

Office Memorandum

DATE : 05/26/2011

TO : Affected Permitted Facilities

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SUBJECT : Modeling Guidance for Compliance with one-hour NO₂, one-hour SO₂ and 2006 24-hour PM_{2.5} NAAQS**PURPOSE:**

In 2010, the U.S. Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for nitrogen dioxide (NO₂) and sulfur dioxide (SO₂) averaged over one hour. In 2006, EPA promulgated a revised fine particulate matter (PM_{2.5}) NAAQS with an averaging time of 24 hours. The Minnesota Pollution Control Agency's (MPCA's) ongoing goal is the protection of human health and the environment through appropriate implementation of NAAQS. Evolving federal implementation guidance, data limitations, and the short-term form of these standards create challenges for efficient implementation of these newer NAAQS.

This guidance document, which applies for the time prior to the attainment dates for each of these standards, clarifies when the MPCA will require facility-based air dispersion modeling for the 2010 one-hour NO₂, 2010 one-hour SO₂ and the 2006 24-hour PM_{2.5} NAAQS.

This guidance document also provides clarity regarding how facility-based air dispersion modeling conducted by an owner or operator for the three NAAQS identified above, if conducted prior to facility-specific enforceable requirements, impacts a facility's Annual Compliance Certification as required under Minn. R. 7007.0800, Subp. 6(C).

MODELING GUIDANCE

Except for the reasons described below, the MPCA generally will not immediately require facility-based air dispersion modeling to demonstrate compliance with the 2010 one-hour NO₂, 2010 one-hour SO₂ and the 2006 24-hour PM_{2.5} NAAQS. Consistent with EPA requirements and the practices of EPA Region 5 states and other neighboring states, the MPCA may require facility-based air dispersion modeling under the circumstances described below.

Prior to the respective attainment dates for 2010 one-hour NO₂, 2010 one-hour SO₂ and the 2006 24-hour PM_{2.5} NAAQS, the MPCA encourages facility owners and operators to conduct internal air dispersion modeling and engineering analyses to review and refine emission factors, stack information, and other air dispersion modeling inputs to facilitate future attainment and compliance. The respective attainment dates are: February 2017 for the 2010 one-hour NO₂ NAAQS, July 2017 for the 2010 one-hour SO₂ NAAQS and December 2014 for the 2006 PM_{2.5} NAAQS.

When the internal analyses include air dispersion modeling, the modeling results for the 2010 one-hour NO₂, 2010 one-hour SO₂ and the 2006 24-hour PM_{2.5} NAAQS are not required to be reported on the Annual Compliance Certification for an operating air quality permit prior to the effective date of facility-specific requirements. When a formal request for air dispersion modeling is made by the MPCA, the information must be submitted to the MPCA for permit or SIP evaluation. This guidance does not change existing Title V Annual Compliance Certification obligations to consider internal modeling results as potential credible evidence of noncompliance for any standards not specifically addressed by this policy.

The MPCA encourages any owner or operator conducting such internal modeling to follow the air dispersion modeling guidance provided on the MPCA or EPA web sites.¹ The use of consistent protocols will help facilities plan based on reliable data.

The MPCA believes the allowance for internal modeling for the 2010 one-hour NO₂, 2010 one-hour SO₂ and the 2006 24-hour PM_{2.5} NAAQS provided above will help owners and operators prepare for the eventual compliance demonstration for the identified NAAQS. This preparation will provide owners and operators with information to plan for any necessary facility changes, including permit modifications, to demonstrate that their facility emissions do not cause or contribute to a NAAQS violation.

If owners or operators want to increase their regulatory certainty for future planning purposes, the MPCA is willing to enter into schedules of compliance that would lay out air dispersion modeling and other future work from the owners or operators to demonstrate compliance and potentially provide for related facility changes. An owner or operator wanting to enter into a schedule of compliance under this guidance should contact the supervisor of the Air Quality Compliance and Enforcement Unit at the MPCA.

WHEN AIR DISPERSION MODELING MAY BE REQUIRED

Prevention of Significant Deterioration Permitting

Federal regulations define the air dispersion modeling requirements for all final NAAQS for Prevention of Significant Deterioration (PSD) permitting. The MPCA has no discretion to defer PSD modeling when air dispersion modeling is required under the PSD program, due to proposed emissions of a facility or facility changes. Therefore, PSD modeling is not impacted by this guidance.

State Implementation Plans

The Clean Air Act (CAA) requires EPA and states to implement NAAQS through the development and approval of State Implementation Plans (SIPs). Air dispersion modeling may be required during the development of a nonattainment or maintenance SIP. The CAA requires a state to implement any facility emission reductions or changes necessary to demonstrate attainment with the relevant standard. Section 110(a)(2)(A) of the Clean Air Act requires that these reductions are enforceable at the state level when the state submits the SIP for EPA approval.

¹ <http://www.pca.state.mn.us/nwqh421> or <http://www.epa.gov/scram001/>

Compliance with the reduction requirements must occur on a timeframe that ensures the NAAQS attainment date is met. The state must demonstrate, usually through air dispersion modeling, that the emission reductions will result in attainment. The MPCA uses permits, consent decrees and administrative orders to ensure SIP requirements are enforceable.

Under the 2010 SO₂ NAAQS, EPA will require air dispersion modeling for implementation of the one-hour SO₂ NAAQS. EPA will also require a robust CAA §110(a) SIP that uses air dispersion modeling to evaluate whether facilities above a federally defined emission threshold cause or contribute to violations of the 2010 one-hour SO₂ NAAQS. For any sources where air dispersion modeling shows a potential to cause or contribute to a NAAQS violation, the MPCA must include enforceable conditions in the SIP and show that compliance will occur by July 2017. To complete the SIP for the one-hour SO₂ NAAQS by the federally required date of June 2013, the MPCA will conduct the first round of air dispersion modeling. If the first round of air dispersion modeling indicates NAAQS receptor exceedances, the MPCA will work with potentially culpable sources to conduct refined modeling and plan for an enforceable compliance demonstration. The MPCA will send letters to facilities requesting validation of air dispersion modeling input information in May 2011.

As of May 2011, the EPA has not required that the MPCA submit air dispersion modeling results as part of the maintenance SIPs for the 2010 one-hour NO₂ and 2006 24 hour PM_{2.5} standards.

Minor Source New Source Review Permitting

The CAA requires the MPCA to have the ability to ensure that minor sources do not cause or contribute to NAAQS violations or cause the exceedance of any applicable PSD increments. The CAA also requires Minnesota's SIPs to demonstrate that the MPCA has the authority to ensure that major and minor sources do not cause or contribute to a violation of any NAAQS or cause the exceedance of any applicable PSD increments. These requirements establish the MPCA's obligation to formally require air dispersion modeling for minor sources to meet federal requirements for a state Minor Source New Source Review (NSR) program. Without the ability to ensure that minor sources do not cause or contribute to a violation of NAAQS, the MPCA's ability to receive full approval of SIPs to implement NAAQS in Minnesota is jeopardized.

The MPCA does not require all minor sources to model for NAAQS or applicable PSD increment compliance. The current practice is to assess compliance with applicable PSD increments during the review of PSD modeling for proposed modifications at a major source. The MPCA uses the following criteria for when NAAQS modeling may be required from minor sources under the MPCA's Minor Source NSR authority:

- a) Triggering PSD, nonattainment area New Source Review, or environmental review;
- b) The installation of a non-emergency internal combustion engine;
- c) The facility is located in a nonattainment or maintenance area for a related pollutant;

- d) Existing modeling that indicates a potential threat to the NAAQS;
- e) An increase in emissions of a related pollutant; or
- f) Public interest.

Though these criteria are broad, owners or operators may better predict when modeling may be required through proactive work in advance of potential investment in new facilities or modifications. Owners or operators may review existing modeling results for their own and nearby facilities. Predictions approaching NAAQS, PSD increments, or visibility thresholds are more likely to lead to modeling requests. Owners or operators may also work cooperatively with their local communities to improve residents' understanding of their current operations and future plans. Ideally, this type of cooperation would allow local resolution of concerns.

Multiple Pollutant or Regulatory Implications

Some sources may be subject to multiple federal and state regulations that will require emission reductions of multiple pollutants or facility modifications (e.g. Regional Haze, Boiler MACT, Mercury TMDL, Transport Rule). The compliance dates for these regulations may be different and the MPCA wants to ensure efficient implementation of regulatory requirements and provide regulatory certainty for affected parties.

The MPCA wants to apply multi-pollutant approaches to efficiently address regulations and avoid single pollutant solutions that may exacerbate or complicate emission reductions for other pollutants. We encourage facilities to discuss such multi-pollutant strategies proactively with MPCA to increase efficiency and ensure future compliance. In some cases, MPCA may request modeling data or demonstrations for the new standards in order to satisfy the requirements and goals of multiple programs and achieve compliance with NAAQS.

ONGOING DISCUSSIONS

The MPCA will continue to meet with interested parties and stakeholders to ensure the MPCA's use of air dispersion modeling meets state and federal requirements without discouraging facilities from engaging in internal air dispersion modeling for planning purposes. The MPCA will continue to work with EPA and other states to improve air dispersion modeling guidance and tools. The MPCA will also continue to monitor the use of air dispersion modeling in other states to efficiently implement an air quality program that protects human health and the environment.

For further questions regarding this guidance policy, contact the Air Quality Permits Section Manager or the Air Assessment and Environmental Data Management Section Manager.