

Oral Statement to CASAC Review Panel on the Draft Policy Assessment for Sulfur Dioxide September 19, 2017

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Good morning, my name is Lindsey Jones, and I am a Senior Toxicologist with the Texas Commission on Environmental Quality (TCEQ). Thank you for the opportunity to speak to you about the Environmental Protection Agency's (EPA's) draft Policy Assessment (PA) for Sulfur Dioxide (SO₂). In keeping with the intent of the PA, my comments this morning will be focused on bigger picture considerations, rather than the more technical aspects of EPA's assessment documents.

As I explained in yesterday's comments on the draft Risk and Exposure Assessment (REA), there is considerable unaddressed uncertainty in the current SO₂ review. Briefly, that (1) the isolated use of specific airway resistance (sRaw) from controlled human exposure studies and the subsequent interpolation to adverse effects in children is unsubstantiated; (2) the draft REA risk model does not consider a threshold model and introduces more uncertainty with the assumption that the exposure-response relationship is linear below 200 ppb; (3) the draft REA estimates the greatest risk to occur at concentrations below which the causal relationship becomes uncertain; (4) there are no confidence intervals to provide necessary context for risk estimates; and (5) there are numerous uncertainties that are only noted in the draft REA, rather than considered quantitatively.

This uncertainty lowers confidence in conclusions regarding the health effects associations with SO₂ exposure. The available evidence does not support the determination that the benchmarks used by EPA are adverse. Further, there is little evidence supporting any effects below 200 ppb, which is where the EPA's analysis calculates all of the risk (USEPA 2017). It is unclear, then, how meaningful a standard is that is set to protect effects that may not be adverse at concentrations where they may not occur.

The noted uncertainties also alter understanding of at-risk populations. The EPA assumes that asthmatic children are at particularly high risk of asthma exacerbations due to SO₂-induced bronchoconstriction. However, the draft REA merely models sRaw changes in children by interpolating sRaw changes in adults. There is no scientific support for this method. Even in controlled human exposure studies in only one life stage, sRaw changes and physical symptoms were difficult to predict (USEPA 2016). From a policy perspective, it is unclear how effects in children could be modeled with enough certainty to base such an important standard.

Finally, conclusions based on the risk estimates from the draft REA do not seem to follow the EPA's directive to mitigate risk not to zero, but to levels requisite to protect health with an adequate margin of safety. The EPA's model predicts that neither

asthmatic adults nor children in two of the three study areas would experience a day with an increase in sRaw (Table 5-5, USEPA 2017). The model predicts that less than 0.1 percent of asthmatic children in the remaining Fall River area would experience a 200% increase in sRaw. Even if there were a high degree of confidence in the modeled effects, these risk estimates are surely near zero.

Thank you, again, for the opportunity to speak on this draft, as well as the other draft assessment documents that have been reviewed thus far. Although I have offered several constructive comments, I truly appreciate the work of this committee and the EPA in assessing the risk of SO₂-induced health effects and I hope that our comments serve to meet our mutual goal of a strong, science based standard.

USEPA. 2016. Second External Review Draft Integrated Science Assessment for Sulfur Oxides - Health Criteria. Vol. EPA/600/R-16/351. N.C.f.E.A. (NCEA), editor.

USEPA. 2017. 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.