



New Mexico
Environment
Department

Particulate Air Pollution

Air Pollution From Natural Events

BACKGROUND

We usually associate air pollution with human activities – cars, industry, and wood burning are three of the largest air pollution sources. But natural events such as volcanic eruptions, earthquakes, wildfires, and dust storms can affect air quality, too. These natural events produce particulate matter (PM₁₀), or airborne particles of dust and soot, which can cause health problems when we breathe them. The federal Environmental Protection Agency (EPA) regulates particulate matter through a health-based air quality standard.

HEALTH CONCERN ASSOCIATED WITH PARTICULATE AIR POLLUTION

PM₁₀ refers to suspended particles less than or equal to 10 microns in diameter. A micron is a unit of length equal to one-millionth of a meter, or about one-seventh the diameter of a human hair. PM₁₀ may include a variety of substances, such as dust, smoke, and soot. These tiny particles are small enough to be inhaled deep into the lungs, past the respiratory tract's natural defenses. High levels of PM₁₀ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. People most vulnerable to these effects include infants and children, the elderly, anyone who is exercising (because they breathe in more air, and therefore more particles), and those suffering from chronic lung diseases.

In addition to health concerns, dust generated from various activities including high winds can reduce visibility, resulting in accidents. Furthermore, particulate matter pollution can impair the health of animals and vegetation, corrode building material, reduce crop production, and in general reduce the quality of life.

THE PROBLEM

Dust storms generated by high winds have caused unhealthy levels of airborne particulate matter within Doña Ana County. In recent years, Doña Ana County has not met the federal ambient air quality standards for particulate matter (PM₁₀). The frequency and severity of exceedances have been well above the national standards. While much of the dust in the Dona Ana County area is caused by natural events such as high wind speeds and ambient dry conditions throughout the area, man-made dust sources are on the increase as the County becomes more populated and development increases.

To protect public health, EPA designates areas where particulate matter levels exceed the standard as "non-attainment areas." State and local governments must then adopt plans to reduce air pollution in these areas in order to protect public health. Federal requirements for these areas are focused on reducing air pollution from industries and motor vehicles. However, we know that the traditional approach of controlling factories and tailpipe emissions won't fix a PM₁₀ problem due to natural events such as blowing dust raised by high winds. Besides the fact that this traditional approach has been an ineffective means of dealing with this type of PM₁₀ exceedance problem, it may possibly be detrimental to economic growth. Because of this, the western states requested a new EPA policy for air pollution from natural events in 1996.

EPA'S POLICY ON NATURAL EVENTS

At the urging of western states, EPA agreed to try a more common sense approach to the problem. In June 1996, EPA adopted a new policy for natural events. The Natural Events Policy (NEP) offers states flexibility in meeting the PM10 standard, while still providing for public health protection. The NEP applies to three categories of natural events that can cause high PM10 levels: (1) volcanic and seismic activities; (2) wildfires; and, (3) high wind events.

Under this policy, particulate matter (or dust) exceedances generated by high winds are considered natural events if they occur over natural undisturbed areas or areas that have been disturbed by human activities with appropriate controls in place. These "natural events" exceedances may be excused from the determination of whether air quality is in attainment of the standard. However, if controls are not in place for human caused sources of windblown dust, the exceedances due to high winds cannot be excused.

This policy outlines requirements in general terms and urges local stakeholder involvement in developing the actual plan. These general requirements include public health education, public notification, and control of human-caused sources of windblown dust where feasible and effective. If a state, with stakeholder involvement, develops and implements a plan that responds to public health effects impacted by natural events, EPA will not designate the area as non-attainment.

The New Mexico Air Quality Bureau and local governmental agencies are required to develop a plan to protect public health during natural events. This plan will need to include:

- public education about the harmful effects of particulate matter;
- public notification when air quality is or will be affected by natural events;
- programs to enable the general public and high risk individuals to minimize their exposure to air laden with particulate matter; and
- actions to reduce particulate matter (when possible) during natural events. Since our exceedances are due to blowing dust, these actions could include reducing the amount of loose, uncovered soil at construction sites, agricultural fields, and unpaved parking lots.

HOW DOES THIS POLICY AFFECT DOÑA ANA COUNTY?

Dust storms are the most common natural events causing particulate matter air pollution in Doña Ana County. EPA could propose to designate Doña Ana County as a non-attainment area because of the high levels of particulate matter caused by dust storms. However, under the Natural Events Policy, Doña Ana County will not be designated as a non-attainment area if a plan is developed and implemented to limit dust generated from man-made sources in a reasonable effort to protect public health during natural events.

FUTURE ACTIONS

Once a plan has been developed and implemented for Doña Ana County it will be reviewed and evaluated for effectiveness at least every four years. The reevaluation process should show what is and is not effective or feasible so that any necessary changes can be made. Education will continue for both health concerns and control measures available.

FOR MORE INFORMATION

Call the Air Quality Bureau in Santa Fe at 1-800-810-7227; or,
Check out our website at www.nmenv.state.nm.us, Click on "Air Quality Bureau"