

Preliminary Comments on the REA Planning Document from Dr. Jack Harkema

Analytical Approach and Study Area Selection

1. *The overall analytical approach for the Risk and Exposure Assessment (REA) and its appropriateness for developing spatially and temporally varying 5-minute ambient SO₂ concentrations, simulating population-based 5-minute peak exposures, and estimating study areas health risk based on controlled human exposure study data [Chapter 4].*
2. *The criteria identified and approach used to select potential study areas to evaluate for this REA [Section 4.1.2].*

Comments and questions to be considered:

In Chapter 4, the authors should provide more rationale and justification for limiting the main objective to characterize exposure and health risk associated with SO₂ from ambient air under conditions just meeting the current primary standard. Why not include conditions below the primary standard?

The overview of the analysis approach in Figure 4-1 is helpful, but how the Exposure and Risk-Related Considerations in Review of Standard (bottom box) will be used (purpose of the process) is not illustrated.

On page 4-3 (4.1), the authors should provide a stronger justification for using Controlled Human Exposure Data (5-10 minute exposures at elevated exertion) to determine risk metrics - 1) health-based benchmarks and 2) lung function exposure-response relationship. In addition, the unique benefits for using these two different metrics (rather than one) are not clearly explained in this chapter.

Since many asthmatic phenotypes have been identified and characterized, what phenotype(s) is the focus of this REA?

On page 4-22, the microenvironments appear to be selected primary for adult asthmatics rather than asthmatic children (e.g., day schools, preschools, elementary schools). Does the analytical approach have a built in bias for adult rather than childhood asthma?

Since obesity is more prevalent in children and adults (including those with asthma) than when the controlled human exposure studies were conducted, how will the proposed risk models take this into account?