

High Wind Fugitive Dust Mitigation Plan

Doña Ana and Luna Counties



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Purpose

On September 16, 2016, the U.S. Environmental Protection Agency (EPA) finalized revision to the 2007 Exceptional Events Rule, codified in 40 CFR Parts 50 and 51, that provides air quality agencies regulatory relief in situations when exceptional events cause an exceedance of a National Ambient Air Quality Standard (NAAQS). Exceptional events can be caused by human activity unlikely to recur or natural events. In New Mexico, natural events, such as windstorms and wildfires cause exceedances of the particulate matter standards every year. Other exceptional events that may occur in New Mexico include tornadoes, firework displays, and chemical spills.

The revised rule includes requirements for states to prepare mitigation plans (40 CFR 51.930) for areas with recurring events (i.e., three similar events of the same type and pollutant in a three-year period). Luna County and the Anthony, NM PM₁₀ nonattainment area (i.e., Doña Ana County) were identified as areas subject to the mitigation plan requirements due to PM₁₀ exceedances from high winds. This plan has been developed to mitigate PM₁₀ and PM_{2.5} emissions during high wind events in both Luna and Doña Ana counties.

Background

The 3,804 square miles comprising Doña Ana County are topographically diverse and include mountain ranges, hills, valleys and deserts. The elevation range for the county is 3,730 feet at the valley floor in the south to 9,012 feet at the peak of the Organ Mountains. The Organ Mountains lie in a north-south direction along the eastern border of the county, separating the Mesilla Valley from White Sands Missile Range and White Sands National Monument. The western half of Doña Ana County is formed by an elevated desert plateau that extends west through Luna, Grant, and Hidalgo counties along the international border and into Arizona.

Where New Mexico, Texas and Mexico meet, Mount Cristo Rey lays south of Sunland Park between the Franklin Mountains on the east and the Sierra Juárez Mountains to the southwest. Previous air quality studies in the air shed indicate that this complex topography dictates wind flow patterns carrying air masses from El Paso and Ciudad Juárez into southern Doña Ana County.

Doña Ana County has a mild, semi-arid climate with light precipitation, abundant sunshine, low relative humidity, and a large daily and annual temperature range. Annual precipitation averages 9.35 inches, including 3.7 inches of snowfall in Las Cruces.

Luna County covers 2,965 square miles in southwestern New Mexico sharing 54 miles of international border with Mexico. Luna County is within the northern most part of the Chihuahuan Desert, with desert landscape as its most predominant feature. Several mountain ranges are located within the county, including Cooke’s Range, the Florida Mountains, and the Tres Hermanas Mountains. Like Doña Ana County, Luna County has a semi-arid climate with light precipitation and low relative humidity. Annual precipitation averages 9.8 inches, including 1.6 inches of snowfall.

Windstorms are common during the late winter and spring months in both Luna and Doña Ana counties. Due to these high velocity winds, both counties experience the majority of PM₁₀ exceedances in the state. Synoptic scale weather activity, and to a lesser extent, mesoscale weather systems drive most of the frequent high wind events in the region. These periods of high wind may result in average hourly wind speeds exceeding 30 miles per hour for several hours and reach peak speeds of 60 miles per hour or more. Blowing dust and soil erosion originate from the numerous exposed and erodible desert areas. Winds predominately blow from the southeast in summer, from the west in winter, and from the west-southwest in spring.

Air Monitoring Network

The New Mexico Environment Department, Air Quality Bureau (AQB) regulates air quality to protect public health and the environment in the State of New Mexico, excluding Bernalillo County and tribal lands. Air monitoring data are required by regulation and are used to determine compliance with the NAAQS. The AQB operates a State and Local Air Monitoring Stations Network to measure the concentration of criteria pollutants, with six PM₁₀ and three PM_{2.5} monitoring sites in Doña Ana and Luna counties, that track windblown dust in southern New Mexico (Figure 1). These monitoring sites have meteorological monitoring equipment that records wind speed, wind gust, 10 m temperature and 2 m temperature (Table 1).

Site	AQS Site ID	Latitude	Longitude	Parameters
6CM Anthony	35-013-0016	32.0033	-106.5992	PM ₁₀ , PM _{2.5} , and Meteorology
6ZK Chaparral	35-013-0020	32.0409	-106.4095	PM ₁₀ and Meteorology
6ZM Desert View	35-013-0021	31.7961	-106.5839	PM ₁₀ , PM _{2.5} and Meteorology
6ZL Holman Road	35-013-0019	32.4246	-106.6739	PM ₁₀ and Meteorology
6Q Las Cruces	35-013-0025	32.3103	-106.7512	PM _{2.5} and Meteorology
6WM West Mesa	35-013-0024	32.2781	-106.8649	PM ₁₀ and Meteorology
7E Deming Airport	35-029-0003	32.2558	-107.7227	PM ₁₀ and Meteorology

Table 1. Particulate Matter monitoring network in Doña Ana and Luna Counties.

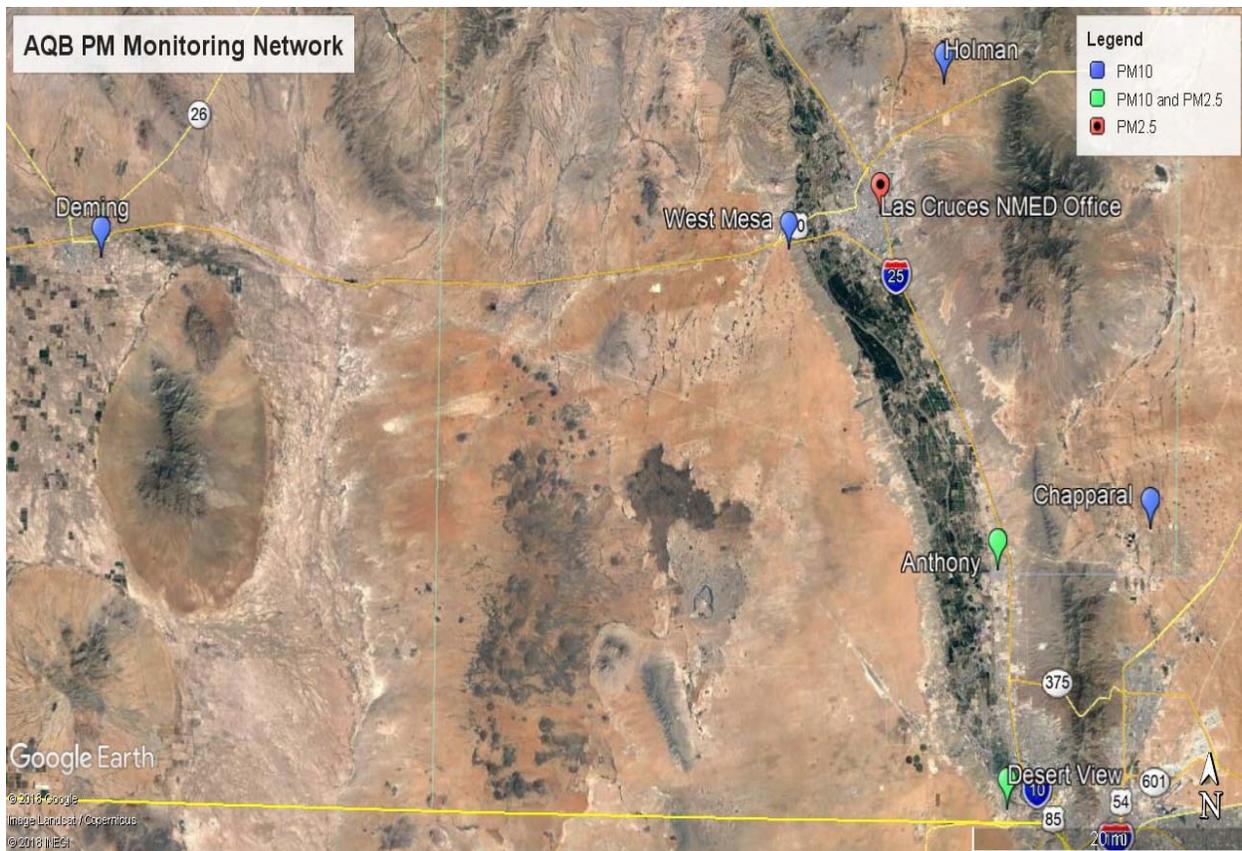


Figure 1: Luna and Doña Ana Counties' PM Monitoring Network.

Public Education and Notification

The AQB will provide prompt public notification as per internal policy and education programs for potentially affected communities whenever PM₁₀ air concentrations exceed or are expected to exceed the NAAQS (40 CFR 51.930(b)(2)(i)). The AQB's monitoring website provides the public with near real-time air quality conditions at each monitoring site in the state (Figure 2) and can be accessed at www.env.nm.gov/air-quality/air-monitoring-network-2/. Other important uses of the air monitoring data include the production of a daily Air Quality Index, daily air quality forecast reports (e.g., AirNow/EnviroFlash), support of short and long-term health risk assessments, identification of a localized health concerns, and tracking long-term trends in air quality.

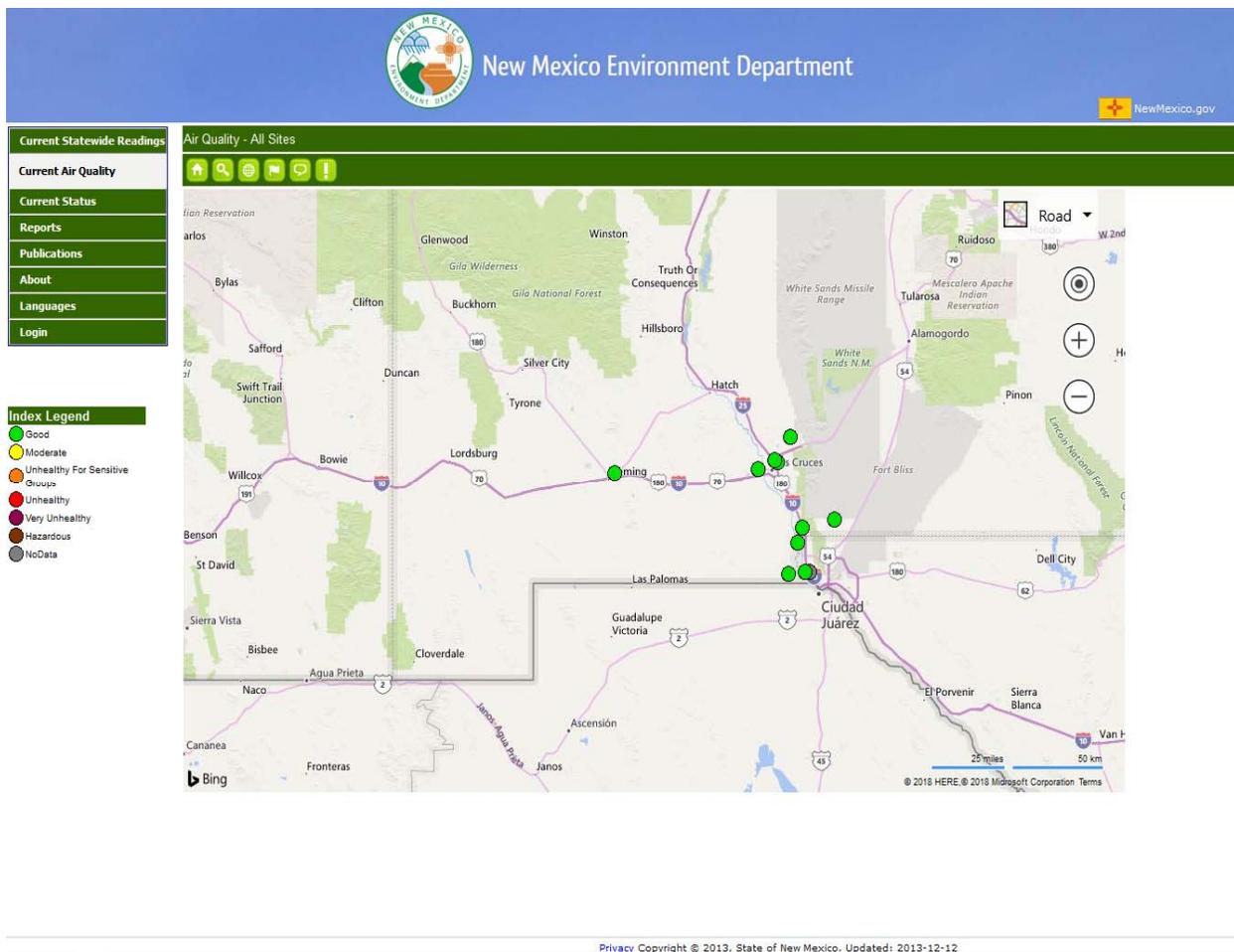


Figure 2. Screen shot of the AQB’s monitoring webpage, with green dots indicating monitoring site locations.

The AQB’s Windblown Dust webpage provides another useful source of information and can be accessed at <https://www.env.nm.gov/air-quality/dust-main-page/>. Here the public can find answers to frequently asked questions, information on the health effects of dust, information on sources of dust and information on dust control methods. Draft and final Exceptional Events Demonstrations are also posted on this page (Figure 3).

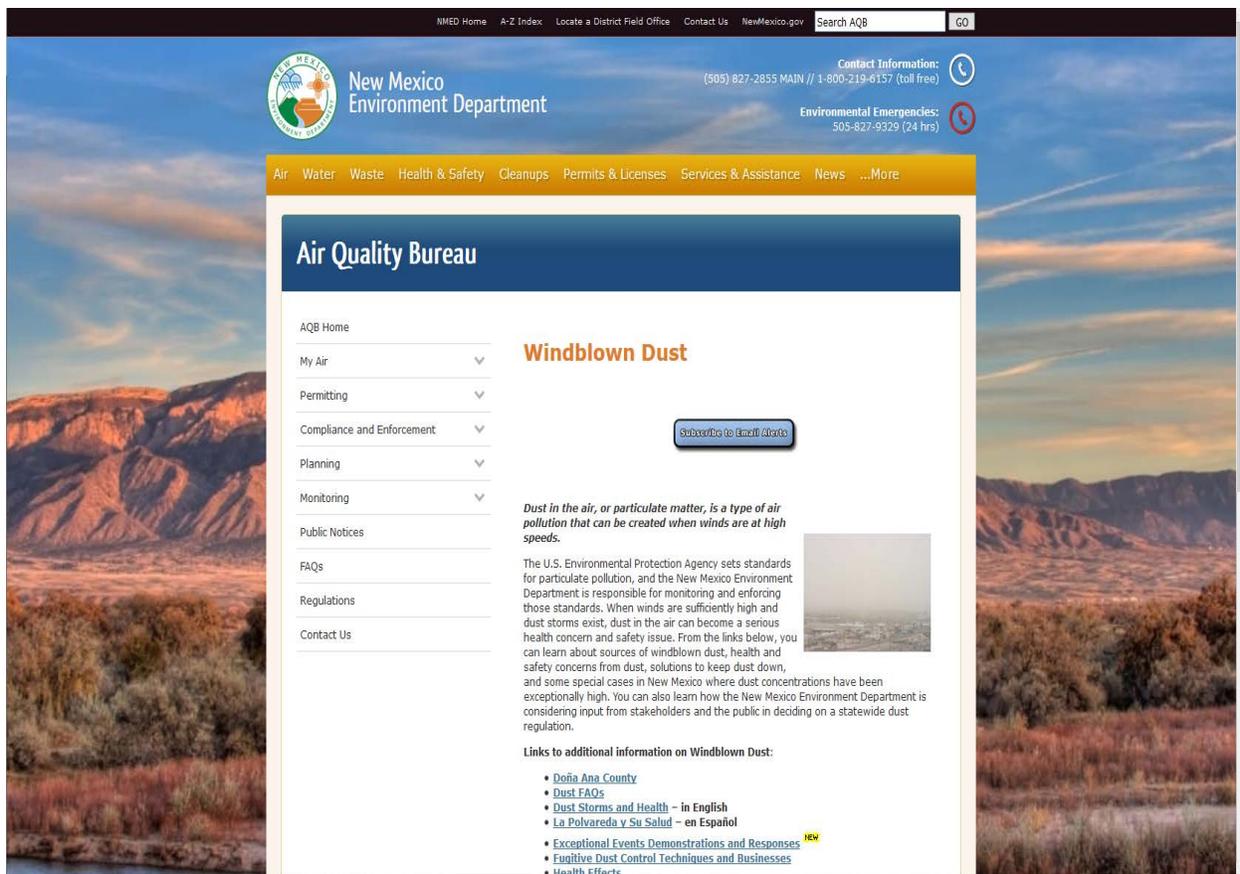


Figure 3. Screen shot of AQB’s Windblown Dust webpage.

The AQB will continue to develop educational outreach material aimed at the general public to this Dust Mitigation Plan that will be made available on the website and at multiple locations throughout both Doña Ana and Luna counties.

The AQB issues a press release, Twitter feed, and listserv at the start of each windy season to alert Doña Ana and Luna County residents of the risks associated with dust storms (Figure 4).



New Mexico Environment Department
@NMEndep

Follow



#NMED's Air Quality Bureau encourages residents in affected areas in southern #NewMexico to take precautions to protect their health from the hazards of blowing dust, including people with heart/lung disease, the elderly, young children and pregnant women.





NWS El Paso @NWSEIPaso
724am Wind Advisory in effect this afternoon; High Wind Watch in effect Friday afternoon. See details here. #txwx #nmwx
business.facebook.com/NWSEIPaso/phot...

2:11 PM - 7 Mar 2019



MICHELLE LUJAN GRISHAM, GOVERNOR

James C. Kenney, Cabinet Secretary

Jennifer J. Pruett, Deputy Secretary

NEWS RELEASE

For Immediate Release

March 25, 2020

The Environment Department's mission is to protect and restore the environment and to foster a healthy and prosperous New Mexico for present and future generations.

Contact: Maddy Hayden, Public Information Officer
New Mexico Environment Department
505.827.0314 | maddy.hayden@state.nm.us

State Environment Department Alerts Doña Ana and Luna County Residents of Health Risks Associated with Dust Storms

Santa Fe – The New Mexico Environment Department, along with the cities of Las Cruces and Deming, and Doña Ana and Luna counties, is advising the citizens of Doña Ana and Luna counties of the potential health risks associated with dust storms.

A combination of weather conditions, features of the natural environment, and human activity can contribute to high levels of windblown dust, or dust storms. High winds can carry into the air large amounts of dust from areas of dry, loose, exposed soil. In Doña Ana and Luna Counties, dust storms are most common during the spring.

Doña Ana and Luna Counties typically experiences ten days a year when dust storms cause exceedances of the National Ambient Air Quality Standard for airborne particulate matter 10 microns or less in size, which is about 1/7 the diameter of a human hair. This standard was developed to protect the public's health and welfare. Although dust storms are common in this part of New Mexico and are inherent in arid climates, inhaling dust can cause many serious health problems and can make symptoms worse. The fine dust particles can irritate the lungs which may trigger asthma attacks and allergic reactions. Dust can cause serious breathing problems for people who already suffer from these conditions. Dust can also cause coughing, wheezing and runny noses. Breathing

Figure 4. Twitter feed and press release issued by NMED at the beginning of the 2019 & 2020 windy seasons.

Because the AQB does not have a meteorologist on staff, it relies on alerts from the El Paso National Weather Service weather forecast office (Santa Teresa, NM) and the NM Department of Transportation (Figure 5) and relays this information via a Dust Alert listserv, Twitter feed, or press release.

To enhance air quality awareness and reduce exposure to air pollution in the community, the AQB will work with local governments, businesses and school districts to establish air quality alert programs in the two counties. Through this program, local school district's decisions are made as to limit outdoor activity or reduce school hours along with notifications sent to parents to communicate the air quality hazard and action taken. The alerts correspond to the colors

used for the Air Quality Index, thereby communicating air quality information to the community. For example, no notification indicates average air quality while a notification indicates poor air quality. Additional details about the programs may be found on the AirNow website at airnow.gov/index.cfm?action=aqibasics.aqi.

FRIDAY: High Winds and Blowing Dust Weather Forecast Office El Paso, TX

Issued March 8, 2019 7:37 AM

High Wind Warning
SW-W Winds
30-40 mph
Gusts 55-60+ mph

Wind Advisory
SW-W Winds
25-35 mph
Gusts 45-55 mph

Blowing Dust

@NWSEIPaso weather.gov/EIPaso



Tweet



NWS El Paso ✓
@NWSEIPaso



Blowing dust was lowering the visibility across the El Paso area this afternoon. Dangerous driving conditions will occur. #txwx



3:25 PM · Mar 27, 2020 · TweetDeck

11 Retweets 2 Quote Tweets 25 Likes

Figure 5. Examples of area forecast products and social media alerts issued by the NWS El Paso Office.

The AQB consults with the NM Department of Health to ensure the listserv alerts include appropriate information regarding health advisories and actions to minimize exposure for sensitive populations (e.g., remain indoors, avoid vigorous outdoor activity, and avoid exposure to respiratory irritants). In addition to the Department of Health, the AQB also regularly consults with the EPA Region 6 Border Office and New Mexico State University (whose staff includes the NM State Climatologist) on educating the public in the border region, including supporting ongoing efforts by these agencies. Education and outreach material will be provided to the public in English and Spanish to the greatest extent possible.

Measures to Minimize Contributing Controllable Sources

In developing the mitigation plans, the AQB must take steps to identify, study and implement mitigating measures (40 CFR 51.930(b)(2)(ii)). The AQB completed a Fugitive Dust Micro-Inventory of local sources surrounding the PM₁₀ monitoring sites in Doña Ana and Luna Counties. Staff from the AQB used previous emission inventories for Doña Ana County, GIS

mapping, satellite imagery and field data to identify sources within a 2-km radius of each site and potential control measures to include in a Fugitive Dust Control rule (see below). These measures are designed to abate or minimize contributing controllable sources of PM (40 CFR 51.930(b)(2)(ii)(A)).

Mandatory Measures

Local Dust Control Ordinances

The City of Las Cruces, Doña Ana County, and Luna County have existing dust ordinances for which the AQB has provided consultation. This Dust Mitigation Plan and associated Fugitive Dust Rule, discussed below, will enhance these ordinances, and provide coverage where there are gaps.

20.2.23 NMAC, Fugitive Dust Control

The AQB developed a Fugitive Dust Control rule in conjunction with the original Dust Mitigation Plan. The Environmental Improvement Board adopted the rule into the New Mexico Administrative Code in September 2018 with the rule becoming effective on January 1, 2019. The rule applies to certain sources of fugitive dust that are not required to obtain a construction permit from the AQB and is applicable in any area of the state that experiences recurring high wind events where the PM₁₀ and/or the PM_{2.5} NAAQS is exceeded. Sources of fugitive dust included in the rule are disturbed surface areas equal to or greater than 1.0 acre from construction/demolition activities, and earthmoving (including weed abatement activities). Control measures are required to stabilize surfaces to ensure emissions are not crossing the property line or exceeding opacity limits. Commercial and industrial bulk material handling and storage also require the use of control measures. A list of potential sources of emissions and associated control measures are included in Table 2 below.

Source Category	Control Measures
Construction/Demolition	Water unpaved surfaces
	Limit on-site vehicle speed to 15 mph
	Apply dust suppressant to unpaved areas
	Prohibit activities during high winds
Materials Handling	Implement wet suppression
Wind Erosion (open area and storage piles)	Plant trees or shrubs as a windbreak
	Erect artificial wind barriers
	Apply dust suppressant or gravel
	Water exposed area before high winds
	Revegetate area with native plants

Table 2. Candidate sources and associated control measures for fugitive dust control.

Voluntary Measures

Agricultural Conservation Measures

The AQB relies on the conservation measures outlined by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) Dust Mitigation Handbook to mitigate particulate matter emissions from agricultural cropland, rangeland, natural areas, and unpaved surfaces. When properly implemented, NRCS-approved conservation systems and activities may achieve levels of control comparable to those required by EPA for marginal PM₁₀ nonattainment areas. Implementation of conservation measures are coordinated with producers, landowners, operators, state agencies, NRCS, and EPA to determine the most suitable and effective conservation measures for the counties. Control measures include:

- Maintaining soil surface cover;
- In-field pass reductions;
- Soil conditioning and timing of operations modifications;
- Windbreak/vegetative barriers;
- Equipment modifications;
- Unpaved roadway management;
- Land application; and
- Pasture and range management

Unpaved Travel Surfaces

The AQB will consult with the New Mexico Department of Transportation to develop guidance for dust control best management practices for maintenance of existing unpaved roadways. Alternatives to paving will also be explored where material, chemical and administrative treatment methods may be applied for dust control.

Minimize Public Exposure to High Concentrations of PM

Mitigation plans must include methods to minimize public exposure to high concentrations of PM (40 CFR 51.930(b)(2)(ii)(B)). The AQB will accomplish this through public notification, outreach education, air quality alerts, Fugitive Dust Control compliance education, inspections, and enforcement actions.

Processes to Collect and Maintain Data Pertinent to the Event

The AQB has established an internal process to collect and maintain data pertinent to exceptional events flagging, which includes close coordination between the AQB's Quality Assurance and Control Strategies sections (40 CFR 51.930(b)(2)(ii)(C)). This process is included in the Ambient Air Monitoring Quality Assurance Project Plan, which is reviewed annually. The AQB Quality Assurance Section has developed an Exceptional Events Documentation Standard

Operating Procedure that will provide detailed procedures for documenting information on possible exceptional events beginning with the monitoring site operator through the quality assurance of monitored data.

For those data that are subsequently determined to have regulatory significance, the AQB Environmental Analyst in the Las Cruces field office will begin the data collection process to support an exceptional events demonstration. This data includes monitored PM concentrations, wind data, weather information, satellite data, and event reports.

Consultation with Other Air Quality Managers

Often the same weather systems are responsible for dust storms and road closures along the Interstate 10 corridor in Arizona, New Mexico and Texas, highlighting the need for intrastate consultation. The AQB will continue to engage with other air quality management agencies (40 CFR 51.930(b)(2)(ii)(D)), primarily the Texas Commission on Environmental Quality (TCEQ) and the Arizona Department of Environmental Quality (ADEQ), to share exceptional event data and coordinate demonstrations for events that may affect the entire region. Contact information for TCEQ and ADEQ may be found below.

Exceptional Events Contacts	
ADEQ Air Quality Division Monitoring and Assessments (602) 771-7676 bb4@azdeq.gov	TCEQ Air Quality Division Modeling and Data Analysis (512) 239-4900 monops@tceq.texas.gov

Information regarding exceptional events and dust mitigation will also be shared through the triannual meetings of the Joint Advisory Committee (JAC) for the improvement of air quality in the Paso del Norte Region (El Paso/Cd. Juárez/Doña Ana County). The JAC is a bi-national committee charged with facilitating pilot projects and identifying priority issues for consideration by the Air Policy Forum of EPA's Border 2020 program. The committee was established under the environmental treaty between the United States and Mexico, commonly referred to as the "La Paz" agreement. Its membership includes federal, state, and local government officials along with private citizens, university officials, and non-governmental organizations. The JAC has a total membership of twenty-two, with eleven members each from the United States and Mexico. More information about participating agencies and past activities of the JAC can be found at www.cccjac.org.

On the local level, biannual workshops will be held before the start of the spring windy season and after the monsoon season to foster communication amongst environmental, transportation, public safety, public health, weather and academia officials. In person or virtual meetings facilitate enhanced stakeholder cooperation and discussion of health and safety issues, enforcement of local rules, communication, research, mitigation projects, etc. A preliminary list of entities that will be invited to participate include the city of Las Cruces, city of Deming, Doña Ana County, Luna County, New Mexico Department of Public Safety, New Mexico Department of Transportation, State Climatologist/New Mexico State University, University of Texas of El Paso, National Weather Service, EPA El Paso Border Office, Natural Resource Conservation Service, and the Bureau of Land Management. If resources allow, this could expand into a multi-day workshop where outreach and education efforts can be focused on and extended to the public and regulated community.

Periodic Review and Evaluation

The AQB will review and evaluate this Dust Mitigation Plan and its implementation and effectiveness on average every three years (40 CFR 51.930(b)(2)(iii)), less or more if the need arises. If additional particulate matter rulemaking occurs within the three-year period, the Dust Mitigation Plan will be updated accordingly and submitted to EPA Region 6 after the consideration of public comment.

Public Comment Documentation

The draft Dust Mitigation Plan will be posted on the AQB website on **October 7, 2020** for an initial thirty-day public comment period. Stakeholders will be notified via listserv on **October 7, 2020**, that the draft for public comment is posted on the AQB website and the department will conclude the public comment period on **November 6, 2020** (40 CFR 51.930(b)(2)(iii)(A)(1)). Appendix A will contain copies of all public notices, listserv announcements, public comments (40 CFR 51.930(b)(2)(iii)(A)(2)), and the AQB's responses to comments (40 CFR 51.930(b)(2)(iii)(A)(3)).

Submission of Mitigation Plans

The AQB initially submitted the Dust Mitigation Plans for Doña Ana and Luna Counties on September 28, 2018, meeting the required deadline of September 30, 2018 (40 CFR 51.930(b)(3)(i)). EPA intends to review each plan to ensure required components are included and will notify the AQB upon completion of such review (40 CFR 51.930(b)(3)(ii)). This updated Dust Mitigation Plan will be submitted to the EPA after a formal 30 public comment period (40

CFR 51.930(b)(3)). EPA does not intend to formally approve mitigation plans or require them as part of the New Mexico State Implementation Plan.

Appendix A – Public Notices