

Prevention of Significant Deterioration for Fine Particle Pollution – Final Rule to Establish Increments, Significant Impact Levels and a Significant Monitoring Concentration

Fact Sheet

Action

- On September 29, 2010, the U.S. Environmental Protection Agency (EPA) established important elements of the Clean Air Act Prevention of Significant Deterioration (PSD) program for particulate matter less than 2.5 micrometers in diameter (PM_{2.5}).
- When a source applies for a permit to emit a regulated pollutant in an area that meets the National Ambient Air Quality Standards (NAAQS), the state and EPA must determine if emissions of the regulated pollutant from the source will cause "significant" deterioration in air quality.
- This final rule establishes several components for making PSD permitting determinations for fine particle pollution. These components address air quality modeling and monitoring provisions for fine particle pollution in areas protected by the PSD program and include: increments, significant impact levels (SILs), and a significant monitoring concentration (SMC).

PSD Increments (Increments)

- A system of "increments" is the mechanism used to estimate significant deterioration of ambient air quality for a pollutant. An increment is the maximum allowable increase in ambient concentrations of a pollutant in an area. Increases above that level will be considered to significantly deteriorate air quality and cannot be allowed.
- EPA set the PSD increments for PM_{2.5} using the "percent of NAAQS" approach that Congress used to establish the original increments for particulate matter (PM) and sulfur dioxide (SO₂) in 1977. EPA also used this approach to establish nitrogen dioxide (NO₂) increment regulations on October 12, 2005. This approach treats PM_{2.5} as a new pollutant, and does not impact the existing annual and 24-hour increments for PM, measured as "PM₁₀."

Significant Impact Levels (SILs)

- SILs are a screening tool used to determine whether a proposed source's emissions will have a "significant" impact on air quality in the area. If an individual facility projects an increase in air quality impacts less than the corresponding SIL, its impact is said to be *de minimis* and the permit applicant would not be required to perform a more comprehensive, cumulative

modeling analysis. A cumulative analysis involves measuring the impact of the new facility in addition to impacts from other existing sources in the area. If a cumulative modeling analysis indicates a violation of the NAAQS, the SILs may also be used to determine whether the proposed source's impact on a modeled violation is significant enough that it is considered to "cause or contribute to" the modeled violation of the NAAQS or increment.

- EPA is establishing SILs for PM_{2.5} by scaling the existing SILs for PM₁₀ by the ratio of the PM_{2.5} NAAQS to the PM₁₀ NAAQS for each applicable averaging period (annual and 24-hour).

Significant Monitoring Concentration (SMC)

- The SMC, is a screening tool that may be used to determine if a source must submit to the permitting authority 1 year of pre-construction air quality monitoring data prior to constructing or modifying a facility.
- If a proposed source's predicted impact is less than the SMC, the source's impact may be considered *de minimis* for monitoring purposes, and the reviewing authority could exempt the applicant from the preconstruction monitoring requirement. The reviewing authority also may exempt the applicant from the monitoring requirement if the existing air quality in the area is shown to be less than the SMC.
- EPA is basing the final SMC for PM_{2.5} on the "Lowest Detection Concentration" for ambient PM_{2.5} concentrations - 2 µg/m³ (24-hour average). To account for uncertainty with precision, sample handling, and monitor variability, etc. to establish an SMC of 4 µg/m³ (24-hour average) for PM_{2.5}.

Background

- Congress established the New Source Review (NSR) program as part of the 1977 Clean Air Act (CAA) Amendments and modified it in the 1990 CAA Amendments. NSR is a preconstruction permitting program that serves two important purposes.
 1. First, it ensures the maintenance of air quality standards when major sources of emissions such as factories, industrial boilers, and power plants are modified or begin operation. In areas that do not meet the national air quality standards, NSR assures that new emissions do not slow progress toward cleaner air. In areas that meet the standards, especially pristine areas like national parks, NSR assures that new emissions fall within air quality standards.
 2. Second, it limits the amount that air quality can degrade in areas that meet EPA's national air quality standards ("attainment areas"). In these areas,

the NSR programs PSD provisions protect clean air through a system of “increments.” An increment is the maximum amount air concentrations of certain pollutants may increase above the baseline concentration in an area. In no case can the allowable increase result in a violation of the NAAQS.

- PSD increments have been established for three pollutants – SO₂, NO₂, and PM (measured as PM₁₀ and PM_{2.5}). A large facility owner planning to build in an attainment area must apply for a PSD permit. As part of the application process, they must demonstrate that emissions from the proposed construction and operation of the facility will not cause or contribute to an increase above the increment for the target pollutant(s).
- Airborne particulate matter with a nominal aerodynamic diameter of 2.5 micrometers or less are considered to be “fine particles,” and are referred to as “PM_{2.5}.” While the nature of fine particles is complex, common constituents include: sulfate; nitrate; ammonium; elemental carbons; a great variety of organic compounds; and other inorganic materials.
- Section 166 of the Act authorizes the EPA to establish regulations for PSD of any pollutant for which EPA has issued a national standard. EPA issued the NAAQS for PM_{2.5} in 1997. The PSD program regulates the construction and modification of major stationary sources on a pollutant-by-pollutant basis in all areas that meet NAAQS for the particular pollutant.

Additional Information

- Interested parties can download this proposed rule from EPA's NSR web site at: www.epa.gov/nsr.
- The support documents are also available electronically through the EPA's Air and Radiation Docket and Information Center (Docket Number Docket ID No. EPA-HQ-OAR-2006-0605, at www.regulations.gov. Alternatively, you can request material from our Air and Radiation Docket and Information Center by calling (202) 566-1742, or by fax request to (202) 566-1742 (a reasonable fee may be charged for copying).
- For more information, call Mr. Dan deRoeck at 919-541-5593 or email at deroeck.dan@epa.gov.