were being recorded at the SCM meteorological station. The winds averaged 25 mph for the 24 hr period and gusts of up to 62 mph were recorded.

Data from the SC-2 TEOM shows the major contributor to exceeding the 24 hr standard was the hourly concentrations recorded from 0700MST to 1100MST. The average concentration during this time period was 965.3 ug/m^3. The high of day was also reached during this period with a concentration of 1270.2 ug/m^3. These readings from the TEOM coincided with wind gusts ranging from 45 – 62 mph coming from an average azimuth of 232 degrees.

Data from the SC-3 TEOM shows the major contributor to exceeding the 24 hr standard was the hourly concentrations recorded from 0700 to 1100. The average concentration during this time

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period was 968.7 ug/m^3. The high of day was also reached during this period with a concentration of 1509.2ug/m^3. These readings from the TEOM coincided with wind gusts ranging from 45 – 62 mph coming from an average azimuth of 232 degrees.

Prior to the action level being triggered active watering efforts had been initiated. As the concentrations began to rise the Air Quality Action Plan (AQAP Permit# CT-6445, see attached) was initiated and operations personnel took appropriate preparatory and responsive actions. Actions included; increased watering efforts to control areas generating excessive visible dust, shutting down scoria crushing operations, inspecting for coal fires (none noted), limited overburden hauling and finally shutting down all operations completely at 1120MST until 1415MST.

Analysis of the sampler data shows that there were significant reductions in the average hourly concentrations in response to actions taken by mine personnel. But due to the high numbers recorded the continuous 24-hour average PM_{10} concentration exceeded state ambient air quality standards. Mine personnel continued implementation of the AQAP until the measured concentrations fell below monitor alarm thresholds.

Discussion

On January 21, 2012, the School Creek Mine TEOM sampler SC-2 recorded a 24-hour PM_{10} concentration of 223.4ug/m^3 (STP) and SC-3 recorded a 24-hour PM_{10} concentration of 226.1ug/m^3 (STP). Following is a report of the pertinent information regarding this elevated reading. Attached to and referenced in this report are meteorological reports of wind speed, wind direction and temperature; and sampler reports of one-hour and 24-hour concentrations of PM_{10} from SC-1, SC-2, and SC-3 samplers. All PM_{10} concentrations discussed are reported at standard temperature and pressure.

Meteorological Data

Analysis of the hourly meteorological data for the *previous* day (Jan. 20, 2012) shows that winds had been generally from the NNW until mid afternoon when it abruptly switched to the SE averaging about 10 mph. The highest hourly wind speed peaked at 18 mph. Temperatures were in the single digits to around 32 degrees Fahrenheit.

On Jan. 21, 2012 the winds slowly shifted direction from the SE to the SW and steadily increase velocity to 19 mph by 0600MST. By 0700 MST winds had increase abruptly to nearly 32mph with gusts nearing 50 mph. Over the next 9 hours the winds averaged >35 mph sustained with gusts averaging >51 mph from an average azimuth direction of 235°. A gust of 62 mph was recorded at 1002. The remainder of the day saw calming winds down to 19 mph by midnight and the direction switching to from the west. Temperatures were significantly higher than the previous day peaking at 46 degrees Fahrenheit by 1300 MST.

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Total precipitation for the month of January was 0.00 inches. The last recorded precipitation had been 0.01 inches on December 20, 2012. There was no snow cover on the date of the elevated reading.

TEOM Data

Sampler SC-2 recorded a 24-hour average of 40.9ug/m^3 for the day *prior* to the event, Jan. 20, 2012. Hourly readings recorded for the day were below the NAAQS standard of 150ug/m^3.

The 24-hour average at sampler SC-2 for Jan. 21, 2012 was 223.4ug/m^3. This can be attributed to a block of 5 hours in the morning where the hourly readings were above the standard ranging from 356.2ug/m^3 to 1270.2ug/m^3. The 15th hour readings dropped off to below 41ug/m^{3}and remained there for the remainder of the day. The last reading of the day was 3.0ug/m^3.

Sampler SC-3 recorded a 24-hour average of 35.7ug/m^3 for the day *prior* to the event, Jan. 20, 2012. Hourly readings recorded for the day were below the NAAQS standard of 150ug/m^3.

The 24-hour average at sampler SC-3 for Jan. 20, 2012 was 226.1ug/m^3. This can be attributed to a block of 5 hours in the morning where the hourly readings were above the standard ranging from 398.4ug/m^3 to 1509.2ug/m^3. The 14th hour readings dropped off to below 51ug/m^{3}and remained there for the remainder of the day. The last reading of the day was 3.9ug/m^3.

Recordings at the SC-1 site were elevated higher than normal but below the standard. The SC-1 site is located approximately 9 miles to the WNW of SC-2.

Operating Information

Records indicate that the production crew thoroughly watered the haul roads, light duty roads and coal roads. Additionally, a small water truck with water cannon was routed to the scoria stockpiles to control the visible emissions from the piles. Between 0630 MST and 1120 MST only 2 haul trucks and one shovel were operating. All operations were shut down from 1120MST to 1415 MST except for the water trucks. Approximately 80,000 gallons of water were spread by Unit 705 over the course of the day Jan. 21, 2012. An additional 1500 gallons was applied to the scoria stockpiles with the water cannon. The water cannon allowed for the entirety of the piles to be wetted.

Real Time Emissions Monitoring

Real time emissions monitoring at SCM relies on data collection from the SC-1, 2, and 3 TEOM monitors. Along with these continuous monitors, a mine wide response plan was developed and implemented based upon real-time reporting of the sampler data. Whenever an hourly reading exceeds 250ug/m^3 (or the continuous 24-hour reading exceeds 75ug/m^3), an alarm is sounded in the security office. Operations personnel are immediately notified to respond by making assessments as to wind conditions and operating factors identified to be contributing to the elevated concentrations. They also determine whether any changes can or should be made in the

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operations to reduce operating emissions, and implement as appropriate. A record of the event is maintained showing results of assessments and actions taken.

Operations Response (Reactionary Control Measures)
Observations recorded by operating supervisors indicate on January 21st, high winds and dusty conditions were being experienced. The SC-2 and SC-3 sampler alarms were triggered and operations supervisors were notified shortly after 0800 MST. The main sources of dust were determined to be the recently disturbed areas of the haul roads, light duty roads, coal roads and scoria pile. Water trucks were directed to and concentrated their efforts on those areas. The major contributor was the scoria piles. Similar observations were made most of the day. All operations were suspended from 1120 MST until 1415 MST. No coal smokers were noted by the supervisor. No road rock hauling or road rock dumping occurred on January 21st.

Despite the fact that wind speeds and hourly concentrations were considerably reduced by hour 14, mine records indicate that hourly alarms continued through to January 22nd because of the elevated 24-hour concentration. The records also indicate that operations personnel maintained the modified operations and continued their mitigation activities described above.

Best Available Control
In addition to the specific response plan actions reported above, Peabody School Creek Mining, LLC had implemented numerous preventive control measures prior to January 21, 2012. Best Available Control Technologies are listed in the approved permit and have been implemented or are continuously implemented. Best Available Control Measures that were employed at School Creek Mine on or before January 21, 2012 include the following:

BACT's

- No coal has been mined at School Creek Mine but all emission control devices are in-place in the processing facility and the hopper is fitted with a stilling shed
- The main access road to the mine is a paved County maintained road
- Minor access roads are watered as needed
- Several roads under construction at this time were heavily watered

Additional BACM's

- Topsoil stripping had been finished for the season in late December 2011
- Most areas that had been stripped of topsoil had been ripped or blasted which created a roughened surface
- Most recently constructed topsoil stockpiles had been ripped with buffer strips and/or had been seed with a quick growing temporary seed mix
- The out-of-pit overburden stockpile was under construction on January 21, 2012 but was heavily watered to control dust

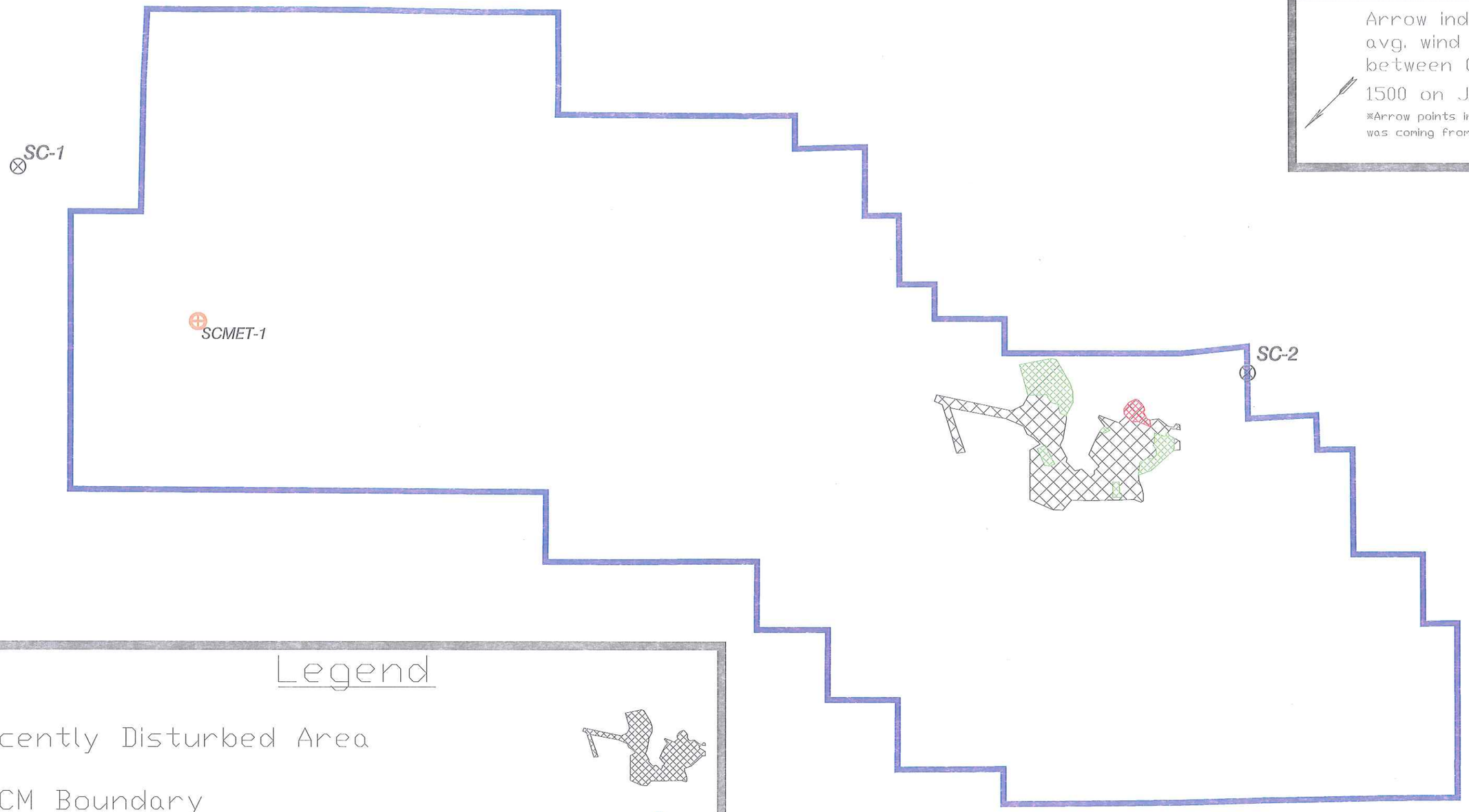
Air Quality Action Plan from CT-6445

An automated alarm system will sound an alarm if monitored emissions elevate to a level of concern. When hourly values are found to be above 250 $\mu g/m^3$ but below 500 $\mu g/m^3$ or the 24-hour values are above 75 $\mu g/m^3$ but below 100 $\mu g/m^3$ alarm level, operations personnel will determine possible emission source areas at and surrounding the mine in addition to monitoring hourly reading trends. Certain factors such as the weather forecast and actual wind speed and direction are checked. Preparatory actions are implemented as necessary. The actions may include determining the availability and staffing of water trucks, the nature and location of any contractor activities, or optional digging or haulage plans.

When a one-hour concentration exceeds 500 $\mu g/m^3$ or the 24-hour value exceeds 100 $\mu g/m^3$, the response to these alarms will include, but may not be limited to, inspection of the immediate vicinity of the monitors, focused chemical and water treatment in active mine areas, and if necessary, temporary realignment or suspension of certain mine activities that are determined to contribute to the levels of concern. If the source(s) is not at the School Creek Mine and continues to be a significant contributor of emissions, personnel will document the source(s) and contact AQD, when possible.

School Creek Mine Meteorological and Particulate Matter Data 1/21/2012 (SC-1, SC-2, SC-3)

Date	Time	SC-1 Hourly Conc. (STP) (ug/m3)	SC-1 24-hr. avg. Conc. (STP) (ug/m3)	SC-2 Hourly Conc. (STP) (ug/m3)	SC-2 24-hr. avg. Conc. (STP) (ug/m3)	SC-3 Hourly Conc. (STP) (ug/m3)	SC-3 24-hr. avg. Conc. (STP) (ug/m3)	Wind Speed (mph)	Wind Direction (°)	Temp (°F)	Gust Speed (mph)
01/21/12	1:00:05	40.3	34.1	17.8	41.2	5.5	35.4	13.1	171.7	19.5	17.0
01/21/12	2:00:05	56.0	35.9	17.3	41.3	10.4	35.6	12.0	171.3	22.9	15.8
01/21/12	3:00:05	44.6	34.9	11.9	41.5	9.9	35.8	16.1	175.3	24.8	18.9
01/21/12	4:00:05	27.7	33.6	17.5	41.8	13.2	36.3	14.1	189.1	27.5	18.6
01/21/12	5:00:05	17.4	33.3	30.9	41.2	13.2	35.2	13.3	184.5	29.0	18.6
01/21/12	6:00:05	32.3	35.1	20.7	40.4	14.2	33.6	18.5	217.2	33.9	28.5
01/21/12	7:00:05	19.2	35.5	156.2	45.5	160.1	38.8	31.6	238.3	40.0	48.8
01/21/12	8:00:05	16.6	35.3	810.1	77.5	398.4	53.9	30.2	232.7	40.3	45.2
01/21/12	9:00:05	28.4	35.7	1181.3	122.5	889.3	84.5	38.9	225.2	41.8	55.1
01/21/12	10:00:05	25.8	36.2	1208.6	171.1	1509.2	146.1	42.7	230.3	44.0	59.5
01/21/12	11:00:05	35.4	37.0	1270.2	221.6	1268.9	196.7	46.8	233.9	45.6	62.4
01/21/12	12:00:05	20.0	37.0	356.2	232.8	777.5	226.3	44.3	236.7	45.6	59.7
01/21/12	13:00:05	4.4	36.6	149.7	234.7	240.8	232.8	34.3	233.6	46.0	47.7
01/21/12	14:00:05	6.7	36.0	36.3	232.9	50.2	231.8	27.8	240.2	45.9	42.6
01/21/12	15:00:05	15.6	35.6	40.7	229.5	33.9	230.2	28.2	252.8	43.2	52.9
01/21/12	16:00:05	6.3	34.5	23.0	228.0	41.8	229.7	29.0	231.0	39.5	39.5
01/21/12	17:00:05	7.5	32.8	22.7	227.5	8.0	229.6	22.9	216.5	40.5	31.5
01/21/12	18:00:05	2.2	30.7	13.5	226.6	5.2	228.7	21.2	221.9	40.2	28.2
01/21/12	19:00:05	4.7	28.4	9.9	226.7	12.7	228.6	19.8	223.5	38.4	27.2
01/21/12	20:00:05	1.2	26.6	19.1	226.9	14.0	228.7	21.2	228.9	38.6	27.7
01/21/12	21:00:05	4.1	25.0	21.4	226.7	24.2	228.5	19.8	244.4	37.7	26.4
01/21/12	22:00:05	7.3	22.8	20.2	226.5	23.5	228.8	20.0	254.6	37.7	27.7
01/21/12	23:00:05	6.1	19.8	14.3	225.8	20.7	228.4	19.2	270.7	36.9	28.9
01/22/12	0:00:05	2.9	18.2	3.0	223.4	3.9	226.1	18.0	297.8	34.0	24.9



Arrow indictes avg. wind direction between 0700 and 1500 on Jan. 21st.

Arrow points in direction wind was coming from

Legend

Recently Disturbed Area

LNCM Boundary

Air Monitoring Network

Roughened Areas

Scoria Pit and Piles

Revision	Date

SCHOOL CREEK MINE
Caller Box 3045 Gillette, Wyoming 82717-3045

Exceptional Event Report
Area Map

Permit CT-6445

Peabody Energy

Design By:	A. Stephens	Scale:	1"=4000
Drawn By:	A. Stephens	C.I.:	N/A
Check By:	A. Stephens	Sheet:	1 of 1
Date Drawn:	Feb. 15, 2012	File:	s excptnl evnts area map 12012

Stephens, Adam

From: Kirk Billings [kirk.billings@wyo.gov]
Sent: Wednesday, June 27, 2012 3:57 PM
To: Stephens, Adam
Cc: Josh Nall; Brad Steidley
Subject: School Creek Exceptional Event Packet for 1/21/12

Follow Up Flag: Follow up
Flag Status: Flagged

Brad Steidley (AQD Compliance), Josh Nall (AQD Permitting) and I met today to discuss School Creek's Exceptional Event packet for the 1/21/12 exceedances.
We have some questions we'd like to have answered before we make our final decision on flagging the data.

1. Please clarify what time the original alarm was triggered by samplers and the time that School Creek's response to the alarm started.
2. Please include a wind rose for the day.
3. What time did the scoria pile watering start?

Your response is requested on or before Friday, July 13, 2012.
--

Kirk Billings
Wyoming Department of Environmental Quality
Air Quality Division, Monitoring Group
(307) 335-6963 (desk)
(307) 438-2470 (cell)
kirk.billings@wyo.gov

E-Mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

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July 9, 2012

Kirk Billings
Wyoming Department of Environmental Quality
Air Quality Division, Monitoring Group
510 Meadowview Drive
Lander, Wyoming 82520

RE: Request for additional information, NEAP package for January 21, 2012, School Creek Mine

Dear Mr. Billings,

The attached documentation is submitted in response to your request for additional information on June 27, 2012 regarding the January 21, 2012 NEAP package for School Creek Mine.

Please find the attached documentation including; Attachment 1, Figure 1

If you need any additional information please feel free to contact me at (307) 464-4502

Regards,

Adam Stephens
School Creek Mine

Attachments: Attachment 1, Figure 1

Cc: B. Hansen (NARM), S. Hammond (NARM), A. Keyfauver (AQD), B. Steidley (AQD), D. Potter (AQD), J. Nall (AQD)
file

Attachment 1

Brad Steidley (AQD Compliance), Josh Nall (AQD Permitting) and I met today to discuss School Creek's Exceptional Event packet for the 1/21/12 exceedances.
We have some questions we'd like to have answered before we make our final decision on flagging the data.

1. Please clarify what time the original alarm was triggered by samplers and the time that School Creek's response to the alarm started.

The School Creek Mine Air Quality Action Plan states that "When hourly values are found to be above 250ug/m3" or "the 24-hour values are above 75ug/m3 " an automated alarm system will sound. The SC-2 and SC-3 samplers each recorded 1 hour values greater than 250ug/m3 at 0800MST. At 0810MST field supervisors were notified of the high reading and took immediate action to identify and control the dust.

2. Please include a wind rose for the day.

See Figure 1

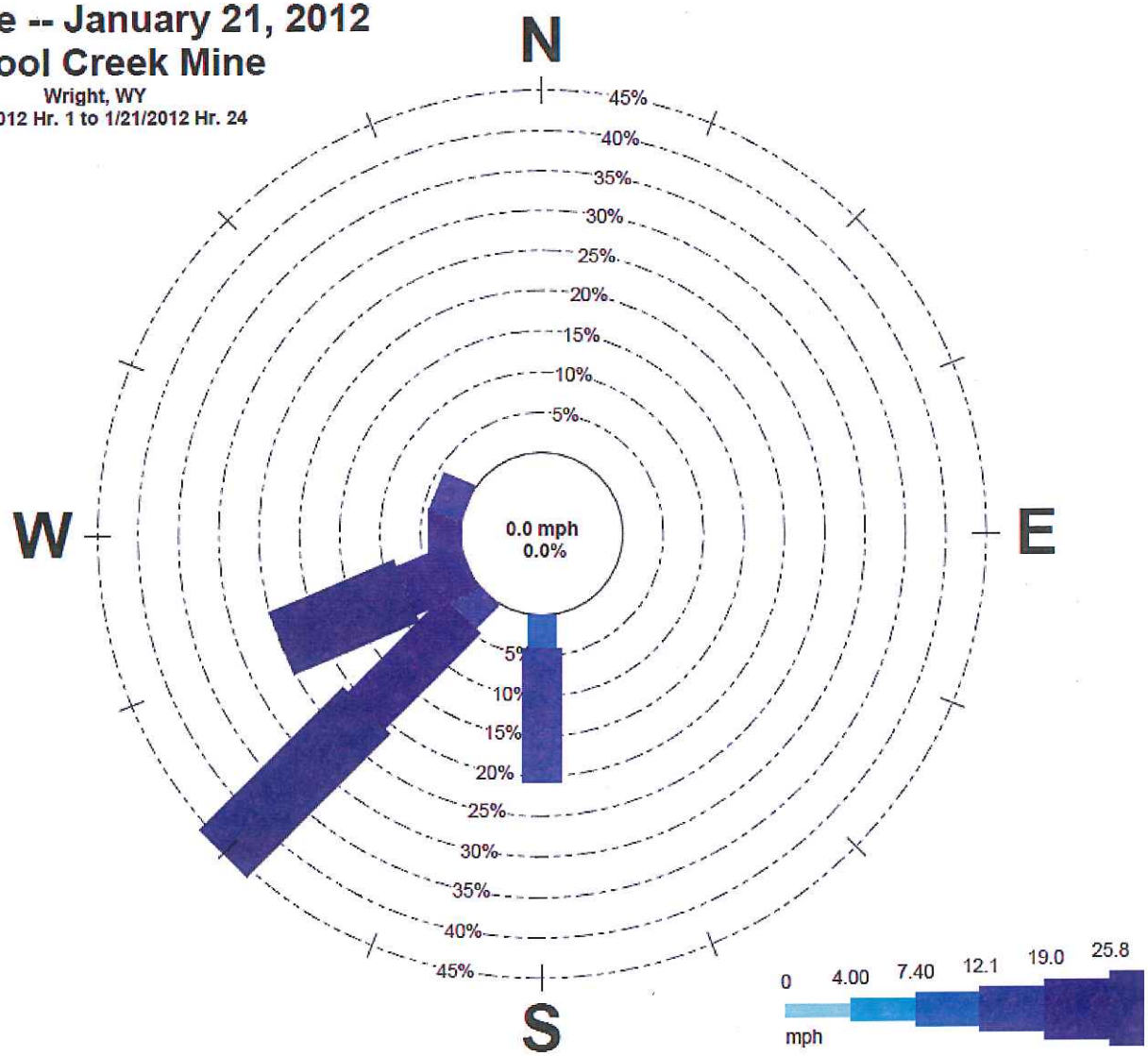
3. What time did the scoria pile watering start?

A water truck was dispatched to begin watering the scoria pile at around 1200MST.

Exhibit 1

Wind Rose -- January 21, 2012
School Creek Mine

Wright, WY
1/21/2012 Hr. 1 to 1/21/2012 Hr. 24



10-JUL-12 -- MMS DISPATCH Report System -- 09:11:33

Dragline Status Summary by Equipment
20-JAN-12 Night Shift to 21-JAN-12 Night Shift

Status Changes for Draglines

Type: BE 2570W

Equipment	Date	Time	Duration	Status	Code	Category	Reason	Comments
120	20-JAN-12	18:45:00	2:13:43	Ready	1	Ready	PRODUCTION	
		20:58:43	0:11:11	Delay	504	Delay	MANEUVERING	
		21:09:54	1:22:33	Ready	1	Ready	PRODUCTION	
		22:32:27	0:05:17	Delay	504	Delay	MANEUVERING	
		22:37:44	1:19:51	Ready	1	Ready	PRODUCTION	
		23:57:35	0:15:01	Delay	504	Delay	MANEUVERING	
	21-JAN-12	00:12:36	2:10:11	Ready	1	Ready	PRODUCTION	
		02:22:47	0:22:30	Delay	504	Delay	MANEUVERING	
		02:45:17	0:09:33	Ready	1	Ready	PRODUCTION	
		02:54:50	3:37:53	Down	1121	Down	DRAG/ HOIST ROPES	BROKE ROPE
		06:32:43	0:00:12	Standby	910	Standby	RETURN FROM MAINTENANCE	
		06:32:55	0:06:37	Delay	506	Delay	SHIFTCHANGE/SFTY INSPEC	
		06:39:32	1:56:08	Ready	1	Ready	PRODUCTION	
		08:35:40	0:11:35	Delay	504	Delay	MANEUVERING	
		08:47:15	5:19:04	Ready	1	Ready	PRODUCTION	
		14:06:19	0:00:07	Delay	504	Delay	MANEUVERING	
		14:06:26	0:56:44	Standby	912	Standby	DEADHEAD	
		15:03:10	0:40:52	Ready	1	Ready	PRODUCTION	
		15:44:02	0:10:04	Delay	504	Delay	MANEUVERING	
		15:54:06	1:52:30	Ready	1	Ready	PRODUCTION	
		17:46:36	0:09:36	Delay	504	Delay	MANEUVERING	
		17:56:12	0:41:01	Ready	1	Ready	PRODUCTION	
		18:37:13	0:01:37	Delay	506	Delay	SHIFTCHANGE/SFTY INSPEC	
		18:38:50	1:04:39	Ready	1	Ready	PRODUCTION	
		19:43:29	0:05:02	Delay	504	Delay	MANEUVERING	
		19:48:31	2:11:08	Ready	1	Ready	PRODUCTION	
		21:59:39	0:07:00	Delay	521	Delay	DOZING/PAD BUILDING	
		22:06:39	0:06:51	Delay	504	Delay	MANEUVERING	
		22:13:30	4:33:51	Ready	1	Ready	PRODUCTION	
	22-JAN-12	02:47:21	0:11:02	Delay	504	Delay	MANEUVERING	
		02:58:23	2:05:20	Ready	1	Ready	PRODUCTION	
		05:03:43	0:32:12	Delay	504	Delay	MANEUVERING	
		05:35:55	0:03:03	Ready	1	Ready	PRODUCTION	
		05:38:58	0:14:48	Delay	539	Delay	MANEUVER PREPAK	
		05:53:46	0:43:16	Ready	1	Ready	PRODUCTION	
		06:37:02	0:07:58	Delay	506	Delay	SHIFTCHANGE/SFTY INSPEC	
Subtotal			36:00:00					

10-JUL-12 -- MMS DISPATCH Report System -- 09:09:00

Dragline Status Summary by Equipment
20-JAN-12 Night Shift to 21-JAN-12 Night Shift

Status Changes for Draglines

Type: BE 2570W

Equipment	Date	Time	Duration	Status	Code	Category	Reason	Comments
121	20-JAN-12	18:45:00	0:04:12	Shiftcha	506	0		
		18:49:12	0:23:04	Ready	1	Ready	PRODUCTION	
		19:12:16	0:08:01	Delay	521	Delay	DOZING/PAD BUILDING	
		19:20:17	0:09:49	Delay	504	Delay	MANEUVERING	
		19:30:06	0:07:40	Delay	538	Delay	OPERATIONAL DECISION	NO CALL
		19:37:46	0:06:31	Delay	504	Delay	MANEUVERING	
		19:44:17	5:49:25	Ready	1	Ready	PRODUCTION	
	21-JAN-12	01:33:42	0:22:46	Delay	504	Delay	MANEUVERING	
		01:56:28	1:50:01	Ready	1	Ready	PRODUCTION	
		03:46:29	0:04:57	Delay	504	Delay	MANEUVERING	
		03:51:26	1:14:44	Ready	1	Ready	PRODUCTION	
		05:06:10	0:27:22	Delay	504	Delay	MANEUVERING	
		05:33:32	0:20:48	Ready	1	Ready	PRODUCTION	
		05:54:20	2:53:51	Down	1132	Down	PROPEL ELEC	LOST POWER
		08:48:11	0:11:59	Down	1134	Down	HOIST ELEC	HOIST BRAKE
		09:00:10	0:02:24	Standby	910	Standby	RETURN FROM MAINTENANCE	
		09:02:34	0:24:34	Ready	1	Ready	PRODUCTION	
		09:27:08	0:07:59	Down	1115	Down	HOIST MECH	MAC VALVE #3 HOIST
		09:35:07	0:00:18	Standby	910	Standby	RETURN FROM MAINTENANCE	
		09:35:25	0:09:01	Ready	1	Ready	PRODUCTION	
		09:44:26	0:06:45	Delay	504	Delay	MANEUVERING	
		09:51:11	0:17:24	Ready	1	Ready	PRODUCTION	
		10:08:35	0:06:51	Down	1127	Down	SWING MECH	LOST SWING
		10:15:26	0:07:53	Standby	910	Standby	RETURN FROM MAINTENANCE	
		10:23:19	2:22:26	Ready	1	Ready	PRODUCTION	
		12:45:45	0:01:38	Delay	521	Delay	DOZING/PAD BUILDING	
		12:47:23	0:02:46	Delay	504	Delay	MANEUVERING	
		12:50:09	2:06:29	Ready	1	Ready	PRODUCTION	
		14:56:38	0:17:05	Delay	504	Delay	MANEUVERING	
		15:13:43	0:15:01	Ready	1	Ready	PRODUCTION	
		15:28:44	0:12:04	Delay	504	Delay	MANEUVERING	
		15:40:48	1:45:07	Ready	1	Ready	PRODUCTION	
		17:25:55	0:19:00	Delay	504	Delay	MANEUVERING	
		17:44:55	0:47:03	Ready	1	Ready	PRODUCTION	
		18:31:58	0:48:10	Delay	506	Delay	SHIFTCHANGE/SFTY INSPEC	
		19:20:08	0:21:42	Ready	1	Ready	PRODUCTION	
		19:41:50	0:28:29	Delay	504	Delay	MANEUVERING	
		20:10:19	0:45:13	Ready	1	Ready	PRODUCTION	
		20:55:32	0:15:17	Delay	504	Delay	MANEUVERING	
		21:10:49	1:34:19	Ready	1	Ready	PRODUCTION	
		22:45:08	0:06:01	Delay	504	Delay	MANEUVERING	
		22:51:09	2:12:10	Ready	1	Ready	PRODUCTION	
	22-JAN-12	01:03:19	0:04:50	Delay	521	Delay	DOZING/PAD BUILDING	
		01:08:09	0:22:33	Delay	504	Delay	MANEUVERING	
		01:30:42	1:01:09	Ready	1	Ready	PRODUCTION	
		02:31:51	0:05:15	Delay	504	Delay	MANEUVERING	
		02:37:06	1:05:24	Ready	1	Ready	PRODUCTION	
		03:42:30	0:15:24	Delay	504	Delay	MANEUVERING	
		03:57:54	2:42:36	Ready	1	Ready	PRODUCTION	
		06:40:30	0:04:30	Delay	506	Delay	SHIFTCHANGE/SFTY INSPEC	
Subtotal			36:00:00					

10-JUL-12 -- MMS DISPATCH Report System -- 09:10:13

Dragline Status Summary by Equipment
20-JAN-12 Night Shift to 21-JAN-12 Night Shift

Status Changes for Draglines

Type: Marion 8200M

Equipment	Date	Time	Duration	Status	Code	Category	Reason	Comments
154	20-JAN-12	18:45:00	5:56:46	Ready	1	Ready	PRODUCTION	
	21-JAN-12	00:41:46	0:16:01	Delay	504	Delay	MANEUVERING	
		00:57:47	5:18:39	Ready	1	Ready	PRODUCTION	
		06:16:26	0:20:53	Delay	506	Delay	SHIFTCHANGE/SFTY INSPEC	
		06:37:19	1:05:24	Ready	1	Ready	PRODUCTION	
		07:42:43	0:23:01	Down	1120	Down	BOOM/MAST/A FRAME	INSPECTION
		08:05:44	0:00:18	Standby	910	Standby	RETURN FROM MAINTENANCE	
		08:06:02	0:33:02	Ready	1	Ready	PRODUCTION	
		08:39:04	0:13:16	Delay	531	Delay	OPERATOR CHECKS	
		08:52:20	0:34:18	Ready	1	Ready	PRODUCTION	
		09:26:38	0:34:54	Delay	503	Delay	BLAST SHOOTING	
		10:01:32	1:20:36	Ready	1	Ready	PRODUCTION	
		11:22:08	2:31:32	Standby	904	Standby	WEATHER	
		13:53:40	3:37:41	Ready	1	Ready	PRODUCTION	
		17:31:21	0:19:04	Delay	504	Delay	MANEUVERING	
		17:50:25	0:41:46	Ready	1	Ready	PRODUCTION	
		18:32:11	0:03:36	Delay	506	Delay	SHIFTCHANGE/SFTY INSPEC	
		18:35:47	0:06:41	Delay	524	Down	BUCKET	CHECKS
		18:42:28	11:42:21	Ready	1	Ready	PRODUCTION	
	22-JAN-12	06:24:49	0:00:18	Delay	504	Delay	MANEUVERING	
		06:25:07	0:18:46	Delay	506	Delay	SHIFTCHANGE/SFTY INSPEC	
		06:43:53	0:01:07	Ready	1	Ready	PRODUCTION	
Subtotal			36:00:00					

Hart, Adam

From: Dinsmoor, Phil
Sent: Friday, May 10, 2013 12:44 PM
To: Hart, Adam
Subject: FW: New Draft guidance documents on implementation of exceptional events rule

---

From: Cara Keslar [mailto:cara.keslar@wyo.gov]
Sent: Monday, July 16, 2012 7:54 AM
To: Bracken, Korby; peter.wolberg@anadarko.com; Kyle.wendtland@riotinto.com; Monica Williams; dhough@archcoal.com; Jerry Menge; erobinson@aecoal.com; Tim.Mordhorst@blackhillscorp.com; Jon Gross; Laura Ackermann; Allison.kalpin@cldph.com; Cugnetti, Michael T.; matthew.crowe@fmc.com; Tina M. (EB) 3302 Hutt; hunderberg@alphanr.com; lbruder@genchem.com; mandrews@mountaincement.com; Goldsmith, Jeffrey; LCherny@ocichemical.com; Gillespie, Dale; jason.murdock@pacificorp.com; Smith, Jim P.; Basko, Rose; Stephens, Adam; Darin.Howe@simplot.com; wbyrd@sinclairoil.com; Michelle Serres; danielle.knaphus@solvay.com; dkline@archcoal.com; Lecia Craft; Beth Goodnough; Mueller, Stevan; Warren, Michael; lane.larsen; Dinsmoor, Phil
Cc: Amber Potts; Kirk Billings; Steve Dietrich; Darla Potter; Tanner Shatto; Chris Hanify; Glenn Spangler; Tony Hoyt; Gregory Meeker; Robert Gill
Subject: New Draft guidance documents on implementation of exceptional events rule

Dear industrial monitoring contacts,

As you may know, EPA has released new guidance for comment on implementation of the exceptional events rule titled "Draft Guidance to Implement Requirements for the Treatment of Air Quality Monitoring Data Influenced by Exceptional Events" including attachments Draft exceptional Events Rule Frequently Asked Questions, Guidance on the Preparation of Demonstrations in Support of Requests to Exclude Ambient Air Quality Data Affected by High Winds under the Exceptional Event Rule, and their request for comments.

With this release, EPA has pursued a more formal comment process that ends on September 4, 2012. The CFR notice and guidance documents can be found here: http://www.epa.gov/ttn/analysis/exevents.htm

My last email (attached) discussed EPA's use of these guidance documents to evaluate demonstration packages. EPA Region 8 has confirmed that they will now be following the newest set of guidance when they evaluate demonstration packages citing the federal register notice " The EPA has also begun applying the principles in the draft guidance documents as we receive exceptional event submittal packages." (page 39960)

The Air Quality Division (AQD) will continue to judge exceedance demonstrations in accordance with the Exceptional Events Rule and Natural Events Action Plan (NEAP), where applicable, and the notification procedures letter that was sent out by Steve Dietrich in July of 2011. The AQD will also rely heavily on the FAQ's when questions arise while evaluating demonstrations. However, seeing as that EPA has the ultimate authority to concur or not concur on these exceptional events, the AQD strongly suggests that facilities familiarize themselves with all of the EPA documents listed above and add elements to strengthen the demonstration as needed.

Due to the large volume of exceedances during 2012 many exceptional event demonstration packages have already been submitted. If facilities have packages currently in review by the AQD and wish to update/add information, the AQD will work with the facilities to update their packages as timelines allow. If you have questions, please contact me or your Monitoring Section Project Manager (Amber Potts or Kirk Billings).

We appreciate your cooperation in this matter,
Cara

Cara Keslar
Monitoring Section Supervisor
Wyoming DEQ - Air Quality Division
(307) 777-8684 (office)
(307) 286-2383 (cell)
cara.keslar@wyo.gov

---------- Forwarded message ----------
From: **Joseph Delwiche** <Delwiche.Joseph@epamail.epa.gov>
Date: Mon, Feb 6, 2012 at 10:14 AM
Subject: In re overview - draft guidance documents on implementation of exceptional events rule
To: Cara Keslar <cara.keslar@wyo.gov>
Cc: Richard Payton <Payton.Richard@epamail.epa.gov>

Cara,

As you know, the Western States Air Resources Council was among the organizations that commented to EPA on the March 22, 2007 "Treatment of Data Influenced by Exceptional Events; Final Rule," and WESTAR has continued to comment on issues and developments connected with the rule. EPA has likewise engaged air quality organizations regarding the rule.

In 2011, EPA made known to state, local and tribal air quality agencies information on preparing exceptional event demonstrations. The information included drafts of "Guidance on the Preparation of Demonstrations in Support of Requests to Exclude Ambient Air Quality Data Affected by High Winds under the Exceptional Events Rule," a question and answer document and an overview. As stated by EPA in presenting this information for comment by state, local and tribal organizations, EPA "anticipates following the draft guidance during the review period." Thus EPA Region 8 understands that we are to follow the existing draft guidance at this time and to continue following the draft guidance as revised drafts are circulated.

Please let us know if you have any questions about this.

Joe Delwiche
EPA Region 8

303 312-6448

E-Mail to and from me, in connection with the transaction
of public business, is subject to the Wyoming Public Records
Act and may be disclosed to third parties.

From:	Dinsmoor, Phil
To:	Hart, Adam
Subject:	2012 Exceptional Events Demonstrations
Date:	Friday, May 10, 2013 12:45:37 PM

From: Dinsmoor, Phil
Sent: Friday, August 24, 2012 3:14 PM
To: Cara Keslar (ckesla@wyo.gov)
Cc: Stephens, Adam; Goldsmith, Jeffrey
Subject: 2012 Exceptional Events Demonstrations

Cara

I received your July 16 email and subsequent letter dated August 17 regarding re-evaluation of the January 21, 2012 exceedance package for NARM monitor RO-1. We are diligently working to complete a review of the EPA guidance, supply comments as appropriate and then to update the package accordingly. Because of the volume EPA's guidance materials, simply getting through all the materials will not be completed until early September. The guidance identifies data and data evaluations that were not previously performed and that I do not believe can be completed within a 30-day period, and certainly not the 3 weeks afforded in your letter. Please consider this request for an extension until November 1st to submit a re-evaluation of this exceedance package.

As we discussed today, Peabody also wishes to re-evaluate the January 21, 2012 exceedance packages for School Creek Mine's SC-2 and SC-3 monitors. We are in the same situation and request your concurrence to re-evaluate these packages by November 1st.

Thank you for your consideration.

Phil Dinsmoor
Director Environmental Services, PRB
(307)687-3938

Peabody Powder River Operations, LLC
Caller Box 3034
Gillette, Wyoming 82717-3034
(307) 687-3900

November 21, 2012

Cara Keslar
Monitoring Section Supervisor
Air Quality Division
Wyoming Department of Environmental Quality
122 West 25th Street
Cheyenne, WY 82002

RE: School Creek Mine;
High Wind Event Demonstration – SC-3 PM_{10} Monitor

Dear Cara:

On January 21, 2012, the SC-3 PM_{10} monitor operated by Peabody near its School Creek Mine recorded an exceedance of the 24-hour PM_{10} NAAQS. In keeping with the AQD's guidance, Peabody submitted an exceptional event documentation package related to that exceedance to the AQD Monitoring Section in February 2012, and then submitted supplemental materials in July 2012 in response to AQD's request for additional information.

As you are well aware, in July 2012 EPA published voluminous draft guidance to implement requirements for the treatment of air quality monitoring data influenced by exceptional events. Subsequently, with your email of July 16, 2012, the AQD advised industrial monitoring contacts to familiarize themselves with all of the EPA guidance and "...add elements to strengthen the demonstration as needed." Accordingly, the AQD committed to "work with facilities to update their packages as timelines allow."

Against that background, Peabody first wishes to thank the AQD for providing us with the opportunity and much-needed time to "get up to speed" with EPA's recent draft guidance. Informed by that new guidance, and consistent with the AQD's Natural Events Action Plan and EPA's Exceptional Events Rule, Peabody examined our earlier submittals and then made extensive revisions and additions to that original exceptional event package. Those amendments to both the content and format of the earlier submittals were so substantive that Peabody respectfully now submits the enclosed "Demonstration of Exceptional Event – High Winds" as a stand-alone replacement for the original exceptional event package involving the subject exceedance.

Again, Peabody thanks the AQD for its willingness not only to allow industrial monitoring facilities the time to revise their processes and procedures for the preparation of exceptional event demonstrations, but also to revise their prior 2012 submittals accordingly. We believe the enclosed High Wind Event demonstration thoroughly and appropriately addresses the requirements and principles of the NEAP and the EER as well as the enhanced approaches suggested by new federal guidance. In addition, we have endeavored to tailor our submittal to be more responsive to the information needs and requests of the Air Quality Division.

Peabody Powder River Operations, LLC
Caller Box 3034
Gillette, Wyoming 82717-3034
(307) 687-3900

In the event that the AQD either has any questions about the enclosure or requires further information, please do not hesitate to contact me or Jeffrey Goldsmith at your convenience. Jeffrey can be reached at the mine (307) 464-4787, or by email (jgoldsmith@peabodyenergy.com). My phone number is (307) 687-3938 and email is pdinsmoor@peabodyenergy.com.

Sincerely,

Philip C. Dinsmoor
Director, Environmental Services
Peabody Energy

Enclosure

ec: J. Goldsmith - NARM

SCHOOL CREEK MINE

DEMONSTRATION OF EXCEPTIONAL EVENT – HIGH WINDS
SC-3 PM_{10} MONITOR
JANUARY 21, 2012

PREPARED FOR:
WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
NOVEMBER 21, 2012

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INTRODUCTION

The Air Quality Division (AQD) of the Wyoming Department of Environmental Quality (DEQ) requires Peabody to operate an approved ambient PM_{10} monitoring network at its School Creek Mine (SCM) to demonstrate compliance with the ambient PM_{10} standards in Chapter 2, Section 2 of the Wyoming Air Quality Standards and Regulations (WAQSR). On January 21, 2012, the Mine's SC-3 monitor [a tapered element oscillating microbalance (TEOM)] near the SCM measured a 24-hour average PM_{10} concentration of 226 µg/m^3, thereby exceeding the 24-hour ambient PM_{10} standard of 150 µg/m^3. The purpose of this document is to demonstrate that this measured exceedance was caused by a high wind event.

BACKGROUND

Peabody School Creek Mining, LLC operates the School Creek Mine, a surface coal mine located in the southern portion of the Powder River Basin (PRB) approximately twelve miles east-southeast of Wright, Wyoming. School Creek Mine includes an existing pit (hereafter referred to as the Bobcat Pit) and related reclamation, a new pit development area (hereafter referred to as the Holmes Creek Pit) and an existing shop and plant facility. The Bobcat Pit and associated reclamation area was purchased by Peabody in 2006. Rather than reopening the Bobcat Pit, Peabody decided to start a new boxcut in a lower strip-ratio area. On the day of the exceedance, the major mining equipment at SCM consisted of a single overburden shovel and a fleet of 3 haul trucks with capacities of 400 tons. SCM also operates 1 water truck and a fleet of support equipment including dozers, scrapers, graders, service trucks and light-duty vehicles.

To develop the Holmes Creek Pit, topsoil stripping and construction activities had taken place over the 3 months prior to the day of the measured exceedance. Recently disturbed areas included topsoil-stripped areas for a scoria pit, out-of-pit overburden stockpiles and a coal pit boxcut. In addition, other mining support areas such as haul roads, access roads and drainage control structures had been stripped of topsoil and were under construction or had been recently completed.

In 2007 DEQ began implementation of a Natural Events Action Plan (NEAP) for coal mines of the PRB. Based on the U.S. Environmental Protection Agency's (EPA's) Natural Events Policy, Wyoming's NEAP recognizes that high ambient concentrations of PM_{10} may be caused by an

uncontrollable natural event that results in particles such as fugitive dust or smoke becoming entrained in ambient air. The NEAP further provides that a measured exceedance of an ambient PM_{10} standard in the PRB due to such natural events need not be considered, i.e., may be "excluded," when characterizing ambient PM_{10} levels in that area, provided the measured exceedance is demonstrated to be caused by a natural event. Finally, for a measured exceedance to be caused by a natural event, the NEAP requires that any anthropogenic sources of dust contributing significantly to the measured PM_{10} exceedance must have been controlled during that event by a three-tiered program of control measures consisting of best available control technology (BACT), best available control measures (BACM) and appropriate, source-specific reactionary control measures.

Also in 2007, EPA promulgated its Exceptional Events Rule (EER). Under the EER, a demonstration to justify exclusion of ambient air monitoring data from regulatory determinations related to exceedances must provide evidence that:

(A) The event satisfies the criteria set forth in 40 C.F.R. § 50.1(j) that:
- (i) the event affects air quality;
- (ii) the event is not reasonably controllable or preventable;
- (iii) the event is caused by human activity that it unlikely to recur at a particular location *or* the event is a natural event; and
- (iv) the event is determined by the Administrator in accordance with 40 C.F.R. § 50.14 to be an exceptional event.

(B) There is a clear causal relationship between the measurement under consideration and the event that is claimed to have affected the air quality in the area;

(C) The event is associated with a measured concentration in excess of normal historical fluctuations, including background; and

(D) There would have been no exceedance or violation but for the event.

EPA has issued draft guidance to assist States in their administration of the EER by providing examples of how each of the above elements of an exceptional event may be demonstrated.

DEMONSTRATION OF EXCEPTIONAL EVENT AT SCM ON JANUARY 21, 2012

On January 21, 2012, SCM's ambient PM_{10} monitor designated as "SC-3" recorded a 24-hour average PM_{10} concentration of 226 $\mu g/m^3$, thereby exceeding the ambient 24-hour PM_{10}

standard of 150 µg/m^3. The purpose of this document is to demonstrate that this monitored exceedance was caused by an exceptional event. Peabody's conclusion that this exceedance was due to a high wind event follows from a weight-of-evidence analysis as suggested by EPA. Consistent with EPA's policy that the appropriate level of supporting documentation for an exceptional event demonstration will vary on a case-by-case basis, Peabody strongly believes the documentation and analyses provided herein are more than sufficient to demonstrate that the exceedance in question was caused by a high wind event.

A. The Event at SCM on January 21, 2012 Was a High Wind Event

While developing the NEAP for PRB coal mines, AQD commissioned a study of the relationship between meteorological conditions and ambient PM_{10} concentrations in the PRB. Among other things, that study found that the influence of wind speed on PM_{10} concentrations in the PRB increases as wind speed increases. In particular, that study found that wind speed is the dominant predictor of ambient PM_{10} concentrations in the PRB at wind speeds in excess of 20 mph.[1]

According to DEQ, a "high wind event" occurs in the PRB "when hourly average wind speeds reach or exceed 20 mph."[2] EPA has explained further that "[g]enerally, the EPA will accept that high winds could be the cause of a high 24-hour average PM_{10} or $PM_{2.5}$ concentration if there was *a least one full hour* in which the hourly average wind speed was above the area-specific high wind threshold.[3]

SCM operates a 10-meter meteorological tower (SCMET-1) for on-site measurement of wind speed, wind direction, ambient temperature and precipitation amount. However, the SC-3 monitor is closer to North Antelope Rochelle Mine's (NARM's) meteorological station (PRCC-1) than to the School Creek's SCMET-1. Consequently, meteorological conditions at the SC-3 monitor generally are better represented by the meteorological data collected at NARM's PRCC-1.

[1] NEAP, Appendix D ("Statistical Analyses of the Influence of Wind Speed on PM_{10} Concentration in the Powder River Basin").
[2] NEAP at 10.
[3] EPA, Draft High Winds Guidance at 40.

For that reason, PRCC-1 data has been used in this demonstration (1) to show that a high wind event occurred on the day of the exceedance and (2) to identify the emission source areas likely to have contributed significantly to that measured exceedance at SC-3. PRCC-1 meteorological data on an hourly basis as well as hourly average PM_{10} concentration at the SC-3 monitor are presented in Table 1. Included as Figure 1 is the wind rose for PRCC-1 which visually indicates the predominant wind speed and direction on January 21, 2012.

TABLE 1

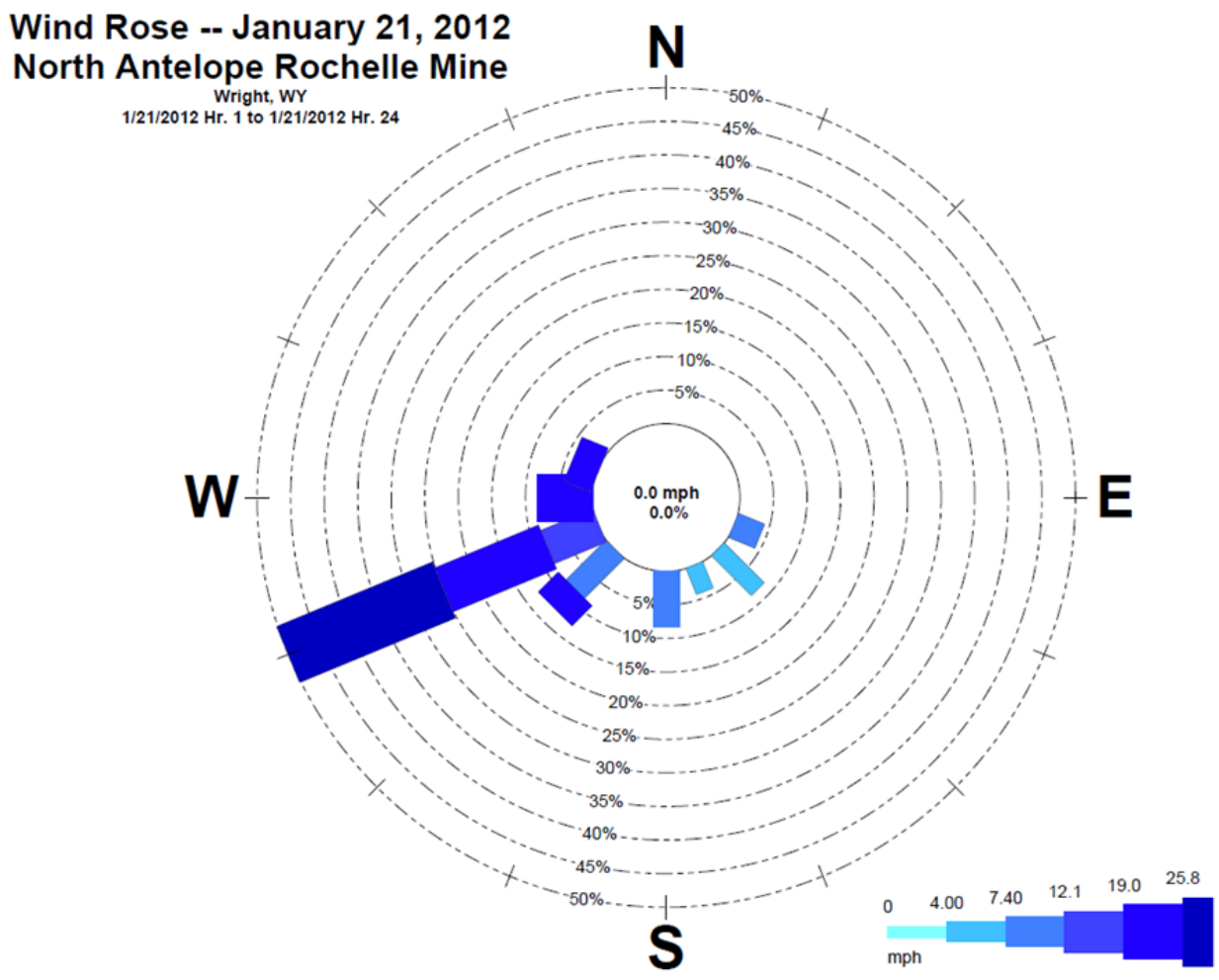
PRCC-1 METEOROLOGICAL DATA AND SC-3 MONITOR DATA FOR JANUARY 21, 2012

Date	Time	Wind Speed (mph)	Wind Direction (°)	Wind Gust Speed (mph)	Hourly PM_{10} Conc. (µg/m^3 @STP)
01/21/12	1:00	8	112	10	6
01/21/12	2:00	6	140	11	10
01/21/12	3:00	6	155	11	10
01/21/12	4:00	8	176	13	13
01/21/12	5:00	6	138	10	13
01/21/12	6:00	8	187	25	14
01/21/12	7:00	23	234	43	160
01/21/12	8:00	30	246	48	398
01/21/12	9:00	36	244	57	889
01/21/12	10:00	35	243	57	1509
01/21/12	11:00	43	248	63	1269
01/21/12	12:00	34	245	56	778
01/21/12	13:00	32	245	53	241
01/21/12	14:00	21	258	36	50
01/21/12	15:00	20	259	43	34
01/21/12	16:00	25	241	42	42
01/21/12	17:00	10	215	23	8
01/21/12	18:00	9	229	19	5
01/21/12	19:00	17	238	30	13
01/21/12	20:00	18	239	28	14
01/21/12	21:00	21	252	29	24
01/21/12	22:00	22	260	36	24
01/21/12	23:00	24	273	34	21
01/22/12	00:00	20	291	30	4

Table 1 confirms that hourly average wind speeds reached or exceeded 20 mph during 14 hours of the day, including 10 straight hours beginning in the morning and continuing into the afternoon, and a second episode of 4 straight hours at the end of the day. During 5 of these hours, hourly average wind speeds equaled or exceeded 30 mph. Notably, during 9 hours of the day wind gusts exceeded 40 mph, reaching a maximum of 63 mph.

Because wind speeds on January 21, 2012 equaled or exceeded 20 mph for numerous hours, a high wind event clearly occurred on that day.

Figure 1



B. Evidence Indicates That High Winds Caused the Measured PM_{10} Exceedance

1. Spatial Relationships

Peabody has performed an analysis of the spatial relations of the SC-3 monitor, the predominant wind direction and the sources of particulate emissions likely to have contributed significantly to the measured PM_{10} concentration on January 21, 2012.

Table 1 confirms that hourly average wind directions changed little during the day's high winds. In particular, high winds blew consistently from the west-southwest, i.e., confined within an angle between 234º and 260º. As demonstrated in Exhibit 1, constructing a "reverse trace" of those predominant directions of high winds, starting from the SC-3 monitor, identifies the upwind sources of PM_{10} that were likely significant contributors to the PM_{10} NAAQS exceedance measured at SC-3 on January 21, 2012. . More specifically, the reverse trace identifies the following likely significant contributors to the exceedance:

- Active mining areas in NARM's East Pits;
- Disturbed areas associated with NARM's East Pits; and
- Undisturbed areas between NARM's East Pits and the SC-3 monitor.

Furthermore, Exhibit 1 confirms that the persistent direction of high winds on January 21 indicates that mining activities and disturbed lands at School Creek Mine were not likely significant contributors to the measured exceedance by the SC-3 monitor on that day.

Closer scrutiny of the hourly data within Table 1 reveals the presence of an "exceptionally high" wind event nested within the high wind event day of January 21. That is, the hourly average values for wind directions reported from 0900-1200 on January 21, 2012 varied by only 5º (243º-248º) while hourly average wind speeds between 34-43 mph for that period were considerably above the PRB's high wind threshold. In addition, maximum hourly wind gusts over that same period ranged between 56-63 mph.

During those "exceptionally high" wind speeds coming from the same direction for 4 straight hours, hourly average PM_{10} concentrations measured at SC-3 were 889, 1509, 1269 and 778 $\mu g/m^3$. There can be little doubt that contributions of wind-blown particulate matter to the SC-3

monitor during those 4 particular hours are primarily responsible for that monitor's measured exceedance of the 24-hour PM_{10} NAAQS on January 21.

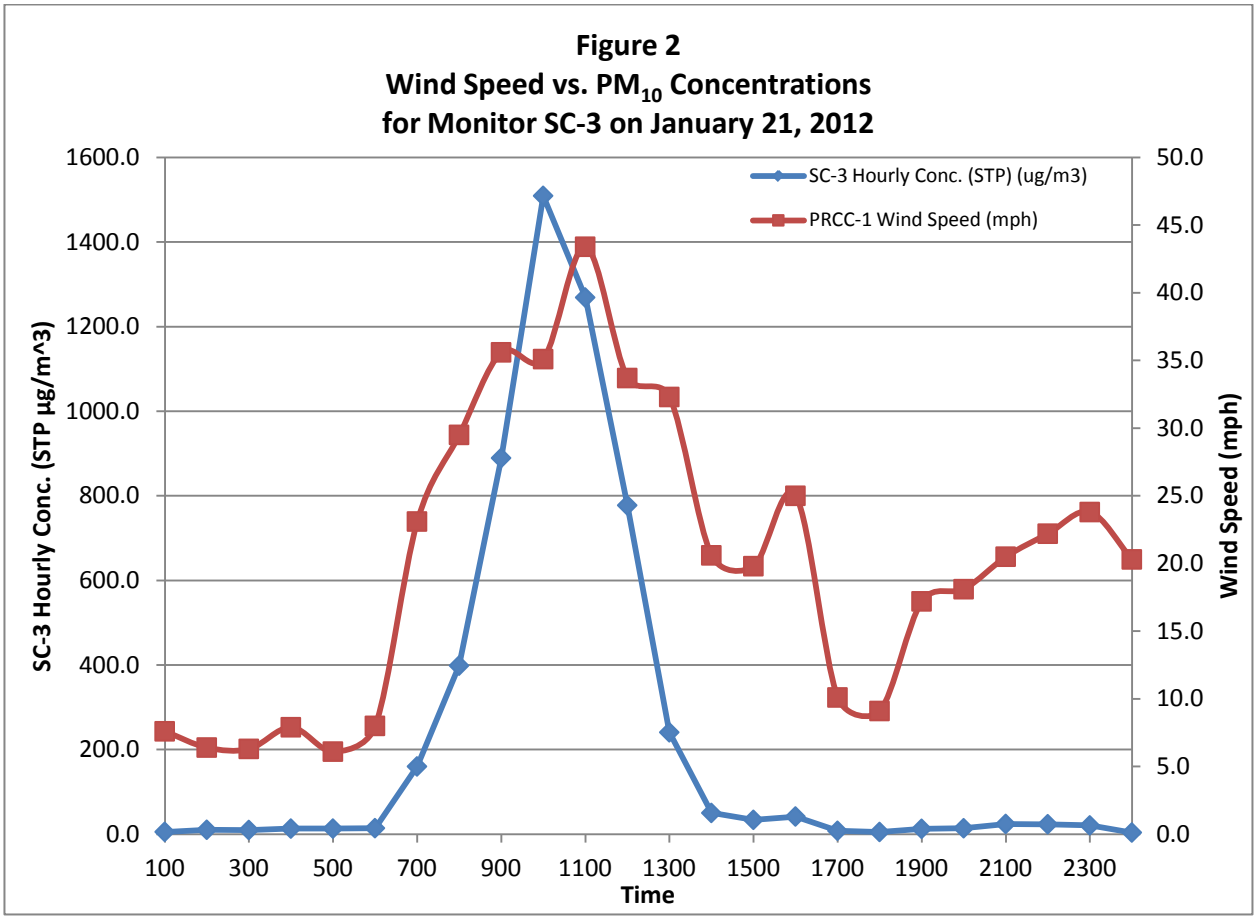
Furthermore, the nearly constant direction of those exceptionally high winds over 4 hours allows construction of a second, narrow reverse-trace from the SC-3 monitor (243º-248º) that identifies specific source areas that almost certainly were the principal contributors to the January 21 exceedance. In particular, analysis of the trajectory for those exceptionally high winds over 4 hours identifies individual mining equipment and particular disturbed lands within the East Pit areas at NARM as the sources which most likely contributed significantly to the measured exceedance by the SC-3 monitor on that day. Due also to being directly upwind of the SC-3 monitor during the same 4 hours of exceptionally high winds, other most likely significant contributors to the January 21 exceedance are those undisturbed lands located between the East Pit areas and SC-3 and within the sector defined by the narrower reverse trace (243º-248º).

In sum, the spatial relationship between SCM source areas and the SC-3 monitor strongly indicate that SCM's anthropogenic and natural sources of dust were highly unlikely to have contributed significantly to the measured exceedance at the SC-3 monitor on January 21. However, the spatial relationship of mining activities and disturbed lands in the East Pits at NARM upwind from the SC-3 monitor during high winds indicates that source areas in the East Pits were likely to have significantly contributed to the SC-3 monitor's measured exceedance on January 21, 2012. Furthermore, based on that spatial relationship during hours of exceptionally high winds, particular mining equipment and specific disturbed lands within the East Pits have been identified as most likely significant contributors to the measured exceedance on January 21.

2. *Temporal Relationship*

As shown in Figure 2, changes in PM_{10} levels measured by the SC-3 monitor clearly correlated with changes in high wind speeds on January 21, 2012. In particular, for hourly wind speeds above the PRB's high wind threshold, hourly PM_{10} concentrations at SC-3 increased when hourly wind speeds increased. Likewise, during high winds, hourly PM_{10} concentrations decreased when hourly wind speeds decreased. On the other hand, hourly PM_{10} concentrations at SC-3 did not correlate appreciably with changes in wind speed when wind speeds were below the high wind threshold.

The straight-line distance from the area where topsoil has been removed at the northeast end of the East Pits to the location of the SC-3 monitor is about 1.5 miles. The high winds on January 21, 2012, blowing at 33 mph from the subject area of topsoil removal, would reach the SC-3 monitor in just under 3 minutes. This explains why the track of hourly PM_{10} concentrations at SC-3, as shown in Figure 2, is so closely synchronized with the track of the hourly wind speeds at NARM, especially when those winds are high winds (> 20 mph). The small lag time between occurrence of a high wind speed and the subsequent PM_{10} concentration at SC-3 is consistent with high winds from East Pits reaching SC-3 in a matter of minutes. Figure 2 is fully consistent with AQD's earlier finding for the PRB that wind speed is the dominant predictor of ambient PM_{10} concentrations at wind speeds in excess of 20 mph.



3. *Other Measured Exceedances on the Same Day*

Measurements of high winds and multiple exceedances of the 24-hour PM_{10} NAAQS in the same area of the PRB on January 21, 2012 provide considerable weight to a conclusion that the subject of this demonstration, i.e., the measured exceedance at SCM's SC-3 monitor on January 21, 2012, was caused by a high winds event.

In particular, on January 21 at the SCM and the adjacent North Antelope Rochelle Mine, two other ambient PM_{10} monitors (SC-2 and RO-1) recorded 24-hour average PM_{10} concentrations equal to 223 $\mu g/m^3$ and 200 $\mu g/m^3$, respectively. Each of those incidents was also characterized by several hours of exceptionally high winds contained with a prolonged period of high winds, all blowing from the same general direction. The fact that multiple exceedances were measured on the same day when persistent high winds were reported over the general area is clearly more than coincidence. Rather, that evidence collectively supports a conclusion that high winds were responsible for those concurrent, multiple exceedances.

4. Comparison of Event-affected Day to Specific Non-event Days

Comparison of the PM_{10} concentrations measured by the SC-3 monitor on January 21, 2012 and on a day similar to January 21 but without high winds can also demonstrate a clear causal relationship between high winds and the subject PM_{10} NAAQS exceedance.

As explained previously, for winds coming out of the southwest, meteorological conditions representative of winds that are upwind of the SC-3 monitor are better described by conditions observed at NARM's PRCC-1 met tower than by conditions observed at SCM's SCMET-1 tower.

With that in mind, winds measured at NARM blew for a period of 4 straight hours toward the SC-3 monitor from essentially a constant direction on January 21, 2012 (243º-248º). Similarly, as shown in Table 2, on March 10, 2012, winds blew for a period of 4 straight hours (1300 – 1600) toward the SC-3 monitor from essentially that same constant direction (239º to 246º). However, while hourly average wind speeds during the 4 straight hours on January 21 ranged from 34 to

43 mph, hourly average wind speeds during the 4 straight hours on March 10 only ranged from 14 to 15 mph.

The almost constant wind direction over the 4-hour period for each of the two days meant that the upwind source areas in the East Pits that almost certainly contributed the majority of the particulate matter to the SC-3 monitor during the January 21, 2012 NAAQS exceedance were likewise directly upwind of the SC-3 monitor on March 10, 2012. Nevertheless, while hourly PM_{10} concentrations at that monitor during the 4 straight hours of January 21 varied from extremely elevated levels of 778 µg/m^3 to 1509 µg/m^3, hourly PM_{10} concentrations at that monitor during the 4 straight hours of March 10 never exceeded 60 µg/m^3. Because operating levels in the East Pit areas on January 21 were not unlike those on March 10, the substantive differences between hourly PM_{10} concentrations at SC-3 for the 4 hours on January 21 and for the 4 hours on March 10 must be attributed to high winds on January 21 that were not also present on March 10.

TABLE 2					
PRCC-1 METEOROLOGICAL DATA AND SC-3 MONITOR DATA FOR MARCH 10, 2012					
Date	Time	Wind Speed (mph)	Wind Direction (°)	Wind Gust Speed (mph)	Hourly PM_{10} Conc. (µg/m³ @STP)
03/10/12	1:00	4	299	10	34
03/10/12	2:00	5	178	9	36
03/10/12	3:00	3	222	5	21
03/10/12	4:00	3	279	7	27
03/10/12	5:00	2	305	5	42
03/10/12	6:00	4	294	7	35
03/10/12	7:00	5	298	9	18
03/10/12	8:00	2	125	4	22
03/10/12	9:00	4	182	8	31
03/10/12	10:00	6	228	11	40
03/10/12	11:00	11	252	18	60
03/10/12	12:00	13	250	20	36
03/10/12	13:00	14	246	21	46
03/10/12	14:00	14	242	24	58
03/10/12	15:00	15	245	23	54
03/10/12	16:00	15	239	23	41
03/10/12	17:00	14	243	21	44
03/10/12	18:00	11	259	18	48
03/10/12	19:00	4	260	11	91
03/10/12	20:00	2	228	8	106
03/10/12	21:00	3	215	9	156
03/10/12	22:00	6	226	10	57
03/10/12	23:00	4	226	11	48
03/11/12	00:00	5	224	11	30

In short, with wind directions during the 4-hour periods of each day being virtually the same, the significant differences in hourly PM_{10} concentrations at the SC-3 monitor during those periods highlights a clear causal relationship between the high winds on January 21, 2012 and the measured exceedance of the 24-hour PM_{10} NAAQS at that monitor on that day.

5. *Visual Observations*

AQD-issued Permit No. CT-6445 for SCM requires adherence to the Mine's Air Quality Action Plan during "high particulate events." The Action Plan requires mine personnel to determine possible emission sources at and surrounding the mine when an hourly concentration of PM_{10} in excess of 250 µg/m^3 is recorded.

After Hour 8 on January 21, 2012 an alarm was sounded, indicating that an hourly PM_{10} measurement had exceeded 250 µg/m^3 at the SC-3 monitor. Operations personnel then performed a visual survey of ongoing operations at SCM, observing that dust blowing toward the SC-3 monitor was originating from NARM.

Likewise, NARM's AQD-issued Permit Number MD-6375A Appendix B, Air Quality Action Plan also has this same requirement for operating personnel to survey the Mine's operations when the hourly threshold concentration of 250 µg/m^3 is exceeded at one of NARM's PM_{10} monitors.

Operations personnel at NARM, performed a visual survey of ongoing operations at NARM, observing blowing dust originating from areas associated with the East Pits and heading downwind in the general direction of the SC-3 monitor. Dust blowing from other source areas at NARM was not observed blowing downwind toward the SC-3 monitor during that initial survey nor during periodic visual surveys thereafter as high winds continued.

6. *Conclusion*

The weight of the various evidence discussed above clearly indicates a strong cause-and-effect relationship between sustained high winds in the area of SC-3 on January 21, 2012 and the concurrent measurement of a 24-hour average PM_{10} concentration at the SC-3 monitor that exceeded the 24-hour ambient PM_{10} standard on that day.

C. The Historical Context of the Subject High Winds Event

High winds are not uncommon in the Powder River Basin. A prior study for sponsored by AQD during development of the NEAP found that the southern portion of the PRB (including SCM) experienced winds in excess of 20 mph between 77 and 135 days per year. Furthermore, the

same area of the PRB experienced winds in excess of 30 mph between 11 and 26 days per year. Yet, the frequency of prior measured PM_{10} exceedances in that region of the PRB has been far lower than the region's historical frequency of high wind events.

School Creek's ambient PM_{10} monitoring network began collecting quality-assured data on April 1, 2011. However, it was not until January 12, 2012 that Shovel #104 began digging and dumping overburden in the Holmes Creek Pit. That mining activity continued throughout the first quarter of 2012, when digging and dumping ceased. EPA suggests that a minimum of 3 years of daily ambient PM_{10} monitoring data is necessary for an analysis of the historical fluctuations of that daily data to be statistically significant.[4] Thus, with less than 3 full months of daily PM_{10} data from the SC-3 monitor during operations at SCM, an analysis of the historical fluctuations of SC-3's daily measurements in keeping with EPA guidance is not possible.

However, as previously shown, significant contributions to this particular exceedance at SC-3 were likely not from SCM operations; instead, significant contributions to SC-3 on January 21 were more likely from NARM's East Pit areas. Those latter source areas at NARM not only were operating on April 1, 2011 when the SC-3 monitor began collecting data, but they also have been operating ever since. Consequently, Peabody believes that an analysis of the historical fluctuations in SC-3's daily data over a period of at least one year could at least provide insight into the representativenes of SC-3's measured concentration on January 21, 2012.

A time series of daily ambient PM_{10} concentrations measured by SCM's SC-3 monitor from April 1, 2011 through March 31, 2012is presented in Figure 3. Even with only one year of monitoring data, examination of that historical monitoring data plainly demonstrates that SC-3's measured PM_{10} level of 226 $\mu g/m^3$ on January 21, 2012 is atypical, or not representative, of PM_{10} concentrations that have been measured by that monitor during the past.

A quantitative assessment of that prior monitoring data confirms what the time series in Figure 3 clearly illustrates. The average 24-hour PM_{10} concentration measured by the SC-3 monitor during the period from April 1, 2011 through March 31, 2012, was 25.2 $\mu g/m^3$. The measured 24-hour PM_{10} concentration during high winds on January 21, 2012 was nearly 9 times greater than that average 24-hour value at SC-3 over the past twelve months. Stated differently, the

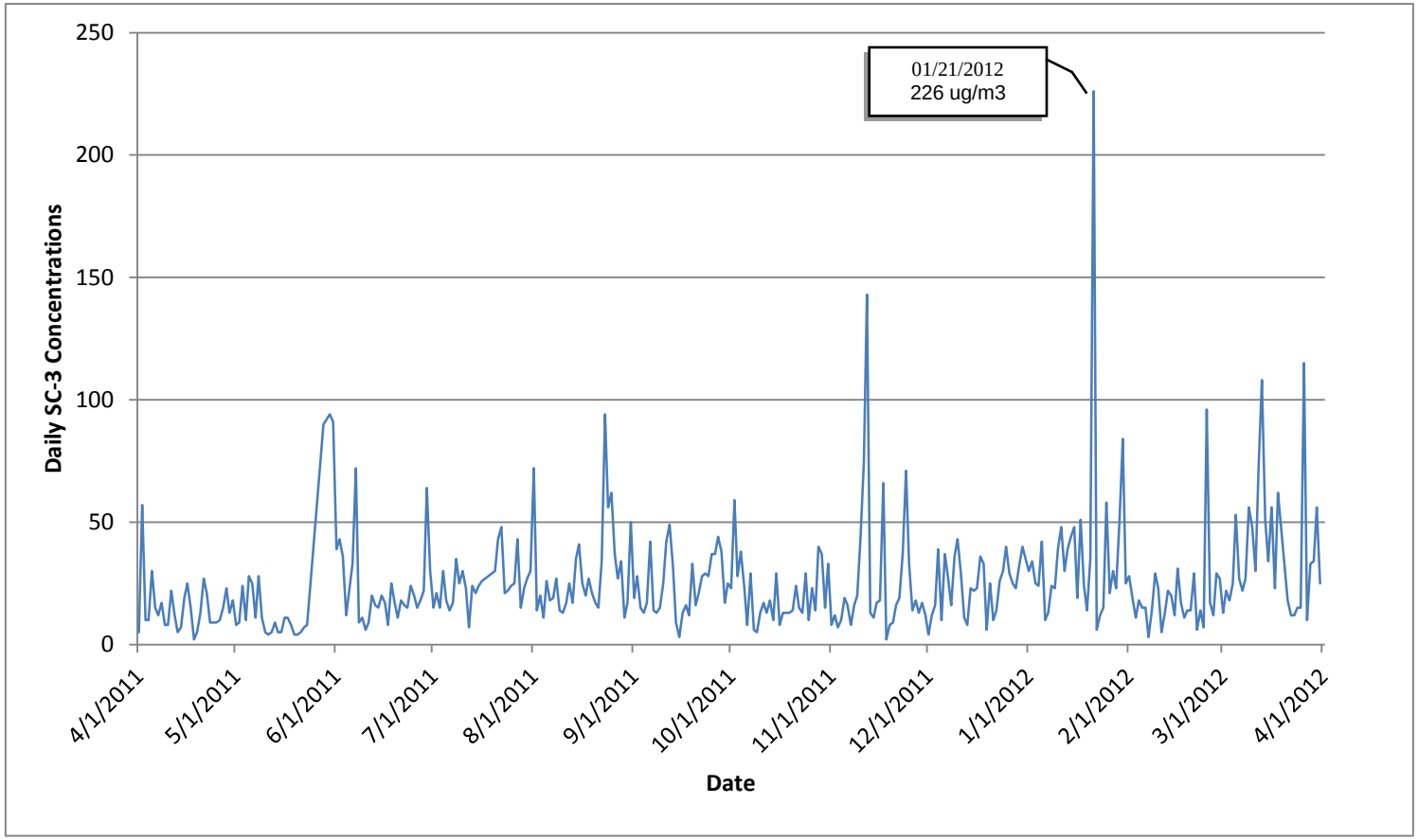
[4] EPA, Draft High Winds Guidance at 47.

measured 24-hour PM_{10} exceedance during high winds on January 21, 2012 consists of the highest daily measurement over that analysis period and represents the 100th percentile of all 355 quality–assured 24-hour concentrations measured by SC-3 during that period.

In sum, regardless of the truncated timeframe of data presented for statistical analysis, the measured 24-hour PM_{10} exceedance by the SC-3 monitor on January 21 falls considerably outside the normal historical fluctuations of that monitor's 24-hour PM_{10} measurements. The more that a measured exceedance stands out from prior measured concentrations, the more plausible it is that the high wind event at SCM on January 21, 2012 was the cause of that exceedance.[5]

[5] EPA, Draft High Winds Guidance at 19.

FIGURE 3
SC-3 Monitor
Historical Fluctuations
24-Hour Averages



D. Upwind Sources of Fugitive Particulate Emissions Were Not Reasonably Controllable During the High Wind Event on January 21, 2012

A demonstration that a PM_{10} NAAQS exceedance was caused by a high wind event requires a showing that the event, including emissions from significantly contributing anthropogenic and natural dust sources, was not reasonably controllable. Importantly, EPA has explained that the degree of event-specific information and data necessary for demonstrating that emissions were not reasonably controlled will generally be less for sustained wind speeds at or above the area-specific high wind threshold. Moreover, for such high wind events, the level of rigor required to demonstrate that reasonable controls were (1) in place, (2) implemented and enforced, and (3) overwhelmed by high winds depends on the wind speed during the event relative to the area's high wind threshold.[6] Finally, some anthropogenic sources are not affected by high winds, e.g., transportation and industrial point sources. Those types of sources are considered "non-event sources" that are not subject to a requirement that they be reasonably controlled during a high wind event.

This particular high winds event demonstration departs from the typical demonstration for mines in the PRB in at least two ways. First, although the mine which measured the exceedance (SCM) also does its own meteorological monitoring, the nature of the high winds responsible for the measured exceedance indicates that meteorological conditions measured by an adjacent mine's met tower (NARM) are more representative of those high winds. In addition, the predominant direction of those prolonged high winds strongly indicates that the exceedance measured by one mine's monitor (SCM) was due to significant contributions from mining activities and disturbed lands of another mine (NARM).

NARM's Air Quality Permit states that "Powder River Coal, LLC shall adhere to their contingency action plan for high particulate events *at the North Antelope Rochelle Mine*."[7] This particular high winds event demonstration, however, involves a PM_{10} NAAQS exceedance measured by another mine's monitoring network. Under those circumstances, the measured exceedance does not appear to constitute a high particulate event "at the North Antelope Rochelle Mine." Nevertheless, it seems clear that School Creek Mine's successful demonstration of a high winds event in this instance is dependent upon a showing that NARM's

[6] *Id.*
[7] NARM Air Quality Permit, Condition 25 (emphasis added).

upwind sources were not reasonably controllable for high winds on January 21. Therefore, NARM has assisted SCM in its preparation of this high winds event demonstration by explaining how NARM's Air Quality Action Plan was implemented in response to elevated PM_{10} concentrations being measured at the SC-3 monitor.

1. *NARM's Contributing Anthropogenic Sources Were Not Reasonably Controllable*

Anthropogenic sources of dust are determined to be not reasonably controllable during a high wind event if:

(1) Those anthropogenic sources have reasonable controls in place during the event;

(2) The reasonable controls have been effectively implemented and enforced; and

(3) Wind speed was high enough to overwhelm the reasonable controls.[8]

Consistent with the basic methodology for demonstrating a high wind event, in general, a determination whether anthropogenic sources of dust were not reasonably controllable utilizes a weight-of-evidence approach.

a. NARM's Contributing Anthropogenic Sources Had Reasonable Controls in Place on January 21, 2012.

Whether controls on anthropogenic sources were reasonable for a high wind event must be judged in light of the technical information available to the agency at the time of the event.[9] In the case of high winds at SCM and NARM, the Wyoming DEQ was already aware of the existence of high winds in the Powder River Basin and the need to implement economically and technically feasible controls to minimize the occurrence of PM_{10} NAAQS exceedances in that area. Against that background, DEQ developed its NEAP which requires individual coal mines in the PRB to implement (1) BACM for disturbed areas at the mines and (2) reactionary control measures for mine operations when high winds cause a "high particulate event." Given the underlying purpose of those controls, they constitute "reasonable controls" for NARM's anthropogenic sources of dust.

[8] *Id.* at 10.
[9] *Id.* at 12.

(1) BACM -- "Reasonable controls," i.e., BACM, are required at NARM for active haul roads and for large, contiguous disturbed areas, as follows:

- *Active long-term coal haul roads* must be treated with dust control chemicals and/or water.
- *Active short-term mine haul roads* must be watered and maintained while in use.
- *All haul roads* must be regularly maintained to reduce the amount of dust re-entrained by haulage equipment.
- *Topsoiled areas* ≥ 150 contiguous acres that will not be revegetated within 60 days of topsoil laydown and *regraded backfill areas* ≥ 150 contiguous acres that will not be topsoiled within 60 days must, as soon as feasible, be ripped or chiseled to create a roughened surface, or be seeded with a temporary vegetative cover or otherwise be effectively stabilized against wind erosion.
- *Topsoiled areas* < 150 contiguous acres that will not be immediately revegetated and *regraded backfill areas* < 150 acres that will not be topsoiled for an extended period of time must, as soon as feasible, be ripped or chiseled to create a roughened surface, or be seeded with a temporary vegetative cover or otherwise be effectively stabilized against wind erosion.
- At least 30% of the actual open acres at the Mine must be stabilized against erosion during any calendar year

As previously explained, sources at NARM that were likely to have significantly contributed to the PM_{10} NAAQS exceedance measured by the SC-3 monitor on January 21, 2012 were identified by constructing a "reverse trace" of the predominant directions of high winds on that day, upwind from the SC-3 monitor. The result of that "reverse trace" is shown in Exhibit 2.

Exhibit 2 identifies the following active haul roads and specific disturbed surface areas at NARM over which high winds blew toward the SC-3 monitor on January 21, 2012. These significant contributors had the required BACM in place on that day as follows:

- A combined 53 acres (of a possible 56 acres) of various active haul roads and hydrologic structures were controlled with BACM on January 21 by prior use of one or more of the following methods: scarification, revegetation, riprap, chemical treatments or watering.
- Slopes adjacent to haul roads accounted for 162 acres of which 162 acres had been scarified or temporarily revegetated prior to January 21.

- A total of 27 acres of lands on which topsoil had been replaced. All of these acres had been immediately scarified in preparation for revegetation.
- A total of 119 acres of regraded backfill. Eight of those acres had been ripped in preparation for topsoil replacement. The remaining 111 acres had not yet been treated because they were not planned to remain without topsoil for an extended period of time.

In addition to the above disturbed lands at NARM for which BACM is expressly required, similar control measures were also in place on January 21, 2012 for the following other disturbed areas at NARM over which high winds passed toward the SC-3 monitor:

- 193 acres of lands that had been stripped of topsoil in advance of the pits. This disturbed ground had been scarified.
- 14 acres of topsoil stockpiles were located within the area over which high winds passed on January 21 toward the SC-3 monitor. Those stockpile areas had been graded and scarified prior to January 21.

(2) Reactionary Control Measures --

After being alerted to elevated PM_{10} concentrations at the SC-3 monitor, operating personnel at SCM performed a visual survey of the Mine and surrounding area and alerted NARM's personnel that dust sources at NARM were likely contributing to elevated concentrations being measured at SC-3 monitor. After being notified by SCM personnel, NARM personnel performed a visual survey and identified blowing dust from areas of spoils and topsoil stripped areas in areas of the East Pits. NARM began implementing reactionary control measures on certain mining activities in the East Pits. The chronology for applying reactionary control measures to active mining operations in the East Pits on January 21 is presented below. Figure 4 is a timeline or graphical depiction of that chronology.

The previously described reverse trace of persistent high winds indicates that mining activities in NARM's East Pits were likely significant contributors to the eventual exceedance measured at SC-3. As shown in Exhibit 1, one dragline (#120), one overburden shovel (#938) and one coal shovel (#105) were operating in the NARM East Pits on January 21. The overburden shovel was assigned a total of two haul trucks. Seven trucks were assigned to the coal shovel. In addition, working in the area were multiple pieces of support equipment assigned to maintain "dig-and-dump" areas as well as haul roads were working in the area.

Subsequent to the notification, operations personnel at NARM concluded that the coal shovel and its associated trucks were significantly contributing to the concentrations being recorded at SC-3. At 11:30 the supervisors temporarily suspended activities with Shovel #105. Suspension of those digging activities in turn reduced material loading, haulage and dumping in the East Pits by seven coal trucks. Suspension of digging and haulage associated with Shovel #105 continued until 13:00 when reactionary control measures were deemed unnecessary because PM_{10} concentrations at SC-3 were plummeting. Those PM_{10} concentrations reached a "non-alarm" hourly average concentration of 50 $\mu g/m^3$ by 14:00.

The reactionary control measures implemented at NARM, by temporarily suspending activities in the East Pits on January 21, 2012 from 1130-1300, reduced production in this pit system for this timeframe by 33% and reduced truck haulage by 78%.

(**3**) ***Conclusion --*** During the January 21, 2012 high winds, BACM was fully in place for those disturbed areas at NARM that likely contributed significantly to the measured exceedance. Furthermore, although not required by regulation or permit, BACM had also been implemented on January 21 at NARM's other disturbed areas that likely contributed significantly to the measured exceedance. Consequently NARM's disturbed areas which likely contributed significantly to the measured exceedance had appropriate BACM in place immediately before the high wind event of January 21.

NARM also implemented practical and appropriate reactionary control measures during January 21 that were aimed at mining and related activities in the East Pit system which likely contributed significantly to the measured exceedance at SC-3. Furthermore, focused watering of haul roads in the areas around the East Pits was implemented throughout the day on January 21.

Nothing within Wyoming's NEAP or EPA's EER mandates a complete shutdown of core mining operations during a high wind event. Rather, the NEAP and the EER contemplate the application of reasonable control strategies during a high wind event in an attempt to offset the inevitable increase in fugitive dust emissions when high winds simply overwhelm most, if not all, reasonable control measures. For example, when considering the operation of an overburden dragline during a period of high winds, DEQ's NEPA contemplates the operator "evaluat[ing]

whether it is practicable to dump the overburden as low as possible."[10] Or, with respect to road *maintenance* activities during a period of high winds, the NEAP suggests that "*road rock* hauling and *road rock* dumping (as opposed to coal or overburden) may be shut down during a high wind event if it is generating dust."

In short, the evidence arising from an objective assessment of (1) the described reduction in operations in the East Pits on January 21, 2012, (2) the frequency of watering haul roads serving those pits on that day, and (3) the BACM fully in place for the described disturbed areas at NARM affected by high winds on that day weighs heavily in support of a conclusion that anthropogenic sources of dust at NARM that significantly contributed to that day's PM_{10} NAAQS exceedance at SCM's SC-3 monitor were initially reasonably controlled prior to those controls being overwhelmed by the high winds.

b. NARM's Reasonable Controls Have Been Effectively Implemented and Enforced

Compliance with NARM's requirements to implement BACM and reactionary control measures is evaluated in a variety of ways. For example, each year DEQ conducts a full on-site inspection of NARM's operations to assess the Mine's compliance with the relevant requirements in NARM's air quality permit. The most recent DEQ inspection of NARM prior to the January 21, 2012 measured exceedance was performed on August 2, 2011. Overall, DEQ did not observe a violation of any permit condition.

In particular, the following excerpts from DEQ's inspection report summarize DEQ's observations of NARM's compliance with individual BACM requirements:
:

- AQ 2011 Inspection Report –NARM p. 5
  "Haul roads were well maintained and several water trucks were observed watering the roads."

- AQ 2011 Inspection Report –NARM Appendix-Compliance Table
  Condition - "…all permanent haul roads shall be treated with chemical dust suppressant in addition to water to control fugitive emissions…"
  Status- **In compliance**

[10] NEAP at 18.

- AQ 2011 Inspection Report –NARM Appendix-Compliance Table
  Condition - "…all temporary haul routes, …, shall be treated with water…"
  Status- **In compliance**

- AQ 2011 Inspection Report –NARM Appendix-Compliance Table
  Condition - "…coal truck dump pads shall be cleaned, treated, and maintained"
  Status- **In compliance**

- AQ 2011 Inspection Report –NARM p. 5
  "Several disturbed areas were observed and many of them had been ripped to control dust."

- AQ 2011 Inspection Report – NARM Appendix-Compliance Table
  Condition – "Topsoiled areas ≥ 150 contiguous acres….and regraded backfill areas ≥ 150 contiguous acres..shall be…stabilized against wind erosion."
  Status – **In compliance**

- AQ 2011 Inspection Report – NARM Appendix-Compliance Table
  Condition – "Topsoiled areas < 150 contiguous acres….and regraded backfill areas < 150 contiguous acres..shall be…stabilized against wind erosion…"
  Status – **In compliance**

At the time of that DEQ's inspection, NARM was not experiencing high winds and elevated PM_{10} measurements. Consequently, DEQ had no opportunity to observe the Mine's implementation of any reactionary control measures in keeping with its Air Quality Action Plan. Nevertheless, the following findings were recorded by DEQ:

- AQ 2011 Inspection Report – NARM-Compliance Table
  Condition - "The contingency action plan [AQAP] has been adhered to."
  Status – **In Compliance**

- AQ 2011 Inspection Report – NARM-Compliance Table
  Condition – "No demonstration showing that the Air Quality Action Plan is adequate has been required."
  Status – **In Compliance**

- AQ 2011 Inspection Report – NARM-Compliance Table
  Condition – "Measures taken under the Air Quality Action Plan are being documented."
  Status – **In Compliance**

In addition to its on-site inspections of NARM's operations, the DEQ-issued air quality permit contains various recordkeeping and reporting requirements which serve to document NARM's implementation of required control measures. In particular, that permit prescribes that:

- Peabody must prepare and submit an annual report to DEQ that "addresses road dust control measures employed during the past year and a disturbed acreage report for the year. Specific contents of that required report include:

  - a map of all roads existing at the end of the year that were treated with water and/or dust suppressant;
  - locations of active operations, treated disturbed areas, and reclaimed areas;
  - type and quantity of dust suppressant used during the year and a description of the general application procedures and schedule;
  - number of water trucks, capacities of each, and quantity of water used during the year;
  - operating hours of each water truck, and total water truck fleet hours for the year;
  - total length of permanent and temporary haul roads existing at year end, in miles, which were treated with water and/or dust suppressant;
  - overburden and coal production rates for the year;
  - a table, summarizing by calendar quarter, the acreage and control measures or BMP uses applied by active operations, treated disturbed areas, and reclaimed areas; and
  - a report on the percentage of acres stabilized for the year, computed as the average of the quarterly percentage of acres stabilized.

- Peabody must document what reactionary control measures were implemented when an action level in NARM's Air Quality Action Plan was triggered.

Along with its on-site inspections of NARM and periodic reviews of NARM's required records and reports, DEQ has an active enforcement program to address measured PM_{10} exceedances at NARM which indicate a failure to comply with applicable BACM and reactionary control measures. An example of DEQ's satisfaction of its enforcement obligation is evidenced by its response to the most recently measured PM_{10} exceedance at NARM prior to this January 21, 2012 event. After Peabody had reported that exceedance, DEQ investigated the particular circumstances surrounding that incident of November 12, 2011 and subsequently issued a Notice of Violation (NOV) to Peabody, alleging that NARM had failed to minimize fugitive dust emissions from its operations and had failed to adhere to its Air Quality Action Plan.[11]

[11] *In the Matter of the Notice of Violation Issued to Powder River Coal, LLC,* Docket No. 5014-12 (DEQ June 29, 2012) (Notice of Violation). Discussions between the parties regarding settlement of this particular alleged NOV were ongoing at the time of this demonstration's submittal.

In sum, Wyoming DEQ has an active compliance-monitoring program for evaluating NARM's implementation of its required BACM and reactionary control measures. Moreover, DEQ takes enforcement actions against NARM's failure to satisfy those requirements in an effort to eliminate the likelihood of future exceedances of the PM_{10} NAAQS around NARM.

c. Wind Speeds on January 21, 2012 were High Enough to Overwhelm NARM's Reasonable Controls

DEQ has determined that 20 mph is the high wind threshold for the Powder River Basin. An area-specific high wind threshold is representative of the sustained wind speeds that are capable of overwhelming reasonable controls on anthropogenic sources of dust. As a result of those reasonable controls being overwhelmed, significant emissions begin to be transported in the direction of the high winds.

This high wind event demonstration has previously shown that wind speeds during January 21 equaled or exceeded 20 mph for a total of 14 hours. Twelve of those hours were characterized by high winds from the same general direction passing over NARM's East Pits. Moreover, four of those hours were characterized by exceptionally high winds (hourly average of 34-43 mph) from virtually the same direction. Winds gusted during those latter 4 hours at hourly maxima between 56 and 63 mph.

Therefore, there can be no doubt that wind speeds on January 21, 2012 were more than high enough to overwhelm NARM's reasonable controls on the anthropogenic sources of dust in the East Pits.

d. Conclusion

The preceding discussion has shown that during high winds on January 21, 2012:

- That NARM's anthropogenic sources which likely contributed significantly to the measured PM_{10} exceedance on that day at the SC-3 monitor had reasonable controls in place during those high winds;
- That those reasonable controls have been effectively implement by NARM and enforced by DEQ; and

- That wind speeds during January 21 were high enough to overwhelm NARM's reasonable controls that were in place on that day.

Based on that showing, Peabody has demonstrated that NARM's significantly contributing anthropogenic sources were not reasonably controllable on January 21, 2012

2. *NARM's Contributing Natural Sources Were Not Reasonably Controllable*

Natural sources of dust are determined to be not reasonably controllable if wind speeds are high enough to cause emissions from natural, undisturbed areas.[12] An area-specific high wind threshold is representative of the sustained wind speeds that are capable of causing emissions from natural disturbed areas. DEQ has determined that 20 mph is the high wind threshold representative of conditions in the Powder River Basin.

In Exhibit 2, the grey surface area which is located upwind of the SC-3 monitor but prior to NARM's upwind anthropogenic sources in the East Pit that likely contributed significantly to the measured exceedance on January 21 consists of 654 acres of natural, undisturbed lands. High winds at or above 20 mph and from the same general direction passed over those naturally stabilized surfaces for 14 hours. For 4 of those hours, exceptionally high winds from virtually the same direction passed over those natural, undisturbed lands.

Consequently, given their prolonged exposure to those high wind conditions, those 654 acres of natural, undisturbed lands likely contributed significantly to the measured exceedance at the SC-3 monitor on January 21. Those natural sources of windblown dust were not reasonably controllable on January 21 because the high winds over a prolonged period on that day were able to entrain significant amounts of dust from those lands. Furthermore, emissions from those natural, undisturbed lands were not reasonably controllable through the use of any specific control measures due to the cost of applying those controls over such a large land area and because of the potential detrimental effect on the natural ecosystem that could result.[13]

In sum, Peabody has demonstrated that NARM's contributing natural sources were not reasonably controllable on January 21, 2012.

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[12] EPA, High Wind Guidance at 10.
[13] *Id.* at 43.

E. The High Wind Event at NARM on January 21, 2012 Was a Natural Event.

A high wind event is classified as a natural event in cases where windblown dust is entirely from natural sources or where all significant anthropogenic sources of windblown dust have been reasonably controlled.[14] In this demonstration, Peabody has first identified those particular anthropogenic sources at NARM (mining activities and disturbed areas) that were located upwind of the SC-3 monitor during extended periods of high winds. Those were the "significant anthropogenic sources" on January 21, 2012 that had to be reasonably controlled in order for the high wind event of that day to be classified as a natural event.

Peabody has shown herein (1) how each of the "significant" disturbed areas on January 21 were reasonably controlled with applicable BACM, and (2) how each of the "significant" mining activities were reasonably controlled through implementation of practical and appropriate reactionary control measures.

Therefore, because a high wind event occurred at SCM on January 21, and because the significant anthropogenic sources of windblown dust on that day were reasonably controlled, that high wind event also constituted a natural event.

F. The Measured Exceedance on January 21, 2012 Would Not Have Occurred But For the High Wind Event on That Day

The demonstration of a high wind event must also show that the measured concentration would have been below the applicable NAAQS without the impact of the high wind event. However, that showing generally does not need a single or precise approximation of the estimated air quality impact from the event. Rather, for events where the typical concentrations on non-event days are well below the applicable NAAQS, the showing that a measured concentration would not have been an exceedance but for the high winds may be relatively straightforward and a qualitative explanation may be acceptable.[15]

The circumstances of this particular high wind event on January 21 justify a qualitative explanation for why the exceedance on that day would not have occurred but for the high wind

[14] *Id.* at 5.
[15] *Id.* at 23.

event. First, the previous Historical Fluctuations analysis showed that the typical 24-hour PM_{10} concentration at the SC-3 monitor during the past twelve months was below the NAAQS of 150 µg/m^3. The measured concentration of 226 µg/m^3 on January 21 was nowhere near the "normal" concentration that would otherwise have been expected at the SC-3 monitor on that day.

A previous analysis herein compared hourly concentrations at SC-3 during four hours on January 21 to hourly concentrations at SC-3 during four hours on another day. During those two 4-hour periods, wind directions were virtually the same, but wind speeds for those two periods were dramatically different. On January 21 wind speeds for that 4-hour period ranged from 34-43 mph, while wind speeds for the 4-hour period on the other day were 14-15 mph. Not surprisingly, the hourly average PM_{10} concentrations for the 4 hours of January 21 (778 µg/m^3 to 1509 µg/m^3) were dramatically higher than those concentrations for the 4 hours on the other day (≤ 60 µg/m^3). With all key factors other than wind speed being roughly the same for the 4-hour period on each day, the high winds during the 4 hours on January 21 were almost certainly responsible for the much higher hourly PM_{10} concentrations on January 21.

In light of those considerations, Peabody believes the measured exceedance on January 21 is a textbook example of the result of a high wind event. Sources upwind of the measured exceedance were reasonably controlled, but the magnitude and the duration of the high winds on that day plainly caused those controls to fail. Had those high winds not overwhelmed the reasonable controls in place, the likelihood that an exceedance would still have occurred is very minimal.

Conclusively proving the absence of all other possible or plausible causes of the measured exceedance is not required by EPA's Exceptional Events Rule or by DEQ's NEAP. The weight of the evidence presented herein that high winds caused the exceedance on January 21 is highly persuasive. A finding that the measured exceedance at SC-3 would not have occurred but for the high winds is the only reasonable conclusion that the evidence supports.

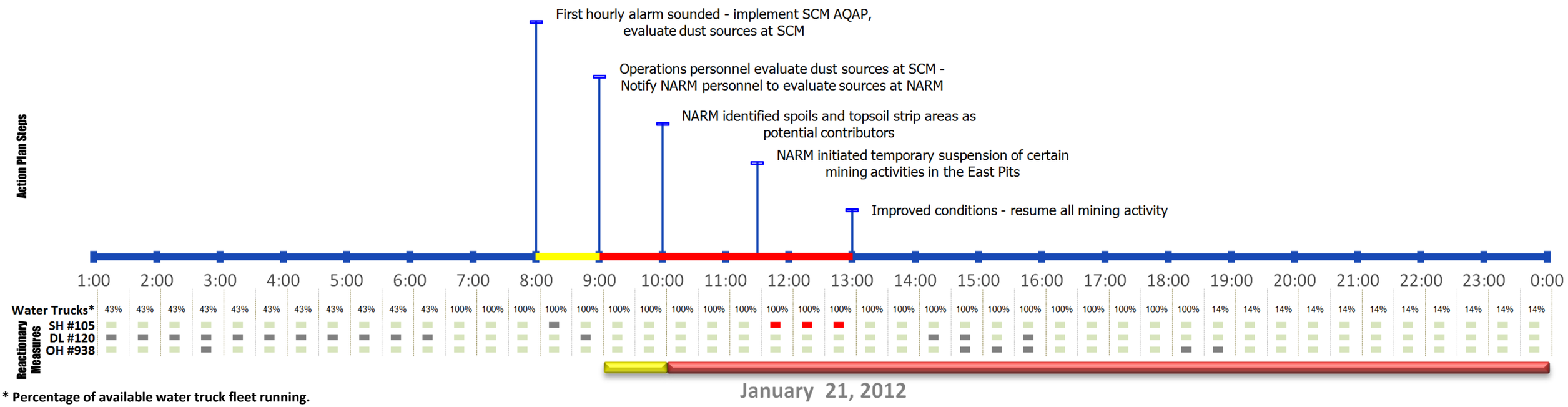
CONCLUSION

On January 21, 2012 high winds blew at School Creek Mine. At the end of that day, an exceedance of the PM_{10} NAAQS was recorded by one of the Mine's ambient PM_{10} monitors. The preceding discussion has demonstrated just how strongly those events are interrelated.

In particular, the demonstration above has shown that on that day (1) a natural event in the form of high winds was present and that (2) those high winds affected air quality in the area, in general, and at the SC-3 monitor, in particular. Moreover, the demonstration herein has shown that on that day (3) the measured exceedance at SC-3 was far in excess of the normal fluctuations in that monitor's measurements, and that (4) there was a clear causal relationship between the persistent high winds and the measured exceedance at SC-3. In addition, the above demonstration has shown that (5) a high wind dust event occurred at SC-3 even though a set of reasonable control measures had been implemented on significant anthropogenic and natural sources of dust. Finally, the demonstration herein has shown that (6) the measured exceedance at SC-3 would not have happened in the absence of high, at times exceptionally high, wind speeds from a persistent direction on that day which overwhelmed the reasonable controls in place on those significant sources.

In sum, the demonstration herein has shown that the measured PM_{10} NAAQS exceedance of 226 $\mu g/m^3$ at SC-3 on January 21, 2012 was caused by a high wind event.

Figure 4: Timeline for SC-3 High Wind Event



*** Percentage of available water truck fleet running.**

1hr Alarms
shown on timeline

Low Level: 250 – 500 µg/m³

3:00 4:00 5:00 6:00

High Level: 500+ µg/m³

3:00 4:00 5:00 6:00

24hr Alarms
shown beneath timeline

Low Level: 75 – 100 µg/m³

High Level: 100+ µg/m³

Equipment Activity

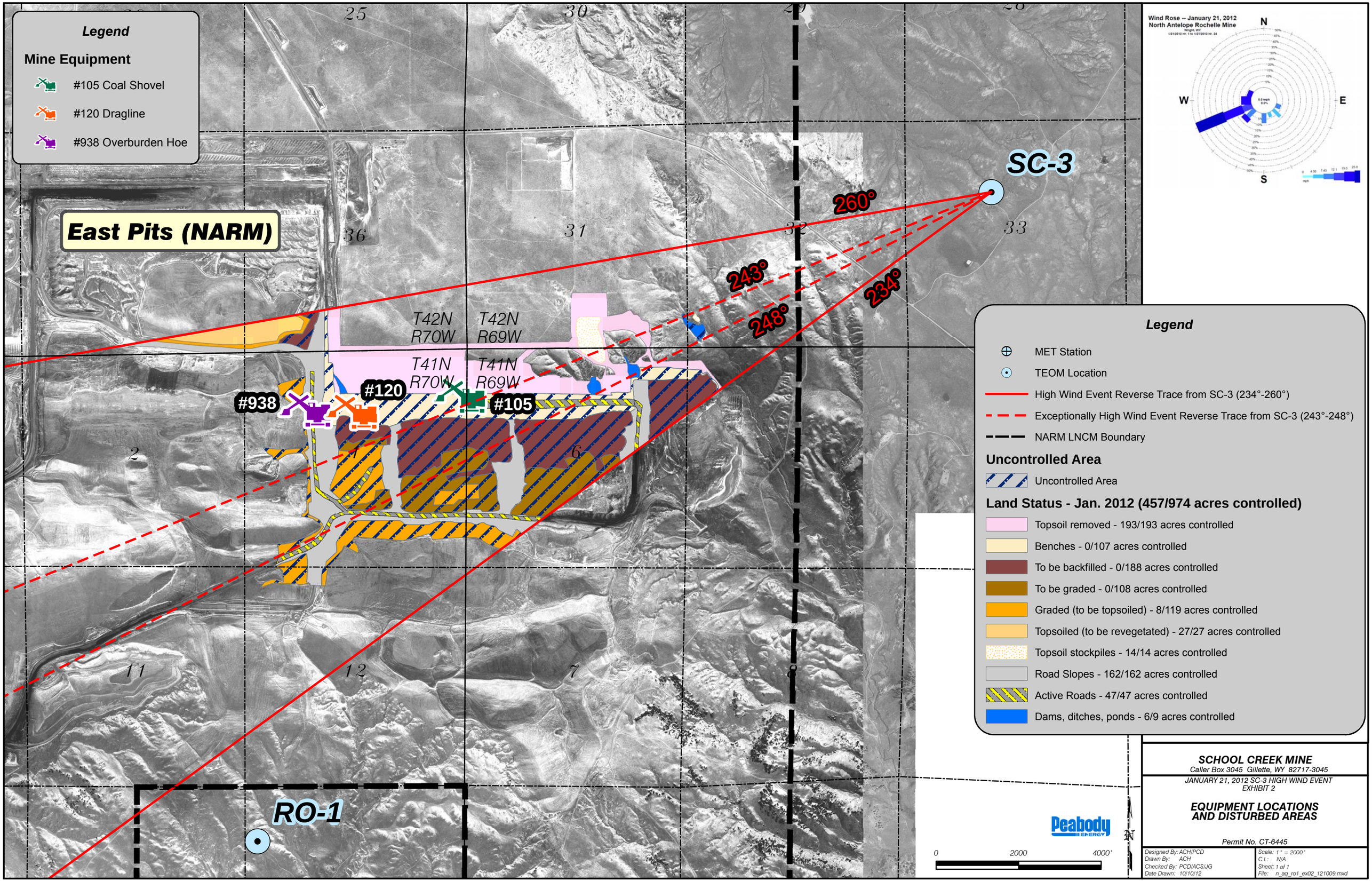
- Normal Production
- Normal Operation Shutdown
- Reactionary Measures

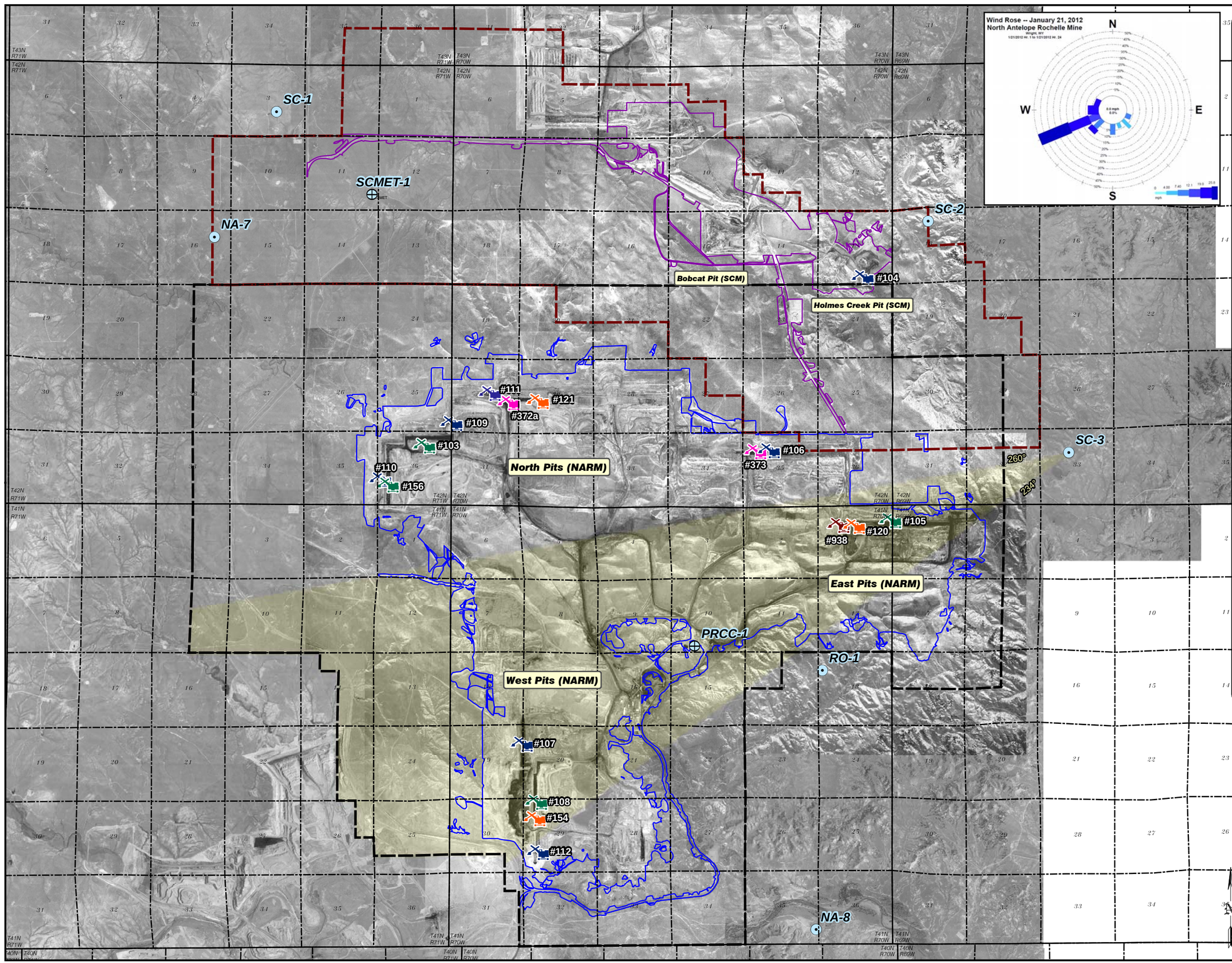
Equipment Abbreviations

DL = Dragline
SH = Shovel

Notes:

1. Supervisors and Environmental staff notified each hour of alarm.
2. Water truck records are not specific to any particular pit system.
3. Records of all other equipment are specific to the reverse trace from SC-3 TEOM.


Legend
Mine Equipment
#105 Coal Shovel
#120 Dragline
#938 Overburden Hoe
East Pits (NARM)
SC-3
RO-1
260°
243°
248°
234°
T42N R70W
T42N R69W
T41N R70W
T41N R69W
#938
#120
#105
25
30
29
28
36
31
32
33
2
1
6
11
12
7
8
Wind Rose -- January 21, 2012
North Antelope Rochelle Mine
N
E
S
W
Legend
MET Station
TEOM Location
High Wind Event Reverse Trace from SC-3 (234°-260°)
Exceptionally High Wind Event Reverse Trace from SC-3 (243°-248°)
NARM LNCM Boundary
Uncontrolled Area
Uncontrolled Area
Land Status - Jan. 2012 (457/974 acres controlled)
Topsoil removed - 193/193 acres controlled
Benches - 0/107 acres controlled
To be backfilled - 0/188 acres controlled
To be graded - 0/108 acres controlled
Graded (to be topsoiled) - 8/119 acres controlled
Topsoiled (to be revegetated) - 27/27 acres controlled
Topsoil stockpiles - 14/14 acres controlled
Road Slopes - 162/162 acres controlled
Active Roads - 47/47 acres controlled
Dams, ditches, ponds - 6/9 acres controlled
Peabody ENERGY
0
2000
4000'
N
SCHOOL CREEK MINE
Caller Box 3045 Gillette, WY 82717-3045
JANUARY 21, 2012 SC-3 HIGH WIND EVENT
EXHIBIT 2
EQUIPMENT LOCATIONS AND DISTURBED AREAS
Permit No. CT-6445
Designed By: ACH/PCD
Drawn By: ACH
Checked By: PCD/ACS/JG
Date Drawn: 10/10/12
Scale: 1" = 2000'
C.I.: N/A
Sheet: 1 of 1
File: n_aq_ro1_ex02_121009.mxd



Legend

- MET Station
- TEOM Location
- SCM Total Cumulative Disturbance as of End of Jan. 2012 (2,663 acres)
- NARM Total Cumulative Disturbance as of End of Jan. 2012 (19,592 acres)
- Reverse Trace from SC-3
- SCM LNCM Boundary
- NARM LNCM Boundary

Mine Equipment

- #103 Coal Shovel
- #104 Overburden Shovel
- #105 Coal Shovel
- #106 Overburden Shovel
- #107 Overburden Shovel
- #108 Coal Shovel
- #109 Overburden Shovel
- #110 Overburden Shovel
- #111 Overburden Shovel
- #112 Overburden Shovel
- #120 Dragline
- #121 Dragline
- #154 Dragline
- #156 Coal Shovel
- #372a Coal Loader
- #373 Coal Loader
- #938 Overburden Hoe

0 6500 13000'

Peabody ENERGY

SCHOOL CREEK MINE
Caller Box 3045 Gillette, WY 82717-3045

JANUARY 21, 2012 SC-3 HIGH WIND EVENT
EXHIBIT 1

REVERSE TRACE AND EQUIPMENT LOCATIONS

Permit No. CT-6445

Designed By: ACH/PCD	Scale: 1 " = 6500 '
Drawn By: ACH	C.I.: N/A
Checked By: PCD/ACS/JG	Sheet: 1 of 1
Date Drawn: 10/10/12	File: n_aq_sc3_ex01_121009.mxd

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

February 14, 2013 Certified Mail Receipt Number: 7011 1570 0003 4871 6836

Bryan Hansen
School Creek Mine
Caller Box 3035
Gillette, WY 82717-3035

Re: Request for Flag under the Exceptional Event Rule for PM_{10} January 21, 2012 Exceedance at Site SC-3

Dear Mr. Hansen,

The Air Quality Division (AQD) has reviewed the request to flag the January 21, 2012 PM_{10} ambient monitored data at the School Creek Mine (School Creek), site SC-3, as an Exceptional Event in accordance with 40 CFR Part 50.14. Although the AQD has placed a temporary "High Wind" flag in AQS on the January 21, 2012 PM_{10} 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 November 21, 2012 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 supplement the packet:

- Please include 24-hour particulate data on the day of the exceedance for both upwind and downwind monitors at the School Creek Mine.
- Please elaborate on the statement, "NARM began implementing reactionary control measures on certain mining activities in the East Pits." This statement is made both in the Reactionary Control Measures on page 19 of the packet and on the timeline.

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.

Please keep in mind that while AQD had an extensive staff of monitoring, compliance and permitting personnel available to evaluate the documentation packet, this packet will also be reviewed by the public and EPA.

Please submit the requested supplemental information to Cara Keslar, Monitoring Section Supervisor no later than two (2) weeks from receipt of this letter. The AQD evaluation team will reconvene to determine if all requirements were met under the Exceptional Event Rule. If all requirements of the rule were met, AQD will keep the flags in the AQS database and the documentation package will be made

available for public review and submitted to EPA Region 8 for concurrence. If you have questions please contact me at (307) 335-6963 or kirk.billings@wyo.gov.

Sincerely,

Kirk Billings
Monitoring Project Advisor

Cc: School Creek Monitoring File

February 21, 2013 Certified Mail Receipt Number: 7009 1410 0002 3473 4245

Cara Keslar
Monitoring Section Supervisor
DEQ-AQ Division
Herschler Building
122 W. 25th St.
Cheyenne, WY 82002

Re: Request for supplemental information

Dear Ms. Keslar,

Enclosed is the requested supplemental information for the Exceptional Event package School Creek Mine submitted in accordance with 40 CFR Part 50.14. School Creek Mine has requested to flag the January 21, 2012 PM_{10} ambient monitored data at site SC-3.

Mr. Kirk Billings requested the following supplemental information:

"Please include 24-hour particulate data on the day of the exceedance for both upwind and downwind monitors at the School Creek Mine."

Tables for SC-2 (downwind) and SC-1 (upwind) are included in this package.

"Please elaborate on the statement, 'NARM began implementing reactionary control measures on certain mining activities in the East Pits.' This statement is made both in the Reactionary Control Measures on page 19 of the packet and on the timeline."

Page 20 of the packet states, "Subsequent to the notification, operations personnel at NARM concluded that the coal shovel and its associated trucks were significantly contributing to the concentrations being recorded at SC-3. At 11:30 the supervisors temporarily suspended activities with Shovel #105. Suspension of those digging activities in turn reduced material loading, haulage and dumping in the East Pits by seven coal trucks. Suspension of digging and haulage associated with Shovel #105 continued until 13:00 when reactionary control measures were deemed unnecessary because PM_{10} concentrations at SC-3 were plummeting. Those PM_{10} concentrations reached a 'non-alarm' hourly average concentration of 50 $\mu g/m^3$ by 14:00. The reactionary control measures implemented at NARM, by temporarily suspending activities in the East Pits on January 21, 2012 from 1130-1300, reduced production in this pit system for this timeframe by 33% and reduced truck haulage by 78%."

Thank you for your time in reviewing our Exceptional Events package.

Please contact me at (307) 464-4509 if you have any questions.

Sincerely,

Staci Hammond
Environmental Supervisor

School Creek Mine Exceptional Events SC-1 and Met Data

Date	Time	**SC-1** Hourly Conc. (STP) (ug/m3)	Wind Speed (mph)	Wind Direction (°)	Gust Speed (mph)
01/21/12	100	40.3	7.6	112.0	10.1
01/21/12	200	56.0	6.4	140.0	10.5
01/21/12	300	44.6	6.3	155.0	10.6
01/21/12	400	27.7	7.9	176.0	13.1
01/21/12	500	17.4	6.1	138.0	9.7
01/21/12	600	32.3	8.0	187.0	24.5
01/21/12	700	19.2	23.1	234.0	42.7
01/21/12	800	16.6	29.5	246.0	47.6
01/21/12	900	28.4	35.6	244.0	56.5
01/21/12	1000	25.8	35.1	243.0	57.4
01/21/12	1100	35.4	43.4	248.0	63.1
01/21/12	1200	20.0	33.7	245.0	55.6
01/21/12	1300	4.4	32.3	245.0	53.0
01/21/12	1400	6.7	20.6	258.0	35.9
01/21/12	1500	15.6	19.8	259.0	42.5
01/21/12	1600	6.3	25.0	241.0	42.2
01/21/12	1700	7.5	10.1	215.0	23.3
01/21/12	1800	2.2	9.1	229.0	19.0
01/21/12	1900	4.7	17.2	238.0	29.8
01/21/12	2000	1.2	18.1	239.0	28.4
01/21/12	2100	4.1	20.5	252.0	28.8
01/21/12	2200	7.3	22.2	260.0	36.1
01/21/12	2300	6.1	23.8	273.0	33.9
01/21/12	2400	2.9	20.3	291.0	29.6

Table 1

School Creek Mine Exceptional Events SC-2 and Met Data

Date	Time	**SC-2** Hourly Conc. (STP) (ug/m3)	Wind Speed (mph)	Wind Direction (°)	Gust Speed (mph)
01/21/12	100	18.0	7.6	112.0	10.1
01/21/12	200	17.0	6.4	140.0	10.5
01/21/12	300	12.0	6.3	155.0	10.6
01/21/12	400	18.0	7.9	176.0	13.1
01/21/12	500	31.0	6.1	138.0	9.7
01/21/12	600	21.0	8.0	187.0	24.5
01/21/12	700	156.0	23.1	234.0	42.7
01/21/12	800	810.0	29.5	246.0	47.6
01/21/12	900	1181.0	35.6	244.0	56.5
01/21/12	1000	1209.0	35.1	243.0	57.4
01/21/12	1100	1270.0	43.4	248.0	63.1
01/21/12	1200	356.0	33.7	245.0	55.6
01/21/12	1300	149.7	32.3	245.0	53.0
01/21/12	1400	36.0	20.6	258.0	35.9
01/21/12	1500	41.0	19.8	259.0	42.5
01/21/12	1600	23.0	25.0	241.0	42.2
01/21/12	1700	23.0	10.1	215.0	23.3
01/21/12	1800	13.5	9.1	229.0	19.0
01/21/12	1900	10.0	17.2	238.0	29.8
01/21/12	2000	19.0	18.1	239.0	28.4
01/21/12	2100	21.0	20.5	252.0	28.8
01/21/12	2200	20.0	22.2	260.0	36.1
01/21/12	2300	14.0	23.8	273.0	33.9
01/21/12	2400	3.0	20.3	291.0	29.6

previously missing data
was inadvertantly missed in the November 21, 2012 submittal. Contacted IML to recover data.

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

April 29, 2013

Bryan Hansen
School Creek Mine
Caller Box 3035
Gillette, WY 82717-3035

Re: Request for Flag under the Exceptional Event Rule for PM_{10} January 21, 2012 Exceedance

Dear Mr. Hansen,

On January 21, 2012, the School Creek Mine's SC-3 sampler recorded an exceedance of the 24-hour PM_{10} standard, with a final concentration of 226 $\mu g/m^3$.

On February 22, 2012 the Air Quality Division (AQD) received a request that data for the SC-3 monitor on this day be flagged under 40 CFR Part 50.14 "Treatment of Data Influenced by Exceptional Events" due to high winds.

On July 12, 2012, at the request of the AQD, School Creek submitted additional information to clarify the request to flag the data under 40 CFR Part 50.14.

On November 21, 2012 the AQD received new exceptional event packets for this exceedance. The opportunity to resubmit packets was extended to industry by the AQD to allow facilities with Q1-12 Exceptional Event packets to submit packets that took into account newly issued Exceptional Event Guidance from the EPA.

On March 4, 2013, at the request of the AQD, School Creek submitted additional information to clarify the request to flag the data under 40 CFR Part 50.14.

After review of the submitted materials, the AQD has decided to pursue School Creek's request to flag the PM_{10} data collected at the SC-3 monitor on January 21, 2012 under 40 CFR 50.14.

The next step in the process is a 30 day public comment period. In order to move forward, the AQD needs an electronic copy of all the documentation and correspondence submitted during the review process. All correspondence, starting with the original notification to the AQD, the original Exceptional Event packet, any requests for additional information, responses to those requests and other information submitted to the AQD during the review process should be combined into a single, chronologically ordered .pdf document and submitted to the AQD.

Once received, the chronological packet will be posted to the AQD's website and the public comment period will be advertised.

School Creek's final packet is requested on or before May 13, 2013. Please email it to kirk.billings@wyo.gov

Please contact Kirk Billings at (307) 335-6963 or kirk.billings@wyo.gov if you have any questions regarding this matter.

Sincerely,

Cara Keslar
Monitoring Section Supervisor

Cc: Kirk Billings, Air Quality Analyst
Tanner Shatto, District 3 District Engineer