Doña Ana County, New Mexico
Natural Events Action Plan
Reevaluation 2005

New Mexico Environment Department
Air Quality Bureau

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EXECUTIVE SUMMARY

The New Mexico Environment Department's (NMED) Air Quality Bureau (AQB) has monitored numerous exceedances of the 24-hour National Ambient Air Quality Standard (NAAQS) concentration limit for Particulate Matter 10 microns or less (PM10) in Doña Ana County, New Mexico. Since the number of days with exceedances is more than the number allowed by the standard, the county is in violation of the PM10 NAAQS. The Air Quality Bureau's analysis of wind data and other information regarding conditions during the exceedances indicated that all but a few were caused by high winds, which lift and carry dust from exposed dry soil. In response to these exceedances, the NMED, along with the City of Las Cruces and Doña Ana County, developed and submitted to the U.S. Environmental Protection Agency a Natural Events Action Plan (NEAP) for Doña Ana County in 2000.

The NEAP for Doña Ana County includes the following elements:

1. A public notification and education program;

2. A program to minimize public exposure;

3. An analyses of Best Available Control Measures (BACM) for contributing sources; and

4. The identification, study, and implementation of practical mitigating measures as necessary.

As part of the federal requirement for any NEAP, a reevaluation of the plan must be conducted every five (5) years to determine if any changes are necessary to protect public health and control anthropogenic sources that may contribute to exceedances of the PM10 NAAQS. This reevaluation reviews the conditions causing violations of the PM10 NAAQS in Doña Ana County, New Mexico; the status of the implementation of the plan; and the adequacy of the actions being implemented. The New Mexico Air Quality Bureau, in conjunction with the City of Las Cruces, Doña Ana County, and other community stakeholders present the following reevaluation of the NEAP for the Doña Ana County area.

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INTRODUCTION

Demographics Background

Doña Ana County comprises 3,804 square miles in south-central New Mexico, bordering on El Paso County, Texas, and the state of Chihuahua, Mexico to the south. Of Doña Ana County's 3,804 square miles, approximately 75 % is federal land and 12 % is state land, with the remainder privately held. The area within the county's boundaries is topographically diverse and includes mountain ranges, hills, valleys and deserts (see figure 1). The elevation range for the county is 3,730 feet. to 9,012 feet above mean sea level. The Rio Grande runs the length of the county from the northwest corner to the south-central border where New Mexico, Texas and Mexico come together. The Rio Grande meanders down through the fertile soils of the Rincon (northern) and Mesilla (southern) Valleys. The primary population areas are found within the Mesilla Valley, with the Las Cruces City limits extending to the east plateau below the Organ Mountains. The Organ Mountains toward the eastern side of the county separate the Mesilla Valley from White Sands Missile Range and Wind Sands National Monument. The western edge of the county tops out of the valley on a wide-open desert plateau.

The climate is generally mild and semiarid, averaging 350 days of clear weather annually. Annual precipitation averages 8.5 inches of rainfall and 3 inches of snowfall. Prevailing winds are generally southwesterly. Windstorms are common during the late winter and through the spring months. It is due to these high velocity winds that Doña Ana County experiences most of the particulate matter exceedances for the area. A handful of the windstorms encountered over the years in Doña Ana County have been associated with the entire southwestern U.S. region.

Doña Ana County is the second most populated county in the state of New Mexico. The population has risen dramatically, and is anticipated to be more than 300,000 by 2015. The U.S. Census Bureau estimates the county population for July 1, 2004 to be 186,095. The primary areas of growth have been and continue to be in the Las Cruces metropolitan area and the southern portion of the county (see figure 1). While rapid population growth has occurred around the City of Las Cruces (central) and in the southern section of the county, the northern portion of the county remains primarily rural.

Particulate Matter Exceedances

Monitors operated by the Air Quality Bureau (AQB) of the New Mexico Environment Department (NMED) in Doña Ana County, New Mexico, have recorded numerous exceedances of the 24-hour National Ambient Air Quality Standard (NAAQS) concentration limit for Particulate Matter 10 microns or less (PM10), over the last ten (10) years.

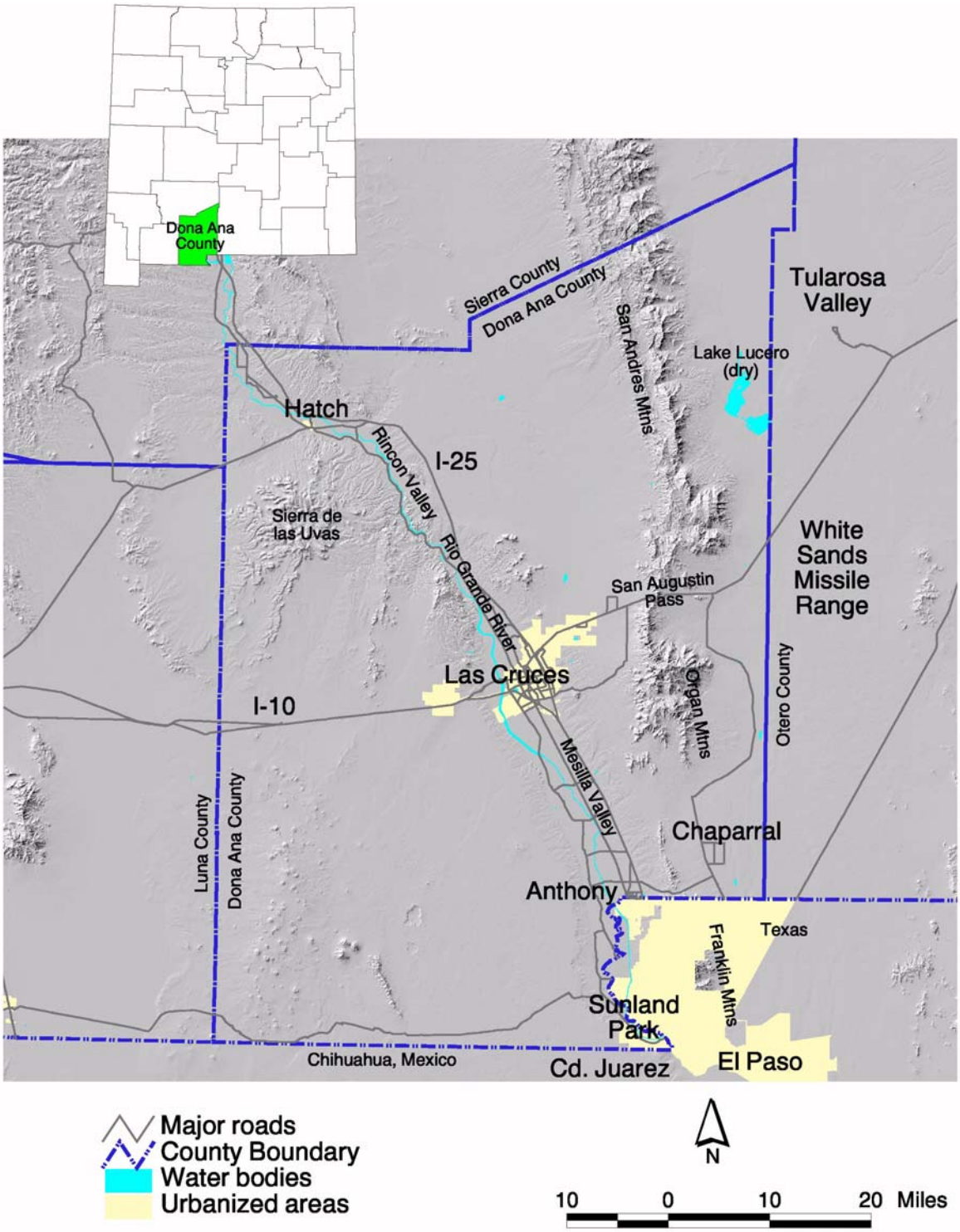

Figure 1. Doña Ana County

Since the number of days with exceedances is more than the number allowed by the standard, the county is in violation of the PM10 NAAQS. The Air Quality Bureau's analysis of wind data and other information regarding conditions during the exceedances indicated that all but a few are caused by high winds, which lift and carry dust from exposed dry soil. Given that high wind events are a type of natural event covered by EPA's Natural Events Policy (NEP), the NMED/AQB developed and submitted to EPA in December of 2000 a NEAP for Doña Ana County.

Natural Events Action Plan

The Natural Events Policy (refer to Appendix A) required that the state air quality agency submit a NEAP to the U.S. Environmental Protection Agency (EPA) by November 30, 1997. The NMED/AQB submitted to EPA Region VI a NEAP for Doña Ana County dated November 25, 1997. EPA Region VI reviewed the Doña Ana County NEAP and indicated, in a letter dated February 23, 1998, that additional information should be provided by NMED/AQB in order to finalize a comprehensive plan. An Addendum to the original NEAP submittal was presented to EPA Region VI on April 3, 1998, providing additional information. To further fulfill the Doña Ana County NEAP requirements, the NMED/AQB continued working with local governments and stakeholders on the implementation processes to satisfy the requirements of controlling and abating wind generated dust from human caused sources. The NMED/AQB submitted the 2000 Doña Ana County NEAP to supersede the previously submitted documents (refer to Appendix B). It is required by the NEP that a reevaluation of the NEAP be submitted to EPA every five (5) years. The NMED/AQB has compiled this document as a reevaluation for the current Doña Ana County NEAP that was submitted to EPA in December of 2000.

EPA NATURAL EVENTS POLICY

Background

On May 30, 1996, EPA issued the NEP in a memorandum from Mary D. Nichols, Assistant Administrator for Air and Radiation. This memorandum announced EPA's new policy for protecting public health when the PM10 NAAQS are violated due to natural events.

By law, the usual consequence when pollutant levels in an area violate one of the NAAQS is that the area is declared non-attainment for that pollutant. The state must then develop and implement a plan for measures that will be taken to reduce emissions of the pollutant and bring the ambient levels of the pollutant back within standards. Such plans must include stringent pollution control measures for new and existing industries and other sources of the pollutant.

Federal law and policies recognize that declaring an area non-attainment and requiring stringent controls on industrial sources are not appropriate responses where natural events contribute significantly to exceedances of the standard. EPA's Natural Events Policy memorandum of May 30, 1996, sets forth the requirements for a more appropriate approach for these natural events. Under this policy three categories of natural events are identified as affecting the PM10 NAAQS: (1) volcanic and seismic activity; (2) wildland fires; and (3) high wind events. Only high wind

events will be addressed in this NEAP, as these events are relevant to the exceedances experienced in Doña Ana County. The Natural Events Policy defines high wind events as follows:

"High Winds: Ambient PM10 concentrations due to dust raised by unusually high winds will be treated as due to uncontrollable natural events under the following conditions: (1) the dust originated from nonanthropogenic sources, or (2) the dust originated from anthropogenic sources controlled with best available control measures (BACM)."

Natural Events Action Plan

If natural events cause ambient concentrations of PM10 to violate a NAAQS, a state has two choices: (1) allow the area to be declared non-attainment, or (2) develop and submit to EPA a plan describing what will be done to address future events. Due to numerous exceedances of the NAAQS between 1994-2000, the NMED developed the NEAP for Doña Ana County. The NEAP for Doña Ana County established the following elements that are required for all plans under the NEP.

1. Analysis and documentation of the event show a clear causal relationship between the measured exceedance and the natural event. Documentation is made available to the public for review.

2. Public notification and education programs. These programs are designed to educate the public about the short-term and long-term harmful effects that high concentrations of PM10 could have on their health and inform them that:
    a. Certain types of natural events affect the air quality of the area periodically,
    b. A natural event is imminent, and
    c. Specific actions are being taken to minimize the health impacts of events.

3. Programs to minimize public exposure to high concentration of PM10 due to future natural events. Programs include:
    a. Identify the people most at risk,
    b. Notify the at-risk population that a natural event is imminent or currently taking place,
    c. Suggest actions to be taken by the public to minimize their exposure to high concentration of PM10, and
    d. Suggest precautions to take if exposure cannot be avoided.

4. Abate or minimize of PM10. Programs to abate or minimize PM10 emissions from appropriate contributing controllable sources, which may include the application of Best Available Control Measures (BACM) to any sources of soil that have been disturbed by anthropogenic activities.

5. The identification, study and implement practical mitigating measures as necessary.

6. Stakeholder involvement in development of NEAP.

7. The NEAP is made available for public review and comment.

NEAP REEVALUATION FOR DOÑA ANA COUNTY

Under the Natural Events Policy, a State is required to periodically reevaluate an approved Natural Events Action Plan every five (5) years. This reevaluation should include the following elements:

1. The conditions causing violations of the PM10 NAAQS in the area;
2. The status of the implementation of the NEAP; and
3. The adequacy of the actions being implemented.

Conditions Causing Violations of the PM10 NAAQS

Windblown dust in Doña Ana County occurs both from natural and human-caused sources. While dust is common in undisturbed areas throughout the west, it becomes much more prevalent where natural soils have been disturbed by human activities. This is because natural soils have a tendency to form a mineral and organic crust that is resistant to erosion by wind. Human activities can remove or break this crust, allowing dust to escape more easily. Also, even sparse desert vegetation provides protection to the soil surface by serving as a windbreak and organic binder. When human activities remove vegetation, the soil is more susceptible to wind, and as a result, airborne dust is produced.

While little can be done to decrease windblown dust from the open desert during periods of highest winds, there are a variety of things that a community can do to decrease dust caused by human activities. The dust from human activity tends to be concentrated close to populated areas, because that is most often where native soils are disturbed. Therefore it seems reasonable to expect that the majority of dust inhaled by community members is generated locally rather than from the surrounding desert. Of course there are those instances when regional wind (dust) storms will occur, overriding some, if not all, efforts made locally to control human-caused sources of windblown dust. It is important to understand and target those blustery spring days that are much more common in the area than the sporadic regional dust storms. A handout was developed in the Fall of 2000 for use with open houses, stakeholder meetings, and mailings. The handout explains the situation concerning Doña Ana County's PM10 exceedances, what it is that needs to be controlled, identifies potential significant man-made sources within the county, and lists the potential BACMs that may be useful for different situations. This handout is titled "Suggested Best Available Control Measures (BACM) for Reducing Windblown Dust From Manmade Sources in Doña Ana County" and can be found in Appendix C.

Particulate Matter Emission Inventory

Through funding provided by the EPA in 2004, the New Mexico Air Quality Bureau developed a pilot study for air quality issues in Doña Ana County to be incorporated into a larger body of work called the Atlas Project. The purpose of the Atlas Project is the development of an atlas of environmental issues along the border region of the United States and Mexico. The Atlas would

be a resource guide that would include inventories, maps, and reference material on all sources of environmental pollution ranging from water to solid waste to air quality. This pilot study was the first attempt at developing a piece of that resource guide.

The Doña Ana County pilot study investigated sources of PM10 and particulate matter 2.5 microns in size and less (PM2.5) throughout the County. The study included the development of an improved emissions inventory for PM10 and PM2.5 for sources associated with agricultural and non-agricultural operations. The completed study can be found in Appendix D.

Agricultural Sources of Particulate Matter

The scope of the emissions inventory study was as follows:

- Year – 2002 (i.e., coincides with the Atlas Project).
- Geographic domain – Doña Ana County, New Mexico.
- Sources – Agriculture and related activities including crop land preparation and harvesting, burning of agricultural residues and fields, beef and dairy cattle operations, cotton gins, agricultural unpaved road dust, paved road dust (county-wide for all roads), and unpaved road dust (county-wide for all roads).
- Pollutants – Particulate matter (PM) 10 micrometers (μm) in aerodynamic diameter and smaller (PM_{10}) and 2.5 μm in aerodynamic diameter and smaller ($PM_{2.5}$).

Table 1 summarizes the annual emissions of agriculture sources in Doña Ana County for 2002. These results show that the largest two source categories are county-wide unpaved and paved road dust. These two source categories combined comprise nearly 94 percent of the total PM_{10} inventory and over 88 percent of the total $PM_{2.5}$ inventory. Because engineering judgment was used to make several key assumptions (e.g., silt loadings, silt contents, moisture contents, etc.), it may be appropriate to re-examine the unpaved and paved road dust emission estimates when the remaining non-agricultural source categories are inventoried.

If county-wide unpaved and paved road dust are not considered, then the largest agricultural PM_{10} source categories are crop land preparation and crop harvesting (i.e., 43 percent and 21 percent of the inventory, respectively [excluding unpaved and paved road dust]) and the largest agricultural $PM_{2.5}$ source categories are crop land preparation and agricultural burning of prunings (i.e., 31 percent and 30 percent of the inventory, respectively).

Table 1. 2002 Annual Emissions for Agriculture Sources in Doña Ana County

Source	Emissions (tons/year)	
	PM_{10}	$PM_{2.5}$
Crop land preparation (tillage)	201.7	44.7
Crop harvesting	96.9	21.5
Agricultural burning (prunings)	45.4	42.8
Cotton gins	16.9	2.2
Dairies	33.3	3.8
Feedlots	4.3	0.5
Unpaved road dust (agriculture only)	55.7	11.8
Unpaved road dust (county-wide)	6,166.9	922.5
Paved road dust (county-wide)	1,119.9	153.3
Agriculture equipment (exhaust)	16.6	15.3
Total	**7,757.5**	**1,218.4**

Nonagricultural Sources of Particulate Matter

The scope of the nonagricultural emissions inventory is as follows:

- Year – 2002 (i.e., coincides with the Atlas Project).
- Geographic domain – Doña Ana County, New Mexico.
- Sources – All nonagricultural sources of PM including quarrying/mining, construction activities, on-road motor vehicles, nonroad mobile source equipment, aircraft, railroads, residential wood combustion, charbroiling, paved road dust, residential burning of household and yard waste, other fuel combustion, wildfires, prescribed wildland burning, structural fires, vehicle fires, and wind erosion.
- Pollutants – Particulate matter 10 micrometers (µm) in aerodynamic diameter or less (PM_{10}) and 2.5 µm in aerodynamic diameter or less ($PM_{2.5}$).
- Spatial resolution – Facility location (i.e., Universe Transverse Mercator [UTM] or latitude-longitude [lat-long] coordinates, physical address, or township/range/section for mines and quarries; county-level resolution for all other sources).
- Temporal resolution – Annual (tons/year).

Table 2 summarizes the annual emissions of nonagricultural sources in Doña Ana County for 2002. The largest source category shown in Table 2 is windblown dust (representing 1996 emissions) which contributes over 85 percent of the total PM_{10} and total $PM_{2.5}$ inventories. However, if the windblown dust is not considered, then the largest nonagricultural PM_{10} source categories are road dust (unpaved and paved), construction activities, and quarrying/mining (i.e., 86.5 percent, 3.5 percent, and 1.9 percent of the inventory, respectively) and the largest nonagricultural $PM_{2.5}$ source categories are road dust, residential wood combustion, and charbroiling (i.e., 60.3 percent, 7.8 percent, and 7.4 percent of the inventory, respectively). Because total PM from combustion sources consists of a larger fraction of $PM_{2.5}$ than total PM from geogenic dust sources does, the relative contribution of combustion sources increases in the overall $PM_{2.5}$ inventory compared to the overall PM_{10} inventory.

Using location information collected from the telephone survey, along with existing location information (Leavitt, 2004; Pfeil et al., 2001), maps of mine and quarry locations were developed

using ArcView software. The overall response rate to the telephone survey was fairly low (i.e., 32 percent or 8 out of 25 facilities). Most of these operations are located along the I-10 and I-25 corridors with a few facilities in outlying areas.

Table 2. 2002 Annual Emissions for Nonagricultural Sources in Doña Ana County

Source Category	PM_{10} Emissions (tons/year)	$PM_{2.5}$ Emissions (tons/year)
Quarrying and Mining	159.2	31.8
Construction Activities	294.2	61.2
On-Road Motor Vehicles	147.0	110.9
Nonroad Mobile Sources	60.1	55.3
Aircraft	6.1	4.2
Locomotives	29.1	26.2
Residential Wood Combustion	138.5	138.5
Charbroiling	143.2	132.6
Paved Road Dust[a]	1,119.9	153.3
Unpaved Road Dust[a]	6,166.9	922.5
Waste Burning – Household Waste	82.5	75.6
Waste Burning – Yard Waste	6.1	6.1
Other Fuel Combustion	70.4	60.1
Wildfires	1.1	0.9
Prescribed Wildland Burning	0.0	0.0
Structural Fires	1.5	1.5
Vehicle Fires	2.8	2.8
Wind Erosion[b]	49,242.5	10,833.3
Total	**57,671.0**	**12,616.8**
Total (minus Wind Erosion)	**8,428.5**	**1,783.4**

[a]Unadjusted emissions taken from agricultural emissions inventory (ERG, 2004a).

[b]Wind erosion emissions obtained from 1996 WRAP wind erosion inventory (ENVIRON et al., 2004).

Conclusions from the Atlas Pilot Study for the NEAP

The original intent of this study was to inventory all sources of PM_{10} and $PM_{2.5}$ in Doña Ana County. For the purposes of the Dona Ana County NEAP, NMED used this inventory to provide some insight as to what the main contributors could be for PM_{10} exceedances during high wind events. The inventory showed wind erosion to be, by far, the largest source category. Second to wind erosion is paved and unpaved road dust. Although wind blown dust is common off of unpaved and some paved roads, this particular inventory used emissions caused by vehicle entrained dust, not wind blown, so it does not provide a clear understanding of the emissions caused only by wind blown erosion.

Other sources found to be large contributors are cropland preparation and construction activities. Both of these sources categories are identified in the 2000 NEAP as being sources that may contribute to wind blown dust exceedances of the PM_{10} NAAQS in Doña Ana County. Once again though, the Atlas inventory does not provide a clear understanding of the emissions generated during high wind events for these sources categories. Emissions for cropland

preparation are determined during times of crop tillage, and construction activity emissions are based on dust generated from mechanical disturbance, such as earthmoving equipment.

Status of the Implementation of the Doña Ana County NEAP

The main purpose of the Doña Ana County NEAP is to inform and educate the public about high wind events that occur in the area, the associated high PM_{10} levels, and potential health effects. Elements of the program include: 1) informing the public when the air quality in the area is unhealthful; 2) explaining what the public can expect when high wind events occur; 3) explaining how to minimize exposure to high concentrations of PM_{10} during high wind conditions; and 4) describing what steps will be taken to control dust emissions during future high wind conditions.

Actions that have been taken to date for fulfilling the education program include:

- An informational and health-related brochure titled "Dust Storms and Health" has been developed in English and Spanish (see Appendix E). This was distributed throughout the county for future high wind seasons. This brochure has also been a popular handout during presentations and open houses. The brochure was updated in 2001, 2003, and 2004.

- A fact sheet entitled "Particulate Air Pollution; Air Pollution from Natural Events" was developed in August 2000 (see Appendix E). This fact sheet provides general health information, defines the windblown dust problem in Doña Ana County, and describes the NEP and the opportunity it offers to areas affected by PM_{10} problems due to natural events. The fact sheet is available on the Environment Department's web site under the section Air Quality Issues – Windblown Dust.

- The Environment Department developed a NEAP Briefing Document (see Appendix E). This document outlines the PM_{10} problem in Doña Ana County and describes what can be done about it. It defines why PM_{10} is a public health issue and answers many of the questions we have received concerning the NEAP. This document has been used as an educational handout at the Environment Department's open houses and presentations on the Doña Ana County NEAP, and in informational mailings.

- Formal presentations have been made on the Doña Ana County NEAP throughout the state including: 1) the New Mexico Lung Health Summit; 2) the New Mexico Environmental Health Conference; 3) two stakeholder meetings; 4) Border 2012 Air Quality Summit meetings; 5) Paso del Norte Joint Advisory meetings; and 6) various local government meetings.

- The NMED/AQB held open houses designed to provide information and solicit ideas about the Natural Events Action Plan for reducing dust, sustaining growth and improving health in the area. The NMED solicited the public's thoughts, ideas, comments, and concerns in order to tailor the plan to local needs. These open houses

where held in October and November of 2000 and January and February of 2001 throughout the County.

- An informational flier was developed and distributed to all local government offices, health facilities, and public schools. The flier is used in conjunction with the health brochure and the fact sheet. The flier was printed in both English and Spanish (Appendix E).

- Public service announcements and press releases were used to issue advisories every year between 2000 and 2005 on the health hazards associated with dust storms in Doña Ana County. The press releases and the public service announcements were distributed statewide (see Appendix E).

- A recorded public service announcement was created by the NMED and radio airtime was purchased during peak driving times as a means of alerting the citizens of Doña Ana County on the hazards of dust storms and how to receive more information.

- Television interviews were given during several of the open houses and meetings concerning the NEAP, why it is a health concern and what can be done to reduce the PM_{10} level near populated areas.

The Natural Events Policy states that advisories should inform the public that a dust episode is imminent, currently is taking place, or likely to occur. As in the original 2000 Doña Ana County NEAP, the NMED has chosen to continue with the common sense approach based largely on public education instead of the use of a dust storm warning system. The public education campaign includes the following information:

1. episodes of unhealthful dust levels are likely to occur in this area, especially during the windy season of late winter and early spring;

2. individuals should take precautionary measures when they see that a dust storm in progress;

3. precautionary measures include staying indoors with windows closed and avoiding outdoor exercise and activities during dust storms; and

4. individuals who wish to become better able to distinguish unhealthful levels of dust may consult the real time monitoring data that is available on the NMED web site for PM_{10} and compare this with their perception of dustiness.

A public education campaign was created as a means of heightening awareness of the health hazards of high dust levels and informing susceptible individuals and their caregivers what precautions they should take when dust levels are high.

The public education campaign consisted of the following elements.

1. A brochure, in English and Spanish, explaining the health hazards of high dust levels and describing ways to reduce one's exposure (see brochure, Appendix E). This brochure is available at the NMED Field Office in Las Cruces, the Department of Health Border Health Office in Las Cruces, the City of Las Cruces offices, the City of Sunland Park Offices, and Dona Ana County Offices. The brochures have also been distributed to local health clinics, hospitals, and public schools.

2. A dust health advisory public service announcement and press release published during the spring windy season. See Appendix E for the prepared press releases and public service announcements.

3. A web site that contains public outreach information on dust storms in Doña Ana County and around the state.

4. A pamphlet, in English and Spanish, providing contact information on how to get more information regarding dust storms and health implications.

Adequacy of the Actions Being Implemented

The NMED/AQB still believes that local stakeholders and governments are best equipped to deal with this type of local situation and that they should maintain control of development and implementation of solutions as appropriate. The current NEAP includes erosion control ordinances for the City of Las Cruces (Ordinance No. 1789) and Doña Ana County (Ordinance No. 194-2000). See Appendix F for current local ordinances. The purpose of both ordinances is to protect and maintain the natural environment, and to reduce the negative health effects caused by the creation of fugitive dust. The NEAP also includes stakeholder agreements and letters of support from various entities that would not fall under the jurisdiction of the local ordinances.

Local Ordinances

City of Las Cruces

The City of Las Cruces, the largest metropolitan area within the county, has taken an active role in developing an ordinance that limits the amount of dust from sources within the city limits. The City of Las Cruces Planning Department reevaluated the current erosion control regulation through an internal evaluation process, and at this time, the city determined that the current regulation provides adequate BACM. The city created this ordinance to prevent the contribution of man-made dust production, to help protect public health, and to reduce safety impacts.

Doña Ana County

The objective of the County's Ordinance is to ensure that all surface disturbance activities use erosion control measures to mitigate visible fugitive dust on an ongoing basis for the protection of public health and safety. The ordinance was designed to accomplish this goal by preventing, limiting, or mitigating the effects of activities which create fugitive dust or have a tendency to make land more vulnerable to natural erosion that creates fugitive dust. As with the City of Las Cruces, Doña Ana County did an internal evaluation of their current erosion control ordinance to

determine if the ordinance provided BACM. The County determined that the current ordinance is adequate to control anthropogenic sources of wind blown dust.

Stakeholder Agreements

The NMED, in its quest to help develop an effective and adequate NEAP for Doña Ana County, has worked with the following stakeholders to take voluntary steps to reduce PM_{10} from property and facilities that they control. These primary stakeholders, due to federal ruling, must comply with local applicable ordinances. However, enforceability is ambiguous on federal and state owned installations, therefore reassurance was sought through stakeholder agreements. A copy of each stakeholder agreement can be found in Appendix G.

New Mexico State University

As a prominent leader in the community, New Mexico State University (NMSU) realizes the benefits associated with controlling airborne dust and has taken appropriate steps to demonstrate their commitment toward community service and well-being. New Mexico State University entered into a Memorandum of Understanding (MOU) with the NMED for the 2000 NEAP. The University controls various large portions of land throughout the County, which can be sources of dust during a high wind event. New Mexico State University is committed under the MOU to analyzing, developing and implementing appropriate dust control measures for disturbed land owned by the University, as well as minimizing disturbance of natural areas. New Mexico State University submitted a new letter of commitment for the Doña Ana County NEAP and the MOU. The letter states that since the 2000 NEAP was submitted to EPA, NMSU has implemented the following measures for erosion control:

- Implementation of dust control measures on over 30 acres of previously barren areas, with an additional 16 acres planned for the future;
- Budgeting of approximately $125,000.00 for future dust control projects; and
- Budgeting of $30,000.00 for NEAP work in their current fiscal year.

New Mexico Department of Transportation

The New Mexico Department of Transportation (NMDOT), previously the New Mexico Highway and Transportation Department, recognizes the need to implement dust control measures during transportation related project in Doña Ana County. As a means of providing adequate dust control, NMDOT entered into a MOU agreement with NMED for the 2000 NEAP. The purpose of the original MOU was to satisfy conditions of the NEAP, and to support the efforts to keep Doña Ana County a clean and pleasant area in which to live. The New Mexico Department of Transportation submitted a letter of continued support for the Doña Ana County NEAP and the MOU on March 25, 2005. The letter states that NMDOT realizes that windblown dust continues to be an issue in Doña Ana County, and that they are willing to continue their commitment to the existing MOU.

White Sands Missile Range

White Sands Missile Range (WSMR) is located in the Tularosa Basin of south-central New Mexico, in the counties of Doña Ana, Otero, Sierra, Socorro, and Lincoln. The boundaries of the range extend approximately one hundred (100) miles south to north and forty (40) miles east to west. The range is the largest military installation in the U.S., encompassing 3200 square miles. The range is located primarily on the eastern side of the Organ and San Andres Mountains in Doña Ana County, with the headquarters area twenty (20) miles east of Las Cruces.

White Sands Missile Range worked with NMED in 2000 to develop a Memorandum of Agreement (MOA) supporting the efforts of the Doña Ana County NEAP. As part of this reevaluation, WSMR submitted to NMED a revised MOA and a renewed commitment to the NEAP. Prior to the original MOA with WSMR, the range had already contracted an outside consulting firm to develop a particulate matter monitoring plan leading to dust control plan development. Upon learning of the County's exceedances of the PM_{10} standard, WSMR agreed to expand the scope of their dust control needs to include the NEAP and protection of public health. Along with the MOA, WSMR follows county ordinances regarding erosion control and construction where practical and when it is not in conflict with the mission of WSMR.

Other Stakeholders

This category has been separated out because of the unique situation represented by each of the following entities. These stakeholders do not have stakeholder agreements with NMED but do have control and/or influence over very large tracts of land that are administered through either Federal or State regulation. Many of these stakeholders have submitted a letter of commitment for the NEAP to the NMED.

Natural Resource Conservation Service (NRCS)

Doña Ana County has 96,030 acres of irrigated land, nearly all of which lies within the Rio Grande river valleys of Mesilla and Rincon. The farming community in Doña Ana County is greatly influenced by local conservation districts and the NRCS, formerly the Soil Conservation Service (SCS). Conservation districts operate under the premise that local people know the most about local needs. They link NRCS with their communities and with local priorities for soil and water conservation. The two conservation districts working within Doña Ana County are the Caballo Soil and Water Conservation District (SWCD), in the north, and La Union SWCD in the south. Farmers work with their local conservation districts and NRCS field staff to develop and implement soil conservation plans specifically designed for the soil types and crops of each individual farm. The practices can come from either best management practices (BMPs) adopted by the conservation district and/or those identified by NRCS.

Under the 1990 amendments to the Food Security Act (FSA), growers who receive crop subsidies, loans or other assistance through the U.S. Department of Agriculture (USDA) are required to develop conservation farm plans. A farm plan is a comprehensive plan of BMPs a grower will use on their farm to minimize erosion and environmental impacts.

Farming within Doña Ana County is very progressive and intensely managed, due to the types of high value crops (chile, onions, lettuce, pecans, cotton, alfalfa hay, etc.) grown in the area. Some

of the practices implemented by Doña Ana County farmers as provided by the local NRCS office include:

- In the spring, farmers immediately pre-irrigate following plowing, disking and furrowing, drastically reducing the amount of loose soil available to wind erosion.
- Many pecan producers are practicing no-till and reduced till methods that are also extremely effective in preventing soil erosion.
- Crop rotations and residue management is also applied to the land as a conservation measure to ensure sufficient organic matter is returned to the field, thus allowing for soil aggregation, which is a strong deterrent to wind erosion.
- Many producers plant a cover crop for the sole purpose of reconditioning the soil with additional organic matter in order to have a more manageable and stable soil structure.

Furthermore, in continuing efforts to provide for conservation programs on privately held lands, the 1996 Farm Bill authorized a Conservation for Private Grazing Lands technical assistance program. The NRCS has a specific responsibility to assist owners and operators of grazing lands in planning and applying conservation programs on privately controlled land. The mission of this program is "to provide quality assistance to the owners and managers of rangeland, pastureland and other grazed lands using appropriate science and technology to manage, enhance, and, where necessary, restore these grazing land ecosystems.

Bureau of Land Management (BLM)

While Doña Ana County is not one of the larger producers of cattle in the state in terms of numbers, its total amount of land is primarily considered to be desert rangeland and lies outside of the Rio Grande river valleys. Of the total 2,434,560 acres in the county, 75% (1,821,515 acres) is federal land, primarily controlled by the Department of Defense (WSMR) and the BLM, with a small amount of state owned land (12% of the total) scattered throughout the BLM lands. Much of this rangeland is used for multiple purposes (such as grazing, recreation, wildlife, mining, etc.) and is managed by the BLM. The BLM administers livestock grazing on federal land under the authority of the Taylor Grazing Act of 1934 as well as the Bankhead-Jones Farm and Tenant Act and the National Environmental Policy Act (NEPA) as well as others. The Taylor Grazing Act sought "to stop injury to the public grazing lands by preventing overgrazing and soil deterioration; to provide for their orderly use, improvement, and development; and to stabilize the livestock industry dependent upon the public range." These laws direct the BLM in its responsibility to authorize and manage livestock grazing under the principles of multiple use and sustained yields, and further to prevent the degradation of rangeland resources by providing for their orderly use, improvement, and development.

Soil erosion is influenced by climate, topography, soil properties, soil condition, cover, and land use. Of all of these factors, soil cover is most important (USDI, BLM 1994 Rangeland Reform Draft EIS). Cover and land use are the two factors where the BLM can influence erosion control. Research indicates that a minimum cover value of 20 % is needed to prevent wind erosion. Cover values of 30 to 40 % are generally associated with arid lands where cover is naturally sparse (USDI, BLM 1994 Rangeland Reform Draft EIS).

By the 1990's, the BLM had ensured that most of the allotment stocking rates in New Mexico were consistent with the grazing capacities established by rangeland surveys and monitoring. In 1995, the BLM reported that only 4 % of New Mexico's public lands showed a downward trend, for which a combination of factors may be responsible, with a major contributor appearing to be the loss of the fire cycle. Also in 1995, 41 % of the public lands showed an upward trend and 55 % were considered static (USDI, BLM 1995 - National Range Inventory Report). A static trend is one where the current condition has stabilized, and often exists where optimum conditions have been achieved, where the land is dominated by brush species, and at the lower seral stages. To improve these situations the BLM, working with individual ranchers, develop rangeland programs that include improved grazing distribution, grazing deferment, and brush control in effort to increase herbaceous vegetation, thus increasing ground cover.

The BLM uses the term Activity Plans to identify site specific management plans on grazing allotments. Also, the BLM uses, as part of the policy in identifying and categorizing allotments, the selective management process. The selective management categories include: 1) "M - Maintain Category" are allotments with few resource related issues and generally management and condition are satisfactory; 2) "C - Custodial Category" are allotments with limited management opportunities either environmentally or economically; and 3) "I - Improve Category" are allotments where there are many management issues, as well as ample management opportunities for improvement and change. Through the selective management process the BLM directs funds and planning efforts. This process is done through consultation, cooperation and coordination with interested and affected publics as outlined by the BLM's grazing regulations and other laws (Public Rangeland Improvement Act of 1978).

A variety of management tools are available to properly manage grazing on public lands in accord with the multiple use mandate. These include grazing systems, rangeland improvements and their proper placing, fire, salting, and others. A report by EPA Region VI, titled "New Mexico Best Management Practices Study, July 30, 1998," documents the BLM implementation of BMPs. The study looked at 20 randomly selected BLM grazing sites and found 265 practices implemented which could be considered BMPs (New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management, April 2000).

Fort Bliss Military Reservation

Fort Bliss Military Base is located in El Paso County, Texas, just south of the New Mexico - Texas state line, on the east side of the Franklin Mountains. Although not a significant contributor to wind blown PM10 in Doña Ana County, due to its location it can have an impact on Chaparral, NM located on the New Mexico-Texas state line. In 2000, Fort Bliss provided the NMED with a letter of support for the NEAP. Fort Bliss has sent the NMED a new letter of support for the Doña Ana County NEAP. This letter states that since the 2000 NEAP, training operations have increased, thus resulting in increased particulate matter. Due to this increase, the use of dust control measure such as dust suppressants and restricting speed limits have managed and minimized particulate matter emissions on the reservation.

Camino Real Landfill
The Camino Real Landfill is located in Sunland Park, just below the west side plateau. The property is privately owned by Camino Real Environmental Center Inc. Camino Real Environmental Center Inc. included a dust control plan within their Title V Operating Permit in support of the Doña Ana County NEAP.

State Of New Mexico Economic Development Department
While the State's Economic Development Department (NMEDD) is not a true stakeholder in the sense of this document's definition, it is an important entity in providing information for businesses coming into the State. The EDD has provided the NMED with a new letter supporting the NEAP, committing to sharing information with their clients in Doña Ana County, as well as providing referrals for information.

Letter from EPA-Region VI
A letter from Thomas Diggs, EPA Region VI Air Planning Section Chief, was sent to NMED on March 14, 2005, stating EPA's continued support of the Departments efforts toward the NEAP to address Doña Ana County's PM_{10} exceedance situation.

CONCLUSIONS

Over the past five years, the NMED, City of Las Cruces, and Doña Ana County have been successful in implementing this first stage of the Doña Ana County NEAP. The City of Las Cruces and Dona Ana County understand the importance and the need to successfully enforce their ordinances. Although the area is still experiencing exceedances of the PM10 NAAQS, BACM are in place to control those anthropogenic sources that do contribute to exeedances of standard. The Doña Ana County NEAP was the first NEAP to be developed within EPA Region VI and has been used as a model by other state agencies throughout the southwest.

Future Plans

Although the NEAP has been viewed as a successful venture over the last five years, future improvements to the program would help to provide a higher level of environmental and health protection in Doña Ana County. Some of these possible future improvements include:

- Air quality border representative:
  - This position would act as the local air quality, planning representative for the State of New Mexico. The border representative would be responsible for management of the NEAPs in the border region, including the Doña Ana County NEAP. The border representative would be a local position stationed within the border region, thus being a more accessible source for educational material and information on the hazards associated with high wind events. The New Mexico Environment Department expects to fill this position by January of 2006.

- Improved public outreach and education program:

- In the past, we have provided most of our public outreach through the use of press releases, brochures, public service announcements, and advertisements in the local newspapers. The NMED would like to expand the current public outreach program component in this next iteration of the NEAP to include a more hands on approach. This would include more face-to-face contract with the local communities and local representatives; more collaboration with other state agencies, such as the Department of Health; and a dust help line.

- Development of a state-wide erosion control regulation:
  - Although there are four NEAPs currently in place throughout the southern region of the State, the NMED feels that there may be a need in the future to develop an erosion control regulation on a statewide level. At this point in time, this type of regulation is only in the conceptual phase, and the State still believes that local governments are currently the most well equipped to deal with these local issues, but as time goes on more and more areas are appearing to have issues with wind generated PM_{10}, especially in the southern region of the state.

- Improved Emission Inventories:
  - The Atlas Project grant from EPA allowed NMED to inventory the area sources of PM throughout Doña Ana County. This was the first PM inventory of any kind to be completed in Doña Ana County. The New Mexico Environment Department would like to expand and update this inventory throughout the implementation of the Doña Ana County NEAP. Since the NMED is unable to conduct this type of inventorying project in-house due to resource limitations, the NMED will continue to seek and apply for grant funding.