

## **New National Ambient Air Quality Standard for Nitrogen Dioxide (NO<sub>2</sub>) Poses Significant Challenges for Combustion Sources**

Published in Federal Register February 9, 2010

EPA is required by the Clean Air Act to periodically review National Ambient Air Quality Standards (NAAQS) and update those standards if new evidence indicates that changes are warranted to be protective of public health. The current NO<sub>2</sub> annual standard, promulgated on April 30, 1971, addresses health risks from long-term exposure to NO<sub>2</sub>, but EPA deemed it was appropriate to address short-term exposure risk. Studies suggested that high levels of NO<sub>2</sub> over a short period of time (30 minutes – 24 hrs) caused an increase in emergency room visits for respiratory issues. The EPA solicited comments and conducted in depth review of peer-reviewed research and the new short term limit was established at 100 ppb (approximately 189 micrograms per cubic meter of air).

The new NAAQS for NO<sub>2</sub> develops two new requirements. It establishes new monitoring requirements and new air pollutant dispersion modeling requirements.

### **Monitoring**

The EPA predicts approximately 220 monitors will be required to be added to the current monitoring network. The current monitoring network is not adequately designed to determine short-term peak levels of NO<sub>2</sub>. An emphasis is also made to place monitors near heavily traveled roadways as it is predicted that NO<sub>2</sub> exposures on or near busy roadways are 30-100% higher than at a level 500 meters away. A near-road monitor will be required for urban areas with a population greater than 500,000. An additional monitor is required if the population is at least 2.5 million people, or if the annual average daily traffic count of a road segment is greater than 250,000 vehicles. A community-wide monitor would be placed in urban areas having a population of at least 1 million people. The EPA will site additional NO<sub>2</sub> monitors to help protect susceptible and vulnerable communities.

The EPA will designate non-attainment areas in January of 2012, but due to the current limited monitoring network most areas will be designated as “Unclassifiable,” which means that the Prevention of Significant Deterioration (PSD) program of New Source Review will apply. The new NO<sub>2</sub> monitoring network is to be in place by January 1, 2013, and the EPA will likely re-designate non-attainment areas in 2016 or 2017 at their discretion.

### **Modeling**

New or modified major sources of NO<sub>x</sub> emissions subject to New Source Review must demonstrate that the new standard can be met by performing air dispersion modeling, beginning on the effective date of the rule, April 12, 2010. Compliance with the standard is based on the 3-year average of the 98<sup>th</sup>-percentile of the annual distribution of daily maximum 1-hour concentrations. In most states, minor sources or modifications will not be required to demonstrate modeled compliance until 2013.

### **Impact**

Demonstrating compliance with the new standard using the required dispersion models can be a significant and costly challenge for regulated sources. NO<sub>x</sub> emissions are emitted from combustion equipment and to achieve modeled compliance, very tall exhaust stacks will be required. This will be particularly burdensome on existing sources which were installed with stack parameters established to meet compliance with existing standards. Enactment of these new requirements will mean that those existing stacks will have to be modified if a new permitting action leads to required modeling of those existing sources. The stack height increases will likely be significant and will pose a difficult challenge in terms of engineering and financial challenges for many sources such as boilers, furnaces, and engines.

Rule summary by Melissa Clement; [mclément@sebesta.com](mailto:mclément@sebesta.com) or (319) 364-1005.

---