

Brief Background on the Coarse Particulate Matter NAAQS

Every five years, the EPA is required to review scientific studies associated with “criteria pollutants” regulated under the National Ambient Air Quality Standards (NAAQS) of the Clean Air Act to determine if the pollutant is regulated appropriately. One of the criteria pollutants is particulate matter (PM, which includes dust). The NAAQS is primarily a health-based standard. In other words, Congress determined that in order to regulate a pollutant under the NAAQS, scientific studies must show that the pollutant causes adverse health effects. Conversely, if scientific studies do not show that a pollutant causes adverse health effects, it is not supposed to be regulated under the NAAQS. The Clean Air Act, according to the U.S. Supreme Court, requires that the NAAQS be set at a level “not lower or higher than necessary to protect public health.” A “secondary” NAAQS considers effects of pollutants on the public’s “welfare” (i.e. the environment). Areas that do not meet the NAAQS for a particular pollutant are known as “nonattainment” areas which must get into attainment for that pollutant within a prescribed period of time. States have primary responsibility for getting areas into attainment and for keeping them in attainment through State Implementation Plans (SIPs).

Prior to 1997, the EPA regulated PM with a standard of $150\mu\text{g}/\text{m}^3$ which applied to all PM in the size range of ten microns or smaller (PM_{10}). In 1997, the EPA decided to separate particles for regulatory purposes based on their composition and size since it was believed that these factors make a difference as far as health effects are concerned. “Fine” PM ($\text{PM}_{2.5}$) formed primarily by combustion or chemical reaction of gases falls in the size range of 2.5 microns or smaller. “Coarse” PM (PM_{10} or $\text{PM}_{10-2.5}$ or PMc) formed by mechanical processes consisting of minerals, crustal material and organic debris, i.e. dust, falls in the size range of 10 microns and smaller (PM_{10} includes the $\text{PM}_{2.5}$ size fraction, $\text{PM}_{10-2.5}$ subtracts out the 2.5 size fraction). In 1997, the NAAQS for $\text{PM}_{2.5}$ was set at $65\mu\text{g}/\text{m}^3$, the NAAQS for PM_{10} was retained at $150\mu\text{g}/\text{m}^3$.

The most recent PM NAAQS review and modification was finalized in October 2006. At that time, EPA was concerned about possible health effects from dust in urban areas that might be contaminated with pollutants emitted from vehicles. There were no studies showing that rural dust was a health concern. Consequently, the agriculture sector pushed hard to exclude rural dust from regulation. Unfortunately, EPA decided to continue to regulate all PM_{10} at $150\mu\text{g}/\text{m}^3$. The final rule contains favorable Preamble language stating that because evidence of adverse health effects caused by rural dust is so weak, states should focus on regulating dust in urban areas instead of rural areas, among other things. But the Preamble also states that “the substantial scientific uncertainty regarding the health effects associated with different components and mixes of coarse particles, the large population groups potentially exposed to non-urban [dust] and the nature and degree of health effects at issue, have convinced the Administrator that it is inappropriate to [exclude agriculture dust] at this time.” “EPA disagrees with these commenters that there is sufficient evidence to demonstrate that there are no adverse health effects from ... exposure to [dust] in non-urban environments.” “EPA ... concludes that ... some protection from exposure to [dust] particles is warranted in all areas.” So, on the one hand the Preamble urges states to concentrate on regulating dust in urban areas, but undercuts that suggestion by declaring there is no justification for excluding the regulation of dust from anywhere. EPA based its decision on the “precautionary principle” instead of good science. Rural dust that is subject to regulation under the NAAQS includes dust produced by tilling soil, cattle movements, driving on unpaved roads, planting and harvesting crops, and livestock feed mixing, among others.

Agriculture located in arid parts of the US often has a difficult time complying with the PM NAAQS. States and private citizens can force operations to comply with the PM NAAQS which must be met at the property line of each individual operation without any exception or variance, even those based on economic or technical infeasibility. Experience with NAAQS reviews indicates a high likelihood that future reviews will result in a tightening of the standard. In addition, dust regulation under the NAAQS

gives the public the impression that dust from agriculture operations causes disease or premature death when there is no scientific evidence that this is true.

The EPA is currently in the process of its next review. It claims the 2006 rule, particularly the PM_{2.5} standard, was not sufficiently protective of the public's health. In December 2008, EPA released its First Draft Integrated Science Assessment (ISA) which essentially found that evidence of the need to regulate coarse PM (PM_{10-2.5}) was "inadequate." In contrast, the EPA in the 2nd Draft ISA, released in August 2009, appeared to rely on one flawed July 2009 study, by Zanobetti and Schwartz, to conclude that evidence of health effects from PM_{10-2.5} is no longer "inadequate" but "suggestive." The flawed Zanobetti and Schwartz study found adverse health effects from PM_{10-2.5} at 12-15 mg/m³ (a ten-fold more stringent level than the current PMc NAAQS of 150 ug/m³)! The final ISA, with the same findings, was released in December 2009.

On July 8, the EPA released its final *Quantitative Health Risk Assessment for Particulate Matter* (June 2010). In that document, the EPA acknowledges that the science on coarse PM is so uncertain that it could not conduct a quantitative risk assessment. Specifically, the EPA concludes that "significant limitations in both the health effects data base and the current PM_{10-2.5} monitoring network continue to exist and that the currently available information do not support conducting a quantitative risk assessment for PM_{10-2.5} at this time . . ." *Id.* at 2-7.

On the same day, the EPA released its *Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standard: Second External Review Draft* (June 2010). The Policy Assessment presents EPA staff conclusions regarding the adequacy of the current PM₁₀ NAAQS as well as potential alternative standards for consideration by the EPA Administrator and the Clean Air Scientific Advisory Committee (CASAC). In that document, EPA staff conclude that, depending on the emphasis placed on the evidence and uncertainties, the Administrator would be justified in either retaining the current PM₁₀ NAAQS of 150 µg/m³, or in revising it to make it more stringent. *Id.* at 3-25. If the Administrator were to make a policy judgment to revise the standard, EPA staff suggests considering a PM₁₀ NAAQS of 65-85 µg/m³. *Id.* at ES-1,2. A PM₁₀ NAAQS of 65-85 µg/m³ is essentially twice as stringent as the current standard. Such a level would require the designation of many more nonattainment areas than currently exist, and would be devastating for agricultural and other resource-based operations throughout the United States. And for what purpose? There is no clear purpose.

Because scientific uncertainties are so significant that the EPA is unable to conduct a risk assessment and would be justified in retaining the current standard, the current standard should be retained.