

**Factsheet:**  
**Designation of Nonattainment Areas for the Fine-Particles (PM<sub>2.5</sub>) Standard**

**What are fine particles?**

Fine-particles or PM<sub>2.5</sub> are solid or liquid particles in the atmosphere less than 2.5 microns in diameter.

**What is the fine-particle standard now?**

There are two fine-particle standards designed to protect health. The 24-hour standard is 35 micrograms/m<sup>3</sup>. The annual standard is 15 micrograms/m<sup>3</sup>.

**How do states collect the data to determine compliance with the fine-particle standards?**

The states have a network of monitors which are used to measure the level of fine-particles in the air. Two different types of monitors are used. Federal Reference Method (FRM) monitors measure the concentrations used to determine compliance with the air quality standards for designation purposes. The FRM monitors are located in Milwaukee (5 monitors), Waukesha, Kenosha, Ozaukee, Manitowoc, Brown, Outagamie, Waupaca, Dane, Grant, Dodge, La Crosse Sauk, Taylor, St. Croix and Vilas counties.

In addition, continuous monitors (TEOMs) collect data hourly and provide real-time readings to provide citizens with real-time information on air quality. The DNR measures fine-particles on TEOM monitors in Milwaukee (2 monitors), Waukesha, Kenosha, Ozaukee, Manitowoc, Brown, Taylor, St. Croix, Sauk and Dodge counties.

**What is a nonattainment area?**

A nonattainment area is an area with a measured violation of a national air quality standard. For fine-particles, a violation of the standard occurs if:

- The average concentration over a three year period exceeds 15.4 micrograms/m<sup>3</sup> or
- The average of the 98<sup>th</sup> percentile (24-hour concentration) over a three year period exceeds 35.4 micrograms/m<sup>3</sup>

**What is the process for the designation of nonattainment areas for fine-particles? What is the state's role?**

The federal Clean Air Act requires EPA to designate nonattainment within two years after a standard becomes effective (December 2006, for the new 24-hour standard). The Governor sends a letter of recommendation for the designations to EPA identifying the counties of Wisconsin that are not meeting the federal fine-particle standard, based on three years of quality-assured monitoring data. This letter is due in December 2007. EPA then uses the recommendation and the most recent three years of quality-assured monitoring data to make proposed nonattainment designations. After public input, EPA makes the final designations. Final designations are expected to be made in late 2008 and become effective in early 2009.

**What are the implications for a county that is designated nonattainment for fine-particles?**

In a fine-particle nonattainment area, a major industrial pollution source of nitrogen oxides (NO<sub>x</sub>), sulfur dioxides (SO<sub>2</sub>), direct fine particulate matter or possibly volatile organic compounds (VOCs) will have to find an offset for the new emissions. In addition, a major new source of NO<sub>x</sub>, SO<sub>2</sub>, direct fine particulate matter or possibly VOC will have to install the very best control equipment for such a source. This requirement is known as the Lowest Achievable Emission Rate or LAER. In addition, the county would have to participate in a transportation conformity analysis which evaluates and the impact of transportation project on air quality.

Once an area is designated, the state will have three years to develop a plan to bring the area into attainment with the standard. This plan of control strategies will be developed in consultation with industry, environmental organizations, health officials, government representatives and others. Also,

DNR will work with the neighboring states of Illinois, Indiana, Michigan and Ohio on regional controls necessary for attainment.

**Do we know what counties are not meeting the standard and could be designated as nonattainment counties?**

Based on the most recent quality-assured data (2005-2007), there 3 counties measuring violations of the standard, Brown, Dane and Milwaukee. Additionally, when designating nonattainment areas, EPA may include other surrounding counties that contribute to the air quality problem. For instance, if EPA designates the Milwaukee area as a fine-particle nonattainment area, they are also likely to designate Kenosha, Racine, Waukesha, Washington and Ozaukee.

**What are the sources of fine-particles?**

Fine-particles are typically caused by chemical reactions or condensation of gases. There are three main constituents to fine-particles, ammonium sulfate, ammonium nitrate and organic carbon. The major sources of the fine-particles are:

- SO<sub>2</sub> – Power Plants
- NO<sub>x</sub> – Combustion such as boilers and motor vehicles
- Organic Carbon – The source of organic carbon is somewhat uncertain, but the initial science points to motor vehicles.

**What are the health effects of inhaling fine-particles?**

Excessive exposure to fine-particles can lead to a number of health effects including:

- Decreased lung function
- Increased asthma attacks and chronic bronchitis
- Acute respiratory symptoms

These health effects can result in:

- Respiratory and cardiopulmonary related hospital admissions
- Increased work and school absences
- Premature deaths

**Is the state currently doing anything at this time to deal with fine-particles?**

Our current emissions limits and permits do help prevent fine-particle problems. If EPA designates counties in Wisconsin as non-attainment areas designated, further analysis on fine-particle sources and control strategies will be necessary. The control strategies could include actions both within and outside of the state. We are currently working with neighboring states on technical analyses related to existing fine-particle problems in Illinois, Indiana, Michigan and Ohio. The Mercury/Multi-Pollutant rule that was just adopted by the Natural Resources Board will help reduce fine-particle concentrations in Wisconsin and in our neighboring states as well.

**The DNR occasionally issues air quality watches and advisories for fine-particles. How do the EPA designations relate to these advisories?**

DNR currently issues watches and advisories for fine-particles based upon a 24 hour standard and EPA's Air Quality Index system. These will continue to be issued as a public service to ensure that people have timely information when air quality is a health concern. Watches and advisories may occur in and out of nonattainment counties. Emission control strategies will be developed to bring the nonattainment counties into compliance with the fine-particle standard. These controls, both in state and regional, should reduce the number of watches and advisories for fine-particles.