UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1201 ELM STREET, SUITE 500
DALLAS, TEXAS 75270

Office of the Regional Administrator

DEC 1 6 2019

Mr. James C. Kenney
Cabinet Secretary
New Mexico Environment Department
1190 Saint Francis Drive
Santa Fe, New Mexico 87502

Dear Secretary Kenney:

This letter responds to the New Mexico Environment Department Exceptional Events Demonstrations, dated October 22, 2019. The demonstrations request to exclude Particulate Matter less than or equal to 10 micrometers in diameter (PM10) data associated with exceptional event claims on various dates during 2017. The NMED determined that high wind dust events caused exceedances of the PM_{10} National Ambient Air Quality Standard level of 150 µg/m3 at the monitors and on the dates listed in the enclosure.

In 2016, the U.S. Environmental Protection Agency revised the Exceptional Events Rule (EER) found in sections 40 CFR 50.14 and 40 CFR 51.930. See, "Treatment of Data Influenced by Exceptional Events," 81 FR 68216 (October 3, 2016). After careful consideration of the information provided, the EPA concurs, based on the weight of evidence, that NMED has met the applicable exceptional event demonstration requirements in 40 CFR 50.14(a)(2) and (b)(5). In addition, the NMED has met the schedule and procedural requirements set forth in section 50.14(c). The EPA has reviewed the documentations provided to demonstrate the exceedances at the subject monitors during 2017 meet the criteria for an exceptional event under the EER. The basis for our concurrence is set forth in the enclosed technical support document. My staff will enter "concurrence flags" for these data into the EPA's Air Quality System (AQS) data repository.

The EPA concurrence is a preliminary step in the regulatory process for actions that may rely on the dataset containing the event-influenced data and does not constitute final agency action. If the EPA takes a regulatory action that is affected by exclusion of the subject data, the EPA will publish notice of its proposed action in the Federal Register. The EPA's concurrence letter and accompanying technical support document will be included in the record as part of the technical basis for that proposal. When the EPA issues that regulatory action, it will be a final agency action subject to judicial review.

This paper is printed with 100-percent postconsumer recycled material, chlorine-free-processed and recyclable.

If you have any questions or wish to discuss this matter further, please have your staff contact Ms. Frances Verhalen, Chief, Air Monitoring/Grants Section, (214) 665-2172.

Sincerely,

Ken McQueen
Regional Administrator

Enclosure

cc: Michael Baca, NMED

Technical Review of 2017 PM_{10} Exceptional Event Demonstrations, dated October 22, 2019

Introduction

The U.S. Environmental Protection Agency (EPA) promulgated the original Exceptional Events Rule (EER) in 2007, hereafter referred to as "2007 EER," pursuant to the 2005 amendment of the Clean Air Act Section (CAA) 319. The 2007 EER was in effect until September 30, 2016, when a revised EER was promulgated by the EPA (See, 81 FR 68216, October 3, 2016) hereafter referred to as "2016 EER." The subject Exceptional Event Demonstration hereafter referred to as "demonstrations," was submitted in accordance with the 2016 EER. The Exceptional Event federal regulations are found at 40 CFR 50.14.

In the demonstrations, the New Mexico Environment Department (NMED) requests the EPA concur that the subject measurements of particulate matter of less than or equal to10 micrometers in diameter (PM_{10}) which exceeds the National Ambient Air Quality Standard (NAAQS) be excluded from the data set used for certain regulatory decisions, as outlined in the 2016 EER. After considering the information provided and using a weight of evidence analysis as provided in the demonstrations, the EPA shall concur or non-concur with the Air Quality System (AQS) database flagging of each exceedance of the NAAQS and the state's demonstrations. For the purposes of this document, there is a "demonstration" for each exceedance day or wind event.

Procedural Requirements

The 2016 EER includes certain scheduling and procedural requirements as specified in 40 CFR 50.14(c) that an air agency must follow: 1. Public Notification; 2. Initial Notification of the Potential EE; and 3. Submission of the demonstration. For example, data claimed to be caused by an exceptional event must be flagged in the AQS database by the air agency. The air agency is also to provide the EPA with an initial notification for the potential exceptional event and conduct a 30-day public comment period for the demonstration. Failure to meet the procedural requirements results in the EPA non-concurrence with the AQS flagging of the exceedances.

In accordance with 40 CFR 50.14(c), the NMED flagged the subject exceedances in AQS as "High Winds" events, i.e., the "RJ" qualifier flags. The NMED submitted an initial notification to the EPA on July 16, 2018. The NMED solicited public input on the draft demonstrations from September 3, 2019, through October 2, 2019. The NMED met the scheduling and procedural regulatory provisions of the 2016 EER for the demonstrations.

Required Demonstration Content

In accordance with 40 CFR §50.14(c)(3), a demonstration to justify data exclusion must address the criteria discussed below.

1) A narrative conceptual model.
   a) Pursuant to 40 CFR §50.14(c)(3)(iv)(A), the demonstration shall provide a narrative conceptual model that describes the event(s) and how emissions from the event(s) led to the exceedance or violation at the affected monitor. The demonstration includes a narrative conceptual model for each exceedance.

2) Evidence there was a clear causal relationship between exceedance and event.
   a) Pursuant to 40 CFR §50.14(c)(3)(iv)(B), the demonstration shall provide evidence that there was a clear causal relationship between the measurement under consideration and the event claimed to have affected the air quality in the area. The clear causal criterion is addressed below for each exceedance.

3) Analyses comparing event influenced concentrations to other concentrations at the monitors.
   a) Pursuant to 40 CFR §50.14(c)(3)(iv)(C), the demonstration shall provide an analysis of the exceedance compared to measurements at the same monitor at other times. The historical data comparison criterion is addressed below for each exceedance.

4) Evidence event was not reasonably controllable or preventable.
   a) Pursuant to 40 CFR §50.14(c)(3)(iv)(D), the demonstration shall provide evidence the event was both not reasonably controllable and not reasonably preventable.
      i) Not Reasonably Preventable - In accordance with 40 CFR §50.14(b)(5)(iv), the air agency will not be required to provide a case-specific justification that the event was not reasonably preventable for a high wind dust event. As discussed in more detail below for the clear causal criterion that includes the not reasonably preventable criterion, the NMED showed that a high wind dust event caused each exceedance. Therefore, the NMED was not required to provide a case-specific justification for the not reasonably preventable criterion.
      ii) Not Reasonably Controllable, Undisturbed Land Sources - A high wind threshold is defined by 40 CFR §50.1(q) as the minimum wind speed capable of causing particulate matter emissions from natural undisturbed lands in the area affected by a high wind dust event. The NMED showed wind speeds were sustained above the high wind threshold for each exceedance. Therefore, emissions from upwind undeveloped lands met the not reasonably controllable criterion and could not have been reasonably controlled.
      iii) Not Reasonably Controllable, Anthropogenic Sources – This criterion is addressed below for each day of exceedance.

5) Evidence the event was caused by human activity unlikely to recur or was a natural event
   a) According to 40 CFR §50.14(c)(3)(iv)(E), the demonstration must provide evidence that the event was a human activity unlikely to recur or was a natural event. In accordance with 40 CFR §50.14(b)(5)(ii) and (b)(8), a high wind dust event is considered a natural event if the demonstration shows all anthropogenic sources are reasonably controlled.
   b) As discussed below for the clear causal criterion, the NMED showed that a high wind dust event caused each exceedance. Also as discussed below for the reasonable control of anthropogenic sources criterion, the NMED showed that the anthropogenic sources were reasonably controlled for each exceedance. Therefore, the high wind dust event that caused each exceedance is a natural event.

6) Records of a 30-day public comment period with copies of and responses to comments
   a) Pursuant to 40 CFR §50.14(c)(3)(v)(A), the demonstration shall provide evidence the air agency conducted a 30-day comment period. The demonstration must include records of the 30-day public comment period conducted for the demonstration. The NMED did not receive comments during the public comment period. The NMED provided records of the 30-day public comment period conducted for the demonstration.

Summary

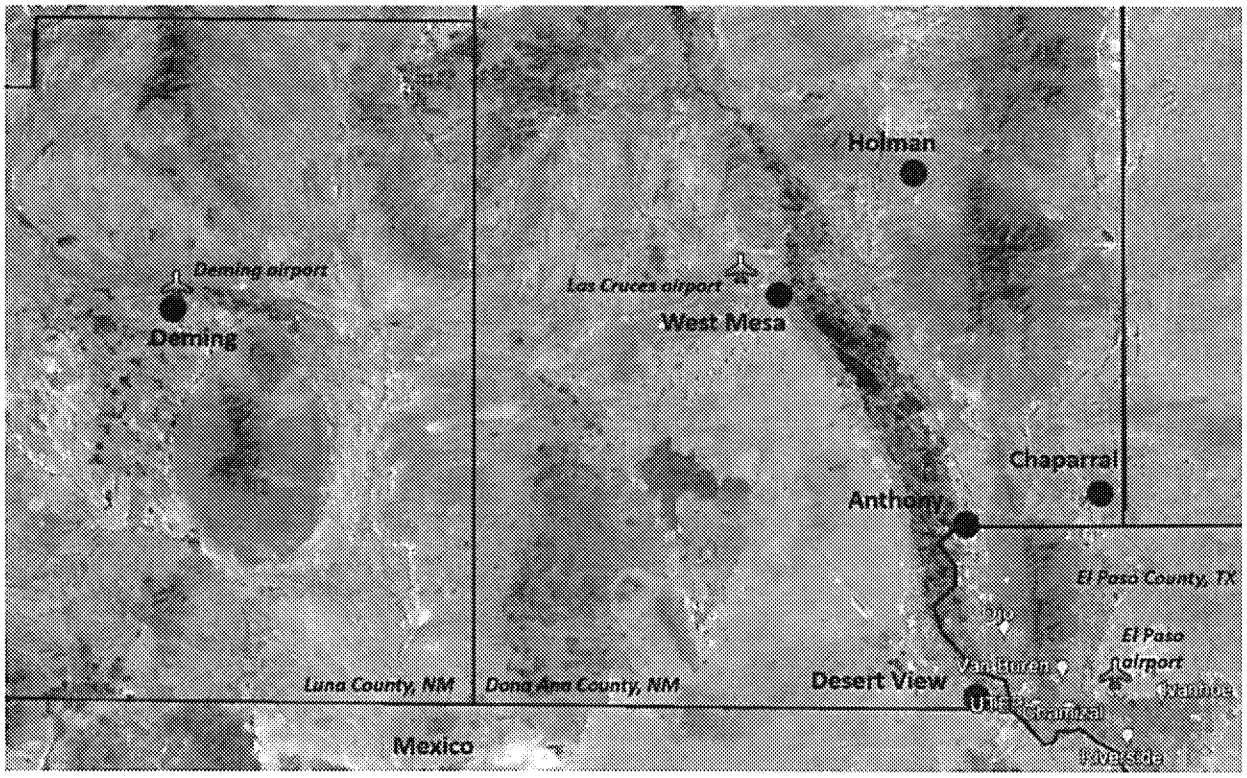
The NMED asserts that 11 wind events in calendar year 2017 caused 27 exceedances of the NAAQS level for PM_{10} from 6 monitors on 6 sites in Luna and Dona Ana Counties, New Mexico. The measurements exceeded the NAAQS level of 150 micrograms per cubic meter ($\mu g/m^3$) for PM_{10} using 24-hours averaging time.

Exceedance Day	Anthony 35-013-0016	Chaparral 35-013-0020 POC 2	Desert View 35-013-0021 POC 2	Holman 35-013-0019 POC 2	West Mesa 35-013-0024 POC 2	Deming 35-029-0003 POC 2
February 12	299, POC 1		214	225		
February 18			164			
February 23			175			
February 28		218	338			
March 23	308, POC 1	721	538	211	169	157
March 31	208, POC 1	222	475			226
April 4		186				
April 25	213, POC 1	450	288			184
May 6						224
May 16	196, POC 2	201	335			
June 24						196

Table of 2017 PM_{10} Exceedances ($\mu g/m^3$) in Demonstrations

The NMED operates 5 monitor sites in Dona Ana County (Chaparral, West Mesa, Anthony, Desert View, Holman) and 1 site in Luna County (Deming) which report PM_{10} NAAQS comparable data. NMED operates a Manual (35-013-0016-81102-1, POC 1) and Continuous (35-013-0016-81102-2, POC 2) PM_{10} monitor at the Anthony site.

TCEQ operates 5 sites in adjacent El Paso County. Four report PM_{10} NAAQS comparable data (Ojo 48-141-1021, Ivanhoe 48-141-0029, Riverside 48-141-0038, Van Buren 48-141-0693). One site reports non-NAAQS comparable data (Chamizal 48-141-0044).



Map of area, PM_{10} monitor sites, and local airports

General Background on EPA Review

The NMED claims the exceedances were caused by high wind dust events. A high wind dust event is defined by 40 CFR §50.1(p) as an event that includes the high-speed wind and the dust the wind entrains and transports to a monitor site. On April 4, 2019, the EPA released guidance for the preparation of demonstrations for high wind dust events (*Guidance on the Preparation of Demonstrations in Support of Requests to Exclude Ambient Air Quality Data Influenced by high wind dust events Under the 2016 Exceptional Event Rule*, EPA-457/B-19-001, April 2019) (hereinafter "Guidance").

A high wind threshold is defined by 40 CFR §50.1(q) as the minimum wind speed capable of causing particulate matter emissions from natural undisturbed lands in the area affected by a high wind dust event. As specified 40 CFR §50.14(b)(5)(iii), the EPA will accept a high wind threshold for New Mexico of a sustained wind of 25 miles per hour (mph). As stated in the preamble to the 2016 EER (81 FR 68257-68258), the high wind threshold clarified the "level of evidence needed to demonstrate not reasonably controllable" and "should be representative of conditions that are capable of overwhelming reasonable controls…on anthropogenic sources and/or causing emissions from natural undisturbed areas."

Per the April 2019 Guidance, "[w]hen evaluating measured sustained wind speeds, EPA will generally accept that the sustained wind was at or above the area-specific high wind threshold in cases where there was at least one full hour in which the hourly average wind speed was at or above the area specific high wind threshold. EPA will consider a sustained wind speed based on shorter averaging times (e.g., 1 to 5 minutes) on a case-by-case basis. EPA may also consider multiple occurrences of high wind measured at

shorter averaging times as part of the weight-of-evidence demonstration, even if the hourly average was not above the threshold." [pg. 13]

"Meteorological events involving high temperatures or lack of precipitation (*i.e.*, … drought) also do not directly cause pollutant emissions and are not considered exceptional events. However, [these] conditions …may promote occurrences of…high wind dust events, which do directly cause emissions." [pg. 4]

"Cases where dust was entrained by sustained winds at or above the high wind threshold upwind of the monitor and …transported at lower wind speeds to the monitor could still qualify for the basic controls analysis category, but in such cases, the state should show that sustained winds were at or above the… threshold in the expected source area. Cases of long-range transport (*e.g.*, >50 miles) could still qualify for a basic controls analysis but air agencies may need to include supplementary analyses such as a trajectory analysis…or satellite plume imagery…" [pg 16, footnote 28]

Per the April 2019 Guidance, the EPA intends to use a tiered approach for evaluating whether a demonstration shows that a high wind dust event and its emissions were not reasonably controllable. Large-scale and high-energy high wind dust events are Tier 1. Tier 2 events have sustained wind speeds at or above the high wind threshold. Tier 3 are all other events. None of the subject events qualify as a Tier 1 event. [See pgs. 14-16]

Per the concurrence prohibition of 40 CFR 50.14(b)(9), the EPA cannot concur on AQS flagged exceedances unless the Mitigation Plan requirement has been met. Air agencies are required to submit Mitigation Plans for areas with known, recurring events (See 40 CFR 51.930). The 2016 EER promulgation notified air agencies with areas initially subject to the Mitigation Plan requirements.

With the 2016 EER promulgation, the EPA notified NMED that Dona Ana and Luna Counties are subject to the Mitigation Plan requirement for PM_{10} data influenced by high wind dust events. The required NMED Mitigation Plan was submitted on September 25, 2018, and on October 29, 2018, the EPA deemed the plan complete. The NMED met its Mitigation Plan obligations. Therefore, the concurrence prohibition of 40 CFR 50.14(b)(9) does not preclude the EPA from concurring with the subject exceedances.

Other Information

In this document, use of "page x' or 'figure x" are a reference to a page or figure in the demonstrations. The NMED uses meteorological data from the La Union (35-013-0008) site as a proxy for the Anthony site (page 5). The La Union site is about 5 miles south southwest of the Anthony site. In the demonstration, the terms "Wind Gust" and "Wind Max" reflect instantaneous wind data.

The high wind threshold is expressed in miles per hour (mph). The NMED uses meter per second (m/s) for wind speed in the demonstration. Meteorological data in AQS expresses wind speed in knots. In this document, wind speed data has been converted to mph.

NOAA provides airport meteorological data (www.ncdc.noaa.gov/cdo-web/datatools/lcd) and reported storm events information (www.ncdc.noaa.gov/stormevents/). NOAA HYSPLIT modeling using archived weather data is available at (ready.arl.noaa.gov/HYSPLIT_traj.php).

The 2018 Design Value for the West Mesa PM_{10} monitor (AQS ID 35-013-0024-81102-2) is 0.7 'estimated exceedances' and the design value for the monitor does not exceed the NAAQS criteria. Therefore, the PM_{10} exceedance NMED seeks to exclude which was measured at the West Mesa monitor on March 23, 2017, does not have regulatory significance under the Exceptional Events Rule. The EPA chose to review the exceedance because the demonstration showed a widespread wind event occurred on the exceedance day which impacted multiple monitors in the area.

FEBRUARY 12, 2017

The exceedances occurred on February 12, 2017, hereafter referred to as the "exceedance day", at monitor sites in Dona Ana County. The monitors and exceedances are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Anthony	35-013-0016-81102-1	299 $\mu g/m^3$
Desert View	35-013-0021-81102-2	214 $\mu g/m^3$
Holman	35-013-0019-81102-2	225 $\mu g/m^3$

FEBRUARY 12, 2017, EXCEEDANCE DAY, clear causal relationship.
In the demonstration, NMED states "[a]s the event unfolded, the wind blew from the east southeast throughout the border region."

Table 3-2 on page 8 shows hourly wind data from the Anthony, Desert View, and Holman monitor sites for certain hours on the exceedance day. Hourly wind speeds exceeded 25 mph for multiple hours at the Desert View and Holman sites. The hourly wind speed at Anthony did not reach the threshold. Table 3-3 shows the winds at Anthony, however, exceeded 25 mph for at least 5 minutes during the 5 PM hour. Wind gusts of 41, 48 and 61 mph were measured at the Anthony, Desert View, and Holman sites, respectively.

Figures 3-6, 3-7 and 3-8 on pages 13 and 14 shows the frequency distribution of wind direction correlated with PM_{10} data at Anthony, Desert View, and Holman, for the hours when PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The figures show most of the winds were from the east with some from the southeast.

Figure 3-3 on page 10 shows hourly wind speed data at the Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming monitor sites on the exceedance day. The winds exceeded 25 mph for multiple hours at Desert View and Holman. The winds at Anthony, West Mesa, Chaparral, and Deming approached the 25-mph high wind threshold. AQS data shows the winds at Chaparral peaked at 22 mph for multiple hours. Chaparral was upwind of Anthony on the exceedance day.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa monitor site (AQS ID 35-013-0022) exceeded 25 mph for multiple hours. Santa Teresa is near the Mexico border about 16 miles southwest of Anthony and about 6 miles west of Desert View.

On the exceedance day, AQS data shows the hourly wind speeds at the Ojo monitor site in El Paso County exceeded 25 mph for multiple hours. The hourly wind speed at Ojo peaked at 5 PM at 31 mph. Ojo is the closest of the El Paso County monitor sites to New Mexico at about 5 miles northeast of Desert View and 10 miles southeast of Anthony. The Ivanhoe, UTEP, Chamizal, and Socorro monitor sites in El Paso County also reported elevated hourly wind speeds that peaked at between 19 and 22 mph.

The Las Cruces airport is about 27 miles northwest of Anthony. On the exceedance day, winds at the airport peaked at 20 mph for multiple hours. During this period, the winds were from the east southeast,

and gusts reached 31 mph. The overall weather type for the exceedance day was rain, drizzle and "Unknown Precipitation" (Weather Type RA DZ UP).

The Deming airport is in Luna County about 68 miles northwest of Anthony. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the winds were from the east northeast and east, and gusts reached 37 mph. The weather type reported at about 11:30 AM was "VCTS," i.e., thunderstorm in vicinity. The overall weather type for the exceedance day was thunderstorm, rain, and mist (Weather Type TS RA BR).

The El Paso airport is about 18 miles southeast of Anthony. On the exceedance day winds at the airport peaked at 24 mph. From about 10 AM to noon, the weather type was shown as blowing dust (Weather Type BL DU), gusts reached 33 mph, and the winds were from the east northeast and east. The overall weather type for the exceedance day was rain and "Dust, volcanic ash, blowing dust, blowing sand or…obstruction" (Weather Type RA DU).

The narrative on page 12 discusses the National Weather Service (NWS) wind advisory forecast for the southwestern New Mexico area on the exceedance day.

The NOAA Storm Events Database shows that on the exceedance day, high wind storm events were reported in various Dona Ana County areas with wind gusts over 60 mph. The events started about 4:30 PM and ended between 6 PM and 9 PM. A 61-mph wind gust was reported 10 miles northeast of Las Cruces. The Holman monitor site is northeast of Las Cruces.

Figure 3-4 on page 12 shows a satellite image taken on the exceedance day. The NMED indicates the image shows dust plumes in Mexico along the border area.

Figure 3-16 on page 19 shows the 24-hours PM_{10} measurements from the Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming monitor sites on the exceedance day. While Holman, Desert View, and Anthony measured exceedances, the other site measurements were above the monitor averages: Chaparral 148 $\mu g/m^3$ (average 32 $\mu g/m^3$), West Mesa 77 $\mu g/m^3$ (average 21 $\mu g/m^3$), and Deming 76 $\mu g/m^3$ (average 27 $\mu g/m^3$). The Chaparral measurement approached the NAAQS level of 150 $\mu g/m^3$.

Except for Ojo, the PM_{10} manual monitors in El Paso County sampled on the exceedance day. AQS data shows the 24-hours measurements were above the monitor averages: Socorro 104 $\mu g/m^3$ (average 29 $\mu g/m^3$), Riverside 85 $\mu g/m^3$ (average 29 $\mu g/m^3$), Ivanhoe 54 $\mu g/m^3$ (average 20 $\mu g/m^3$), Van Buren 45 $\mu g/m^3$ (average 25 $\mu g/m^3$). Ojo is the closest at about 5 miles northeast of Desert View and 10 miles south of Anthony. Van Buren and Ivanhoe are about 7 and 15 miles east of Desert View, respectively. Riverside and Socorro are about 13 and 19 miles southeast of Desert View, respectively.

The Chamizal site in El Paso County reports PM_{10} non-NAAQS comparable measurements. On the exceedance day, Chamizal 24-hours measurement of 89 $\mu g/m^3$ is above the site average of 31 $\mu g/m^3$. Chamizal is about 8 miles east of Desert View.

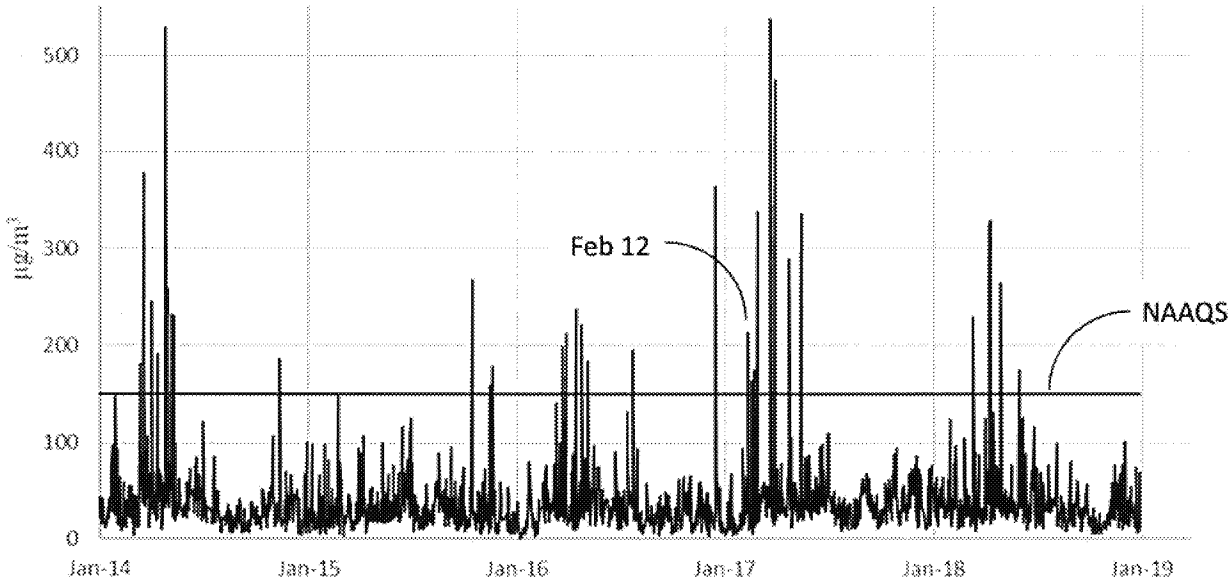
Figures 3-10, 3-11 and 3-12 on pages 16 and 17 show the hourly wind speeds and PM_{10} data at Anthony, Desert View, and Holman on the exceedance day. The elevated hourly PM_{10} measurements correlate with elevated wind speeds.

Figure 3-9 on page 15 shows the hourly PM_{10} data at Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming on the exceedance day. The elevated PM_{10} data correlate with elevated hourly wind speeds shown in Figure 3-3.

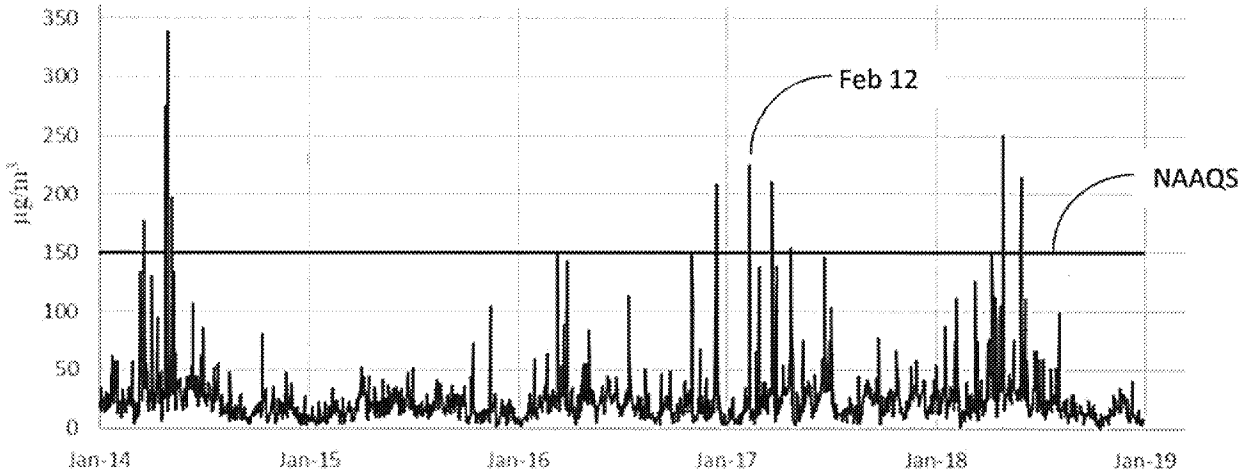
There are independent weather reports, evidence of blowing dust, and wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitors correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion and using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedances at the monitors on the exceedance day.

FEBRUARY 12, 2017, EXCEEDANCE DAY, analyses comparing event concentrations to other concentrations at the monitor.

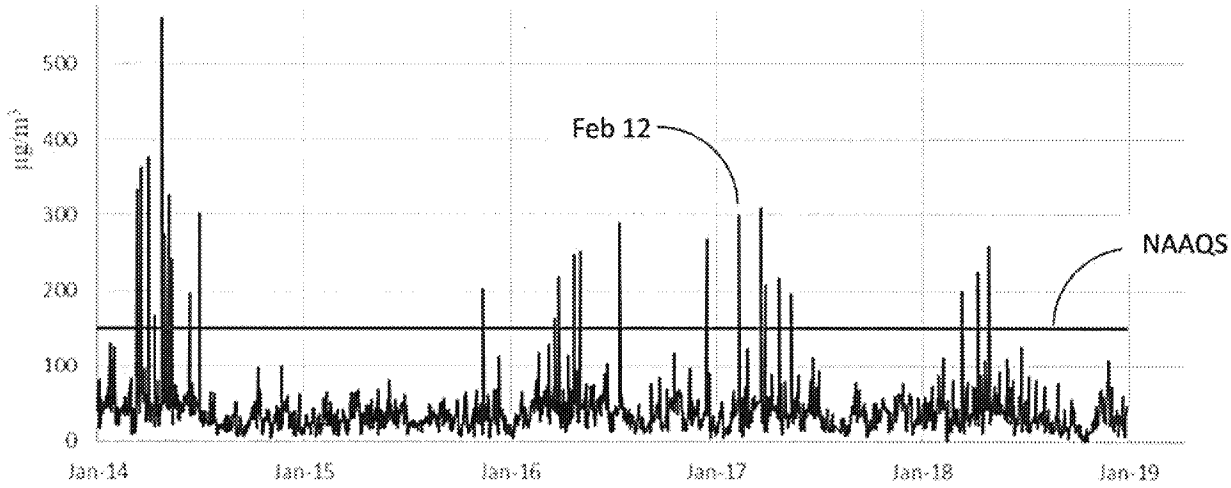
The graphs below reflect the 24-hours monitor data from 2014 to 2019 for the Desert View, Holman and Anthony sites. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurements on the exceedance day are above the 95th percentile of historical site data.



24-hours Measurements, Desert View PM_{10} Monitor, 35-013-0021-81102-2



24-hours Measurements, Holman PM_{10} Monitor, 35-013-0019-81102-2



24-hours Measurements, Anthony PM_{10} Monitor, 35-013-0016-81102-1

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at these monitors indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the exceedances and the wind incident on the exceedance day.

FEBRUARY 12, 2017, EXCEEDANCE DAY, not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources - The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at Desert View and Holman exceeded the threshold on the exceedance day. While the hourly wind speeds at Anthony did not reach the threshold, the winds exceeded 25 mph for 5 minutes. The elevated winds were mostly from the east with some from the southeast.

The Desert View monitor site is in the city of Sunland Park, New Mexico. The city has a population of about 15,000. The Desert View site is located on the western city limits. Beyond the city to the west, except for a nearby landfill, there are undeveloped lands all the way to the Arizona border. The Texas and Mexico borders are about 1 mile to the northeast, and 3/4 of a mile to the south of Desert View, respectively. To the southeast of Desert View, there are undeveloped lands to the Mexico border. On the exceedance day, there could have been upwind anthropogenic sources in about 1 mile of lands in the city of Sunland Park before reaching the Texas border. The demonstration does not discuss any specific sources in the city of Sunland Park nor controls for the sources. The city of El Paso, Texas, extends to about 18 miles east of Desert View. Beyond the city of El Paso to the east is mostly undeveloped Texas lands for hundreds of miles.

The Holman monitor site is in Dona Ana County northeast of the city of Las Cruces. The land within a one-half radius of the site is undeveloped. Further to the east there are some large residential lots in Dona Ana County, and the active Permian basin oil field close to the Texas border. Generally, most of the land to the east is arid and undeveloped.

Anthony, New Mexico is a small city in Dona Ana County with a population of about 9,300. A portion of the city of Anthony is currently in non-Attainment for PM_{10}. The Anthony monitor site is in the non-attainment area about 700 feet north of the Texas border. To the southeast of the monitor are lands in Texas. The developed land of the city extends about one mile to the east of the Anthony monitor site. Further to the east there is the Chaparral community in Dona Ana County, and the active Permian basin oil field close to the Texas border. See discussion about the February 28, 2017, exceedance for information about the Chaparral community. Generally, most of the land to the east is arid and undeveloped.

The NMED indicates anthropogenic sources near the monitor sites include disturbed surface areas, residential properties, vacant lots, dirt roads and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

Portions of the city of Anthony were upwind of the Anthony site on the exceedance day. The demonstration provides information on the Anthony SIP. Due to recurring impacts from non-anthropogenic sources deemed to contribute significantly to PM_{10} exceedances, the EPA waived the area attainment deadline for the Anthony SIP. The SIP was approved more than 5 years before the exceedance day, however, because of the waiver the NMED is not obligated to revise the SIP. See 40 CFR 50.14(b)(8)(v). Therefore, during the demonstration review, the EPA considered the Anthony SIP limited controls, e.g., treat and pave area roads as funding allows, as part of the review of whether anthropogenic sources were reasonably controlled on the exceedance day. Appendix C of the demonstration provides a letter from the city of Anthony dated September 18, 2019, that reports on the status of local dust control efforts including road paving.

Portions of Dona Ana County were upwind of the Anthony and Holman monitor sites on the exceedance day. The demonstration provides information on the Dona Ana County Dust ordinance. The ordinance requires a plan for dust controls on disturbed site. The controls required by the ordinance would have

applied to any upwind disturbed sites in the county or in the unincorporated Chaparral community on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at the Anthony and Holman sites.

Figure 3-5 on page 13 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the models with the trajectories ending at the "start" of the exceedance day wind event, at the Anthony monitor site location. The results show that the winds could have been in Texas and Mexico prior to reaching the Anthony site. Also, nearby anthropogenic sources in Texas would have been upwind of Desert View, on the exceedance day. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

FEBRUARY 18, 2017

The exceedance occurred on February 18, 2017, hereafter referred to as the "exceedance day", at a monitor site located in Dona Ana County. The monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Desert View	35-013-0021-81102-2	164 $\mu g/m^3$

FEBRUARY 18, 2017, EXCEEDANCE DAY, clear causal relationship.
In the demonstration, the NMED states "[a]s the event unfolded, the wind blew from the southwest throughout the border region."

Table 4-2 on page 22 shows hourly wind data from the Desert View, Chaparral, and West Mesa monitor sites for certain hours on the exceedance day. The maximum hourly wind speed at Desert View was 18 mph. Table 4-3 on page 23 shows Desert View experienced 10 minutes of wind speeds in excess of 24 mph during the 8 PM hour. The hourly wind speeds at the Chaparral and West Mesa sites reached 23 mph and 27 mph, with maximum gusts of 38 mph and 31 mph, respectively.

Figure 4-5 on page 26 shows the frequency distribution of wind direction correlated with PM10 data at Desert View for the hours when PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The figure shows the winds were from the west, south, and northwest.

Figure 4-3 on page 24 shows hourly wind data at Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming monitor sites, on the exceedance day. The winds at all the sites started to elevate about noon with notable spikes from 8 PM to 10 PM on the exceedance day. While the winds at Chaparral approached the threshold, only the winds at West Mesa exceeded 25 mph.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa monitor site reached a peak of 22 mph at 8 PM. While hourly winds at Santa Teresa did not reach the threshold, the winds were 25 mph for 5 minutes at 9 PM. Santa Teresa is about 6 miles west of Desert View.

On the exceedance day, AQS data shows the hourly wind speeds at the Skyline (AQS ID 48-141-0058) and Van Buren monitor site in El Paso County exceeded 25 mph for multiple hours. Skyline and Van Buren are about 11 miles northeast, and 7 miles east of Desert View, respectively. The hourly winds at the Ascarate monitor site (AQS ID 48-141-0055) exceeded 25 mph at 9 PM. Ascarate is about 11 miles east of Desert View. Ivanhoe and Chamizal also had elevated hourly wind speeds that peaked at between 20 and 24 mph at about 9 PM. Ivanhoe and Chamizal are about 8 and 15 miles east of Desert View, respectively. The monitor sites in El Paso County were not upwind of Desert View on the exceedance day.

The Las Cruces airport is about 40 miles north of Desert View. On the exceedance day the winds at the airport exceeded 25 mph for more than 1 hour. The winds were from the southwest, and gusts reached 44 mph. The overall weather type for the day was rain and drizzle (Weather Type RA DZ).

The El Paso airport is about 11 miles east of the Desert View site. On the exceedance day the winds at the airport exceeded 25 mph for multiple hours. The winds were from the west southwest, and gusts

reached 43 mph. The overall weather type for the day was 'Dust, volcanic ash, blowing dust, blowing sand or…obstruction' (Weather Type DU).

The Deming airport is about 74 miles northwest of Desert View. On the exceedance day winds at the airport exceeded 25 mph for a few minutes and wind gusts reached 37 mph. The winds were from the west southwest. The overall weather type for the exceedance day was rain.

Figure 4-9 on page 29 shows the 24-hours PM_{10} measurements from the Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming monitor sites on the exceedance day. The 24-hours PM_{10} measurements at the Desert View, Anthony and Chaparral sites were elevated. Desert View data was above NAAQS level of 150 $\mu g/m^3$. Anthony and Chaparral data were above average: Anthony 58 $\mu g/m^3$ (average 46 $\mu g/m^3$), and Chaparral 58 $\mu g/m^3$ (average 32 $\mu g/m^3$). The other sites had below average measurements: Holman 16 $\mu g/m^3$ (average 28 $\mu g/m^3$), West Mesa 17 $\mu g/m^3$ (average 21 $\mu g/m^3$), and Deming 15 $\mu g/m^3$ (average 27 $\mu g/m^3$).

Samples were collected on the exceedance day from the El Paso County PM_{10} NAAQS comparable monitors. The 24-hours measurements were above the monitor averages: Socorro 61 $\mu g/m^3$ (average 29 $\mu g/m^3$), Riverside 72 $\mu g/m^3$ (average 29 $\mu g/m^3$), Ivanhoe 57 $\mu g/m^3$ (average 20 $\mu g/m^3$), Ojo 89 $\mu g/m^3$, (average 23 $\mu g/m^3$), Van Buren 66 $\mu g/m^3$ (average 25 $\mu g/m^3$). Ojo is the closest at about 5 miles northeast of Desert View. Riverside and Socorro are about 13 and 19 miles southeast of Desert View, respectively.

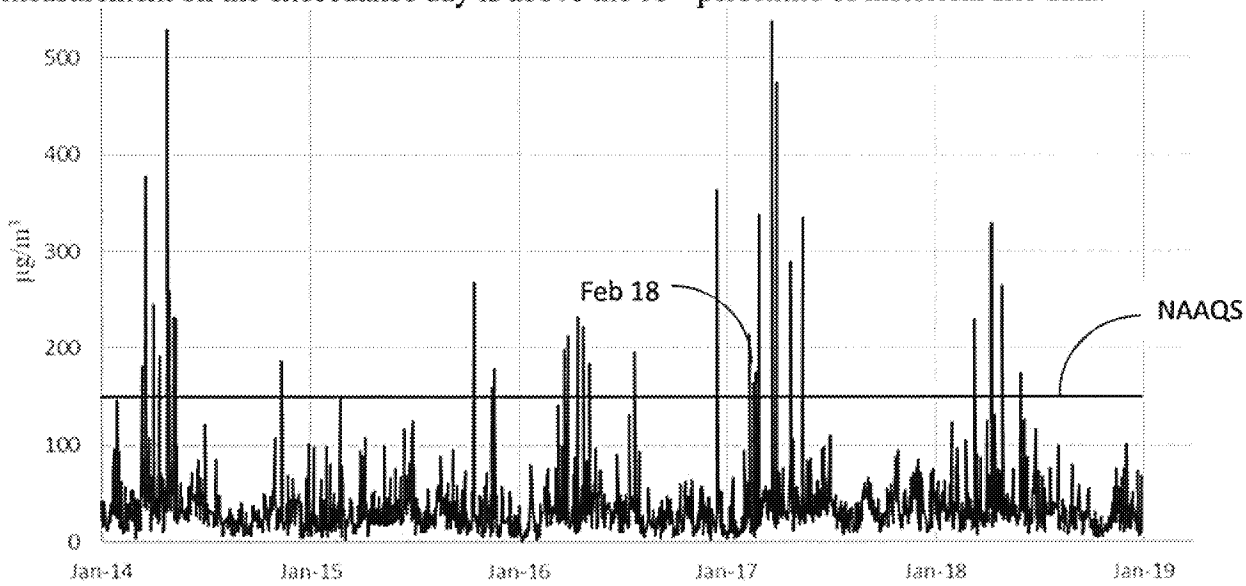
The Chamizal site in El Paso County reports PM_{10} non-NAAQS comparable measurements. On the exceedance day, Chamizal 24-hours measurement of 93 $\mu g/m^3$ is above the site average of 31 $\mu g/m^3$. Chamizal is about 8 miles east of Desert View.

Figure 4-6 on page 27 shows hourly PM_{10} measurements Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming, on the exceedance day. There was a spike from 8 PM to 9 PM. The elevated PM_{10} measurements correlate with elevated wind speeds shown on Figure 4-3.

Figure 4-7 on page 26 shows the hourly wind speed and PM_{10} data at Desert View on the exceedance day. The elevated PM_{10} measurements correlate with elevated wind speeds.

There are independent weather reports, evidence of visibility impairment from blowing dust, and wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

FEBRUARY 18, 2017, EXCEEDANCE DAY, analyses comparing event influenced concentrations to other concentrations at the monitor.
The graph below reflects the 24-hours monitor data from 2014 to 2019 for the Desert View site. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurement on the exceedance day is above the 95th percentile of historical site data.



24-hours Measurements, Desert View PM_{10} Monitor, 35-013-0021-81102-2

Based on the analyses and statistics, the comparison of the exceedance to the historical concentrations of PM_{10} at this monitor indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the exceedance and the wind incident on the exceedance day.

FEBRUARY 18, 2017, EXCEEDANCE DAY, not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at Desert View were elevated but did not exceed the threshold on the exceedance day. The winds at Desert View reached a maximum hourly wind speed of 18 mph, and there were 10 minutes of wind speeds in excess of 24 mph during the event. Also winds at the upwind Santa Teresa site were 25 mph for 5 minutes.

See discussion about the February 12, 2017, exceedance for information about the location of the Desert View site in the city of Sunland Park. During the hours of highest impact on the monitor, the winds were from the west, south, and northwest. The Desert View site is located on the western city limits. The Texas and Mexico borders are about 1 mile to the northeast, and ¾ of a mile to the south of Desert View, respectively. To the south of Desert View, there are undeveloped lands to the Mexico border. To the west, except for a nearby landfill, and to the northwest, except for the city of Deming in Luna County, there are undeveloped lands all the way to the Arizona border.

The NMED indicates anthropogenic sources near the monitor site includes disturbed surface areas, residential properties, vacant lots, dirt roads and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

Portions of the city of Deming, and Dona Ana and Luna Counties were upwind of Desert View on the exceedance day. The demonstration provides information on the Dona Ana County, Luna County, and city of Deming Dust ordinances. The ordinances require a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the counties or city on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at Desert View.

Mexico was upwind of Desert View on the exceedance day. Figure 4-4 on page 26 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the models with the trajectories ending at the "start" of the exceedance day wind event, at the Desert View monitor site location. The results show that the winds could have been in Mexico prior to reaching Desert View. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

FEBRUARY 23, 2017

The exceedance occurred on February 23, 2017, hereafter referred to as the "exceedance day," at a monitor site located in Dona Ana County. The relevant monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Desert View	35-013-0021-81102-2	175 $\mu g/m^3$

FEBRUARY 23, 2017, EXCEEDANCE DAY, Clear Causal Relationship
In the demonstration, NMED states "[a]s the event unfolded, the wind blew from the southwest throughout the border region."

Table 5-2 on page 32 provides hourly wind speed measurements from the Anthony, Chaparral, and Desert View monitor sites for certain hours on the exceedance day. At 1 PM, winds at Desert View exceeded 25 mph. Winds at Chaparral also exceeded 25 mph for multiple hours. Winds at the Anthony site peaked at 23 mph.

Figure 5-7 on page 35 shows the frequency distribution of wind direction correlated with PM10 data at Desert View for the hours when PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The figure shows the winds were from the west.

Figure 5-3 on page 34 shows hourly winds at Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming, on the exceedance day. Except for Anthony, all sites exceeded 25 mph for at least one hour.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa site exceeded 25 mph for multiple hours. Santa Teresa is about 6 miles west of Desert View.

On the exceedance day, AQS data shows the hourly wind speeds at the Chamizal, Ascarate, and Skyline monitor sites in El Paso County exceeded 25 mph for multiple hours.

The Las Cruces airport is about 40 miles north of Desert View. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this time, the winds were from the west southwest, and gusts reached 45 mph. Winds were elevated until about midnight.

The El Paso airport is about 11 miles east of Desert View. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the winds were from the west southwest, gusts reached 51 mph, and weather was "blowing" and "widespread dust" (Weather Type BL DU:5). The overall weather for the day was 'Dust, volcanic ash, blowing dust, blowing sand or obstruction' (Weather Type DU).

The Deming airport is about 74 miles northwest of Desert View. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the winds were from the west, gusts reached 44 mph, and weather type was smoke and haze (Weather Type FU HZ). The overall weather type for the exceedance day was haze (Weather Type HZ).

Figures 5-4 and 5-5 on pages 33 and 34 are satellite images which shows dust plumes in Mexico. The images were taken at 12:24 PM and 2:05 PM on the exceedance day. The plumes appear to be travelling from the southwest to the northeast.

The narrative on page 34 discusses the NWS wind advisory forecast on the exceedance day. Strong winds were predicted from the west with wind gusts up to 45 mph. High winds were expected from 11 AM on the exceedance day until 6 AM the next day.

The NOAA Storm Events Database shows that on the exceedance day, high wind storm events were reported in various Dona Ana and El Paso Counties areas with wind gusts from 58 to 69 mph. The storm in Dona Ana County started about between 11:30 AM and 1 PM and ended between 4 PM and 5 PM. The El Paso County storm lasted from about 4 PM to 5 PM.

Figure 5-11 on page 38 shows the 24-hours PM_{10} measurements from Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming, on the exceedance day. Measurements were above monitor averages: Chaparral 86 $\mu g/m^3$ (average 32 $\mu g/m^3$), West Mesa 36 $\mu g/m^3$, (average 21 $\mu g/m^3$), Deming 44 $\mu g/m^3$ (average 27 $\mu g/m^3$), Holman 66 $\mu g/m^3$ (average 28 $\mu g/m^3$), and Anthony 71 $\mu g/m^3$ (average 46 $\mu g/m^3$).

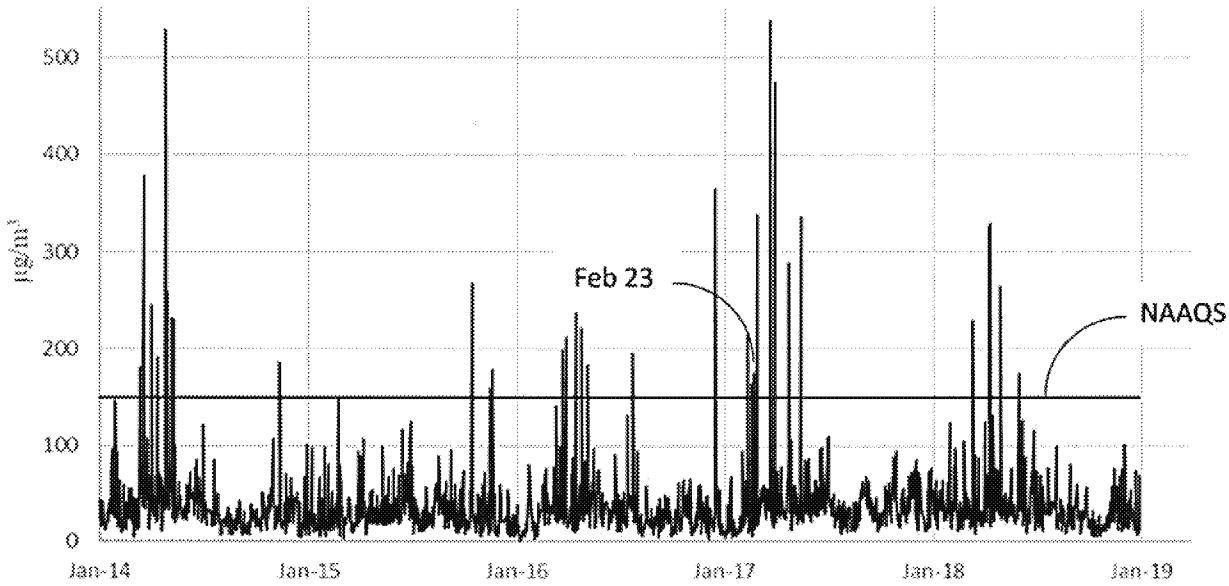
The PM_{10} manual monitors in El Paso County did not sample on the exceedance day. The PM_{10} continuous monitor at the Chamizal site in El Paso County reports non-NAAQS comparable data. On the exceedance day, the Chamizal 24-hours measurement of 83 $\mu g/m^3$ is above the site average of 31 $\mu g/m^3$. Chamizal is about 8 miles east of Desert View.

Figure 5-8 on page 36 shows hourly PM_{10} measurements at Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming, on the exceedance day. The elevated PM_{10} measurements correlate with the elevated wind speeds shown on Figure 5-3.

Figure 5-9 on page 36 shows wind speed and PM_{10} measurements at Desert View, on the exceedance day. The elevated PM_{10} measurements correlate with elevated wind speeds.

There are independent weather reports, evidence of blowing dust, and wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

FEBRUARY 23, 2017, EXCEEDANCE DAY, Analyses comparing event influenced concentrations to other concentrations at the monitor.
The graph below reflects the 24-hours monitor data from 2014 to 2019 for the Desert View site. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurement on the exceedance day is above the 95th percentile of historical site data.



24-hours Measurements, Desert View PM_{10} Monitor, 35-013-0021-81102-2

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at these monitors indicates a deviation from normal concentrations occurred and supports the clear causal relationship between the monitored exceedances and the wind incident on the exceedance day.

FEBRUARY 23, 2017, EXCEEDANCE DAY, not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at Desert View exceeded the threshold on the exceedance day. These elevated winds were from the west.

See discussion about the February 12, 2017, exceedance for information about the location of the Desert View site in the city of Sunland Park. During the wind incident, the winds were from the west. Desert View is on the western city limits. To the west, except for a nearby landfill, there are undeveloped lands all the way to the Arizona border. The Texas and Mexico borders are about 1 mile to the northeast, and ¾ of a mile to the south of Desert View, respectively.

The NMED indicates in the demonstration that anthropogenic sources near the monitor sites include disturbed surface areas, residential properties, vacant lots, dirt roads and storage piles. The

demonstration does not specifically identify any potential upwind anthropogenic sources or controls on the sources, on the exceedance day. The demonstration has information about controls for potential upwind anthropogenic sources.

Portions of the Dona Ana County were upwind of Desert View on the exceedance day. The demonstration provides information on the Dona Ana County Dust ordinance. The ordinance requires a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the county on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at Desert View.

Desert View is located about ¾ of a mile north of the Mexico border. Mexico was upwind of Desert View on the exceedance day. Figure 5-6 on page 35 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the models with the trajectories ending at the "start" of the exceedance day wind event, at the Desert View monitor site location. The results show that the winds could have been in Mexico prior to reaching Desert View. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

FEBRUARY 28, 2017

The exceedance occurred on February 28, 2017, hereafter referred to as the "exceedance day," at the monitor sites located in Dona Ana County. The relevant monitors and exceedances are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Chaparral	35-013-0020-81102-2	218 $\mu g/m^3$
Desert View	35-013-0021-81102-2	338 $\mu g/m^3$

FEBRUARY 28, 2017, EXCEEDANCE DAY, clear causal relationship.
In the demonstration, the NMED indicates "[a]s the event unfolded, the wind blew from the southwest throughout the border region."

Table 6-2 on page 43 shows hourly wind data from the Chaparral, West Mesa, and Desert View monitor sites, for certain hours on the exceedance day. Winds at the sites exceeded 25 mph for multiple hours.

Figures 6-8 and 6-9 on page 51 shows the frequency distribution of wind direction correlated with PM_{10} data at Desert View and Chaparral, for the hours when PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The winds were from the west and southwest.

Figure 6-4 on page 46 shows hourly wind data at Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming, on the exceedance day. The sites experienced hourly wind speeds in excess of 25 mph for multiple hours.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa site exceeded 25 mph for multiple hours. Santa Teresa is about 23 miles southwest of Chaparral site and about 6 miles west of Desert View.

On the exceedance day, AQS data shows the hourly wind speeds at the Chamizal, Ascarate, Van Buren and Skyline monitor sites in El Paso County exceeded 25 mph for multiple hours and at the Ivanhoe monitor site the winds exceeded 25 mph for an hour.

The Las Cruces airport is about 40 miles north of Desert View. On the exceedance day winds at the airport exceeded 25 mph for multiple hours. During this period, the winds varied from west southwest to west northwest, gusts reached 59 mph, and weather type was smoke and haze (Weather Type FU HZ). The overall weather type for the exceedance day was haze (Weather Type HZ).

The El Paso airport is about 11 miles east of the Desert View site. On the exceedance day winds at the airport exceeded 25 mph for multiple hours. During this period, the winds varied from west southwest to west northwest, gusts reached 55 mph, and weather type was "blowing" and "widespread dust" (Weather Type BL, DU:5). The overall weather type for the exceedance day was "Dust, volcanic ash, blowing dust, blowing sand or…obstruction" (Weather Type DU).

The Deming airport is about 74 miles northwest of Desert View. On the exceedance day winds at the airport exceeded 25 mph from about 10 AM to 5 PM. During this period, the winds varied from west

southwest to west northwest, gusts reached 51 mph, and weather type was smoke and haze (Weather Type FU HZ). The overall weather type for the exceedance day was haze.

Figure 6-15 on page 54 shows the 24-hours PM_{10} measurements at Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming, on the exceedance day. Chaparral and Desert View 24-hours measurements exceeded the NAAQS level of 150 $\mu g/m^3$. Other sites measurements approached the NAAQS level or were elevated: Anthony 124 $\mu g/m^3$ (average 46 $\mu g/m^3$), Holman 137 $\mu g/m^3$ (average 28 $\mu g/m^3$), Deming 102 $\mu g/m^3$ (average 27 $\mu g/m^3$). West Mesa had a measurement of 13 $\mu g/m^3$ which is below the monitor average of 21 $\mu g/m^3$.

The PM_{10} manual monitors in El Paso County did not sample on the exceedance day. The PM_{10} continuous monitor at the Chamizal site in El Paso County reports non-NAAQS comparable data. On the exceedance day the Chamizal 24-hours measurement of 159 $\mu g/m^3$ was above the NAAQS level of 150 $\mu g/m^3$. Chamizal is about 8 miles east of Desert View.

Figure 6-3 on page 45 and the narrative on page 48 provide information about an NWS alert on the exceedance day. The NWS forecast strong winds and blowing dust for parts of Dona Ana and El Paso Counties on the exceedance day. The areas in Dona Ana County include the Desert View and Chaparral sites.

Figure 6-5 on page 48 shows a satellite image of dust plumes in Mexico and Texas. The image was taken at 12:30 PM on the exceedance day. The plumes appear to be travelling from the southwest to the northeast.

Figure 6-6 on page 49 shows a copy of a Las Cruces newspaper article published on the exceedance day about the wind advisories for southern New Mexico and "far west Texas."

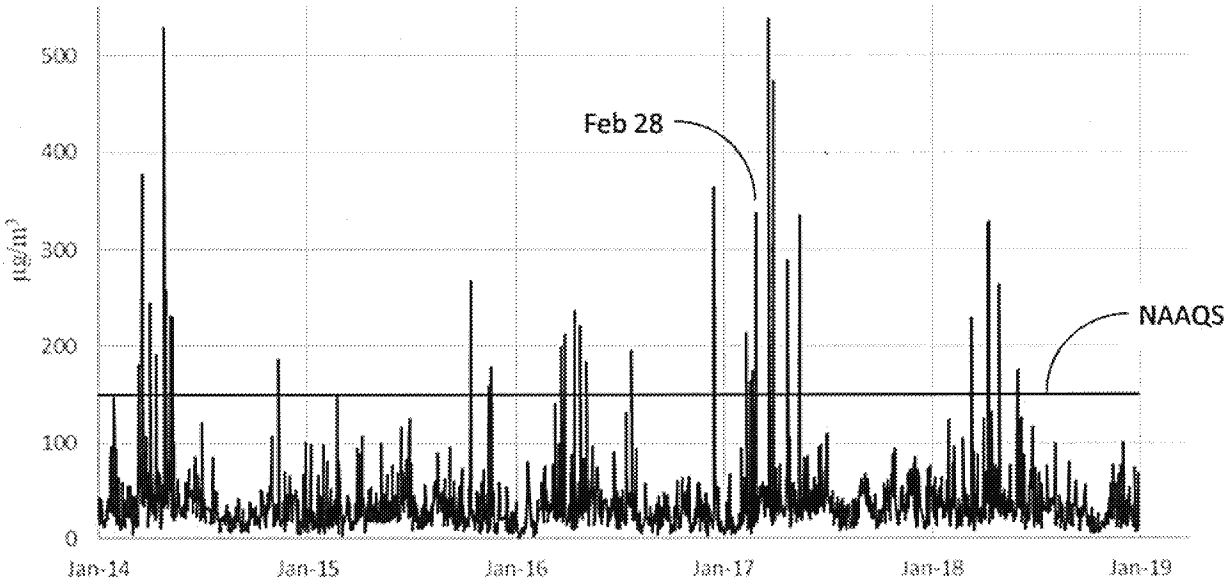
Figure 6-10 on page 52 shows hourly PM_{10} measurements at Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming on the exceedance day. The elevated PM_{10} measurements correlate with elevated wind speeds shown on Figure 6-4.

Figures 6-11 and 6-12 on pages 52 and 53 show both hourly wind speed and PM_{10} measurements at the Desert View and Chaparral sites on the exceedance day. The elevated PM_{10} measurements at the sites correlate with elevated wind speeds.

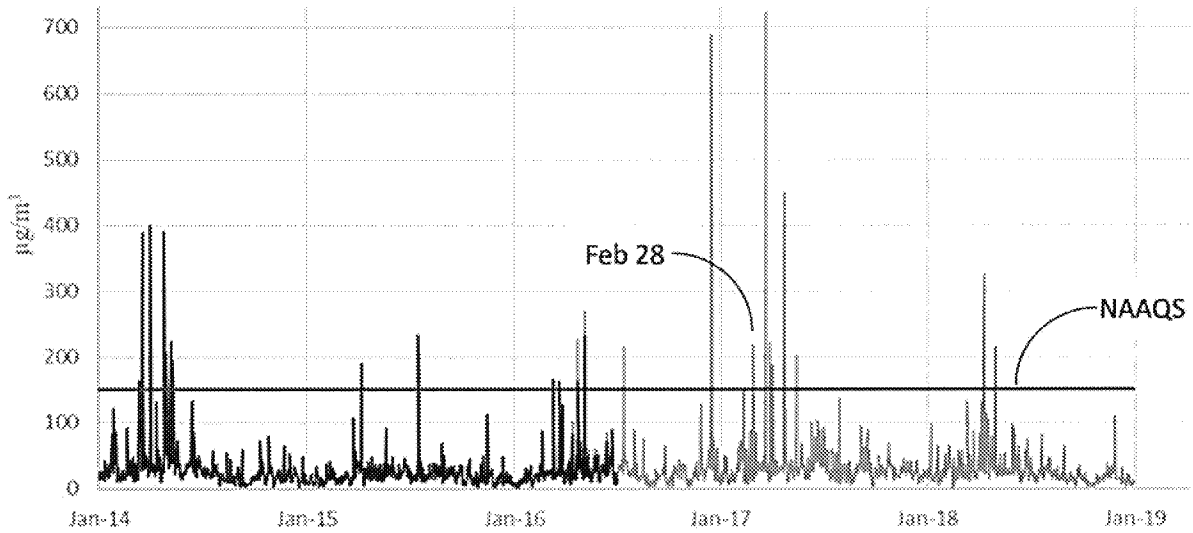
There are independent weather reports, evidence of blowing dust, and hourly wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitors correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitors on the exceedance day.

FEBRUARY 28, 2017, EXCEEDANCE DAY, analyses comparing event influenced concentrations to other concentrations at the monitor.

The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurements on the exceedance day are above the 95th percentile of historical site data. The graphs below reflect the 24-hours monitor data from 2014 to 2019 for the Desert View and Chaparral sites.



24-hours Measurements, Desert View PM_{10} Monitor, 35-013-0021-81102-2



24-hours Measurements, Chaparral PM_{10} Monitor, 35-013-00206-81102-2

[Note: Black line is Manual monitor POC 1, Gray line is Continuous monitor POC 2]

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at these monitors indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the exceedances and the wind incident on the exceedance day.

FEBRUARY 28, 2017, EXCEEDANCE DAY, not reasonably controllable or preventable. See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at the Desert View and Chaparral sites exceeded the threshold on the exceedance day. The winds were from the west and southwest.

See discussion about the February 12, 2017, exceedance for information about the location of the Desert View site in the city of Sunland Park. The Desert View site is located on the western city limits. The Texas and Mexico borders are about 1 mile to the northeast, 3/4 of a mile to the south of Desert View, respectively. To the southwest of Desert View, there are undeveloped lands to the Mexico border. To the west, except for a nearby landfill, there are undeveloped lands all the way to the Arizona border.

Chaparral New Mexico is a remote unincorporated community in Dona Ana County with about 15,000 residents on about 59.2 square miles. The population density is about 250 residents per square mile. In comparison, Albuquerque and El Paso have populations densities of 3,000 and 2,500 residents per square mile, respectively. Vegetation is sparse in the Chaparral community residential areas. Most of the roads in the community are unpaved.

The Texas and Mexico borders are about 2.5 miles to the south, and 24 miles to the southwest of the Chaparral monitor site, respectively. Residential areas or potential anthropogenic upwind sources extend to about 2 miles west and south of the Chaparral site. Beyond the residential areas to the south there are about 7 miles of undeveloped lands and then the northern suburbs of El Paso. Beyond the residential areas to the west, with a few exceptions such as the city of Anthony, there are undeveloped lands to the Arizona border. Residential areas extend to about 1 mile southwest of the Chaparral site. Further to the southwest, there are lands in the state of Texas, the unincorporated La Union community in New Mexico, and undeveloped lands to the Mexico border.

The NMED indicates anthropogenic sources near the monitor sites includes disturbed surface areas, residential properties, vacant lots, dirt roads and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

Portions of the city of Anthony were upwind of the Chaparral site on the exceedance day. The demonstration provides information on the Anthony SIP. Due to recurring impacts from non-anthropogenic sources deemed to contribute significantly to PM_{10} exceedances, the EPA waived the area attainment deadline for the Anthony SIP. The SIP was approved more than 5 years before the exceedance day, however, because of the waiver the NMED is not obligated to revise the SIP. See 40 CFR 50.14(b)(8)(v). Therefore, during the demonstration review, the EPA considered the Anthony SIP limited controls, e.g., treat and pave area roads as funding allows, as part of the review of whether

anthropogenic sources were reasonably controlled on the exceedance day. Appendix C of the demonstration provides a letter from the city of Anthony dated September 18, 2019, that reports on the status of local dust control efforts including road paving.

Portions of the Dona Ana County were upwind of Desert View and Chaparral on the exceedance day. The demonstration provides information on the Dona Ana County Dust ordinance. The county ordinance applies in unincorporated communities in the county. The ordinance requires a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the county or the unincorporated communities of Chaparral and La Union on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at Desert View and Chaparral.

Desert View is located about 3/4 of a mile north of the Mexico border. The Mexico border is about 24 miles southwest of Chaparral. Mexico was upwind of Desert View and Chaparral on the exceedance day. Figure 6-7 on page 50 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the models with the trajectories ending at the "start" of the exceedance day wind event, at the Chaparral monitor site location. The results show that the winds could have been in Texas and Mexico prior to reaching Chaparral. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

MARCH 23, 2017

The exceedance occurred on March 23, 2017, hereafter referred to as the "exceedance day," at monitor sites in Dona Ana and Luna Counties. The relevant monitors and exceedances are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Chaparral	35-013-0020-81102-2	721 $\mu g/m^3$
Anthony	35-013-0016-81102-1	308 $\mu g/m^3$
Desert View	35-013-0021-81102-2	538 $\mu g/m^3$
Deming	35-029-0003-81102-2	157 $\mu g/m^3$
Holman	35-013-0019-81102-2	211 $\mu g/m^3$
West Mesa	35-013-0024-81102-2	169 $\mu g/m^3$

MARCH 23, 2017, EXCEEDANCE DAY, clear causal relationship.
In the demonstration, the NMED indicates "[a]s the event unfolded, the wind blew from the southwest throughout the border region."

Table 7-2 on page 58 shows hourly wind speeds at the Chaparral, Anthony, and Desert View monitor sites for certain hours on the exceedance day. The winds exceeded 25 mph at Chaparral and Anthony for multiple hours and at Desert View for one hour.

Figures 7-7 through 7-12 on pages 63-65 shows the frequency distribution of wind direction correlated with PM10 data at the Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa monitor sites, for the hours when PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The winds at Anthony, Chaparral, Desert View and West Mesa were from the west. The winds at Holman and Deming were from the west and southwest, and west and northwest, respectively.

Figure 7-4 on page 60 shows hourly wind speeds at Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. The winds at Chaparral, Anthony, Deming, Holman, and West Mesa exceeded 25 mph for multiple hours and at Desert View for one hour.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa monitor site exceeded 25 mph for multiple hours. Santa Teresa is about 6 miles west of Desert View.

On the exceedance day, AQS data shows the hourly wind speeds at the Ivanhoe, Chamizal, Ascarate, and Skyline monitor sites in El Paso County exceeded 25 mph for multiple hours.

The Deming airport is about 74 miles northwest of Desert View. On the exceedance day winds at the airport were above 25 mph for multiple hours. During this period, the winds varied from the west southwest to the west northwest, gusts reached 51 mph, and weather type was smoke and haze (Weather Type FU HZ). The overall weather type for the exceedance day was haze (Weather Type HZ).

The El Paso airport is about 11 miles east of the Desert View site. On the exceedance day, winds at the airport were above 25 mph for multiple hours. During this period, the wind direction varied from the west southwest to the west northwest, gusts reached 57 mph, and weather type was "blowing" and

"widespread dust" (Weather Type BL, DU:5). The overall weather type for the exceedance day was "Dust, volcanic ash, blowing dust, blowing sand or…obstruction" (Weather Type DU).

The Las Cruces airport is about 40 miles north of Desert View. On the exceedance day winds at the airport were above 25 mph for multiple hours. During this period, the winds were from the west southwest, and west, gusts reached 57 mph, and weather type was smoke and haze (Weather Type FU HZ). The overall weather type for the exceedance day was haze (Weather Type HZ).

The PM_{10} manual monitors in El Paso County did not sample on the exceedance day. The PM_{10} continuous monitor at the Chamizal site in El Paso County reports non-NAAQS comparable data. On the exceedance day, the Chamizal 24-hours measurement of 261 $\mu g/m^3$ is above the NAAQS level of 150 $\mu g/m^3$. Chamizal is about 8 miles east of Desert View.

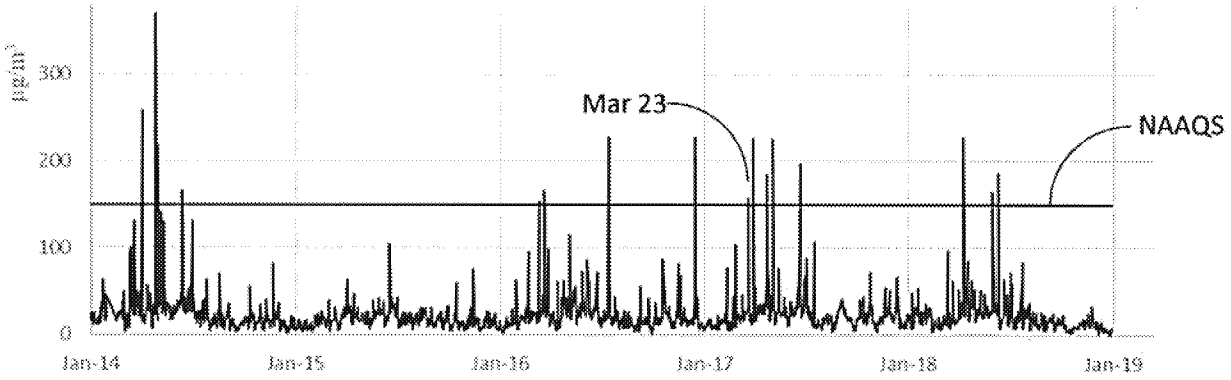
The narrative on page 62 discusses the NWS wind and blowing dust advisory issued for portions of Luna, Dona Ana, and El Paso Counties on the exceedance day. The NWS predicted gusts around 50-60 mph. The advisory also warned about reduced visibility.

Figures 7-14 through 7-19 on pages 67 - 70 show the hourly wind speeds and PM_{10} measurements at Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. The elevated PM_{10} measurements correlate with the elevated wind speeds.

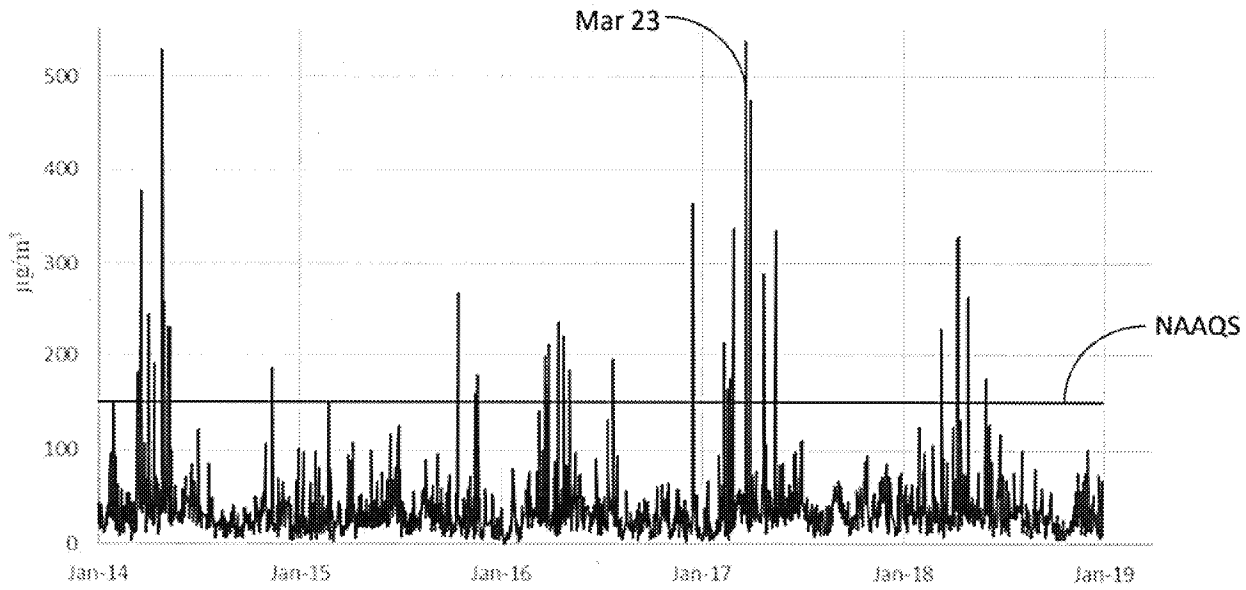
There are independent weather reports, evidence of blowing dust, and hourly wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitors correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitors on the exceedance day.

MARCH 23, 2017, EXCEEDANCE DAY, analyses comparing event influenced concentrations to other concentrations at the monitor.

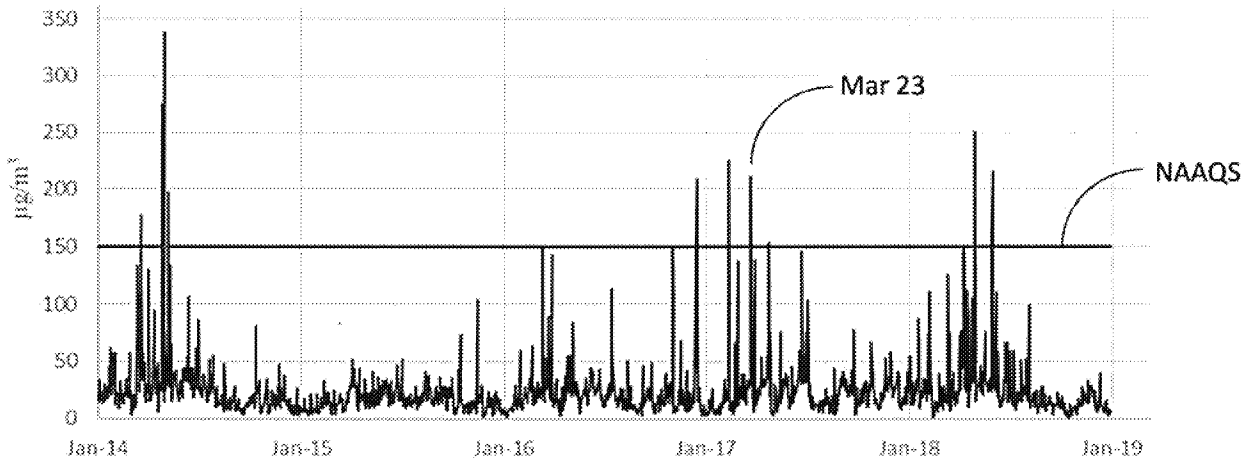
The graphs below reflect the 24-hours monitor data from 2014 to 2019 for the Deming, Desert View, Holman, Anthony, West Mesa and Chaparral sites. The sites measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurements on the exceedance day are above the 95th percentile of historical site data.



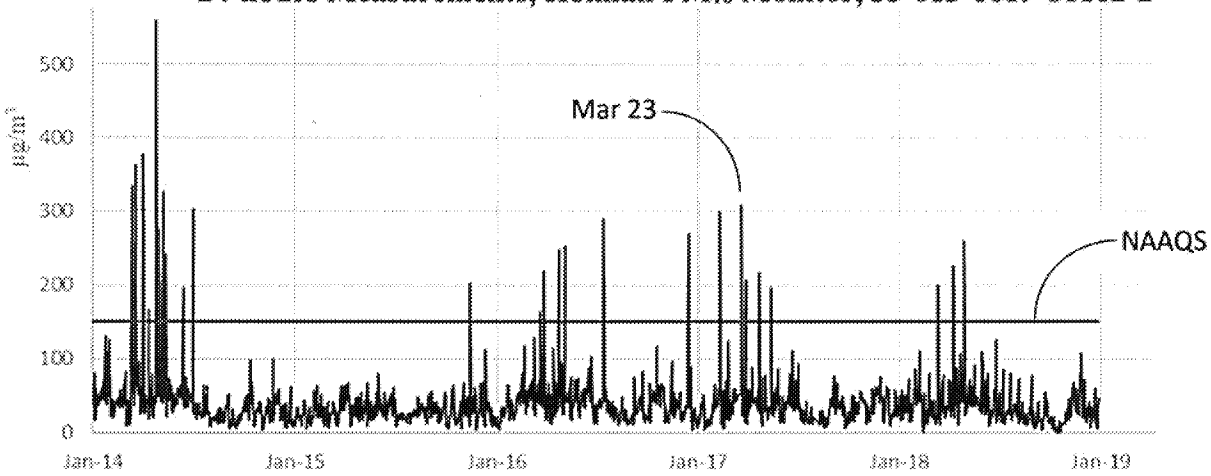
24-hours Measurements, Deming PM_{10} Monitor, 35-029-0003-81102-2



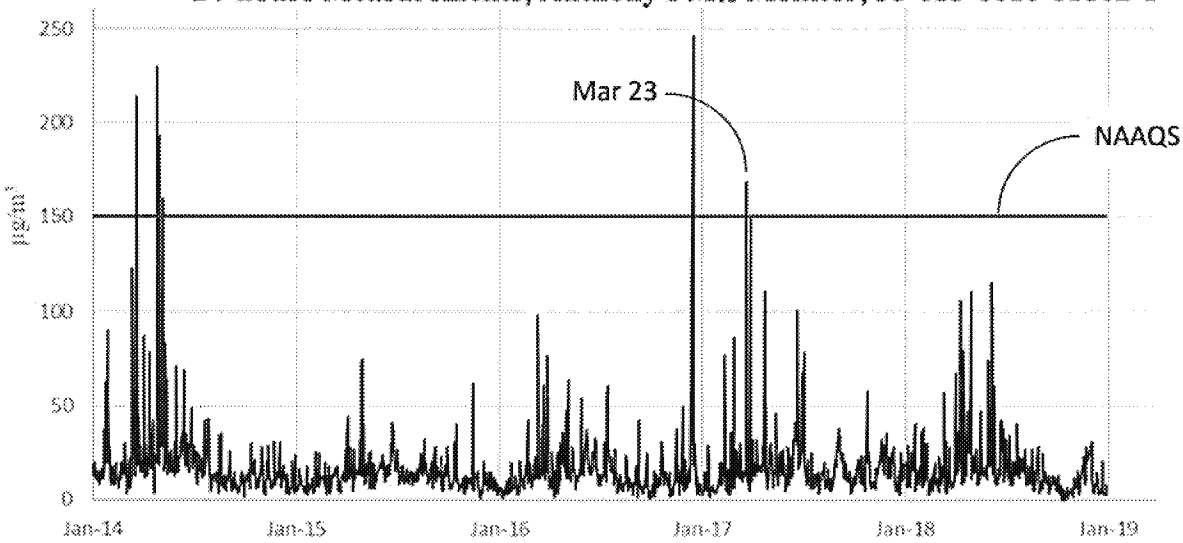
24-hours Measurements, Desert View PM_{10} Monitor, 35-013-0021-81102-2



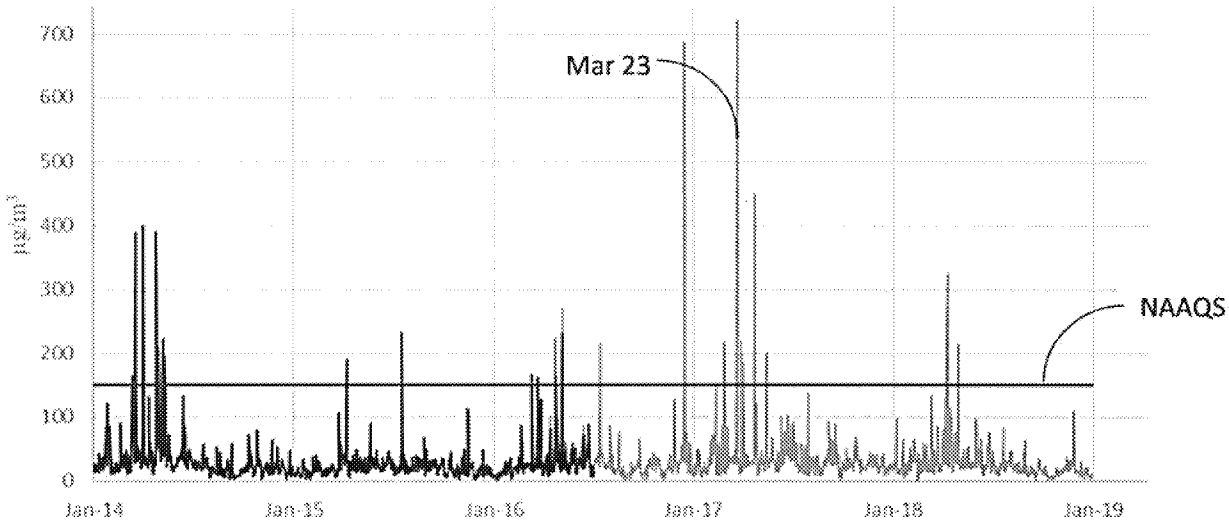
24-hours Measurements, Holman PM_{10} Monitor, 35-013-0019-81102-2



24-hours Measurements, Anthony PM_{10} Monitor, 35-013-0016-81102-1



24-hours Measurements, West Mesa PM_{10} Monitor, 35-013-0024-81102-2



24-hours Measurements, Chaparral PM_{10} Monitor, 35-013-00206-81102-2

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at these monitors indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the monitored exceedances and the wind incident on the exceedance day.

MARCH 23, 2017, EXCEEDANCE DAY, not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa exceeded 25 mph on the exceedance day.

See discussion about the February 12, 2017, exceedance for information about the location of the Desert View site in the city of Sunland Park. During the wind incident, the winds were from the west. Desert View is on the western city limits. To the west, except for a nearby landfill, there are undeveloped lands all the way to the Arizona border. The Texas and Mexico borders are about 1 mile to the northeast, and 3/4 of a mile to the south of Desert View, respectively.

See discussion about the February 28, 2017, exceedance for information about the location of the Chaparral site. During the hours of highest impact on the monitor, the winds were from the west. Residential areas extend to about 2 miles west of Chaparral. Further to the west, except for the city of Anthony, undeveloped lands exist to the Arizona border. Chaparral is about 24 miles northeast of Mexico and 2.5 miles north of Texas.

See discussion about the February 12, 2017, exceedance for information about the location of the Anthony site. During the hours of highest impact on the monitor, the winds were from the west. The Anthony city limits are about 0.5 miles west of the Anthony monitor site. Beyond the city to the west

undeveloped lands exist to the Arizona border. The Texas and Mexico borders are about 700 feet to the south and 20 miles to the southwest of the Anthony site, respectively.

See discussion about the February 12, 2017, exceedance for information about the location of the Holman site. During the hours of highest impact on the monitor, the winds were from the west and southwest. On the exceedance day, nearby anthropogenic sources in the city of Las Cruces to the southwest would have been upwind of Holman. To the west of Holman are undeveloped lands all the way to the Arizona border.

The West Mesa monitor site is located on the city of Las Cruces western limits. During the hours of highest impact on the monitor on the exceedance day, the winds were from the west. Nearby anthropogenic sources in the city of Las Cruces would not have been upwind of West Mesa. To the west of West Mesa are undeveloped lands all the way to the Arizona border.

The city of Deming with a population of about 15,000, is the only city in Luna County, New Mexico. The city is located 33 miles north of the Mexico border. Except for the city of Deming, a village close to the Mexico border and some agricultural fields, the land in the county is undeveloped. The Deming monitor site is at the airport within the city limits. During the hours of highest impact on the monitor, the winds were from the west and northwest. To the west and northwest of the monitor are about 3 miles of developed and undeveloped lands within the city. Beyond the city limits to the west and northwest are undeveloped lands to the Arizona border.

The NMED indicates anthropogenic sources near the monitor sites includes disturbed surface areas, residential properties, vacant lots, dirt roads and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

Portions of the city of Anthony were up wind of the Chaparral and Anthony monitor sites on the exceedance day. The demonstration provides information on the Anthony PM_{10} SIP. Due to recurring impacts from non-anthropogenic sources deemed to contribute significantly to PM_{10} exceedances, the EPA waived the area attainment deadline for the Anthony SIP. The SIP was approved more than 5 years before the exceedance day, however, because of the waiver the NMED is not obligated to revise the SIP. See 40 CFR 50.14(b)(8)(v). Therefore, during the demonstration review, the EPA considered the Anthony SIP limited controls, e.g., treat and pave area roads as funding allows, as part of the review of whether anthropogenic sources were reasonably controlled on the exceedance day. Appendix C of the demonstration provides a letter from the city of Anthony dated September 18, 2019, that reports on the status of local dust control efforts including road paving.

Portions of Dona Ana County were upwind of the Desert View, Anthony, Chaparral, West Mesa, and Holman monitor sites on the exceedance day. Portions of the city of Las Cruces were upwind of Holman, and portions of Luna county and the city of Deming were upwind of the Deming monitor site. The demonstration provides information on the cities of Deming, Las Cruces, Dona Ana, and Luna counties dust ordinances. The ordinances require a plan for dust controls on disturbed sites. The controls would have applied to any upwind disturbed sites in the cities, counties and the Chaparral community on

the day of the exceedance. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at Desert View, Anthony, Holman, West Mesa, Chaparral, and Deming.

Mexico may have been upwind of Desert View and Anthony on the exceedance day. Figure 7-6 on page 63 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the model with the trajectories ending at the "start" of the wind event, at the Anthony site. The results show the winds may have been in Texas and Mexico prior to reaching Anthony. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

MARCH 31, 2017

The exceedance occurred on March 31, 2017, hereafter referred to as the "exceedance day" at monitor sites in Dona Ana and Luna County. The relevant monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Deming	35-029-0003-81102-2	226 $\mu g/m^3$
Chaparral	35-013-0020-81102-2	222 $\mu g/m^3$
Anthony	35-013-0016-81102-1	208 $\mu g/m^3$
Desert View	35-013-0021-81102-2	475 $\mu g/m^3$

MARCH 31, 2017, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration, the NMED indicates "[a]s the event unfolded, the wind blew from the southwest throughout the border region."

Table 8-2 on page 77 shows hourly wind speed data from the Deming, Anthony, and Desert View monitor sites for certain hours on the exceedance day. Wind speeds at the sites exceeded 25 mph for multiple hours.

Figure 8-3 on page 79 shows hourly wind speeds at Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. Wind speeds at the sites exceeded 25 mph for at least one hour.

Figures 8-6 through 8-9 on pages 82 and 83 shows the frequency distribution of wind direction correlated with PM_{10} data at the Chaparral, Anthony, Desert View, and Deming monitor sites when the PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The winds were from the west, northwest, and southwest at Chaparral and Desert View. The winds at Anthony varied from the south to the northwest. The winds at Deming were from the west.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa site exceeded 25 mph for multiple hours. Santa Teresa is about 23 miles southwest of Chaparral site and about 6 miles west of Desert View.

On the exceedance day, AQS data shows the hourly wind speeds at the Ivanhoe, Chamizal, Ascarate, and Skyline monitor sites in El Paso County met or exceeded 25 mph for multiple hours.

The Deming airport is about 74 miles northwest of Desert View. On the exceedance day winds at the airport exceeded 25 mph for multiple hours. During this period, the winds varied from the west southwest to the west northwest, gusts reached 55 mph, and weather type included smoke and haze (Weather Type FU HZ). The overall weather type for the exceedance day was haze.

The Las Cruces airport is about 40 miles north of Desert View. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the winds varied from the southwest to the west northwest, gusts reached 46 mph, and weather type included smoke and haze. The overall weather type for the exceedance day was haze.

The El Paso airport is about 11 miles east of the Desert View site. On the exceedance day winds at the airport exceeded 25 mph for multiple hours. During this period, the winds varied from the west southwest to the south, gusts reached 59 mph, and weather type included "blowing" and "widespread dust" (Weather Type BL, DU:5). The overall weather type for the exceedance day was "Dust, volcanic ash, blowing dust, blowing sand or…obstruction" (Weather Type DU).

Figure 8-19 on page 89 shows the 24-hours PM_{10} measurements from the Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming monitor sites on the exceedance day. The measurements at Desert View, Anthony, Deming and Chaparral exceeded the NAAQS level of 150 $\mu g/m^3$. West Mesa and Holman measurements approached the NAAQS level: Holman 139 $\mu g/m^3$ (average 28 $\mu g/m^3$), West Mesa 149 $\mu g/m^3$ (average 21 $\mu g/m^3$).

The PM_{10} manual monitors in El Paso County did not sample on the exceedance day. The PM_{10} continuous monitor at the Chamizal site in El Paso County reports non-NAAQS comparable data. On the exceedance day, the Chamizal 24-hours measurement of 96 $\mu g/m^3$ is above the site average of 31 $\mu g/m^3$. Chamizal is about 8 miles east of Desert View.

Figure 8-4 on page 80 shows a satellite image of a dust plume in Mexico and the El Paso area. The image was taken at 11 AM on the exceedance day.

The narrative on page 81 discusses the NWS forecast of blowing dust and impaired visibility for parts of Luna, Dona Ana and El Paso Counties on the exceedance day.

Figure 8-10 on page 84 shows the hourly PM_{10} measurements from Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. The elevated PM_{10} measurements at the sites correlate with elevated wind speeds shown in Figure 8-3.

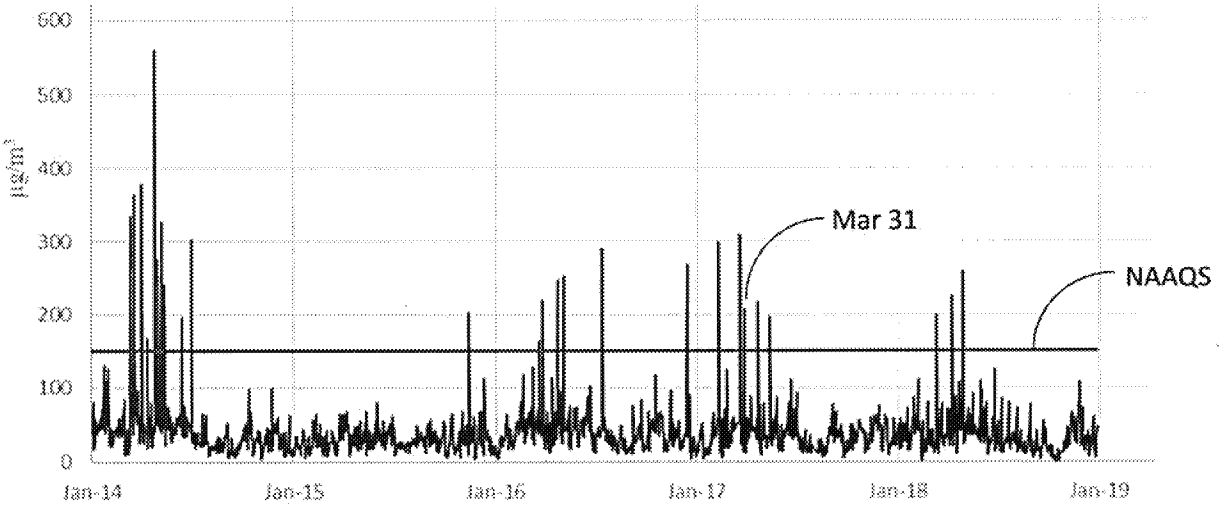
Figures 8-11 through 8-14 on pages 84-86 show hourly wind speed and PM_{10} measurements at the Chaparral, Anthony, Desert View, and Deming monitor sites on the exceedance day. The elevated PM_{10} measurements at the sites correlate with the elevated wind speeds.

There are independent weather reports, evidence of blowing dust, and hourly wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitors correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitors on the exceedance day.

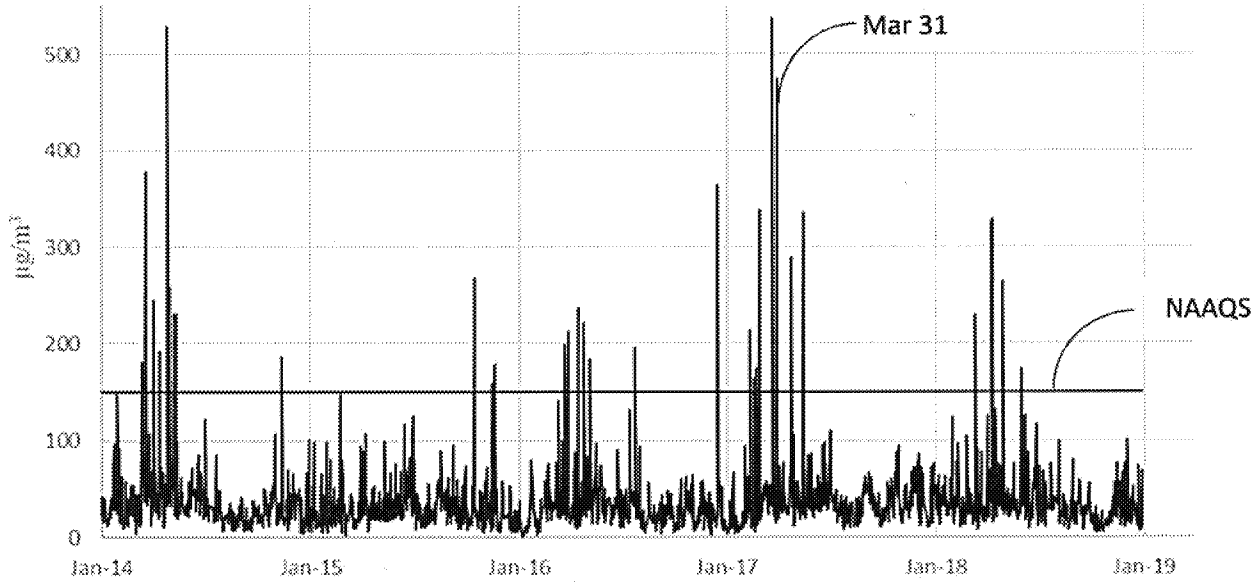
MARCH 31, 2017, EXCEEDANCE DAY, analyses comparing event influenced concentrations to other concentrations at the monitor.

The graphs below reflect the 24-hours monitor data from 2014 to 2019 for the Anthony, Desert View, Deming and Chaparral sites. The sites measurements for the days surrounding the exceedance day did

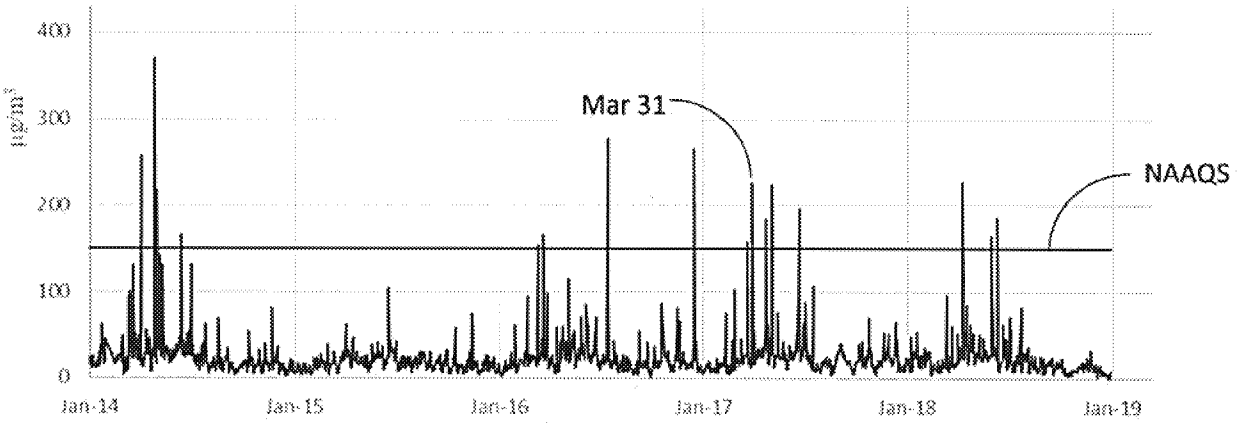
not approach the NAAQS level. The measurements on the exceedance day are above the 95th percentile of historical site data.



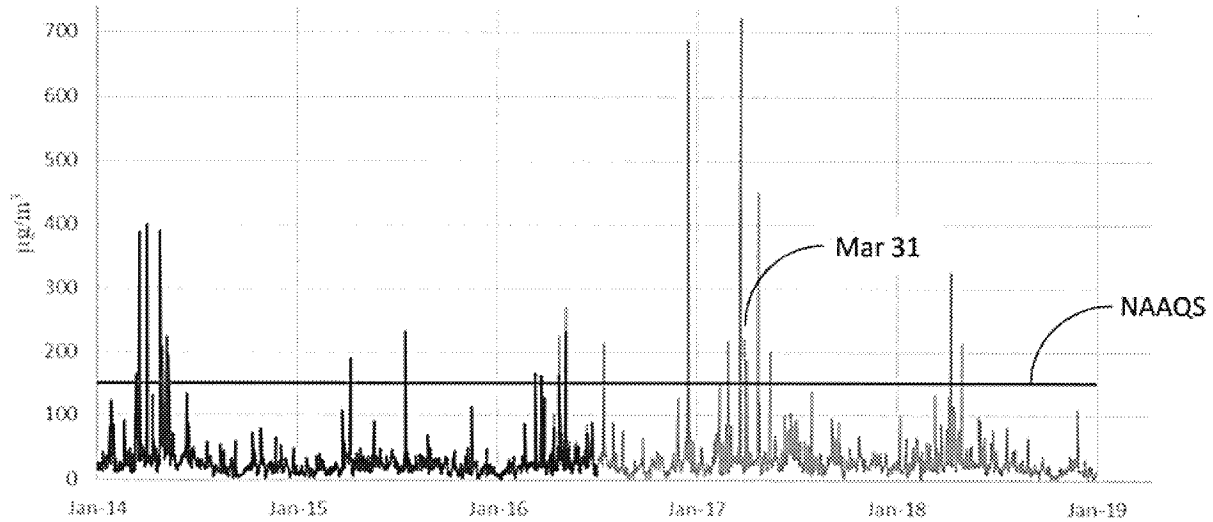
24-hours Measurements, Anthony PM_{10} Monitor, 35-013-0016-81102-1



24-hours Measurements, Desert View PM_{10} Monitor, 35-013-0021-81102-2



24-hours Measurements, Deming PM_{10} Monitor, 35-029-0003-81102-2



24-hours Measurements, Chaparral PM_{10} Monitor, 35-013-0020-81102

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at these monitors indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the monitored exceedances and the wind incident on the exceedance day.

MARCH 31, 2017, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources - The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at the Chaparral, Anthony, Desert View and Deming monitor sites exceeded the threshold on the exceedance day.

See discussion about the February 12, 2017, exceedance for information about the location of the Desert View site in the city of Sunland Park. During the hours of highest impact on the monitor, the winds were

from the west, southwest, and northwest. The Desert View site is located on the western city limits. The Texas and Mexico borders are about 1 mile to the northeast, and 3/4 of a mile to the south of Desert View, respectively. To the southwest of Desert View, there are undeveloped lands to the Mexico border. To the west, except for a nearby landfill, and to the northwest, except for the city of Deming in Luna County, there are undeveloped lands all the way to the Arizona border.

See discussion about the February 28, 2017, exceedance for information about the location of the Chaparral site. During the hours of highest impact on the monitor, the winds were from the west, southwest, and northwest. The Texas and Mexico borders are about 2.5 miles to the south, and 24 miles to the southwest of the Chaparral site, respectively. Residential areas extend to about 1 mile southwest of the Chaparral monitor site. Further to the southwest, there are lands in the state of Texas, the unincorporated La Union community in New Mexico, and undeveloped lands to the Mexico border. Residential areas extend to about 2 miles west and northwest of Chaparral. Further to the west, except for the city of Anthony, and to the northwest, except for Las Cruces, undeveloped lands exist to the Arizona border.

See discussion about the February 12, 2017, exceedance for information about the location of the Anthony monitor site. During the hours of highest impact on the monitor, the winds varied from the south to the northwest. The Texas and Mexico borders are about 700 feet to the south, and 20 miles to the southwest of the Anthony site, respectively. To the southwest, except for the unincorporated La Union community, there are undeveloped land to the Mexico border. The Anthony city limits are about 0.5 miles west of the Anthony monitor site. Beyond the city to the west, there are undeveloped lands to the Arizona border. To the northwest, except for Las Cruces, there are undeveloped lands to the Arizona border.

See discussion about the March 23, 2017, exceedance for information about the location of the Deming site. During the hours of highest impact on the monitor, the winds were from the west. To the west of the Deming monitor for about 3 miles, is a mix of developed and undeveloped land within the city of Deming city limits. Beyond the city limits to the west, there are undeveloped lands to the Arizona border.

The NMED indicates anthropogenic sources near the monitor sites includes disturbed surface areas, residential properties, vacant lots, dirt roads, and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

The city of Anthony was upwind of the Chaparral and Anthony site on the exceedance day. The demonstration and appendices provide information on the Anthony PM_{10} SIP. Due to recurring impacts from non-anthropogenic sources deemed to contribute significantly to PM_{10} exceedances, the EPA waived the area attainment deadline for the Anthony SIP. The SIP was approved more than 5 years before the exceedance day, however, because of the waiver the NMED is not obligated to revise the SIP. See 40 CFR 50.14(b)(8)(v). Therefore, during the demonstration review, the EPA considered the Anthony SIP limited controls, e.g., treat and pave area roads as funding allows, as part of the review of whether anthropogenic sources were reasonably controlled on the exceedance day. Appendix C of the

demonstration provides a letter from the city of Anthony dated September 18, 2019, that reports on the status of local dust control efforts including road paving.

The city of Las Cruces, Deming, Luna County, or Dona Ana County were upwind of Chaparral, Anthony, Desert View, or Deming monitor sites on the exceedance day. The demonstration provides information on the cities and counties dust ordinances. The ordinances require a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the cities, counties and unincorporated Chaparral and La Union communities on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at the Desert View, Anthony, Chaparral, and Deming sites.

Mexico may have been upwind of Desert View, Chaparral, and Anthony on the exceedance day. Figure 8-5 on page 81 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the model with the trajectories ending at the "start" of the wind event, at the Anthony monitor site. The results show the winds may have been in Texas and Mexico prior to reaching Anthony. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

APRIL 4, 2017

The exceedance occurred on April 4, 2017, hereafter referred to as the "exceedance day" at a monitor site in Dona Ana County. The relevant monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Chaparral	35-013-0020-81102-2	186 $\mu g/m^3$

APRIL 4, 2017, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration, the NMED states "[a]s the event unfolded, the wind blew from the northwest throughout the border region."

Table 9-2 on page 92 shows hourly wind speed measurements from the Chaparral, Desert View, and Deming monitor sites for certain hours on the exceedance day. The table shows hourly wind speeds exceeded 25 mph for multiple hours at Deming and Chaparral. The maximum hourly wind speed measured at Desert View was 21 mph. Maximum wind gusts of 54, 39 and 47 mph were measured at the Chaparral, Desert View, and Deming sites, respectively.

Figure 9-6 on page 97 shows the frequency distribution of wind direction correlated with PM_{10} data at the Chaparral site when PM_{10} concentrations exceeded 150 $\mu g/m^3$ on the exceedance day. The winds were from the west.

Figure 9-3 on page 94 shows hourly wind speeds at Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. The winds at Chaparral, Deming, and West Mesa exceeded 25 mph for multiple hours. The winds at Holman, Desert View, and Anthony approached but did not reach 25 mph.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa site met or exceeded 25 mph for multiple hours. Santa Teresa is about 23 miles southwest of Chaparral.

On the exceedance day, AQS data shows the hourly wind speeds at the Chamizal and Ascarate monitor sites in El Paso County exceeded 25 mph for multiple hours and the winds at Ivanhoe were 25 mph for an hour.

The Deming airport is about 80 miles northwest of Chaparral. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the winds were from the west northwest and gusts reached 45 mph.

The Las Cruces airport is about 34 miles northwest of Chaparral. On the exceedance day winds at the airport exceeded 25 mph for multiple hours. During this period, the winds were from the west northwest, west, and west southwest and gusts reached 51 mph.

The El Paso airport is about 18 miles south of Chaparral. On the exceedance day winds at the El Paso airport exceeded 25 mph for multiple hours. During this period, the winds were from the west northwest, west, and west southwest and gusts reached 59 mph. The overall weather type for the exceedance day was "Dust, volcanic ash, blowing dust, blowing sand or…obstruction" (Weather Type DU).

Figure 9-10 on page 99 shows the 24-hours PM_{10} measurements from Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. Chaparral exceeded the NAAQS level and most of the other measurements were above average: Anthony 60 $\mu g/m^3$ (average 46 $\mu g/m^3$), Desert View 74 $\mu g/m^3$ (average 39 $\mu g/m^3$), Deming 54 $\mu g/m^3$ (average 27 $\mu g/m^3$), West Mesa 32 $\mu g/m^3$ (average 21 $\mu g/m^3$) and Holman 25 $\mu g/m^3$ (average 28 $\mu g/m^3$)

The PM_{10} manual monitors in El Paso County did not sample on the exceedance day. The PM_{10} continuous monitor at the Chamizal site in El Paso County reports non-NAAQS comparable data. On the exceedance day, the Chamizal 24-hours measurement of 100 $\mu g/m^3$ is above the site average of 31 $\mu g/m^3$. Chamizal is about 19 miles south of Chaparral.

Figure 9-4 on page 95 is a satellite image of dust plumes New Mexico, Texas and Mexico. The image was taken at 1:45 PM on the exceedance day.

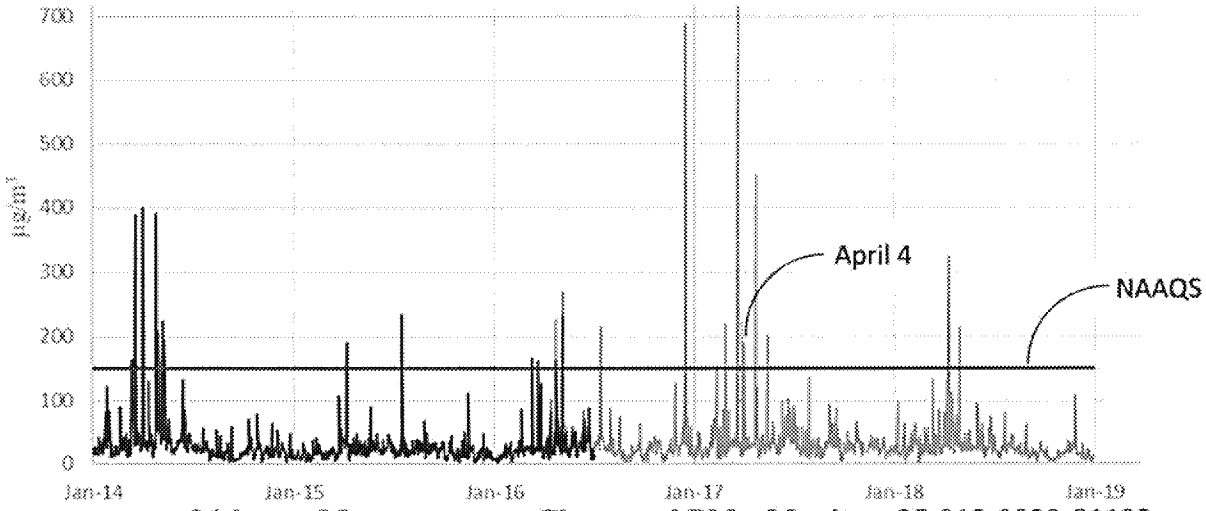
NWS wind and blowing dust advisories issued on the exceedance day are discussed on page 96.

Figure 9-8 on page 98 shows hourly wind speeds and PM_{10} measurements at Chaparral on the exceedance day. The elevated PM_{10} measurements correlate with elevated wind speeds.

Figure 9-7 on page 96 shows the hourly PM_{10} measurements from Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. elevated PM_{10} measurements correlate with elevated wind speeds shown in Figure 9-3.

There are independent weather reports, evidence of blowing dust, and hourly wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

APRIL 4, 2017, EXCEEDANCE DAY, Analyses comparing event influenced concentrations to other concentrations at the monitor.
The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurements on the exceedance day are above the 95th percentile of historical site data. The graph below reflects the 24-hours monitor data from 2014 to 2019 for the Chaparral site.



24-hours Measurements, Chaparral PM_{10} Monitor, 35-013-0020-81102

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at the monitor indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the monitored exceedance and the wind incident on the exceedance day.

APRIL 4, 2017, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources - The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at Chaparral exceeded the threshold on the exceedance day. The winds were from the west.

See discussion about the February 28, 2017, exceedance for information about the location of the Chaparral site. Residential areas extend to about 2 miles west of the Chaparral monitor site. Further to the west, except for the city of Anthony, undeveloped lands exist to the Arizona border. The Texas and Mexico borders are about 2.5 miles to the south, and 24 miles to the southwest of the Chaparral site, respectively.

The NMED indicates anthropogenic sources near the monitor sites includes disturbed surface areas, residential properties, vacant lots, dirt roads and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind

incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

The city of Anthony was upwind of Chaparral on the exceedance day. The demonstration provides information on the Anthony PM_{10} SIP. Due to recurring impacts from non-anthropogenic sources deemed to contribute significantly to PM_{10} exceedances, the EPA waived the area attainment deadline for the SIP. The SIP was approved more than 5 years before the exceedance day, however, because of the waiver the NMED is not obligated to revise the SIP. See 40 CFR 50.14(b)(8)(v). Therefore, during the demonstration review, the EPA considered the Anthony SIP limited controls, e.g., treat and pave area roads as funding allows, as part of the review of whether anthropogenic sources were reasonably controlled on the exceedance day. Appendix C of the demonstration provides a letter from the city of Anthony dated September 18, 2019, that reports on the status of local dust control efforts including road paving.

Dona Ana County was upwind of Chaparral on the exceedance day. The demonstration provides information on the county dust ordinance. The ordinance requires a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the county or Chaparral community on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at Chaparral on the exceedance day.

Figure 9-5 on page 96 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the model with the trajectories ending at the "start" of the wind event, at Chaparral. The results show the winds may have been in southern New Mexico and Arizona prior to reaching Chaparral. Any upwind anthropogenic sources in Arizona are outside the state of New Mexico's jurisdiction. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

APRIL 25, 2017

The exceedances occurred on April 25, 2017, hereafter referred to as the "exceedance day", at monitor sites located in Dona Ana and Luna Counties. The monitors and exceedances are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Desert View	35-013-0021-81102-2	288 $\mu g/m^3$
Chaparral	35-013-0020-81102-2	450 $\mu g/m^3$
Anthony	35-013-0016-81102-1	213 $\mu g/m^3$
Deming	35-029-0003-81102-2	184 $\mu g/m^3$

APRIL 25, 2017, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration, the NMED indicates "[a]s the event unfolded, the wind blew from the southwest throughout the border region."

Table 10-2 on page 102 shows hourly wind speeds from the Chaparral, Anthony, and Desert View monitor sites for various hours on the exceedance day. Winds at Chaparral and Anthony exceeded 25 mph for multiple hours. Hourly wind speeds at Desert View peaked at 22 mph and did not reach the threshold. Table 10-3 on page 102 shows the winds at Desert View, however, exceeded 25 mph for at least 10 minutes during the 3 PM hour. Wind gusts of 50, 47 and 52 mph were measured at the Anthony, Desert View, and Chaparral sites, respectively.

Figures 10-7 through 10-10 on pages 108-110 shows the frequency distribution of wind direction correlated with PM_{10} measurements at the Chaparral, Anthony, Desert View, and Deming monitor sites for the hours when PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The winds at Chaparral, Anthony, Deming, and Desert View were from the west.

Figure 10-4 on page 105 shows hourly wind speeds at Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. Except for Desert View, the sites had multiple hours where winds exceeded 25 mph.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa monitor site met or exceeded 25 mph for multiple hours. Santa Teresa is about 6 miles west of Desert View.

On the exceedance day, AQS data shows the hourly wind speeds at the Chamizal, Ascarate, and Skyline monitor sites in El Paso County met or exceeded 25 mph for multiple hours.

The Deming airport is about 74 miles northwest of Desert View. On the exceedance day winds at the airport exceeded 25 mph for multiple hours. During this period, the winds varied from west southwest to west northwest, gusts reached 56 mph, and weather type included smoke and haze (Weather Type FU HZ). The overall weather type for the day was haze.

The Las Cruces airport is about 40 miles north of Desert View. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the winds varied from southwest to west

northwest, gusts reached 54 mph, and weather type included smoke and haze. The overall weather type for the day was haze.

The El Paso airport is about 11 miles east of Desert View. On the exceedance day winds at the airport were above 25 mph for multiple hours. During this period, the winds varied from west southwest to south, gusts reached 59 mph, and weather type included "blowing" and "widespread dust" (Weather Type BL, DU:5). The overall weather type for the exceedance day was "Dust, volcanic ash, blowing dust, blowing sand or…obstruction" (Weather Type DU).

Figure 10-20 on page 116 shows the 24-hours PM_{10} measurements from the Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming monitor sites on the exceedance day. The measurements at Desert View, Anthony, Deming and Chaparral exceeded the NAAQS level of 150 $\mu g/m^3$. West Mesa and Holman measurements were elevated: Holman 154 $\mu g/m^3$ (average 28 $\mu g/m^3$), West Mesa 111 $\mu g/m^3$ (average 21 $\mu g/m^3$).

The PM_{10} manual monitors in El Paso County sampled on the exceedance day. The 24-hours measurement at Socorro exceeded the NAAQS level, i.e., 188 $\mu g/m^3$. The other 24-hours measurements were elevated: Riverside 111 $\mu g/m^3$ (average 29 $\mu g/m^3$), Ivanhoe 79 $\mu g/m^3$ (average 20 $\mu g/m^3$), Ojo 118 $\mu g/m^3$ (average 23 $\mu g/m^3$), and Van Buren 85 $\mu g/m^3$ (average 25 $\mu g/m^3$). There is no 24-hours measurement from the PM_{10} continuous Chamizal monitor in El Paso County on the exceedance day.

Figure 10-5 on page 107 shows a satellite image taken at 11 AM on the exceedance day. The NMED indicates the image shows dust plumes in Mexico.

Figure 10-3 on page 104 shows an NWS forecast for the exceedance day. The strong winds and blowing dust advisories were issued on Monday April 24, 2017, for Tuesday April 25, 2017. The forecast was for the Luna, Dona Ana, and El Paso Counties area. NWS forecast wind speeds of 20-40 mph and gusts of 35-60 mph.

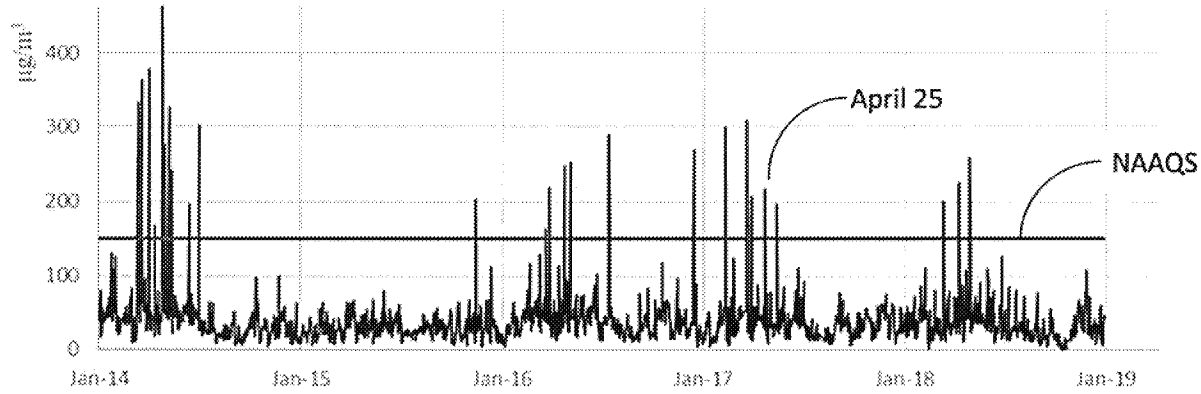
Figure 10-11 on page 111 shows the hourly PM_{10} measurements from the Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa sites on the exceedance day. The elevated PM_{10} measurements at the sites correlate with elevated wind speeds shown on Figure 10-4.

Figures 10-12 through 10-15 on pages 111-113 show hourly wind speed and PM_{10} measurements at the Chaparral, Anthony, Desert View, and Deming sites on the exceedance day. The elevated PM_{10} measurements at the sites correlate with elevated wind speeds.

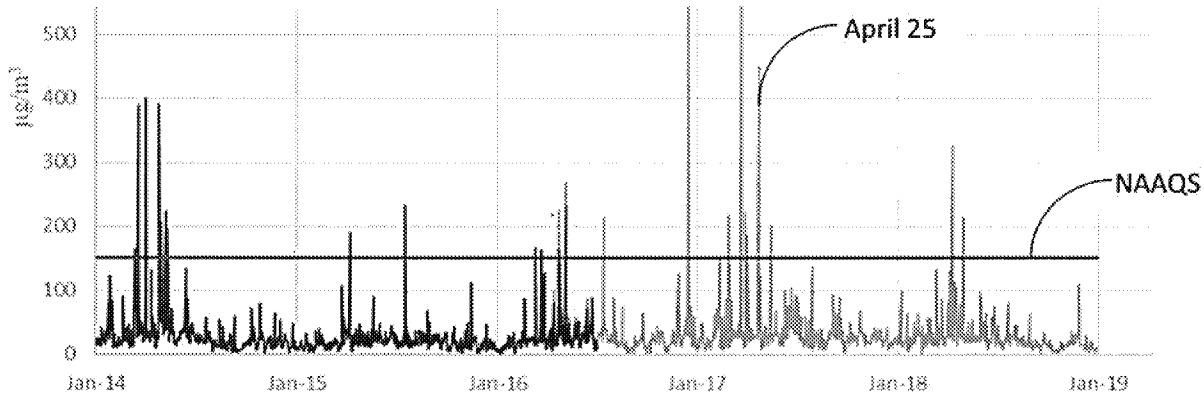
There are independent weather reports, evidence of blowing dust, and hourly wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitors correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedances at the monitors on the exceedance day.

APRIL 25, 2017, EXCEEDANCE DAY, Analyses comparing event influenced concentrations to other concentrations at the monitor.

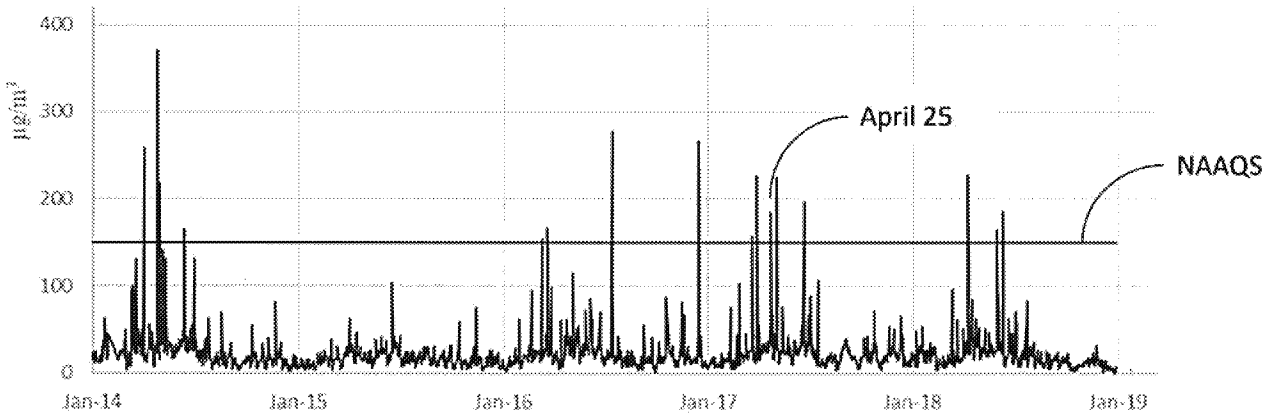
The graphs below reflect the 24-hours monitor data from 2014 to 2019 for the Anthony, Chaparral, Desert View, and Deming sites. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurements on the exceedance day are above the 95th percentile of historical site data.



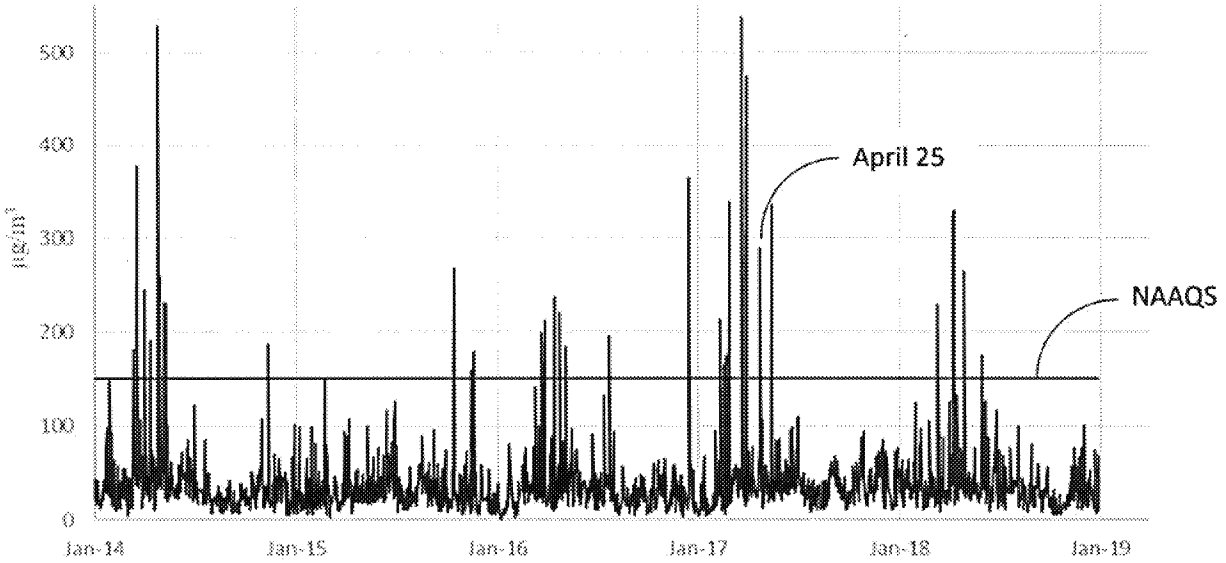
24-hours Measurements, Anthony PM_{10} Monitor, 35-013-0016-81102-1



24-hours Measurements, Chaparral PM_{10} Monitor, 35-013-0020-81102-2



24-hours Measurements, Deming PM_{10} Monitor, 35-029-0003-81102-2



24-hours Measurements, Desert View PM_{10} Monitor, 35-013-0021-81102-2

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at these monitors indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the monitored exceedances and the wind incident on the exceedance day.

APRIL 25, 2017, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds at the Chaparral, Anthony, and Deming sites exceeded the threshold on the exceedance day. The hourly wind speeds at Desert View did not exceed 25 mph on the exceedance day; however, the threshold was exceeded for 10 minutes during the event. The winds at Chaparral, Anthony, Deming, and Desert View were from the west.

See discussion about the February 12, 2017, exceedance for information about the location of the Desert View site in the City of Sunland Park. Desert View is on the western city limits. To the west, except for a nearby landfill, there are undeveloped lands all the way to the Arizona border. The Texas and Mexico borders are about 1 mile to the northeast, and ¾ of a mile to the south of Desert View, respectively.

See discussion about the February 28, 2017, exceedance for information about the location of the Chaparral site. Residential areas extend to about 2 miles west of the Chaparral monitor site. Further to the west, except for the city of Anthony, undeveloped lands exist to the Arizona border. The Texas and Mexico borders are about 2.5 miles to the south, and 24 miles to the southwest of the Chaparral site, respectively.

See discussion about the February 12, 2017, exceedance for information about the location of the Anthony site. The Anthony city limits are about 0.5 miles west of the Anthony monitor site. Beyond the

city to the west undeveloped lands exist to the Arizona border. The Texas and Mexico borders are about 700 feet to the south, and 20 miles to the southwest of the Anthony site, respectively.

See discussion about the March 23, 2017, exceedance for information about the location of the Deming site. During the hours of highest impact on the monitor, the winds were from the west. To the west of the Deming monitor for about 3 miles, is a mix of developed and undeveloped land within the city limits of Deming. Beyond the city limits to the west, there are undeveloped lands to the Arizona border.

The NMED indicates anthropogenic sources near the monitor sites includes disturbed surface areas, residential properties, vacant lots, dirt roads and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

The city of Anthony was upwind of the Chaparral and Anthony sites on the exceedance day. The demonstration provides information on the Anthony PM_{10} SIP. Due to recurring impacts from non-anthropogenic sources deemed to contribute significantly to PM_{10} exceedances, the EPA waived the area attainment deadline for the Anthony SIP. The SIP was approved more than 5 years before the exceedance day, however, because of the waiver the NMED is not obligated to revise the SIP. See 40 CFR 50.14(b)(8)(v). Therefore, during the demonstration review, the EPA considered the Anthony SIP limited controls, e.g., treat and pave area roads as funding allows, as part of the review of whether anthropogenic sources were reasonably controlled on the exceedance day. Appendix C of the demonstration provides a letter from the city of Anthony dated September 18, 2019, that reports on the status of local dust control efforts including road paving.

The city of Deming and Dona Ana and Luna County were upwind of Deming, Anthony, Chaparral, or Desert View on the exceedance day. The demonstration provides information on the city and counties dust ordinances which require a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the city, counties and unincorporated communities on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at Desert View, Anthony, Chaparral, and Deming.

Figure 10-6 on page 108 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. NMED ran the model with the trajectories ending at the "start" of the wind event, at the Anthony monitor site. The results show the winds may have been in southern New Mexico and Mexico prior to reaching Anthony. Upwind anthropogenic sources in Mexico are outside the state of New Mexico's jurisdiction. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

MAY 6, 2017

The exceedance occurred on May 6, 2017, hereafter referred to as the "exceedance day" at a monitor site located in Luna County. The relevant monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Deming	35-029-0003-81102-2	224 $\mu g/m^3$

MAY 6, 2017, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration, the NMED indicates "[a]s the event unfolded, the wind blew from the southwest throughout the border region."

Table 11-2 on page 119 shows hourly wind speeds at the Anthony, Holman, and Deming monitor sites for certain hours on the exceedance day. The hourly wind speeds at Deming did not reach the threshold. Table 11-3 on page 120 shows the winds at Deming, however, exceeded 25 mph for at least 10 minutes during the 3 PM hour. Wind gusts of 43, 57, and 48 mph were measured at the Anthony, Holman, and Deming sites, respectively.

Figure 11-7 on page 124 shows the frequency distribution of wind direction correlated with PM_{10} data at the Deming monitor site during the hours when the PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The winds were from the south.

Figure 11-3 on page 121 shows hourly wind speeds at the Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa monitor sites on the exceedance day. Winds were erratic. Starting about 8 AM, there was an increase in the wind speeds at all the sites. On the exceedance day, no hourly wind speeds exceeded 25 mph at the sites.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa site was elevated and peaked at 4 PM at 16 mph. Santa Teresa is about 69 miles southeast of Deming.

The Deming monitor site is located at the Deming airport in Luna County. On the exceedance day winds at the airport were elevated from about 2 PM to 5 PM and peaked at 20 mph. During this period, the winds were from the east southeast and gusts reached 48 mph.

The Las Cruces airport is about 47 miles east of Deming. On the exceedance day, winds at the airport were elevated from about 1 PM to 5 PM and peaked at 23 mph. During this period, the winds ranged from southeast to southwest, and gusts reached 46 mph.

The El Paso airport is about 84 miles southeast of Deming. On the exceedance day, winds at the airport were elevated from about 1 PM to 8 PM and peaked at 23 mph. During this period, the winds were from the southeast and gusts reached 46 mph.

Figure 11-11 on page 127 shows the 24-hours PM_{10} measurements from Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. Deming exceeded the NAAQS level and the other sites were above average: Anthony 83 $\mu g/m^3$ (average 46 $\mu g/m^3$), Desert View 58 $\mu g/m^3$

(average 39 μg/m^3), Chaparral 46 μg/m^3 (average 32 μg/m^3), West Mesa 30 μg/m^3 (average 21 μg/m^3), and Holman 31 μg/m^3 (average 28 μg/m^3).

The PM_{10} manual monitors in El Paso County did not sample on the exceedance day. The PM_{10} continuous monitor at the Chamizal site in El Paso County had a 24-hours measurement of 51 μg/m^3 on the exceedance day which is above the site average of 31 μg/m^3.

Figure 11-4 on page 122 is a satellite image taken at 11 AM on the exceedance day. The NMED indicates the image shows dust plumes in Mexico.

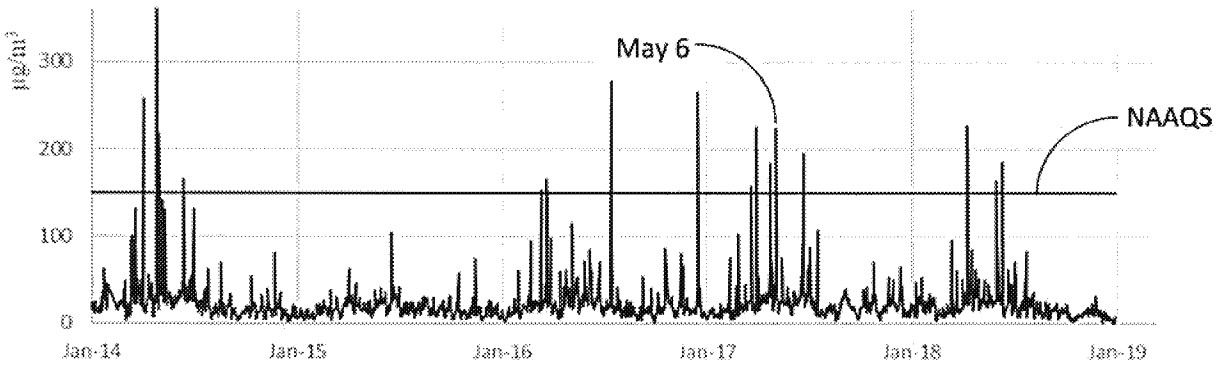
Figure 11-5 and the narrative on page 123 discuss the NWS forecast and storm report for the exceedance day. The forecast called for "severe weather" and "damaging…wind gusts." The report states a 63-mph wind was recorded in Dona Ana County on the exceedance day.

Figure 11-8 on page 125 shows hourly PM_{10} measurements from the Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa sites on the exceedance day. The elevated PM_{10} measurements at the sites correlates with elevated winds shown on Figure 11-3.

Figure 11-9 on page 126 shows hourly wind speed, hourly maximum wind gusts, and PM_{10} measurements at the Deming site on the exceedance day. The elevated PM_{10} measurements at the site correlates with elevated wind speeds.

There are independent weather reports, and wind data which showed that on the exceedance day the area experienced a widespread wind incident. The demonstration showed that elevated hourly PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

MAY 6, 2017, EXCEEDANCE DAY, Analyses comparing event influenced concentrations to other concentrations at the monitor.



24-hours Measurements, Deming PM_{10} Monitor, 35-029-0003-81102-2

The graph above reflects the 24-hours measurements at the monitor from 2014 to 2019 for the Deming site. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurement on the exceedance day is above the 95th percentile of historical site data.

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at the monitor indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the exceedance and the wind incident on the exceedance day.

MAY 6, 2017, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at Deming did not exceed 25 mph on the exceedance day, however, the winds exceeded the threshold for 10 minutes during the event. Winds were from the south.

See discussion about the March 23, 2017, exceedance for information about the location of the Deming site. To the south of the site for about 2 miles, there is a mix of developed and undeveloped land within the city of Deming limits. Except for the city of Deming, a village close to the Mexico border and some agricultural fields, the land in Luna County is undeveloped. Deming is about 33 miles north of the Mexico border.

The NMED indicates anthropogenic sources near the monitor sites includes disturbed surface areas, residential properties, vacant lots, dirt roads, and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

Parts of the city of Deming and Luna County were upwind of the Deming site on the exceedance day. The demonstration provides information on the city and county dust ordinances. The ordinances require a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the city or county on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at the Deming site.

Figure 11-6 on page 124 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the model with the trajectories ending at the "start" of the wind event, at Deming. The results show the winds may have been in Mexico prior to reaching Deming. Upwind sources in Mexico are outside the state's jurisdiction. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

MAY 16, 2017

The exceedance occurred on May 16, 2017, hereafter referred to as the "exceedance day" at monitor sites located in Dona Ana County. The relevant monitors and exceedances are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Anthony	35-013-0016-81102-2	196 $\mu g/m^3$
Desert View	35-013-0021-81102-2	335 $\mu g/m^3$
Chaparral	35-013-0020-81102-2	201 $\mu g/m^3$

MAY 16, 2017, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration, NMED indicates "[a]s the event unfolded, the wind blew from the southwest throughout the border region."

Table 12-2 on page 130 shows hourly wind speed measurements from the Anthony, Deming, and Desert View monitor sites for various hours on the exceedance day. Wind speeds at Anthony and Deming exceeded 25 mph for multiple hours. The maximum hourly wind speed measured at the Desert View site was 24 mph. Table 12-3 on page 130 shows the winds at Desert View, however, exceeded 25 mph for at least 25 minutes during the 2 PM hour. Wind gusts of 44, 50 and 43 mph were measured at Anthony, Deming, and Desert View, respectively.

Figure 12-11 on page 138 shows the hourly wind speed and PM_{10} measurements at the Chaparral site on the exceedance day. Wind speeds at Chaparral exceeded 25 mph for at least one hour.

Figures 12-7 and 12-8 on page 136 show the frequency distribution of wind direction correlated with PM_{10} data at Desert View and Anthony when PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The winds were from the west at Desert View and southwest at Anthony.

Figure 12-3 on page 132 shows hourly wind speeds at the Anthony, Desert View, Deming, Holman, and West Mesa monitor sites on the exceedance day. The winds at Anthony, Deming, Holman, and West Mesa exceeded 25 mph for multiple hours. The winds at Desert View approached the threshold.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa site exceeded 25 mph for multiple hours. Santa Teresa is 6 miles west of Desert View.

On the exceedance day, AQS data shows the hourly wind speeds at the Chamizal, Van Buren, and Skyline monitor sites in El Paso County exceeded 25 mph for multiple hours and at the Ivanhoe and Ascarate monitor sites the winds exceeded 25 mph for an hour.

The Las Cruces airport is about 40 miles north of Desert View. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the winds ranged from south southwest to west northwest and gusts reached 43 mph. The overall weather type for the day was thunderstorm and rain (Weather Type TS RA).

The El Paso airport is about 11 miles east of the Desert View site. On the exceedance day winds at the airport exceeded 25 mph for multiple hours. During this period, the winds ranged from southwest to

northwest, gusts reached 57 mph, and weather type was blowing dust (Weather Type BL DU). The overall weather type for the exceedance day was "Dust, volcanic ash, blowing dust, blowing sand or…obstruction" (Weather Type DU).

The Deming airport is about 74 miles northwest of Desert View. On the exceedance day winds at the airport exceeded 25 mph for multiple hours. During this period, the winds were from the southwest, west, and west northwest, and gusts reached 47 mph. The overall weather type for the day was thunderstorm and rain (Weather Type TS RA).

Figure 12-16 on page 140 shows the 24-hours PM_{10} measurements from the Anthony, West Mesa, Chaparral, Holman, Desert View, and Deming monitor sites on the exceedance day. The measurements at Desert View, Anthony, and Chaparral exceeded the NAAQS level of 150 $\mu g/m^3$. The other sites measurements were above average: Holman 76 $\mu g/m^3$ (average 28 $\mu g/m^3$), West Mesa 46 $\mu g/m^3$ (average 21 $\mu g/m^3$), and Deming 76 $\mu g/m^3$ (average 27 $\mu g/m^3$).

The PM_{10} manual monitors in El Paso County did not sample on the exceedance day. The PM_{10} continuous monitor at the Chamizal site in El Paso County reports non-NAAQS comparable data. On the exceedance day, the Chamizal 24-hours measurement of 188 $\mu g/m^3$ is above the NAAQS level of 150 $\mu g/m^3$. Chamizal is about 8 miles east of Desert View.

Figure 12-4 on page 134 is a satellite image taken at 11 AM on the exceedance day. The NMED indicates the image show dust plumes in Mexico.

The narrative on page 134 discusses an NWS wind and blowing dust advisory for southwestern New Mexico and west Texas on the exceedance day. This is supported by the records on the NOAA Storm Event Database that a high wind event with gusts up to 65 mph was experienced in Dona Ana County from noon to 4 PM on the exceedance day.

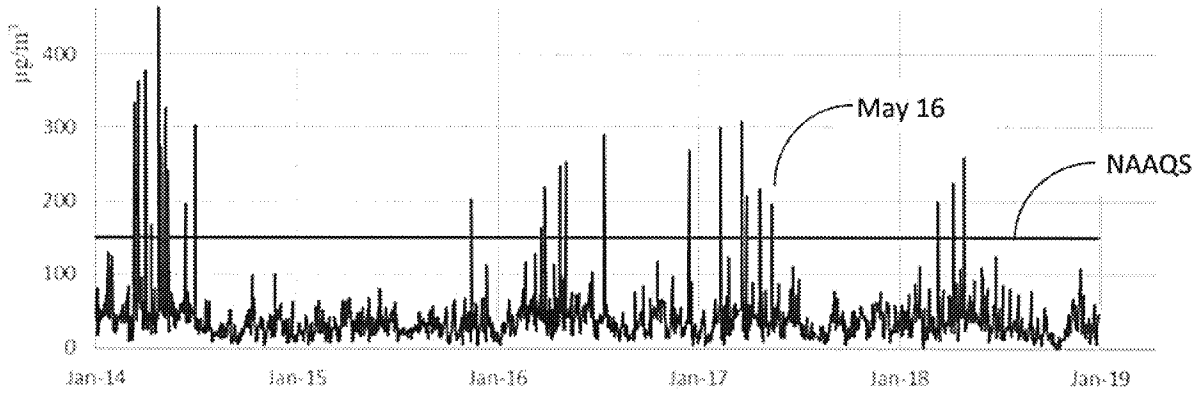
Figure 12-9 on page 137 shows hourly PM_{10} measurements from the Chaparral, Anthony, Desert View, Deming, and West Mesa sites on the exceedance day. The elevated PM_{10} measurements correlate with elevated wind speeds from Figure 12-3.

Figures 12-10, 12-11 and 12-12 on pages 137-138 show the hourly wind speed and PM_{10} measurements at the Anthony, Desert View, and Chaparral sites on the exceedance day. The elevated PM_{10} measurements correlate with the hourly wind speeds.

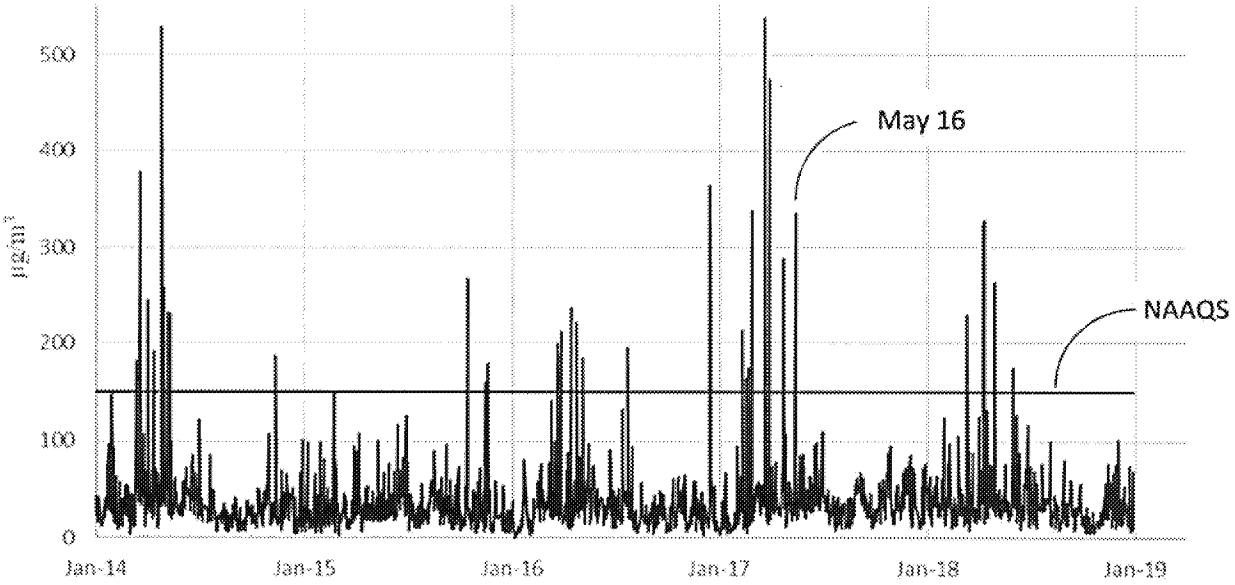
There are independent weather reports, evidence of blowing dust, and hourly wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitors correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitors on the exceedance day.

MAY 16, 2017, EXCEEDANCE DAY, Analyses comparing event influenced concentrations to other concentrations at the monitor.

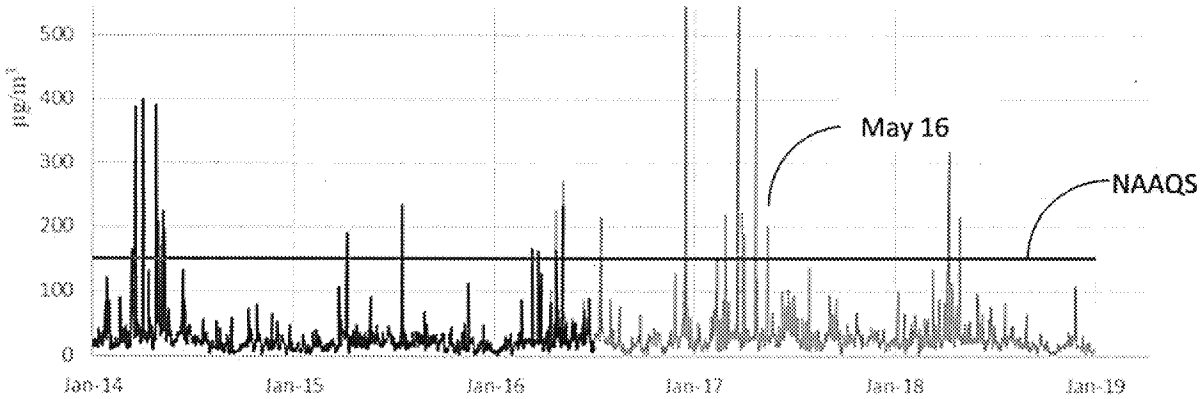
The graphs below reflect the 24-hours monitor data from 2014 to 2019 for the Anthony, Chaparral, and Desert View sites. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurements on the exceedance day are above the 95th percentile of historical site data.



24-hours Measurements, Anthony PM_{10} Monitor, 35-013-0016-81102-2



24-hours Measurements, Desert View PM_{10} Monitor, 35-013-0021-81102-2



24-hours Measurements, Chaparral PM_{10} Monitor, 35-013-0020-81102-2

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at the monitors indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the exceedances and the wind incident on the exceedance day.

MAY 16, 2017, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources – The 25 mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at the Chaparral and Anthony sites exceeded the threshold on the exceedance day. The hourly wind speeds measured at the Desert View did not exceed the threshold on the exceedance day. The wind at the Desert View site, however, were elevated, i.e., reached a maximum hourly wind speed of 24 mph, and exceeded the high wind threshold for 25 minutes during the event.

See discussion about the February 12, 2017, exceedance for information about the location of the Desert View site in the city of Sunland Park. During the wind incident, the winds were from the west. Desert View is on the western city limits. To the west, except for a nearby landfill, there are undeveloped lands all the way to the Arizona border. The Texas and Mexico borders are about 1 mile to the northeast, and ¾ of a mile to the south of Desert View, respectively.

See discussion about the February 28, 2017, exceedance for information about the location of the Chaparral site. Figures 12-6 on page 135 shows the winds at Chaparral were from the southwest on the exceedance day. Residential areas extend to about 1 mile southwest of the Chaparral monitor site. Further to the southwest, there are lands in the state of Texas, the unincorporated La Union community in New Mexico, and undeveloped land to the Mexico border. The Texas and Mexico borders are about 2.5 miles to the south, and 24 miles to the southwest of the Chaparral site, respectively.

See discussion about the February 12, 2017, exceedance for information about the location of the Anthony site. During the wind incident, the winds were from the southwest. The Texas and Mexico borders are about 700 feet to the south, and 20 miles to the southwest of the Anthony site, respectively.

The Anthony city limits are about 0.5 miles southwest of the Anthony monitor site. Further to the southwest, there are lands in the state of Texas, the unincorporated La Union community in New Mexico, and undeveloped land to the Mexico border.

The NMED indicates anthropogenic sources near the monitor sites includes disturbed surface areas, residential properties, vacant lots, dirt roads, and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

The city of Anthony was upwind of the Anthony site on the exceedance day. The demonstration provides information on the Anthony PM_{10} SIP. Due to recurring impacts from non-anthropogenic sources deemed to contribute significantly to PM_{10} exceedances, the EPA waived the area attainment deadline for the Anthony SIP. The SIP was approved more than 5 years before the exceedance day, however, because of the waiver the NMED is not obligated to revise the SIP. See 40 CFR 50.14(b)(8)(v). Therefore, during the demonstration review, the EPA considered the Anthony SIP limited controls, e.g., treat and pave area roads as funding allows, as part of the review of whether anthropogenic sources were reasonably controlled on the exceedance day. Appendix C of the demonstration provides a letter from the city of Anthony dated September 18, 2019, that reports on the status of local dust control efforts including road paving.

Parts of Dona Ana County were upwind of the Chaparral, Desert View, and Anthony site on the exceedance day. The demonstration provides information on the county dust ordinance. The ordinance requires a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the county and the unincorporated communities of Chaparral and La Union on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at the Desert View, Anthony, and Chaparral sites.

Figures 12-5 and 12-6 on page 135 show the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the model with the trajectories ending at the "start" of the wind event, at the Anthony and Chaparral sites. The results show the winds may have been in Texas and Mexico prior to reaching the sites. Upwind anthropogenic sources in Texas and Mexico are outside the state of New Mexico's jurisdiction. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.

JUNE 24, 2017

The exceedance occurred on June 24, 2017, hereafter referred to as the "exceedance day" at a monitor site located in Luna County. The relevant monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
Deming	35-029-0003-81102-2	196 $\mu g/m^3$

JUNE 24, 2017, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration, NMED states "[a]s the event unfolded, the wind blew from the southeast throughout the border region."

Table 13-2 on page 143 shows hourly wind speed measurements from West Mesa, Holman, and Deming monitor sites for various hours on the exceedance day. Winds at Deming exceeded 25 mph for an hour. Winds at West Mesa and Holman approached the threshold.

Figure 13-6 on page 151 shows the frequency distribution of wind direction correlated with PM_{10} data at the Deming monitor site for the hours when PM_{10} measurements exceeded 150 $\mu g/m^3$ on the exceedance day. The winds were from the northeast.

Figure 13-3 on page 144 shows hourly wind speeds at the Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa monitor sites on the exceedance day. Winds at Deming exceeded 25 mph for an hour. Winds at West Mesa, Holman, and Chaparral approached threshold.

On the exceedance day, AQS data shows the hourly wind speeds at the Santa Teresa site peaked at 22 mph. Santa Teresa is about 69 miles southeast of Deming.

The Las Cruces airport is about 47 miles east of Deming. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the wind direction varied from northeast to northwest and gusts reached 44 mph. The overall weather type for the day was haze, thunderstorm and rain (Weather Type TS RA HZ).

The El Paso airport is about 84 miles southeast of Deming. On the exceedance day, winds at the airport exceeded 25 mph for multiple hours. During this period, the wind direction varied from north northeast and gusts reached 41 mph. The overall weather type for the day was thunderstorm, rain, and dust (Weather Type TS RA DU).

The Deming monitor site is located at the Deming airport in Luna County. On the exceedance day wind speeds at the Deming airport exceeded 25 mph for an hour. During this period, the wind direction varied from northeast to northwest and gusts reached 54 mph. The overall weather type for the day was thunderstorm and rain (Weather Type TS RA).

Figure 13-10 on page 153 shows the 24-hours PM_{10} measurements from Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa on the exceedance day. Deming exceeded the NAAQS level and the other measurements were above average: Anthony 111 $\mu g/m^3$ (average 46 $\mu g/m^3$), Desert View

79 μg/m^3 (average 39 μg/m^3), Chaparral 74 μg/m^3 (average 32 μg/m^3), West Mesa 101 μg/m^3 (average 21 μg/m^3), and Holman 144 μg/m^3 (average 28 μg/m^3).

Samples were collected on the exceedance day from the El Paso County PM_{10} NAAQS comparable monitors. The 24-hours measurements were above the monitor averages: Socorro 47 μg/m^3 (average 29 μg/m^3), Riverside 44 μg/m^3 (average 29 μg/m^3), Ivanhoe 42 μg/m^3 (average 20 μg/m^3), Ojo 43 μg/m^3, (average 23 μg/m^3), Van Buren 36 μg/m^3 (average 25 μg/m^3). On the exceedance day, the continuous PM_{10} Chamizal monitor in El Paso County had a 24-hours measurement of 45 μg/m^3 is above the site average of 31 μg/m^3.

Figure 13-4 on page 146 is a satellite image taken at 11 AM on the exceedance day. The NMED indicates the image show dust plumes in Mexico.

Copies of media reports of a wind event that occurred on the exceedance day in the Las Cruces area of Dona Ana County are shown on pages 147 through 149. The reports include images of a dust storm approaching the area.

The narrative on page 150 discusses an NWS warning for the southern Dona Ana County area about storms capable of producing damaging winds with gusts up to 60 mph.

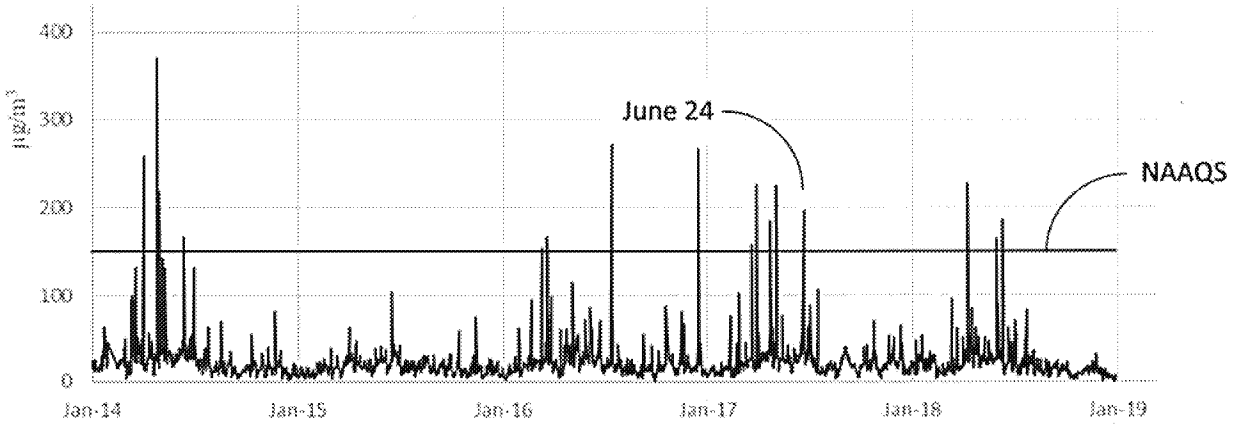
Figure 13-7 on page 151 shows hourly PM_{10} measurements from the Chaparral, Anthony, Desert View, Deming, Holman, and West Mesa sites on the exceedance day. The elevated PM_{10} measurements correlate with elevated hourly wind speeds shown in Figure 13-3.

Figure 13-8 on page 152 shows hourly wind speeds and PM_{10} measurements at Deming on the exceedance day. The elevated hourly PM_{10} measurements correlate with elevated wind speeds.

There are independent weather reports, evidence of blowing dust, and hourly wind data which showed that on the exceedance day the area experienced a widespread wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach to the information provided, the NMED showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

JUNE 24, 2017, EXCEEDANCE DAY, Analyses comparing event influenced concentrations to other concentrations at the monitor.

The graph below reflects the 24-hours monitor data from 2014 to 2019 for the Deming site. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurements on the exceedance day are above the 95th percentile of historical site data.



24-hours Measurements, Deming PM_{10} Monitor, 35-029-0003-81102-2

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at these monitors indicates a deviation from normal or typical concentrations occurred. This supports the clear causal relationship between the exceedance and the wind incident on the exceedance day.

JUNE 24, 2017, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Not Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, hourly wind speeds measured at the Deming site exceeded the threshold on the exceedance day. The winds were from the northeast.

See discussion about the March 23, 2017, exceedance for information about the location of the Deming site. To the northeast beyond the Deming airport, there is undeveloped land to the Texas border. Deming is located about 33 miles north of the Mexico border.

The NMED indicates anthropogenic sources near the monitor sites includes disturbed surface areas, residential properties, vacant lots, dirt roads, and storage piles. The NMED also indicates no unusual sources were operational and point source emissions were constant before, during, and after the wind incident. The demonstration does not provide information about any specific potential anthropogenic sources, nor controls on the sources, on the exceedance day. The demonstration does, however, provide general information about controls for potential anthropogenic sources within the state's jurisdiction.

Parts of Deming and Luna County are upwind of the Deming monitor site on the exceedance day. The demonstration and appendices provide information on the city of Deming and Luna County dust ordinances. The ordinances require a plan for dust control on disturbed sites. The controls would have applied to any upwind disturbed sites in the city or county on the exceedance day. The NMED indicates the implementation and enforcement of any controls occurs at the local level. During the subject widespread high wind event, however, the emissions from the extensive upwind undeveloped lands likely dominated the impacts at the Deming site.

Figure 13-5 on page 150 shows the results of a NOAA HYSPLIT Model 6 hours backward trajectories. The NMED ran the model with the trajectories ending at the "start" of the wind event at Deming. The results show the winds may have been in Texas and Mexico prior to reaching Deming. Upwind anthropogenic sources in Texas and Mexico are outside the state of New Mexico's jurisdiction. The state is not required to address the reasonably controllable criteria for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources within the state jurisdiction, the possible controls on the sources, the widespread nature of the weather event, and the likelihood that emissions from high winds on extensive upwind undeveloped arid lands contributed significantly to the impacts, the demonstration showed that contributing anthropogenic activities were reasonably controlled on the exceedance day.