



TECHNICAL SUPPORT DOCUMENT

Amendments to COMAR 26.11.01.01 General Administrative Provisions and COMAR 26.11.06.14 General Emission Standards, Prohibitions, and Restrictions

Purpose of the New Regulations/Amendments

The purpose of this action is to incorporate updated federal standards for the New Source Review (NSR) Prevention of Significant Deterioration (PSD) program. This amendment will provide that future amendments to the federal PSD program will be automatically included in Maryland regulations. This incorporation by reference will add provisions for fine particulate matter and its precursors, provisions to defer inclusion of sources of biogenic emissions under PSD and removes certain grandfathering provisions.

Submission to EPA as Revision to Maryland's SIP (or 111(d) Plan, or Title V Program)

These amendments will be submitted to the U.S. Environmental Protection Agency (EPA) for approval as part of Maryland's State Implementation Plan.

Background

On July 18, 1997, the EPA revised the NAAQS for PM to add new standards for fine particles, using PM_{2.5} as the indicator. Health-based (primary) annual and 24-hour standards for PM_{2.5} were established at 15 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and 65 $\mu\text{g}/\text{m}^3$, respectively (62 FR 38652). At the same time that the primary standards were set, the EPA also established welfare-based (secondary) standards identical to the primary standards. On October 17, 2006, the EPA revised the primary and secondary NAAQS for PM_{2.5} and PM₁₀ (71 FR 61143). In the final rule, the EPA reduced the 24-hour NAAQS for PM_{2.5} to 35 $\mu\text{g}/\text{m}^3$ and retained the existing annual PM_{2.5} NAAQS of 15 $\mu\text{g}/\text{m}^3$.

Epidemiological studies measuring health effects associated with PM_{2.5} have shown a significant correlation between elevated PM_{2.5} levels and premature mortality. Other important effects associated with PM_{2.5} exposure include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems. Individuals particularly sensitive to PM_{2.5} exposure include older adults, people with heart and lung disease, and children.

EPA has finalized a number of amendments to the PSD requirements during 2010, 2011, and 2012. These amendments include the following:

March 12, 2012 - This proposed rule would clarify that condensable particulate matter should be included as part of the emissions measurements for regulation of PM_{2.5} and PM₁₀. The proposal

would remove the inadvertent requirement in the 2008 PM2.5 NSR Implementation Rule, that measurements of condensable particulate matter be included as part of the measurement and regulation of much larger particles included as "particulate matter emissions."

May 10, 2011 - EPA issues a final rule to repeal the grandfather provision for PM2.5 contained in the federal PSD permit program.

January 12, 2011 - EPA announces its plan to defer, for three years, greenhouse gas (GHG) permitting requirements for carbon dioxide (CO2) emissions from biomass-fired and other biogenic sources.

On December 23, 2010, the U.S. Environmental Protection Agency (EPA) issued a series of rules that put the necessary regulatory framework in place to ensure that 1) industrial facilities can get Clean Air Act permits covering their greenhouse gas (GHG) emissions when needed and 2) facilities emitting GHGs at levels below those established in the Tailoring Rule do not need to obtain Clean Air Act permits.

September 29, 2010 - EPA has established key components for making PSD permitting determinations for fine particle pollution - increments, significant impact levels (SILs), and a significant monitoring concentration (SMC).

Affected Sources

The NSR PSD program applies to new major sources locating in attainment areas and major modifications that occur in attainment areas. The program also applies in nonattainment areas. In nonattainment areas, new major sources or major modifications of regulated NSR pollutants for which the area is not nonattainment must meet PSD requirements.

Requirements

Specific Requirements for PM2.5

These amendments to COMAR 26.11.17, Nonattainment Provisions for Major New Sources and Major Modifications, reflecting the amendments to 40 CFR 51.165 and 40 CFR 51 Appendix S, establish the following:

- SO2 and NOx are precursors to PM2.5;
- The emission rate applicable to Major Stationary Source threshold for PM2.5 and its precursors is 100 tpy; and
- The emission rate applicable to Major Modification for PM2.5 is 10 tpy direct PM2.5, 40 tpy of SO2 and 40 tpy of NOx.

General Requirements for PSD

Prevention of Significant Deterioration (PSD) applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is in attainment or unclassifiable with the National Ambient Air Quality Standards (NAAQS). It

requires the following:

1. installation of the "Best Available Control Technology (BACT)";
2. an air quality analysis;
3. an additional impacts analysis; and
4. public involvement.

Best Available Control Technology (BACT)

BACT is an emissions limitation which is based on the maximum degree of control that can be achieved. It is a case-by-case decision that considers energy, environmental, and economic impact. BACT can be add-on control equipment or modification of the production processes or methods. This includes fuel cleaning or treatment and innovative fuel combustion techniques. BACT may be a design, equipment, work practice, or operational standard if imposition of an emissions standard is infeasible.

The RACT/BACT/LAER Clearinghouse (RBLC) database contains information on what has been required as BACT in air permits.

Air Quality Analysis

The main purpose of the air quality analysis is to demonstrate that new emissions emitted from a proposed major stationary source or major modification, in conjunction with other applicable emissions increases and decreases from existing sources, will not cause or contribute to a violation of any applicable NAAQS or PSD increment.

Generally, the analysis will involve (1) an assessment of existing air quality, which may include ambient monitoring data and air quality dispersion modeling results, and (2) predictions, using dispersion modeling, of ambient concentrations that will result from the applicant's proposed project and future growth associated with the project.

Class I areas are areas of special national or regional natural, scenic, recreational, or historic value for which the PSD regulations provide special protection. The Federal Land Manager (FLM), including the State or Indian governing body, where applicable, is responsible for defining specific Air Quality Related Values (AQRV's) for an area and for establishing the criteria to determine an adverse impact on the AQRV's. If a FLM determines that a source will adversely impact AQRV's in a Class I area, the FLM may recommend that the permitting agency deny issuance of the permit, even in cases where no applicable increments would be exceeded. However, the permitting authority makes the final decision to issue or deny the permit.

PSD Increment

PSD increment is the amount of pollution an area is allowed to increase. PSD increments prevent the air quality in clean areas from deteriorating to the level set by the NAAQS. The NAAQS is a maximum allowable concentration "ceiling." A PSD increment, on the other hand, is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant. The baseline concentration is defined for each pollutant and, in general, is the ambient concentration existing at the time that the first complete PSD permit application affecting the area is submitted. Significant deterioration is said to occur when the amount of new pollution would exceed the applicable PSD increment. It is important to note,

however, that the air quality cannot deteriorate beyond the concentration allowed by the applicable NAAQS, even if not all of the PSD increment is consumed.

Additional Impacts Analysis

The additional impacts analysis assesses the impacts of air, ground and water pollution on soils, vegetation, and visibility caused by any increase in emissions of any regulated pollutant from the source or modification under review, and from associated growth. Associated growth is industrial, commercial, and residential growth that will occur in the area due to the source.

Expected Emissions Reductions

This incorporation by reference requires affected major sources of emissions to install Best Available Control Technology (BACT) which may not have occurred in the absence of this program.

Comparison to Federal Standards

There is a corresponding federal standard to this proposed action, but the proposed action is not more restrictive or stringent. The federal NSR PSD requirements are contained in 40 CFR 52.21.

Economic Impact on Affected Sources, the Department, other State Agencies, Local Government, other Industries or Trade Groups, the Public

The proposed action has no economic impact.

Economic Impact on Small Businesses

The proposed action has minimal or no economic impact on small businesses.