Remarks of John Bachmann EPN at OMB Meeting on the PM NAAQS review September 1, 2022.

Beginning in 1978 I played a lead role in all reviews of the PM standards through 2007. I attended CASAC meetings and provided comments in the 2020 review and the present reconsideration. EPN appreciates the opportunity to summarize the basis for our recommendations for revisions to fine particle standards that protect public health with an adequate margin of safety. And I second Genna Reed's statement, particularly her suggestion that the Interagency Review Process not be unduly delayed.

Overview - As a veteran of the NAAQS process, it's been refreshing to witness a return to a CASAC and consultants competent in all relevant disciplines as they review the science and policy. EPA staff has done a good job updating science and policy in a short time-period. EPN agrees with the unanimous conclusion of CASAC and consultants that the current suite of fine particle standards is not sufficient to protect public health. Moreover, we believe the majority of CASAC members provided a strong basis for recommending a revised annual standard at a level between 8 to 10 ug/m3 and consideration of daily standards at levels of 25 to 30 ug/m3. I'll focus on the annual here.

It is important to note that it was not only a large majority of the 7 CASAC members that supported an annual range of 8 to 10, but a majority of the 15 other experts who formed the rest of the CASAC PM Panel.

CASAC letter*: "Regarding the level of the annual PM2.5 standard, the majority of CASAC members find that an annual average in the range of 8-10 µg/m3 would be appropriate. The range of 8-10 µg/m3 is supported by placing more weight on: epidemiologic studies in the United States that show positive associations between PM2.5 exposure and mortality with precision among populations with mean concentrations likely at or below 10 µg/m3 ; epidemiologic studies in the United States showing such associations at concentrations below 10 and below 8 µg/m3; Canadian studies, some of which show such associations at concentrations below 10 µg/m3 and below 8 µg/m3; a meta-analysis of 53 studies, 14 of which report such associations at concentrations below 10 µg/m3 down to 5 µg/m3; and consideration that people are not randomly distributed over space such that populations in neighborhoods near design value monitors are exposed to the levels indicated at those monitors and likely to be more at risk."* The majority provided additional specifics on page 16 of the attachment to the CASAC letter.

In addition to the restricted US and Canadian studies noted by CASAC, the Policy Assessment focuses on three recent accountability studies that examined

the results of reductions of fine particles to lower levels (Henneman et al 2019b), Corrigan et al 2018, Sanders et al 2020b). p 3-131. Of particular interest, Henneman found that reductions from mean of 10 ug/m3 in 2005 to 7.2 ug/m3 following retirement of coal fired power plants resulted in corresponding reduction in the number of cardiovascular related hospital admissions.

By contrast, the minority view of levels of 10 to 11 focuses on multiple studies with higher average levels, placing little or no weight on recent work that found effects at levels at or lower than 10. This includes four powerful studies that restricted exposures of populations only to levels below 12 ug/m3, which resulted average levels to as low as 8.4 and multiple other US and Canadian studies that found effects below 10 and in some cases less that 8. Worse, the minority suggests that protection against averages lower than 10 is provided as only the design value monitor would have higher values. This is directly contrary to the requirement of a margin of safety for populations most at risk. As noted in the Policy Assessment and ISA, we know that people of color living near strong sources in cities or industrial areas have a higher exposure - and from epidemiology results, a higher risk of mortality and morbidity than the general population. As Joel Schwartz noted in comments the "argument that a higher design value adequately protects because it results in mean exposures that are much lower, ignoring that there are many people living in areas at or near the design value. It also seems designed to imply that the mean value in a study is the value at which it is detecting health effects, which is false."

Indeed looking at the evidence, it is apparent that the reason we have more studies with means at higher levels is because all older US studies encountered higher levels to start with. This is why more recent studies that used restricted exposures, recent accountability studies, and Canadian studies show lower concentrations all provide important evidence that a standard as high as 10 ug/m3 would provide no margin of safety. In several areas, the final Policy Assessment provides a strong statement that should weigh heavily in Administrators final decision for an annual standard level.

"Overall, evidence assessed in the 2019 ISA and ISA Supplement continues to indicate a linear, no-threshold concentration-response relationship for PM2.5 concentrations > 8 ug/m3 Policy Assessment p 3-135"

I'd like to add two points based on the figures and tables sent to you yesterday See Attachment.

Figure 1 Note that the US average PM2.5 levels are already below 8 ug/m3. PM control and climate measures are related. The move to electric vehicles could easily account for an additional reduction of a 1 ug/m3 in areas with traffic. The

The Henneman study involving retiring coal fired power plants provides another link between benefits to climate and PM effects.

Figure 2 shows results of a more traditional benefits analysis showing the a level of 8 would provide a 3.5 times larger benefit than 10. And
Figure 3, it's clear that the benefits are even larger for people of color.

Thank you