



MEMORANDUM

February 16, 2017

SUBJECT: CASAC Review of the document titled *Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides: Risk and Exposure Assessment Planning Document*

FROM: Erika N. Sasser, Director
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Office of Air Quality Planning and Standards
United States Environmental Protection Agency

TO: Aaron Yeow, Designated Federal Officer
Clean Air Scientific Advisory Committee
EPA Science Advisory Board Staff Office

Attached is the document titled *Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides: Risk and Exposure Assessment Planning Document* (REA Planning Document) prepared by the Environmental Protection Agency's (EPA) Office of Air Quality Planning and Standards (OAQPS) staff as part of EPA's ongoing review of the primary (health-based) national ambient air quality standard (NAAQS) for SO₂. The REA Planning Document will be subject to a consultation with the Clean Air Scientific Advisory Committee (CASAC) Oxides of Sulfur Primary NAAQS Review Panel (the Panel) at a public meeting to be held in Arlington, VA on March 20-21, 2017. I am requesting that you forward this document to the Panel to prepare for the March meeting.

The REA Planning Document is being made available to the Panel in the form of the attached electronic file. The document is also available from the EPA website at <https://www.epa.gov/naaqs/sulfur-dioxide-so2-primary-standards-planning-documents-current-review>. Printed copies of this document can be sent to the Panel members via US mail upon request. Suggested focus areas for the Panel's consideration of the REA Planning Document are identified in the attachment.

We look forward to discussing the REA Planning Document with the CASAC Panel at our upcoming meeting. Should you have any questions regarding the planning document, please contact me (919-541-3889; email sasser.erika@epa.gov) or Dr. Nicole Hagan on my staff (919-541-3153; email hagan.nicole@epa.gov).

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Attachment: Areas on which EPA would request the Oxides of Sulfur Primary NAAQS Review Panel focus in their consideration of the *Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides: Risk and Exposure Assessment Planning Document*

Areas on which EPA requests the Oxides of Sulfur Primary NAAQS Review Panel focus their consultation of the *Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides: Risk and Exposure Assessment Planning Document*

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 area 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]

Ambient Air Concentrations:

1. The use of an AERMOD model-based approach to predict hourly concentrations at all receptor locations within selected study areas. [Sections 3.3.2, 4.1.1, 4.1.4]
2. The use of SO₂ measurements at ambient air monitors within and near the study areas to estimate continuous 5-minute concentrations, where appropriate (e.g., filling missing values, for AERMOD hourly predictions). [Sections 3.3.1, 4.1.4.2]
3. The proportional approach selected for adjusting ambient concentrations to simulate air quality that just meets the existing standard. [Section 4.1.4.3]

Exposure Analysis:

1. The overall approach to be used for the exposure analysis, including the use of the APEX model, given objectives of the analyses, which include development of 5-minute exposures for input to the risk assessment, assessment of factors that contribute to the upper percentile population-based 5-minute exposures. [Section 4.1]
2. The selected study population groups of interest (adults with asthma, school-aged children with asthma) for which SO₂ exposure estimates are to be developed. [Sections 3.2.1, 4.1.3]

Health Risk Assessment:

1. The general structure and overall approach that staff plans to use for the risk assessment. [Section 4.2]
2. The approaches for using findings from the controlled human exposure studies.
 - a. The health benchmarks identified for this REA. [Sections 3.2.2, 4.2.3]
 - b. Plans for developing updated exposure-response functions, including the methodology, and specific studies to be relied on, for estimating exposure-response relationships for lung function decrements. [Sections 3.2.2, 4.2.4]
 - i. The focus on specific airway responsiveness (sRaw) for this quantitative risk assessment of short-term exposure-related endpoints,

- ii. The range of exposure concentrations appropriate to include in the dataset for deriving the exposure-response function.
3. The approach for assessing variability/co-variability and characterizing uncertainty in each part of the risk assessment and the approach for model sensitivity evaluations.
[Section 4.4]