

MEMO

Date: 12/11/2018

To: Mr. Aaron Yeow, US EPA and Dr. Louis Anthony Cox, US EPA CASAC, Chair

From: John R. Balmes, MD

Re: Personal comments on the Integrative Science Assessment for PM, Draft Document

My name is John Balmes. I am a Professor of Medicine at the University of California, San Francisco and a Professor of Environmental Health Sciences at the School of Public Health at the University of California, Berkeley. Since 2008, I have been the Physician Member of the California Air Resources Board, but I am speaking today as a concerned citizen.

I am a physician-scientist with particular expertise in the effects of air pollution on respiratory health outcomes. That said, I also have conducted research on air pollution effects on cardiovascular and metabolic outcomes. I have been on previous CASAC review panels for Ozone, Sulfur Oxides, and Nitrogen Oxides. I was a member of the PM expert review panel that was disbanded in October of this year.

Why am I speaking today? I am speaking in support of a proper and thorough review of the draft Integrated Science Assessment for PM. I pause to underscore the word “science,” a word that the current federal administration seems to have forgotten the meaning of. Science has been defined as “a system of knowledge covering general truths” (Merriam-Webster) gained through observation and experimentation, not alternative facts. Ignoring science does not mean that general truths go away.

The Clean Air Act of 1970 charges CASAC with review of the “air quality criteria for an air pollutant” to ensure that they “shall accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air, in varying quantities.” (CAA (section 108(a)(2))).

There is a massive amount of scientific data compiled by the EPA in the 1,881-page ISA for the current review of the NAAQS for PM. Appropriate expertise is required to review specific chapters of the ISA. Even as a scientist who has studied the respiratory and cardiovascular health effects of air pollution for 32 years, I only feel qualified to review some chapters of the document. With all due respect, I don’t see how the seven current statutory CASAC members have the appropriate scientific expertise to review this massive and complex document. For over 40 years EPA has augmented the statutory CASAC with subject matter experts for each NAAQS Review Panel. This approach was not broken.

Therefore, I strongly recommend that the recently disbanded PM Review Panel be reconstituted to enable a more thorough review of the draft ISA.

Over the years that I have been a member of CASAC NAAQS review panels, I have come to expect EPA to produce a high-quality criteria document or Integrated Science Assessment. For the current PM NAAQS review, the EPA has compiled an overall well-written document that has presented, reviewed, and evaluated the available scientific literature on the potential health effects of PM in an appropriately thorough and reasonable way.

Again over the years that I have been on NAAQS review panels, a careful approach to determining causal associations between exposure to a criteria pollutant and health effects has been developed in partnership between EPA staff and various iterations of CASAC. This approach is based on the weight of evidence from multiple relevant scientific disciplines – toxicology, epidemiology, and controlled human exposure studies. This approach requires appropriate expertise in these disciplines to be represented in CASAC review panels. Among the current statutory members there is no expertise in epidemiology. This alone is a reason to reconstitute the disbanded PM review panel that included several epidemiologists.

In general, I agree with the causal determinations that EPA staff have made based on the established framework for evaluating the weight of evidence regarding associations between PM and health outcomes, but I will highlight a specific concern that I believe would benefit from the kind of thorough review that has been performed by expert panels in the past.

The new determination since the last PM review in 2009 that long-term exposure to ultrafine particles is “likely to be causal” regarding nervous system effects needs careful vetting. While the EPA has done a good job of compiling the animal toxicological evidence in support of this determination, the paucity of supportive evidence in humans requires the full discussion that would have occurred in a properly constituted NAAQS review panel. For that matter, there is no one with specific expertise in neurosciences on either the statutory CASAC or the disbanded review panel.

While I understand the current administration’s apparent frustration with how long NAAQS reviews have taken in the past, the complexity and sheer amount of the available scientific data on potential health effects of PM requires a careful and non-rushed review by a properly constituted panel of scientists with appropriate expertise.

Sincerely,

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