



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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Office of the Regional Administrator

March 28, 2013

Mr. F. David Martin
Secretary
New Mexico Environment Department
Post Office Box 5469
Santa Fe, New Mexico 87502-5469

Dear Secretary Martin:

Thank you for providing the New Mexico Environment Department's Exceptional Events Demonstration 2009 regarding the National Ambient Air Quality Standard exceedances for particulate matter at air monitoring sites in Doña Ana and Luna Counties. The EPA has completed our analysis to ensure it meets the requirements governed by 40 CFR §50.14.

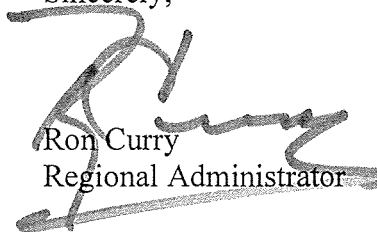
The NMED has requested that the EPA exclude flagged PM₁₀ exceedances from consideration when making decisions related to Doña Ana County's and Luna County's attainment status. The NMED has met schedule and procedural requirements in section 50.14(c) with respect to all the proposed 2009 exceptional events. After careful consideration of the information provided, the EPA concurs based on the weight of evidence that the NMED has successfully made the demonstrations on most days of data submitted. Please see the enclosures for the summary of the EPA's technical review and the specific days receiving concurrence.

The EPA is unable to concur on the event at the Chaparral site (Air Quality System, AQS # 35-013-0020) on August 4, 2009 at this time. We are affording the NMED the opportunity to submit additional information if it wishes for the EPA to further consider it as an exceptional event.

In addition, the EPA will rely on calculated values that exclude this data in proposed regulatory actions, such as a proposed designation, classification, attainment demonstration, or finding as to whether the Doña Ana County or Luna County attainment area has met the PM₁₀ NAAQS. These regulatory actions require the EPA to provide an opportunity for public comment prior to taking a final agency action. If the EPA pursues one of these actions for the Doña Ana County or Luna County attainment area, we will open a new comment period on the exceptional event submission you have made and the determinations conveyed in this letter. If so, we must then consider and respond to those comments before taking final regulatory action. Accordingly, the determinations conveyed in this letter do not constitute final action regarding any matter on which the EPA is required to provide an opportunity for public comment. In particular, this applies to determinations regarding the attainment status or classification of the area. Final actions will take place only after the EPA completes notice and comment rulemaking on those determinations. As an additional clarification, the determinations conveyed in this letter are applicable only to determinations incorporating the submitted data relative to the PM₁₀ NAAQS.

We appreciate the work and effort of the NMED to develop its exceptional events package. If you have any questions, please contact me at (214) 665-2100, or your staff may contact Ms. Maria Martinez, Air Quality Analysis Section Chief, at (214) 665-2230.

Sincerely,



Ron Curry
Regional Administrator

cc: Mr. Richard Goodyear
Air Quality Chief, New Mexico Environment Department

Enclosure 1

New Mexico Exceptional Events Demonstration 2009 Technical Review

Introduction

The EPA promulgated the Exceptional Events Rule (EER) in 2007, pursuant to the 2005 amendment of the Clean Air Act (CAA) Section 319. The EER added 40 CFR §50.1(j), (k), and (l); §50.14; and §501.930 to the Code of Federal Regulations (CFR). These sections contain definitions, criteria for EPA approval, procedural requirements, and requirements for air agency demonstrations, all of which must be met before EPA can concur under the EER on the exclusion of air quality data from regulatory decisions.

As a requirement under the EER, data claimed to be due to an exceptional event must be flagged in the EPA's Air Quality System (AQS) database and an initial description of the event should be provided to the EPA, as well as, notice and opportunity for public comment. Failure to meet the above criteria will result in non-concurrence with the flagging of the NAAQS exceedance.

After considering the weight of evidence provided in the demonstration, the EPA will decide to concur or not to concur with each flag. Under 40 CFR §50.14(c)(3)(iv), the air agency demonstration to justify exclusion of data must provide evidence that:

1. the event was not reasonably controllable or preventable (nRCP),
2. there was a clear causal relationship (CCR),
3. there would have been no exceedance or violation but for the event (NEBF),
4. the event affects air quality (AAQ),
5. the event was caused by human activity unlikely to reoccur at a particular location or was a natural event (HAURL / Natural Event), and
6. the event was in excess of normal historical fluctuations (HF).

Monitoring Network

During 2009 for a period of ten days throughout the year, the New Mexico Environment Department (NMED) Air Quality Bureau (AQB) recorded seventeen exceedances of the 24-hour PM₁₀ standard. The New Mexico Exceptional Events Demonstration (EED) claims PM₁₀ exceedances were caused by high winds and blowing dust. Federal Reference Method (FRM) monitors and Federal Equivalent Method (FEM) monitors are used in calculating design values for areas.

The monitoring network in this area consists of six (6) PM₁₀ monitoring sites in Doña Ana County and two (2) sites in Luna County. Seven of these sites are equipped with continuous FEM TEOM instruments, while the 7D Deming site (AQS ID # 35-029-0001) only has an FRM Hi-Volume Wedding Monitor which provides a single 24-hour sample value every 3 days. Two of the Doña Ana County sites have both FEM TEOM and FRM Wedding Monitors (6CM Anthony, AQS ID # 35-013-0016 and 6ZG SPCY, AQS ID # 35-013-0017). See Table 1 for a list of the monitoring sites in southern New Mexico.

Table 1: Southern New Mexico PM₁₀ monitoring sites

Site Name	AQS ID #	Latitude (d-m-s)	Longitude (d-m-s)
6ZL Holman	35-013-0019	32-25-29.69	-106-40-26.62
6ZK Chaparral	35-013-0020	30-02-27.48	-106-24-33.09
6CM Anthony*	35-013-0016	32-00-11.54	-106-35-57.67
6ZG SPCY*	35-013-0017	31-47-49.91	-106-33-24.17
6ZM Desert View	35-013-0021	31-47-46.32	-106-35-02.13
6WM West Mesa	35-013-0024	32-16-39.9	-106-51-49.68
7E Deming	35-029-0003	32-15-20.99	-107-43-21.58
7D Deming**	35-029-0001	32-16-7.86	-107-45-29.32

* These monitor sites contain both a continuous and a non-continuous monitor operating on a one-in-six day schedule

** 7D Deming has only a non-continuous PM₁₀ Hi-Volume Wedding Instrument.

Topography, Climate, Land Use, Population Density, and Emission Sources

The area is topographically diverse and borders the northern Chihuahuan Desert of Mexico, as well as El Paso, TX, the Franklin Mountains, and a significant area of natural desert in New Mexico. Doña Ana County and Luna County have a “mild, semiarid climate with light precipitation, abundant sunshine, low relative humidity, and a large...temperature range.... Windstorms are common during the late winter and spring months.” As the EED notes, the wind storms may be regional events.

Doña Ana County is the second most populated county in the state of New Mexico with a population of over 206,000 residents, and Las Cruces is its largest city with almost 71,000 residents. Alternatively, Luna County is largely rural with only 27,000 residents. Deming is the largest city in Luna County.

According to the EED, more than 50% of New Mexico land area is pastureland. An additional 28% of the state is forest land. Ranching is the most extensive agricultural activity. “Of Doña Ana County’s 3,804 square miles, approximately 75% is federal land and 12% is state land, with the remainder privately held.”

As part of EPA’s Atlas Project, the NMED Air Quality Bureau (AQB) was to conduct an area source Particulate Matter Emission Inventory. The study described the anthropogenic sources of windblown dust in New Mexico as being similar to those found in communities throughout the western United States. The largest source of windblown dust in Doña Ana County is the natural desert where areas of loose, dry, and/or barren soil are highly susceptible to wind erosion. The Atlas Project indicated that wind erosion contributes 85% of emissions in the area. Although the natural desert is by far the largest source of windblown dust, the EED identifies human activities as a significant contributor of emissions.

Controls

Under the Luna and Doña Ana Counties’ Natural Events Action Plans (NEAPs), local governments (county and city) developed wind erosion control ordinances and policies based on Best Achievable Control Measures (BACM) in 2000. The most recent NEAP posted for Doña Ana County and Luna County can be found at: <http://www.nmenv.state.nm.us/aqb/NEAP/>. The NEAPs were developed based on the following five major elements: 1) protect public health, 2) public education and awareness, 3) documentation and analysis of exceedances, 4) use of BACM and 5) five-year review and evaluation of

plan. The EPA acknowledges that implementation of controls on natural desert is cost prohibitive and could affect the natural ecosystem of these lands.

As the EED notes, the NEAPs were not adopted under New Mexico’s State Implementation Plan, preventing the AQB from requiring BACM in these counties. However, support of the NEAPs from local government officials was included.

Typical High Wind Exceedances and High Wind Threshold

In 2012, the EPA released a document titled “Draft 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”. This guidance defines the high wind threshold as “the minimum threshold wind speed capable of overwhelming reasonable controls on anthropogenic sources (i.e., significant emissions from controlled sources) or causing emissions from natural undisturbed areas.” Through studies in Clark County, Nevada and in Arizona, the EPA has set a standard default high wind threshold at a sustained wind speed of 11.2 m/s (25 mph) for areas in the West. The EED sets a local high wind threshold at 6 m/s wind speeds for 2 hours with gusts above 12 m/s. The EPA has reviewed “Saxton et al”, which was cited in the EED. It is the belief of the EPA that the conclusions reached in “Saxton et al” may not correlate to natural emission sources in Doña Ana and Luna Counties. The EPA recommends to the NMED a review of the local threshold used in Doña Ana and Luna Counties (see “Review and future considerations” below). Pending the development of a new local high wind threshold, or additional support for the current local high wind threshold, the EPA suggests using the default 11.2 m/s sustained wind speed threshold.

The NMED identified 10 days and 17 events as being attributed to high wind exceptional events. Table 2 provides available PM10 data for these events.

Table 2: Southern New Mexico monitor readings on Proposed Exceptional Event Days

	6CM	6ZG	6ZK	6ZL	6WM	6ZM	7E
DATE	Anthony	SPCY	Chaparral	Holman	West Mesa	Desert View	Deming
1/26/2009	190	100	80	50	20	80	30
2/10/2009	250	190	170	140	50	90	10
3/7/2009	210	200	200	40	20	150*	20
3/23/2009	60	50	50	180	50	50	50
3/26/2009	120	210	70	190	50	120	80
4/8/2009	140	170	190	110	40	120	70
8/4/2009	50	60	190	30	30	80	30
10/27/2009	50	50	160	20	30	--	70
10/28/2009	40/30W	40/20W	60	80	90	40	240/20W†
12/8/2009	180	50	270	40	50	50	60

Table 2 - 2009 PM₁₀ exceedances caused by windblown dust are shaded orange. The 24 hour average

values are rounded to the nearest 10 with units in $\mu\text{g}/\text{m}^3$ (40 CFR Part 50). All values recorded by TEOM instruments unless followed by a W indicating a value recorded using Wedding instruments.

*Not an exceedance due to rounding conventions defined in the PM_{10} NAAQS at 40 CFR Part 50.

† The Deming FRM Wedding monitor (7D) is not collocated with the Deming FEM TEOM (7E). The FRM recorded $20 \mu\text{g}/\text{m}^3$ 10/28/2009.

Historical Fluctuations

Table 3 indicates that the exceedances recorded during 2009 were well above background levels in the area. This table, from the EED, includes 24-hour average data from 2003 – 2008 and was downloaded from the AQS Data Mart. Desert View data was only for August 2007 – 2008.

Table 3: Monitoring Site Background Levels

	Anthony	Chaparral	Deming	Desert View	Holman	SPCY	West Mesa
Max	147	149	152	150	153	212	153
99th Percentile	123	118	96	121	121	146	88
95th Percentile	88	65	57	89	62	110	47
75th Percentile	56	35	29	48	35	61	23
50th Percentile	38	24	19	34	23	39	15
Mean	42	28	23	38	27	47	19
25th Percentile	24	15	12	21	14	24	10
5th Percentile	12	6	6	10	6	11	5

Schedule and Procedural Requirements

A specific schedule and procedural requirements an air agency must follow to request data exclusion is identified in 40 CFR §50.14(c). Table 4 outlines the EPA’s evaluation of these requirements.

Table 4: Schedules and Procedural Criteria

	Reference	Criterion Met?
Did the State provide public notification of the event?	40 CFR §50.14 (c)(1)(i)	Yes
Were flags and initial description placed on the data by July 1 st of the following year?	40 CFR §50.14 (c)(2)(iii)	Yes
Was the demonstration submitted within 3 years of the end of the quarter in which the event occurred and 12 months prior to the date of any that regulatory decision must be made by EPA?	40 CFR §50.14 (c)(3)(i)	Yes
Was the public comment process followed and documented?	40 CFR §50.14 (c)(3)(v)	Yes

Review and future considerations

1) The term “high wind threshold” is used to define the minimum threshold wind speed that is capable of overwhelming reasonable controls on anthropogenic sources or causing emissions from natural

undisturbed areas. If an agency is unable to generate an area-specific high wind threshold with supporting documentation, the EPA will use the default high wind threshold at a sustained wind speed of 11.2 m/s (25 mph) for areas in the West.

The EED sets the high wind threshold at a sustained hourly wind speed lasting two hours or more of 6 m/s with instantaneous wind gusts of 12 m/s or more.

As the NMED proposes a wind speeds below the default high wind threshold, the EPA requests the NMED to revisit the development of the high wind threshold to determine its continued applicability. In addition, the following analysis may assist in the review of the lower wind threshold:

- (1) A new prospective controls analysis documenting the appropriateness of a lower threshold, or
- (2) A comprehensive controls analysis

The EPA recommends review of the high wind studies included in the EER High Wind Guidance Document which identified 25 mph (11.2 m/s) as the high wind speed threshold in the arid desert climate of Clark County, Nevada. The EPA would be open to reviewing a proposal for use of a lower high wind threshold which the NMED may desire to use with future submittals, however, at this time, the following review utilized the default 25 mph threshold as a bases for high wind from natural sources.

2) Additionally, the EPA recommends the NMED review the current NEAPs for Doña Ana and Luna Counties and, if necessary, coordinate with local counties and cities to update as appropriate. This may be an appropriate time to transition the NEAP to a High Wind Action Plan if desired. The EER Draft High Wind Guidance may assist in better explaining the differences. Although not required as part of the EER, the NEAP's or High Wind Action Plan's continued applicability in Doña Ana and Luna Counties assist in verifying controls were implemented during an event and ensure that continued review of the necessary controls is taking place. As these documents may play a role in the State Implementation Plan (SIP) planning process, please ensure any changes are discussed with the appropriate EPA, NMED, and local officials.

3) The EPA recommends future exceptional event demonstrations include examples of notifications sent to residents of areas indicating a NAAQS exceedance may occur or was in the process of occurring, as well as enforcement activity verifying controls were being implemented as designed. The resident notification may be a copy of an email, newspaper article, website notification, etc. warning residents of reduced air quality. Enforcement activity may include a Notice of Violation, inspection report, email communication, etc. indicating that city, county, or state personnel were ensuring control measures were being used to reduce the impact of anthropogenic sources during high wind events. The EPA understands that the NMED may not be able to enforce and require that BACM is implemented at the local level, however, the EPA expects the NMED to perform appropriate inspections of permitted facilities and other sources as required by the Clean Air Act.

4) The EPA also recommends that the NMED address the height discrepancy for the meteorological equipment at the Anthony and West Mesa sites align with EPA recommended Meteorological guidance (Quality Assurance Handbook for Air Pollution Measurement Systems Volume IV, December 2008 and

Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-05, February 2000). The Anthony site, which measures wind speed 8 meters lower than the typical New Mexico monitoring site, appears to routinely measure significantly lower wind speeds than other sites in the area.

High wind exceptional event: January 26, 2009, 6CM Anthony (AQS ID # 35-013-0016)

nRCP

The EED provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The EED also notes the limited agricultural activity taking place in early January. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. Little to no point sources can be found in the area of the monitor. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 3.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Luna Counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

Despite the Anthony site not reaching the EPA minimum wind threshold, the Deming and Holman sites measured wind speeds exceeding 11.2 m/s. In addition, the Chaparral site, which is the closest site to the Anthony site and potentially downwind of the Anthony site had winds reach 11 m/s. The Anthony site is measuring wind speeds at a reduced height; therefore, the wind speeds may have been greater at the height recommended in EPA meteorological guidance. In addition, the maximum wind gusts at all sites in the area were in excess of 15 m/s. The event of this day affected the southern Doña Ana County sites similarly. At the Chaparral site, wind speeds reached 10 m/s at the 1200 hour, and were at or near 11 m/s between the 1400 – 1600 hours.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls, the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled from Mexico over primarily natural desert terrain to the monitors in Doña Ana County.

Historical Fluctuations

A time series analyses from 2003-2008 for PM₁₀ concentrations of Anthony monitor is included in section 3.4.1 of the EED. The graph illustrates the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 3.4.1 of the EED. Figures 3-7 and 3-8 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM₁₀ and wind gusts. The EED successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 3.5, provides an analysis of the meteorological events occurring on January 26, 2009. The weather pattern created favorable weather conditions for increasing surface winds and providing the turbulence required for entrainment of dust. There is a correlation between the elevating of winds and the elevating PM₁₀ levels. Figure 3-11 demonstrates that elevated levels of PM₁₀ immediately followed elevated wind speeds at the Anthony monitoring site. High PM₁₀ concentrations of 1200 µg/m³ were observed at approximately 1400 hour on January 26, 2009. The 24-hour average concentration was 190 µg/m³. Although the other area monitors did not record exceedances, there were elevated levels of PM₁₀ recorded.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of January 26, 2009 is evidently affecting air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the Anthony site are well below the NAAQS, and Figure 3.1 of the EED displays 24 hour averages for four days before and after the exceedance recorded at the Anthony monitor confirming this. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF criteria.

The EPA concurs the event at the 6CM Anthony (AQS ID # 35-0013-0016) during the 1400 - 1600 hours of January 26, 2009 was caused by a high wind exceptional event.

High wind exceptional event: February 10, 2009, 6CM Anthony (AQS ID # 35-013-0016), 6ZG SPCY (AQS ID # 35-013-0017), 6ZK Chaparral (AQS ID # 35-013-0020)

nRCP

The EED provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The EED also notes the limited agricultural activity taking place in early January. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. Little to no point sources can be found in the area of the monitors. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 4.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana County. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

Anthony – The Anthony site reported wind speeds below 11.2 m/s, however, this site is measuring wind speeds at a reduced height; therefore, the wind speeds may have been greater at the height recommended in EPA meteorological guidance. The Chaparral site, which is the closest site to the Anthony site and downwind in this instance recorded speeds in excess of the minimum threshold reaching an hourly average of 14 m/s. There were also two other monitoring sites in the area, West Mesa and Holman, that recorded wind speeds in excess of 11.2 m/s, suggesting wind speeds were high enough in Doña Ana County to entrain dust.

SPCY – The SPCY site reported wind speeds below 11.2 m/s, however, the measured wind speeds exceeded 11.0 m/s on the day in question. There were also three other monitoring sites in the area, Chaparral, West Mesa and Holman, that recorded wind speeds in excess of 11.2 m/s, suggesting wind speeds were high enough in Doña Ana County to entrain dust.

Chaparral – The Chaparral site along with West Mesa, Holman and Deming measured wind speeds exceeding 11.2 m/s. The Chaparral site measured wind speeds at or above 11.2 m/s at 800 – 900 hours and 1300 to 2000 hours.

With the high wind speeds in the area, as measured at three monitoring sites, it is reasonable to believe that despite not reaching 11.2 m/s at all the sites; conditions existed such that dust from natural sources could have become entrained in the air around the region. In addition, the maximum wind gusts at all sites in the area were in excess of 15 m/s at different points of the day, and all the Doña Ana County sites exhibited an increase in recorded PM_{10} values during the period of elevated winds.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls; the NMED provides a control analysis confirming no unusual PM_{10} producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled from Hidalgo, Grant and Luna Counties to the monitors in Doña Ana County. The EED does not provide detailed emission inventories to quantify the amount each source has contributed to the exceedance, however, between a combination of the existing emission inventory and high winds throughout the area, it is reasonable to conclude that natural desert contributed significantly to the exceedance.

Historical Fluctuations

A time series analyses from 2003-2008 for PM_{10} concentrations of Anthony, Chaparral and SPCY monitors are included in section 4.4.1 of the EED. These graphs show the PM_{10} exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 4.4.1 of the EED. Figures 4-9 to 4-14 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM_{10} and wind gusts. The EED

successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 4.5, provides an analysis of the meteorological events occurring on February 10, 2009. The weather pattern created favorable weather conditions for the winds aloft to mix down, increasing surface winds and providing the turbulence required for entrainment of dust. There is a *correlation between the elevating of winds and the elevating PM₁₀ levels. Figures 4-17 to 4-19* demonstrate that elevated levels of PM₁₀ were during the same time frame as high winds at the Anthony, Chaparral and SPCY monitors for the day of February 10 2009. High PM₁₀ concentrations of 1700 µg/m³ at Anthony, 700 µg/m³ at SPCY, and 500 µg/m³ at Chaparral were observed at approximately the 800 hour. The 24-hour average at Anthony was 250 µg/m³, at Chaparral was 170 µg/m³, and at SPCY was 190 µg/m³. Although the other area monitors did not record exceedances, there were similarly elevated levels of PM₁₀ recorded.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of February 10, 2009 affected air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the Anthony, SPCY, and Chaparral sites are well below the NAAQS, and Figure 4.1 of the EED displays 24 hour averages for four days before and after the exceedances at the Anthony, SPCY, and Chaparral monitors confirming this. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF criteria.

The EPA concurs the event at the 6CM Anthony (AQS ID # 35-0013-0016) during the 800 hour and 1300 – 1700 hours of February 10, 2009 was caused by a high wind exceptional event.

The EPA concurs the event at the 6ZK Chaparral (AQS ID # 35-013-0020) during the 800 – 900 hours and 1400 – 2000 hours of February 10, 2009 was caused by a high wind exceptional event.

The EPA concurs the event at the 6ZG SPCY (AQS ID # 35-013-0017) during the 800 hour and 1400 – 1900 hours of February 10, 2009 was caused by a high wind exceptional event.

High wind exceptional event: March 7, 2009, 6CM Anthony (AQS ID # 35-013-0016), 6ZG SPCY (AQS ID # 35-013-0017), 6ZK Chaparral (AQS ID # 35-013-0020)

nRCP

The EED provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The EED also notes agricultural activities may have been occurring at this time of year. However, the largest and most likely sources of windblown dust are the playas of northern Mexico. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. Little to no point sources can be found in the area of the monitors. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 5.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Luna Counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

Anthony – The Anthony site reported wind speeds below 11.2 m/s, however, this site is measuring wind speeds at a reduced height; therefore, the wind speeds may have been greater at the height recommended in EPA meteorological guidance. The Chaparral site, which is the closest site to the Anthony site and near the downwind path in this instance recorded speeds in excess of the minimum threshold reaching an hourly average over 13 m/s. Chaparral was the only site in the area that recorded wind speeds in excess of 11.2 m/s, however, all the sites experienced a period of elevated wind speeds three coming close to reaching 11 m/s.

SPCY – The SPCY site reported wind speeds below 11.2 m/s, however wind speeds nearly reached 11 m/s on the day of the event. The Chaparral site recorded wind speeds in excess of 11.2 m/s, suggesting wind speeds in the area were high enough to entrain dust.

Chaparral – The Chaparral site measured wind speeds exceeding 11.2 m/s from approximately 1000 - 1600 hours.

With the high wind speeds in the area, as measured at the Chaparral monitoring site, it is reasonable to believe that despite not reaching 11.2 m/s at all the sites; conditions existed such that dust from natural sources could have become entrained in the air around the region. In addition, the maximum wind gusts at all sites in the area were in excess of 16 m/s at different points of the day, and all the southern Doña Ana County sites exhibited a similar increase in recorded PM₁₀ values during the period of elevated winds.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls; the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back

trajectory analysis of how air masses traveled from northern Mexico to the monitors in Doña Ana County. Large differences between the 24-hour averages at the southern and northern Doña Ana County and Luna County sites suggests that the playas of Mexico and natural desert contributed heavily to the exceedances.

Historical Fluctuations

A time series analyses from 2003-2008 for PM₁₀ concentrations of Anthony, Chaparral and SPCY monitors are included in section 5.4.1 of the EED. These graphs show the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 5.4.1 of the EED. Figures 5-9 to 5-14 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM₁₀ and wind gusts. The EED successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 5.5, provides an analysis of the meteorological events occurring on March 7, 2009. The weather pattern created favorable weather conditions for the winds aloft to mix down increasing surface wind velocities and provided the turbulence required for vertical mixing and entrainment of dust. There is a correlation between the elevating of winds and the elevating PM₁₀ levels. Figures 5-17 to 5-19 demonstrate that elevated levels of PM₁₀ were during the same time frame as high winds at the Anthony, Chaparral and SPCY monitors for the day of March 7, 2009. High PM₁₀ concentrations of 1100 µg/m³ at Anthony, SPCY and Chaparral were all observed between the 1000 hour and 1300 hour. The 24-hour average at Anthony was 210 µg/m³, at Chaparral was 200 µg/m³, and at SPCY was 200 µg/m³. Although the other southern Doña Ana County monitors did not record exceedances, they recorded elevated levels of PM₁₀.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of March 7, 2009 evidently affected air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the Anthony, SPCY, and Chaparral sites are well below the NAAQS, and Figure 5.1 of the EED displays 24-hour averages for four days before and after the exceedances at the Anthony, SPCY, and Chaparral monitors confirming this. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF criteria.

The EPA concurs the event at the 6CM Anthony (AQS ID # 35-013-0016) during the 1000 - 1500 hours of March 7, 2009 was caused by a high wind exceptional event.

The EPA concurs the event at the 6ZK Chaparral (AQS ID # 35-013-0020) during the 1000 - 1500 hours of March 7, 2009 was caused by a high wind exceptional event.

The EPA concurs the event at the 6ZG SPCY (AQS ID # 35-013-0017) during the 1000 - 1600 hours of March 7, 2009 was caused by a high wind exceptional event.

High wind exceptional event: March 23, 2009, 6ZL Holman (AQS ID # 35-013-0019)

nRCP

The EED provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The EED also notes agricultural activities will have been occurring at this time of year. The most likely sources of windblown dust are undisturbed desert, agricultural lands, residential lands and unpaved roads. There are little to no point sources in the vicinity of this monitor. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 6.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Las Cruces counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust. On this day, the northern most sites, including the Holman, Deming, West Mesa and Chaparral sites, reported wind speeds exceeding 11.2 m/s.

With the high wind speeds in the area, including at the Holman site, it is reasonable believing conditions existed such that dust from natural sources could have become entrained in the air around the region. In addition, the maximum wind gusts at the Holman site in the area were 25 m/s. Wind speeds were at or near 11.2 m/s from approximately 1100 – 1600 hours.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls: the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled from western New Mexico to the monitors in northern Doña Ana County. Smaller spikes in particulate data were observed at other monitoring sites in the area. In addition, Holman is the most northern site in this area, indicating a possibility that northern Doña Ana County had greater PM levels. The primary sources of the dust would be the natural desert terrain and anthropogenic local sources, for which there are dust control ordinances in place.

Historical Fluctuations

A time series analyses from 2004-2008 for PM₁₀ concentrations of Holman monitors are included in section 6.4.1 of the EED. This graph shows the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 6.4.1 of the EED. Figures 6-7 and 6-8 provide hourly data distribution plots where it shows the high wind event exceeds the 99th percentile for PM₁₀ and the 95th percentile for wind gusts. The EED successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 6.5, provides an analysis of the meteorological events occurring on March 23, 2009. The weather pattern created favorable weather conditions for the winds aloft to mix down increasing surface wind velocities and provided the turbulence required for vertical mixing and entrainment of dust. There is a correlation between the elevating of winds and the elevating PM₁₀ levels. Figure 6-11 demonstrates that elevated levels of PM₁₀ were during the same time frame as high winds at the Holman monitor for March 23, 2009. The high PM₁₀ concentration of 1100 µg/m³ at Holman occurred at 400 hours. The 24-hour average concentration was 180 µg/m³. Although the other northern Doña Ana County monitors did not record exceedances, they did indicate a small increase in levels of PM₁₀.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of March 23, 2009 evidently affected air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the Holman site is well below the NAAQS, and Figure 6.1 of the EED displays 24 hour averages for four days before and after the exceedances at the Holman site confirming this. The Holman site did have another high wind event on March 26, 2009, which is attributed to high winds from natural sources. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF criteria.

The EPA concurs the event at the 6ZL Holman (AQS ID # 35-013-0019) during the 1100 - 1600 hours of March 23, 2009 was caused by a high wind exceptional event.

High wind exceptional event: March 26, 2009, 6ZG SPCY (AQS ID # 35-013-0017), 6ZL Holman (AQS ID # 35-013-0019)

nRCP

The EED provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The EED also notes agricultural activities would be occurring at this time of year. However, the largest and most likely sources of windblown dust are the playas of northern Mexico for the SPCY site and the desert lands in Doña Ana and Luna Counties for the Holman site. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. Little to no point sources can be found in the area of the monitors. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 7.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Luna Counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

SPCY – The SPCY site reported wind speeds below 11.2 m/s, however wind speeds reached 11.0 m/s on the day of this event. The Holman, Deming, and West Mesa sites recorded wind speeds in excess of 11.2 m/s, suggesting wind speeds in the area were high enough to entrain dust.

Holman – The Holman site measured wind speeds exceeding the minimum threshold with wind speeds at or near the 11.2 m/s threshold from approximately 1200 – 2200 hours.

With the high wind speeds in the area, as measured at the Holman, Deming, and West Mesa sites, it is reasonable to believe that despite not reaching 11.2 m/s at all the sites; conditions existed that dust could have become entrained in the air around the region. In addition, the maximum wind gusts at all sites in the area, except the Anthony site, were in excess of 18 m/s at different points of the day, and all the sites in the area exhibited a similar increase in recorded PM₁₀ values during the period of elevated winds.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls: the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled from central Luna and Doña Ana Counties to the northern monitors and from southern Luna and Doña Ana Counties and northern Mexico to the monitors in the southern half of the county, suggesting the natural deserts contributed heavily to the exceedances.

Historical Fluctuations

A time series analyses from 2003-2008 for PM₁₀ concentrations of SPCY and Holman monitors are included in section 7.4.1 of the EED. These graphs show the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 7.4.1 of the EED. Figures 7-9 and 7-12 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM₁₀ and wind gusts. The EED successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, Section 7.5, provides an analysis of the meteorological events occurring on March 26, 2009. The weather pattern created favorable weather conditions for the winds aloft to mix down increasing surface wind velocities and provided the turbulence required for vertical mixing and entrainment of dust. There is a correlation between the elevating of winds and the elevating PM₁₀ levels. Figures 7-15 and 7-16 demonstrate that elevated levels of PM₁₀ were during the same time frame as high winds at the SPCY and Holman monitors for the day of March 26, 2009. High PM₁₀ concentrations of 700 µg/m³ at SPCY and 800 µg/m³ at Holman occurred at 1400 hour and 1200 hour, respectively. The 24-hour average concentration was 210 µg/m³ at SPCY and 190 µg/m³ at Holman. Although no other monitors recorded an exceedance, they all recorded elevated levels of PM₁₀.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of March 26, 2009 evidently affected air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the SPCY and Holman sites are well below the NAAQS, and Figure 7.1 of the EED displays 24-hour average for four days before and after the exceedances at the SPCY and Holman monitors confirming this. The Holman site did have a high wind exceedance attributable to a high wind event on March 23, 2009. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF criteria.

The EPA concurs the event at the 6ZG SPCY (AQS ID # 35-013-0017) during the 1200 - 1900 hours of March 26, 2009 was caused by a high wind exceptional event.

The EPA concurs the event at the 6ZL Holman (AQS ID # 35-013-0019) during the 1200 - 2200 hours of March 26, 2009 was caused by a high wind exceptional event.

High wind exceptional event: April 8, 2009, 6ZG SPCY (AQS ID # 35-013-0017), 6ZK Chaparral (AQS ID # 35-013-0020)

nRCP

The EED submittal provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The EED also notes agricultural activities may have been occurring at

this time of year. However, the EED states the largest and most likely sources of windblown dust are the playas of northern Mexico. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. Little to no point sources can be found in the area of the monitors. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 8.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Luna Counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

SPCY – The SPCY site reported wind speeds below 11.2 m/s, however wind speeds reached approximately 10.8 m/s on the day of the event. The Deming, Holman, West Mesa, and Chaparral sites recorded wind speeds in excess of 11.2 m/s, suggesting wind speeds in the area were high enough to entrain dust.

Chaparral – The Chaparral site measured wind speeds exceeding the minimum threshold with speeds at or above 11.2 m/s from 1400 – 2000 hours and at 2200 hours.

With the high wind speeds in the area, as measured at the Deming, Holman, West Mesa, and Chaparral sites, it is reasonable to believe that despite not all the sites reaching 11.2 m/s; conditions existed such that dust could have become entrained in the air around the region. In addition, the maximum wind gusts at all sites in the area, except the Anthony site, were in excess of 19 m/s at different points of the day, and all the monitoring sites exhibited a similar increase in recorded PM₁₀ values during the period of elevated winds.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls: the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled through southern Doña Ana County and northern Mexico to the SPCY and Chaparral monitors. The most likely sources contributing to the event are the playas of northern Mexico and the desert lands of Doña Ana County.

Historical Fluctuations

A time series analyses from 2003-2008 for PM₁₀ concentrations of Chaparral and SPCY monitors are included in section 8.4.1 of the EED. These graphs show the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 8.4.1 of the EED. Figures 8-8 to 8-11 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM₁₀ and wind gusts. The EED successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 8.5, provides an analysis of the meteorological events occurring on April 8, 2009. The weather pattern created favorable weather conditions for the winds aloft to mix down increasing surface wind velocities and provided the turbulence required for vertical mixing and entrainment of dust. There is a correlation between the elevating of winds and the elevating PM₁₀ levels. Figures 8-15 and 8-16 demonstrate that elevated levels of PM₁₀ were during the same time frame as high winds at SPCY and Chaparral monitors for the day of April 8, 2009. High PM₁₀ concentrations of 600 µg/m³ at SPCY and 1000 µg/m³ at Chaparral at 1400 hour and 2200 hour, respectively. The Chaparral site recorded a significant peak at the 2200 hour while average winds were fairly stable. This could be attributed to slightly elevated wind gusts at this time, as the wind gusts reached their maximum at about this time. The 24-hour average concentration was 170 µg/m³ at SPCY and 190 µg/m³ at Chaparral. Although the other southern Doña Ana County sites did not record exceedances, they all recorded elevated levels of PM₁₀.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of April 8, 2009 evidently affected air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the SPCY and Chaparral sites are well below the NAAQS, and Figure 8.1 of the EED displays 24-hour averages for four days before and after the exceedances at the SPCY and Chaparral monitors confirming this. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF criteria.

The EPA concurs the event at the 6ZG SPCY (AQS ID # 35-013-0017), during the 1400 – 1900 hours of April 8, 2009 was caused by a high wind exceptional event.

The EPA concurs the event at the 6ZK Chaparral (AQS ID # 35-013-0020) during the 1400 - 1900 hours and 2200 hour of April 8, 2009 was caused by a high wind exceptional event.

High wind exceptional event: August 4, 2009, 6ZK Chaparral (AQS ID # 35-013-0020)

nRCP

The EED provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The agricultural activities during August are not included. The largest sources of windblown dust are undisturbed desert, residential land, and unpaved roads. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. In addition, as the wind mass affecting the Chaparral monitor came from the El Paso, Texas area, it is important to note that as part of the Texas SIP, BACM is required for the City of El Paso and Fort Bliss Military Base. Little to no point sources can be found in the area of the monitor.

Section 9.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Luna Counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls: the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled from northeastern El Paso and Franklin Mountain areas to the monitoring site. Maximum wind gusts reached 17 m/s.

The Chaparral site reported the maximum average wind speed for the area reached just over 9 m/s. Failure to reach the EPA minimum wind threshold does not preclude this event from being considered an exceptional event; however, additional evidence of the event being not reasonably controllable is required to verify the wind effects at this monitor met the requirements of the EER.

Historical Fluctuations

A time series analyses from 2003-2008 for PM₁₀ concentrations of Chaparral monitors is included in section 9.4.1 of the EED. These graphs show the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 9.4.1 of the EED. Figures 9-7 and 9-8 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM₁₀ and wind gusts. The EED presents evidence that suggests the event could be associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 9.5, provides an analysis of the meteorological events on August 4, 2009. The demonstration points to a dry microburst from thunderstorm-like activity as the cause for elevated winds

at the 1800 hour. A sounding from Santa Teresa confirms large amounts of moisture present at the time of the event. During this period of time, other sites in the area recorded smaller spikes in PM₁₀ concentrations.

The Chaparral monitor recorded a greater PM₁₀ value several hours prior to the elevated winds, during the 1200 - 1300 hour. The EED attributes this to a possible dust devil. No verification of a dust devil having occurred was provided, and the EPA cannot discount the elevated PM₁₀ measured during this period of time.

The EPA requests further evidence of controls at upwind sources prior to verifying the CCR at the Chaparral site on this day. As the site recorded an unexplained spike approximately 5 hours previous to the elevated winds, the EPA must ensure there were no other activities occurring in the local area that could have caused both of these spikes. In addition, the elevated winds did not reach the EPA threshold of 11.2 m/s. A more substantial controls analysis would be required to renew our review. The 24 hour average concentration was 190 µg/m³. High PM₁₀ concentrations of 1700 µg/m³ occurred at 1300 hour.

AAQ

The EPA is unable to concur on the clear causal relationship at this time. A sufficient historical fluctuation analysis was provided. However, additional controls analysis is required to verify a CCR.

Natural Event

The EPA is unable to concur on the claim that this was a Natural Event at this time. The CCR and nRCP analysis must be verified.

NEBF

Without verification of the nRCP, CCR, the EPA cannot determine if NEBF would be satisfied at this time. The EPA does acknowledge that the measured PM₁₀ from the 1800 hour alone could cause the exceedance, but there were no wind speeds in the area recorded at or above the minimum threshold, precluding EPA from attributing the exceedance to high winds within the county.

The EPA recommends non-concurrence for the event of August 4, 2009 at the 6ZK Chaparral site (AQS ID # 35-013-0020) as being caused by a high wind exceptional event. If the NMED wishes to provide additional information verifying nRCP, CCR, AAQ, and NEBF, the EPA will revisit our concurrence recommendation. Please advise EPA if additional information may be submitted within 6 months of receipt of this evaluation, and an appropriate timeline will be developed.

High wind exceptional event: Oct 27, 2009, 6ZK Chaparral (AQS ID # 35-013-0020)

nRCP

The EED provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The EED also notes that harvesting by agricultural operations is possible at this time of year. However, the largest and most likely sources of windblown dust are undisturbed desert, agricultural lands, residential roads, and unpaved roads. In this instance, local sources are most likely contributing to the exceedance. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. Little to no point sources can be found in the area of the monitor. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 10.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Luna Counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

The Chaparral monitoring site reported wind speeds exceeding the minimum threshold with speeds at or near 11.2 m/s from approximately the 1900 - 2100 hours.

With the high wind speeds at the site, it is reasonable to believe that conditions existed such that dust could have become entrained in the air near the site. In addition, the maximum wind gusts at most of the sites in the area was above 15 m/s at different points of the day, and three of the Doña Ana County monitoring sites exhibited an increase in recorded PM₁₀ values during the period of elevated winds.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls: the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled from northern Mexico to monitors in Doña Ana County.

Historical Fluctuations

A time series analyses from 2003-2008 for PM₁₀ concentrations of Chaparral monitors are included in section 10.4.1 of the EED. These graphs show the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 10.4.1 of the EED. Figures 10-7 and 10-8 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM₁₀ and wind gusts. The EED successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 10.5, provides an analysis of the meteorological events occurring on October 27, 2009. The weather pattern created strong surface winds, despite little mixing of high level winds on this day. There is a correlation between the elevating of winds and the elevating PM₁₀ levels. Figure 10-11 demonstrates that elevated levels of PM₁₀ were during the same time frame as high winds at the site on October 27, 2009. A high PM₁₀ concentration of 850 µg/m³ at the Chaparral site was observed at the 2000 hour. The 24-hour concentration was 160 µg/m³ at the monitoring site. Although the other Doña Ana County sites did not record exceedances, the southern Doña Ana County sites operating did record an increase in PM₁₀ levels.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of October 27, 2009 evidently affected air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the Chaparral site are well below the NAAQS, and Figure 10-1 of the EED displays 24-hour averages for four days before and after the exceedances at the Chaparral monitor confirming this. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF.

The EPA concurs the event at the 6ZK Chaparral (AQS ID # 35-013-0020) from 1900 – 2100 hours of October 27, 2009 was caused by a high wind exceptional event.

High wind exceptional event: Oct 28, 2009, 7E Deming (AQS ID # 35-029-0003)

nRCP

The EED submittal provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The EED also notes that harvesting by agricultural operations is possible at this time of year. However, the largest and most likely sources of windblown dust are the undisturbed desert, agricultural lands and unpaved roads. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Luna County. Little to no point sources can be found in the area of the monitor. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 11.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Luna Counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

The Deming site measured wind speeds at or near the high wind threshold during the morning of the 28th.

With the high wind speeds at the Deming site, it is reasonable to believe that conditions existed such that dust could have become entrained in the air. In addition, the maximum wind gusts at the Deming site reached 22 m/s.

In order to demonstrate that wind speeds were high enough to overwhelm reasonable controls: the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled from northern Mexico through the boot heel region of New Mexico to the site. The FRM monitor located nearby did not record an unusually elevated value for the day; however, the closest Doña Ana County monitors did record an elevated PM₁₀ value on this day.

Historical Fluctuations

A time series analyses from 2003-2008 for PM₁₀ concentrations of Deming monitors is included in section 11.4.1 of the EED. These graphs demonstrate the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 11.4.1 of the EED. Figure 11-7 and 11-8 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM₁₀ and wind gusts. The EED successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 11.5, provides an analysis of the meteorological events occurring on October 28, 2009. The weather pattern created strong surface winds, despite little mixing of high level winds on this day. There is a correlation between the elevating of winds and the elevating PM₁₀ levels. Figure 11-11 demonstrates that elevated levels of PM₁₀ were during the same time frame as high winds at the site on October 28, 2009. A high PM₁₀ concentration of 2700 µg/m³ at the Deming site was observed at the 100 hour. The 24-hour average concentration was 240 µg/m³ at the Deming site.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of October 28, 2009 evidently affected air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the Deming site are well below the NAAQS, and Figure 11-1 of the EED displays 24-hour averages for four days before and after the exceedance at the Deming monitor confirming this. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF criteria.

The EPA concurs the event at the 7E Deming (AQS ID # 35-029-0003) during the 000 - 100 hours of October 28, 2009 was caused by a high wind exceptional event.

High wind exceptional event: December 8, 2009, 6CM Anthony (AQS ID # 35-013-0016), 6ZK Chaparral (AQS ID # 35-013-0020)

nRCP

The EED submittal provides a description of the natural and possible anthropogenic sources that could have contributed to the event. The largest and most likely sources of windblown dust are the undisturbed desert in Doña Ana County and Mexico as well as agricultural land. Sections 2.3 and 2.5 thoroughly explain the monitoring network and data collection as well as the implementation and enforcement of the NEAP for Doña Ana and Luna Counties. Little to no point sources can be found in the area of the monitors. The EPA recognizes that reasonable controls were effectively implemented and enforced.

Section 12.2.2 of the EED submittal, presents a graph displaying the various wind speeds at site locations throughout Doña Ana and Luna Counties. Winds above 11.2 m/s exceed the entrainment threshold suggested by the EPA for natural events caused by high wind and blowing dust.

Anthony – The Anthony site reported wind speeds below 11.2 m/s, however, this site is measuring wind speeds at a reduced height; therefore, the wind speeds may have been greater at the height recommended in EPA meteorological guidance. The Chaparral site, which is the closest site to the Anthony site and close to being downwind in this instance, recorded speeds in excess of the minimum threshold reaching an hourly average of over 15 m/s. In addition the Deming, Holman, and West Mesa sites also recorded speeds in excess of 11.2 m/s.

Chaparral – The Chaparral site measured wind speeds exceeding the minimum threshold, reaching an hourly average of 15 m/s. The wind speeds exceeded 11.2 m/s from approximately 700 – 1300 hours

With the high wind speeds in the area, as measured at the Chaparral, Deming, Holman, and West Mesa monitoring site, it is reasonable to believe that despite not reaching 11.2 m/s at all the site; conditions

existed such that dust could have become entrained in the air around the region. In addition, the maximum wind gusts at all sites in the area were in excess of 18 m/s at different points of the day, and all the sites exhibited an increase in recorded PM₁₀ values during the period of elevated winds.

In order to demonstrate wind speeds were high enough to overwhelm reasonable controls: the NMED provides a control analysis confirming no unusual PM₁₀ producing activities and anthropogenic emissions remained constant before, during, and after the event. The NMED also provides a back trajectory analysis of how air masses traveled through northern Mexico and southern Doña Ana County to the monitors. The most likely sources contributing to the event are the playas of northern Mexico and desert lands in Doña Ana County.

Historical Fluctuations

A time series analyses from 2003-2008 for PM₁₀ concentrations of Anthony and Chaparral monitors are included in section 12.4.1 of the EED. These graphs show the PM₁₀ exceedances recorded per season. A table displaying the normal historical fluctuations with and without high wind natural events is depicted in section 12.4.1 of the EED. Figures 12-9 to 12-12 provide hourly data distribution plots where it shows the high wind event exceeds the 95th percentile for both PM₁₀ and wind gusts. The EED successfully presents evidence to conclude that the event is associated with a measured concentration in excess of normal historical fluctuations.

CCR

The EED, in Section 12.5, provides an analysis of the meteorological events occurring on December 8, 2009. The weather pattern created favorable weather conditions for the winds aloft to mix down increasing surface wind velocities and provided the turbulence required for vertical mixing and entrainment of dust. There is a correlation between the elevating of winds and the elevating PM₁₀ levels. Figures 12-15 and 12-16 demonstrate that elevated levels of PM₁₀ were during the same time frame as high winds at the Anthony and Chaparral monitors for the day of December 8, 2009. High PM₁₀ concentrations of nearly 1200 µg/m³ at Anthony and nearly 2000 µg/m³ at Chaparral occurred at approximately the 900 hour. The 24-hour average concentration was 180 µg/m³ at Anthony and 270 µg/m³ at Chaparral. Although the other area monitors did not record exceedances, they all recorded elevated levels of PM₁₀.

AAQ

The EED demonstrates a clear causal relationship and a sufficient historical fluctuations analysis to confirm that the event of December 8, 2009 evidently affected air quality.

Natural Event

The EED confirms the event was caused by high wind and blowing dust.

NEBF

Particulate levels on non-event days at the Anthony and Chaparral sites are well below the NAAQS, and Figure 12-1 of the EED displays 24-hour averages for four days before and after the exceedances at the Anthony and Chaparral monitors confirming this. But for the elevated winds, there would not have been an exceedance, satisfying the NEBF criteria.

The EPA concurs the event at the 6CM Anthony (AQS ID # 35-013-0016) during the 700 - 1200 hours of December 8, 2009 was caused by a high wind exceptional event.

The EPA concurs the event at the 6ZK Chaparral (AQS ID # 35-013-0020) during the 900 - 1000 hours of December 8, 2009 was caused by a high wind exceptional event.

Conclusion

The EPA has reviewed documentation provided by the NMED to support claims that dust emissions generated by high winds in the Doña Ana County and Luna County area and caused exceedances of the 24-hour PM₁₀ NAAQS at locations identified in Table 2. The EPA has determined that the flagged exceedances at these locations and on these days meet the definition of an exceptional event, except for the event on 8/4/09 at the Chaparral monitoring site

The EPA finds that the weight of evidence is sufficient for concurrence on the flagging of the data for these monitors. These concurrences do not constitute final EPA action to exclude these data from consideration for purposes of determining the attainment status of the area. Final actions will come only after EPA completes notice and comment rulemaking on those determinations.

Enclosure 2
Table of Concurred Events

Monitor Name	AQS ID	City	State	Date of Exceedance	Exceedance Day Concurred
Anthony	35-013-0016	Anthony	NM	1/26/2009	1/26/2009
Anthony	35-013-0016	Anthony	NM	2/10/2009	2/10/2009
Chaparral	35-013-0020	Chaparral	NM	2/10/2009	2/10/2009
SPCY	35-013-0017	Sunland Park	NM	2/10/2009	2/10/2009
Anthony	35-013-0016	Anthony	NM	3/7/2009	3/7/2009
Chaparral	35-013-0020	Chaparral	NM	3/7/2009	3/7/2009
SPCY	35-013-0017	Sunland Park	NM	3/7/2009	3/7/2009
Holman	35-013-0019	Las Cruces	NM	3/23/2009	3/23/2009
SPCY	35-013-0017	Sunland Park	NM	3/26/2009	3/26/2009
Holman	35-013-0019	Las Cruces	NM	3/26/2009	3/26/2009
SPCY	35-013-0017	Sunland Park	NM	4/8/2009	4/8/2009
Chaparral	35-013-0020	Chaparral	NM	4/8/2009	4/8/2009
Chaparral	35-013-0020	Chaparral	NM	8/4/2009	None
Chaparral	35-013-0020	Chaparral	NM	10/27/2009	10/27/2009
Deming	35-029-0003	Deming	NM	10/28/2009	10/28/2009
Anthony	35-013-0016	Anthony	NM	12/8/2009	12/8/2009
Chaparral	35-013-0020	Chaparral	NM	12/8/2009	12/8/2009

