



American Forest & Paper Association

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Statement of Stewart Holm before CASAC regarding Short-term Ozone Exposures and Mortality American Forest & Paper Association

Thank you for the opportunity to speak today. I am Stewart Holm, Chief Scientist at the American Forest & Paper Association. I am here speaking to you today to provide highlights on why EPA's current 75 parts per billion (ppb) ozone NAAQS provides sufficient protection of public health.

My comments today focus on three main areas: 1) EPA's conclusions in the 2013 Integrated Science Assessment (ISA) as it relates to the draft EPA Risk and Exposure Assessment, 2) the recognition of inconsistent outcomes in the studies evaluated, and 3) the general absence of ozone-related morbidity and a plausible biological mode of action.

With regard to overall conclusions, in 2006, EPA stated that evidence for total mortality from short-term exposure was "suggestive" of causation (US EPA, 2006). However, in the 2013 ISA, EPA concluded that evidence supported a likely causal relationship, even though data are no stronger today than they were in 2006 (US EPA, 2006, 2013), and EPA included this endpoint in the second draft Health Risk and Exposure Assessment (REA; US EPA, 2014). Today, I will discuss why this causality determination is not supported by the evidence. I have also provided a more detailed analysis with my written comments.

Many issues complicate causality determinations from mortality studies. For example, air pollution concentrations are variable and sensitive to meteorological factors. Exposure estimates in all of these studies were based on central site monitors which are generally poor surrogates for actual personal exposures. Moreover, lifestyle factors, like smoking and diet, can have a large impact on mortality and are often not fully accounted for. Finally, co-pollutant exposure is not always sufficiently addressed. Together, these factors impact risk estimates from epidemiology studies.

Also, comparisons across studies are difficult. This is largely due to the fact that available epidemiology studies have used different methodologies and model assumptions. They also evaluated different lag times and ozone averaging times.

Even among studies using similar methods, most reported a range of relatively small but inconsistent mortality risk estimates, some of which were statistically significant and others that were not. Results also varied across studies that evaluated data from the

same city using different statistical methods. This, with the other issues I just discussed, indicates that estimated ozone-related mortality risks are particularly sensitive to model assumptions, and observed associations are more likely due to confounding, bias, or chance, rather than causation.

Lastly, the estimates for respiratory- and cardiovascular (CV)-related mortality are even more variable across US, European, and Canadian cities, with only a few studies reporting statistically significant results. EPA chose to highlight these estimates as being supportive of an association regardless of statistical significance, even though there were mainly statistically insignificant findings across the US, European and Canadian cities. Also, for CV-related mortality, it is notable that EPA concluded that the overall evidence of causality was weakened by the general absence of robust ozone-CV morbidity associations and a plausible biological mode of action that would support ozone-related mortality but not morbidity. It is unclear why EPA did not consider this argument for total mortality risk estimates as well, as it also applies here.

Overall, the ISA conclusions regarding the causal association between total and cause-specific mortality from short-term ozone exposure are not supported by the available evidence. Therefore, these endpoints should be evaluated and quantified in the REA using a rigorous and balanced evaluation..

References

US EPA. 2006. "Air Quality Criteria for Ozone and Related Photochemical Oxidants (Volumes I-III)." National Center for Environmental Assessment-RTP Division, EPA 600/R-05/004aF. Accessed at <http://cfpub.epa.gov/ncea/cfm/recorddisplay.cfm?deid=149923>.

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US EPA. 2014. "Health Risk and Exposure Assessment for Ozone (Second External Review Draft)." EPA-452/P-14-004a; EPA-452/P-14-004b; EPA-452/P-14-004c; EPA-452/P-14-004d; EPA-452/P-14-004e; EPA-452/P-14-004f. Accessed on February 03, 2014 at http://www.epa.gov/ttn/naaqs/standards/ozone/s_o3_2008_rea.html, January.