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EPA Proposes Tightened Ozone Standards: Where Are We Now?

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Special to the Legal

As the ozone season hits its peak here in Philadelphia, the Environmental Protection Agency has proposed to tighten the National Ambient Air Quality Standards (NAAQS) for ground-level ozone, commonly known as “smog.” If this sounds familiar, it is. The EPA’s last revision of the ozone NAAQS in 1997 set off a firestorm of legal challenges and a series of federal and state regulatory actions that continue to date.

Given the many administrative and regulatory actions that may similarly result from the current proposal, it is difficult to understand how the NAAQS revision may practically affect our region’s air quality and industrial community. This article will attempt to provide a framework for understanding the current status of NAAQS implementation in our region, as well as the implementation process for the proposed NAAQS revision.

Ground-level ozone is created by a chemical reaction between nitrogen oxides (NOx) and volatile organic compounds (VOC) in the presence of sunlight. While ozone itself is not emitted directly into the air from any source, many types of industrial and mobile sources emit NOx or VOC, and therefore contribute to the formation of ground-level ozone. According to EPA, high levels of this “bad” ozone at ground level can cause serious health effects, such as reduced lung function, irritated airways, increased frequency of asthma attacks, inflammation of the lining of the lung, increased susceptibility to respiratory infection, and the aggravation of chronic



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lung diseases such as asthma, emphysema and bronchitis.

Section 109 of the Clean Air Act requires the EPA to promulgate NAAQS for ozone, one of six “criteria pollutants” regulated under the act. The primary NAAQS must be set at a level requisite to protect public health with an adequate margin of safety. The secondary NAAQS must be set at a level requisite to protect public welfare against any known or anticipated adverse effects associated with the presence of the pollutant in the ambient air.

For purposes of setting secondary NAAQS, EPA has interpreted the “public welfare” to include vegetation, crops and ecosystems. Once a NAAQS standard is set, EPA and the states must implement a lengthy process designed to identify areas of the country that are in “non-attainment” with the standard, require emission reductions from existing sources and control new source emissions, and demonstrate attainment with the NAAQS standard within the timeframes established under the Clean Air Act.

Section 107(d) of the act provides a mech-

anism for the states and EPA to designate air quality control regions as in attainment or non-attainment with the NAAQS. Section 181 of the act establishes a specific procedure for classifying ozone non-attainment areas as “marginal,” “moderate,” “serious,” “severe,” or “extreme” based on the amount by which monitored values exceed the relevant standard. Attainment deadlines are identified for each such classification.

Because these provisions were enacted by Congress in the 1990 Clean Air Act amendments, they are tied directly to the one-hour, 0.12 ppm ozone NAAQS in place at that time. For example, pursuant to the provisions of Section 181, the Philadelphia region was classified as in severe non-attainment with the ozone NAAQS, with an attainment deadline of Nov. 15, 2005.

Section 182 of the act requires that states prepare and submit to EPA a State Implementation Plan (SIP), which shall ensure the attainment of the primary NAAQS by the relevant deadline. SIPs must include provisions for the implementation of all reasonably available control measures, including the reduction of emissions from existing sources through the application of reasonably available control technology; provisions requiring reasonable further progress toward attainment; a comprehensive, accurate, current inventory of emissions from sources in the state; an identification and quantification of emissions that will be allowed from the construction and operation of new or modified sources; provisions for permitting of new or modified major sources; as well as other measures, including contingency meas-

ures, for the attainment of the NAAQS.

Depending on the non-attainment classification, Section 182 also requires the implementation of specific measures designed to reduce ozone formation such as gasoline vapor recovery, vehicle inspection programs and enhanced VOC and NOx monitoring programs. At the state level, therefore, the SIP represents the sum total of permitting, emission and control requirements imposed on sources of NOx and VOC. In Pennsylvania, such requirements have been in place for many years.

For example, since about 1994, the Pennsylvania Department of Environmental Protection (DEP) has implemented and enforced a series of Reasonably Available Control Technology Requirements (RACT) for various categories of VOC-emitting sources, including surface-coating processes, refineries, bulk gasoline terminals, degreasing operations and graphic arts systems. RACT requirements for NOx emissions, often established on a case-by-case basis, have also been required.

1997 OZONE NAAQS

While many of the Clean Air Act provisions relate directly to the one-hour NAAQS standard set prior to the 1990 Clean Air Act amendments (notably including the Section 181 provisions defining non-attainment classification areas), the act clearly provides that the primary and secondary standards “may be revised in the same manner as promulgated.” For that purpose, the act requires the EPA to conduct a review of the NAAQS standard every five years, with the help of the Clean Air Scientific Committee (CASAC). The EPA’s last revision of the ozone NAAQS in 1997 replaced the one-hour standard with an eight-hour average ozone standard of 0.08 ppm.

Legal challenges to the 1997 NAAQS culminated in the U.S. Supreme Court decision in *Whitman v. American Trucking Associations*, in which the court upheld the 1997 ozone NAAQS and held, inter alia, that EPA may not consider the economic costs associated with imposition of a proposed NAAQS standard. Further, acknowledging that certain implementation provisions of the Clean Air Act, including sections 181 and 182, were tied directly to the old one-hour ozone NAAQS, the court in *American Trucking* reviewed the EPA’s proposed method for implementing the 1997 ozone NAAQS under the statute. Finding that EPA’s interpretation of the statute

was unreasonable, the court directed the EPA to establish reasonable interpretations of statutory provisions for implementation of the revised standard.

The court’s holding in *American Trucking* marked the beginning of a series of federal and state regulatory actions designed to implement the 1997 NAAQS. On April 15, 2004, the EPA announced the results of its non-attainment designation and classification process, thus triggering states’ obligations to submit SIP revisions to address ozone attainment. On April 30, 2004, the EPA promulgated “Phase 1” of its ozone NAAQS implementation rule. The rule attempted to address the procedural difficulties associated with the transition from the old one-hour standard to the new eight-hour standard, as well as the statutory ambiguity associated with the designation and classification of non-attainment areas under the eight-hour standard. Many legal and administrative challenges to the Phase 1 implementation rule were filed and have yet to be fully resolved.

The EPA promulgated “Phase 2” of its implementation rule in November 2005, setting SIP criteria and deadlines for areas classified as non-attainment under the 1997 ozone NAAQS. Specifically, the Phase 2 rule addresses attainment demonstrations and modeling, reasonable further progress requirements, reasonably available control measures, RACT requirements, and new source review permitting requirements.

As a result of EPA’s implementation process for the 1997 ozone NAAQS, the Philadelphia metropolitan region has been reclassified (from severe non-attainment for the one-hour standard) to moderate non-attainment for the eight-hour ozone standard. As a moderate non-attainment area, the current attainment deadline is June 15, 2010. The DEP has taken a number of actions to address the SIP changes required under the EPA’s implementation program. In September 2006, the DEP submitted a SIP revision to the EPA demonstrating that the state’s existing RACT rules meet the eight-hour ozone RACT requirements. At the same time, however, Pennsylvania is working with other states and the Ozone Transport Commission to develop new control measures for source categories such as glass plants, cut-back and emulsified asphalt paving, cement kilns and industrial boilers.

On May 31, the DEP submitted a SIP revision to the EPA detailing amendments to the Pennsylvania Clean Vehicles Program. As of

June 2007, the DEP has also developed a proposed SIP revision specific to the Philadelphia area, to demonstrate that the Philadelphia area will meet reasonable further progress deadlines in 2008 and 2009, and will demonstrate attainment with the 1997 NAAQS by the 2010 deadline. The proposed SIP revision includes an analysis of emission trends and modeling results, a discussion of control measures, and a contingency plan. Most notably for industrial sources in the five-county Philadelphia area, the DEP has determined that the more stringent new source review permitting emission thresholds associated with severe non-attainment areas will continue to apply, rather than the less stringent thresholds associated with moderate non-attainment areas.

PROPOSED NAAQS REVISION

Despite the significant amount of regulatory activity associated with implementation of the 1997 NAAQS, the EPA commenced a review of the NAAQS standard in 2000. Over the following several years, the EPA developed a revised *Air Quality Criteria Document for Ozone*, to review the latest scientific information on human health effects associated with the presence of ozone in the ambient air. The criteria document was released for review by CASAC, the scientific community and the public, and subsequently finalized in March 2006.

Based on the criteria document and a staff paper setting forth the EPA’s staff analyses of air quality, human exposure and health risks associated with ozone, the EPA observed that exposure to ozone at the 1997 NAAQS level can be linked to mortality, increased asthma medication use, school absenteeism and cardiac-related effects.

Based on these findings, the EPA currently proposes to reduce the primary (public health-based) NAAQS from the existing eight-hour level of 0.08 ppm to a level within the range of 0.070-0.075 ppm. Unlike the prior standard, the EPA has also proposed an option to set a distinct secondary (public welfare-based) NAAQS for ozone, at a cumulative seasonal level of seven to 21 ppm-hours measured over 12 hours per day during a three-month period during the ozone season. This standard is designed to protect sensitive plants from damage caused by repeated ozone exposure throughout the growing season. The EPA

published its proposal in the *Federal Register* on July 11.

Like the 1997 NAAQS standard, the proposed NAAQS revision will go through a series of regulatory actions before implementation is complete. First, a public comment period on the proposal is open until Oct. 9, with public hearings scheduled in the interim. EPA anticipates

that the rule will be finalized in March 2008, and that state attainment designation recommendations will be due to EPA in June 2009. The EPA will finalize designations in 2010, and states will be required to submit SIP revisions by 2013. Attainment dates, depending on non-attainment classification, will range from 2013 to 2030. Of course, pending legal

challenges to the EPA's 1997 NAAQS implementation strategy may affect these actions.

One thing is for sure — as the ozone NAAQS becomes more stringent, states will be forced to examine methods for further reductions of NO_x and VOC emissions from industrial and mobile sources in the coming years. •