

**EPN Testimony on EPA's Reconsideration of
the National Ambient Air Quality Standard (NAAQS) for Particulate Matter (PM)**
February 21, 2023

This is John Bachmann. I represent the Environmental Protection Network (EPN), a volunteer organization of over 550 former EPA employees and others concerned about public health and the environment. I worked in EPA's Air Office for 33 years on Science/Policy, playing a major role in all reviews of the PM NAAQS through 2006. EPN thanks EPA for the opportunity to provide comments on the proposal.

Key Points

EPN agrees with EPA that the current primary standards for PM_{2.5} are not sufficient to protect public health with an adequate margin of safety. However, EPN disagrees that an annual level in the range of 9.0 to 10.0 ug/m³ would provide such protection. As discussed below, EPA has underestimated the strength of the evidence at lower levels and overestimated the uncertainties for the public health risks presented by annual exposures to PM_{2.5} pollution. We find the scientific evidence supports a conclusion that a level of 8.0 ug/m³ is requisite to protect public health.

EPN also disagrees that the current 24-hour standard would provide an adequate level of protection when considered with the proposed annual standard range of 9.0 to 10.0 ug/m³, especially given its multiple exceedance form. EPA should adopt a level from 25 to 30 ug/m³ as recommended by the Chartered Clean Air Scientific Advisory Committee (CASAC) majority.

Annual Standard

The Administrator proposed a range narrower than the CASAC majority range, but a better reading of the science would support a lower range of 8.0 to 9.0 ug/m³. The key studies highlighted in the Policy Assessment (PA) provide ample evidence that a level of 10.0 would fail to provide an adequate margin of safety if any. The U.S. and Canadian studies highlighted in the PA include six monitor-based epidemiology studies with means or 25th percentiles below 10.0. Four of the Canadian studies had means below 9.0.¹ We share CASAC's criticism of the PA for downplaying all Canadian studies.² Their elimination from preamble figures or tables has a dubious basis. Much of Canada's population lives near the U.S. border, and their PM_{2.5} monitoring methods and siting approach are similar to that of the U.S.³ Moreover, seven U.S. and 11 Canadian hybrid studies incorporated population-oriented hybrid model-based exposures; had mean or percentile levels below 10.0 ug/m³, including restricted analyses⁴; and 13 of the 18 had mean and/or 25th percentiles below 9.0. Three U.S. accountability studies noted in the preamble also call 10.0 ug/m³ into

¹ Tables 3-6, 3-7 Final Policy Assessment.

² CASAC Review of the EPA's Policy Assessment for the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter (External Review Draft – October 2021). Letter to the Administrator. p 13-14.

³ Canada's PM_{2.5} monitoring network is similar in terms of monitors, locations, and an emphasis on high-population areas. https://ccme.ca/en/res/ambientairmonitoringandqa-qcguidelines_ensecure.pdf

⁴ U.S. Figure 3-14, Table 3-8 PA, and Yazdier et al 2021, and Wei et al, 2020 referenced elsewhere in the PA and/or the supplemental ISA. Canada Table 3-9, PA.

question.⁵ There is no defensible way to interpret the means of all the above studies as representing a “safe” level for sensitive populations, as they represent levels with the strongest basis for adverse effects. Many had means or 25th percentiles going to 9.0 or below; even adjusting for pseudo-design values would call a standard above 9.0 into question.

We agree with the proposal to consider 25th percentile values, where available, in determining the standard level. We strongly disagree, however, with adjusting the means reported by epidemiology studies upward, especially for those using monitors, and then claiming a level at original mean would result in an adequate margin of safety. Focusing on only U.S. studies heightens this concern, as most happen to have higher means during the periods of studies.

One CASAC member⁶ suggests that a standard of 10.0 ug/m³ would be adequate because it would ensure most of the population would experience levels well below 10.0. As EPN and some CASAC PM panel members noted, the obvious fallacy is that it would not protect vulnerable populations living near the design value monitor, raising a major environmental justice issue.

The Administrator should pay more attention to the evidence CASAC’s majority provided concerning the strength of the evidence supporting levels as low as 8.0, much of which the proposal downplays or ignores.⁷ Their support directly rebuts the preamble’s provisional conclusion that the science is not strong enough to support a level as low as 8.0. EPN believes the evidence is more than sufficient to conclude that 8.0 ug/m³ is requisite to protect public health with an adequate margin of safety.

Daily Standard

Epidemiology and some controlled human studies indicate the current daily standard fails to provide sufficient protection, even with an annual standard as low as 8.0 to 9.0 ug/m³. While the evidence may not provide clear indications of the specific level that would be appropriate, it clearly suggests tightening the daily standard is required to provide sufficient protection for populations living in areas where the annual standard is not controlling. In this context, it’s important that CASAC recommended a daily standard within the range of 25 to 30 ug/m³. We agree.

For both standards, the Administrator should also consider the estimated health impacts in EPA’s regulatory impact analysis (RIA). It shows an annual standard of 8.0 ug/m³ would prolong 9,200 lives per year, which is over twice that of a level of 9.0 ug/m³ and over 5 times more than a level of 10 ug/m³. A level of 30 ug/m³ daily would prolong 200 lives per year over a standard of 10.⁸

⁵ Table 3-12, PA. Corrigan et al. 2018, Henneman et al. 2019b and Sanders et al. 2020a, See also Preamble.

⁶ CASAC Letter to the Administrator, *Op Cit.* Appendix A. Individual comments of James Boylin, page A-24.

⁷ CASAC Letter to the Administrator, *Op Cit.* page 16.

⁸ Regulatory Impact Analysis for the Proposed Reconsideration of the National Ambient Air Quality Standards for Particulate Matter. EPA-452/P-22-001 December 2022. Table ES-6.