

Oral Statement to CASAC Review Panel on the CASAC's Draft Panel Report on the EPA's Draft Policy Assessment for Sulfur Dioxide

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Good morning, my name is Lindsey Jones. I am a toxicologist with the Texas Commission on Environmental Quality (TCEQ). Thank you for this opportunity to speak this morning and throughout this process. Although I agree with the majority of this committee's report, this morning I want to focus on two points with which I respectfully disagree.

The first is the strong suggestion that EPA translate results from the REA into expected hospitalizations, assuming that all asthmatic children exposed to 100 or 200 ppb SO₂ would be hospitalized. The panel report does not provide supporting documentation for this strong assumption and it does not appear to be supported by the EPA's analysis. Controlled human exposure studies only noted reversible lung function effects at 100 ppb via mouthpiece or 200 ppb via chamber exposures. EPA noted that epidemiological evidence was inconsistent for lung function decrements (USEPA 2017c). CASAC's statement about a more intense response like hospitalization is confusing. The following bullet points highlight just a few relevant examples from EPA's assessment documents.

- The 2009 REA stated that available studies “provide very limited evidence for SO₂-induced respiratory effects at 100 ppb” (page 55, USEPA 2009). The two mouthpiece studies cited in the ISA as exposing exercising asthmatics to 100 ppb SO₂ showed no significant changes in pulmonary function for exercising adolescent asthmatics (Koenig et al., 1990) and only very small changes in sRaw in the two most responsive adult exercising asthmatics (Sheppard et al., 1981).
- The 2017 Final SO₂ ISA states that the concentration-response function below 200 ppb has been inadequately studied (USEPA 2017c). The ISA is careful in specifically stating causal determinations in terms of concentration ranges (i.e., there is evidence of increasing respiratory symptoms following increasing exposure concentrations between 200 and 600 ppb in exercising asthmatics).
- The EPA's REA Planning Document specifically highlighted the uncertainty in effects following exposures of less than 200 ppb and stated that “there is uncertainty about whether SO₂ is causally related to lung function effects at exposure levels below 100 ppb” (page 2-22, USEPA 2017a).
- The 2017 draft REA specifically stated that the 100 ppb benchmark was included as half the lowest concentration tested in chamber studies, not a level at which effects are expected. The draft REA goes on to specifically note that fewer than

10% of asthmatics experienced moderate lung function decrements at 200 ppb and that there is no evidence to indicate that severe asthmatics would experience moderate or greater decrements at lower exposure concentrations (page 4-23 to 4-24, USEPA 2017b).

There is no evidence that suggests exposure to 200 ppb would lead to hospitalization. Providing these “expected” numbers is misleading and unnecessarily alarming. We strongly urge this panel to retract this suggestion from the final report.

Secondly, the draft letter states that, given the monotonic dose-response, “[i]t is possible that the current 75 ppb level may not provide an adequate margin of safety.” Again, the EPA’s assessment documents have clearly indicated that there is uncertainty about whether there is a causal relationship between SO₂ exposures below 100 ppb and respiratory effects and concentration-response functions below 200 ppb have been inadequately studied. Therefore, in the absence of actual data, the EPA made the policy decision to assume that the dose-response is monotonic. The statement that an adequate margin of safety may not be provided by the current standard is a bit strong given this complete lack of dose-response information at concentrations below 200 ppb.

Thank you, again, for the opportunity to provide these comments this morning and throughout this process.

References:

- USEPA. 2017a. Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides: Risk and Exposure Assessment Planning Document. Vol. EPA-452/P-17-001. OAQPS.
- USEPA. 2017b. Risk and Exposure Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides, External Review Draft. Vol. EPA-452/P-17-002. OAQPS.
- USEPA. 2017c. Integrated Science Assessment for Sulfur Oxides – Health Criteria, Final. Vol. EPA-600/R-17-451. ORD.