Review of Emission Limitations and Standards for the Revised NO2 and SO2 National Ambient Air Quality Standards

Report to the Governor and General Assembly

Iowa Department of Natural Resources

Chuck Gipp, Director

November 1, 2012

Executive Summary

In 2010 the U.S. Environmental Protection Agency (EPA) adopted revisions to the ambient air quality standards for nitrogen dioxide (NO2) and sulfur dioxide (SO2). These revisions were made to strengthen the ambient air quality standards for these pollutants in order to adequately protect public health.

To fulfill the requirements of Iowa Code 455B.134(14), the Department of Natural Resources (DNR) convened meetings with stakeholders during 2012 to review emission limitations and standards related to the maximum amounts of NO2 and SO2 that can be emitted from sources of these air pollutants in Iowa. No changes to Iowa Code were identified by stakeholders or the DNR as necessary for the attainment of the revised NO2 and SO2 NAAQS.

The need to conduct rulemaking to amend existing administrative rules related to thresholds that trigger air permitting of sources of NO2 and SO2 was identified by the DNR. The DNR is in the process of initiating a rulemaking to affect these changes.

This report to the Governor and Iowa General Assembly summarizes the DNR's activities related to the provisions of Iowa Code 455B.134(14).

Revised Ambient Air Quality Standards

Under the Clean Air Act (CAA), EPA is required to establish health base standards for criteria pollutants, which include NO2 and SO2. These health based standards are referred to as the National Ambient Air Quality Standards (NAAQS). The NAAQS establish maximum concentrations of a pollutant that is acceptable in the general air to breathe. The CAA requires EPA to review the latest scientific information and health studies for each criteria pollutant at least every five years. EPA revises existing NAAQS or promulgates new NAAQS for a given criteria pollutant as appropriate based on this review.

On January 22, 2010, EPA promulgated revisions to the NO2 NAAQS to strengthen the standard in order to adequately protect public health. Specifically, EPA set a new 1-hour NO2 NAAQS at a level of 100 parts per billion (ppb) to supplement the existing annual NAAQS.

NO2 (nitrogen dioxide) is one of a group of highly reactive gasses known as "oxides of nitrogen," or "nitrogen oxides (NOx)." While EPA's NAAQS was established to provide protection against all harmful oxides of nitrogen, NO2 is the component of greatest interest and the indicator for the larger group of nitrogen oxides. NO2 forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone and fine particle pollution, NO2 is linked with a number of adverse effects on the respiratory system.

On June 3, 2010, EPA promulgated revisions to the SO2 NAAQS, also to strengthen the standard in order to adequately protect public health. Specifically, EPA established a new 1-hour SO2 NAAQS at a level of 75 ppb. EPA also revoked both the existing 24-hour and annual SO2 NAAQS.

SO2 (sulfur dioxide) is one of a group of highly reactive gasses known as "oxides of sulfur." According to EPA, the largest sources of SO2 emissions are from fossil fuel combustion at power plants (73%) and other industrial facilities (20%). Smaller sources of SO2 emissions include industrial processes such as

extracting metal from ore, and the burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. SO2 is linked with a number of adverse effects on the respiratory system.

Stakeholder Meetings

To fulfill the requirements of Iowa Code 455B.134(14), the DNR solicited input from stakeholders at its quarterly Air Quality Client Contact meetings regarding the need for possible law changes to implement the revised NO2 and SO2 NAAQS. The DNR conducted these meetings on February 23, 2012, May 17, 2012, and September 6, 2012.

During the February 23, 2012 meeting, stakeholders were given a presentation on the revised NO2 and SO2 NAAQS and the DNR's plans and timelines for implementing the revised NAAQS. Fourteen stakeholders participated in the meeting. The information provided in the presentation is posted on-line at http://www.iowadnr.gov/idnr/InsideDNR/BoardsCommissions/AirQualityClientContactMtg.aspx#dltop. Stakeholders were specifically requested to bring forward at the next Air Quality Client Contact meeting any changes to laws, administrative rules, and forms and guidance that may be necessary to implement the revised NO2 and SO2 NAAQS.

Planned changes to the existing NO2 and SO2 emissions thresholds used to identify sources exempt from the requirement to obtain an air construction permit (567 Iowa Administrative Code (IAC) Chapter 22) were discussed with stakeholders at the May 17, 2012, Air Quality Client Contact Meeting. Sixteen stakeholders participated in this meeting.

The proposed rulemaking and tentative rulemaking schedule for the proposed IAC changes discussed at the May 17, 2012 meeting were reviewed with stakeholders at the September 6, 2012, Air Quality Client Contact meeting. Twenty six stakeholders participated in this meeting.

Comments received during an informal public comment period that ended on September 12, 2012, for the proposed rulemaking were incorporated into a revised proposed rulemaking. The DNR is in the process of initiating the formal rulemaking process for these administrative rule amendments.

Statutory Requirements

The DNR has traditionally requested stakeholder input when implementing a new ambient air quality standard. This approach was codified in 2010 in Iowa Code 455B.134(14), which instructs the DNR to convene meetings to review emission limitations or standards relating to the maximum quantities of a pollutant that can be emitted from a source. The statute reads as follows:

> 14. Convene meetings not later than June 1 during the second calendar year following the adoption of new or revised federal ambient air quality standards by the United States environmental protection agency to review emission limitations or standards relating to the maximum quantities of air contaminants that may be emitted from any air contaminant source as provided in section 455B.133, subsection 4. By November 1 of the same calendar year, the department shall submit a report to the governor and the general assembly regarding recommendations for law changes necessary for the attainment of the new or revised federal standards.

Subsection 4 of section 455B.133 specifies the duties of the Environmental Protection Commission regarding adopting emission limitations or standards for the maximum quantities of air pollutants, such as NO2 and SO2, that may be emitted from a source. The subsection also includes provisions on alternative means of emissions limitation, such as design, equipment, material, work practice or operational standards. The statute reads as follows:

> 4. Adopt, amend, or repeal emission limitations or standards relating to the maximum quantities of air contaminants that may be emitted from any air contaminant source. The standards or limitations adopted under this section shall not exceed the standards or limitations promulgated by the administrator of the United States environmental protection agency or the requirements of the federal Clean Air Act as amended through January 1, 1991. This does not prohibit the commission from adopting a standard for a source or class of sources for which the United States environmental protection agency has not promulgated a standard. This also does not prohibit the commission from adopting an emission standard or limitation for infectious medical waste treatment or disposal facilities which exceeds the standards or limitations promulgated by the administrator of the United States environmental protection agency or the requirements of the federal Clean Air Act as amended through January 1, 1991. The commission shall not adopt an emission standard or limitation for infectious medical waste treatment or disposal facilities prior to January 1, 1995, which exceeds the standards or limitations promulgated by the administrator of the United States environmental protection agency or the requirements of the federal Clean Air Act, as amended through January 1, 1991, for a hospital, or a group of hospitals, licensed under chapter 135B which has been operating an infectious medical waste treatment or disposal facility prior to January 1, 1991.
>
> *a*. (1) The commission shall establish standards of performance unless in the judgment of the commission it is not feasible to adopt or enforce a standard of performance. If it is not feasible to adopt or enforce a standard of performance, the commission may adopt a design, equipment, material, work practice or operational standard, or combination of those standards in order to establish reasonably available control technology or the lowest achievable emission rate in nonattainment areas, or in order to establish best available control technology in areas subject to prevention of significant deterioration review, or in order to adopt the emission limitations promulgated by the administrator of the United States environmental protection agency under section 111 or 112 of the federal Clean Air Act as amended through January 1, 1991.
> (2) If a person establishes to the satisfaction of the commission that an alternative means of emission limitation will achieve a reduction in emissions of an air pollutant at least equivalent to the reduction in emissions of the air pollutant achieved under the design, equipment, material, work practice or operational standard, the commission shall amend its rules to permit the use of the alternative by the source for purposes of compliance with this paragraph with respect to the pollutant.
> (3) A design, equipment, material, work practice or operational standard promulgated under this paragraph shall be promulgated in terms of a standard of performance when it becomes feasible to promulgate and enforce the standard in those terms.
> (4) For the purpose of this paragraph, the phrase *"not feasible to adopt or enforce a standard of performance"* refers to a situation in which the commission determines that the application of measurement methodology to a particular class of sources is not practicable due to technological or economic limitations.

b. If the maximum standards for the emission of sulfur dioxide from solid fuels have to be reduced in an area to meet ambient air quality standards, a contract for coal produced in Iowa and burned by a facility in that area that met the sulfur dioxide emission standards in effect at the time the contract went into effect shall be exempted from the decreased requirement until the expiration of the contract period or December 31, 1983, whichever first occurs, if there is any other reasonable means available to satisfy the ambient air quality standards. To qualify under this subsection, the contract must be recorded with the county recorder of the county where the burning facility is located within thirty days after the signing of the contract.

c. The degree of emission limitation required for control of an air contaminant under an emission standard shall not be affected by that part of the stack height of a source that exceeds good engineering practice, as defined in rules, or any other dispersion technique. This paragraph shall not apply to stack heights in existence before December 30, 1970, or dispersion techniques implemented before that date.

Iowa Code Changes

From the stakeholder meetings summarized above and DNR's own internal review, no changes to Iowa Code were identified that would be necessary for the attainment of the revised NO2 and SO2 NAAQS.