



E. SCOTT PRUITT
ADMINISTRATOR

May 23, 2018

Louis Anthony Cox, Jr., Ph.D.
Chair
Clean Air Scientific Advisory Committee
Science Advisory Board
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Dr. Cox:

I thank you and the members of the Clean Air Scientific Advisory Committee's Sulfur Oxide Panel for your comments on the U.S. Environmental Protection Agency's *Risk and Exposure Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides, External Review Draft* (draft REA) and *Policy Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides, External Review Draft* (draft PA). My staff and I appreciate the detailed review and advice provided by the panel during the public meeting held on September 18-19, 2017, public teleconference on April 20, 2018, and in your letters dated April 30, 2018.

In the final REA and final PA, issued on May 9, 2018, the EPA fully considered the panel's comments and recommendations. We will be transmitting the final REA and final PA to the Science Advisory Board's staff office, along with a memorandum highlighting key changes made in each document in response to comments from the panel.

Again, my thanks to you and the members of the panel for your efforts in support of the EPA's review of the primary national ambient air quality standards for sulfur oxides.

Respectfully yours,

A handwritten signature in black ink, appearing to read "Scott Pruitt", with a large, sweeping flourish extending to the right.

E. Scott Pruitt



E. SCOTT PRUITT
ADMINISTRATOR

May 23, 2018

Ana Diez Roux, M.D., Ph.D.
Immediate Past Chair
Clean Air Scientific Advisory Committee
Science Advisory Board
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Dr. Roux:

I thank you and the members of the Clean Air Scientific Advisory Committee's Sulfur Oxide Panel for your comments on the U.S. Environmental Protection Agency's *Risk and Exposure Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides, External Review Draft* (draft REA) and *Policy Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides, External Review Draft* (draft PA). My staff and I appreciate the detailed review and advice provided by the panel during the public meeting held on September 18-19, 2017, public teleconference on April 20, 2018, and in your letters dated April 30, 2018.

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Again, my thanks to you and the members of the panel for your efforts in support of the EPA's review of the primary national ambient air quality standards for sulfur oxides.

Respectfully yours,

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E. Scott Pruitt



May 9, 2018

MEMORANDUM

SUBJECT: Release of the Final *Risk and Exposure Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides* and Response to CASAC Comments on the External Review Draft of this Document

FROM: Erika Sasser, Director
Health and Environmental Impacts Division
Office of Air Quality Planning and Standards

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

Attached is the final document, *Risk and Exposure Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides* (REA). The REA has been prepared by staff in the Environmental Protection Agency's (EPA) Office of Air Quality Planning and Standards (OAQPS) as part of the ongoing review of the primary National Ambient Air Quality Standard (NAAQS) for sulfur oxides (SO_x). The draft REA was released in August 2017 and was reviewed by the Clean Air Scientific Advisory Committee (CASAC) Sulfur Oxides Panel at a public meeting held on September 18-19, 2017. The Panel held a follow-up teleconference on April 20, 2018 and provided its advice to the EPA Administrator in a letter dated April 30, 2018.

The REA has been produced in consideration of the comments received on the draft REA from the CASAC and from the public. The approach used to estimate population exposure and risk has remained largely the same as the approach used in the draft REA, with a number of adjustments and additions to address comments. Key changes include:

- Clarification regarding key design aspects including the air quality scenario and scope of REA (Chapter 2);
- Revised study area maps that show locations of meteorological stations, air quality receptors, emissions sources, and ambient air monitors, that also indicate source types and SO₂ emissions (sections 3.2 and 3.4);
- Improvements in estimating ambient concentrations associated with sources not explicitly modeled in the Indianapolis study area (section 3.2.4);
- Additional evaluations of the daytime estimated 1-hour and 5-minute ambient air concentrations in the three study areas by season (sections 3.2.5 and section 3.5.3.3);

- Expanded discussion regarding the approach used to adjust air quality to just meet the current standard (section 3.4);
- Use of newly acquired continuous 5-minute ambient air monitoring data to estimate 5-minute concentrations at modeled air quality receptors in the Indianapolis study area (section 3.5.1);
- Analysis of asthma prevalence information regarding the influence of body mass index and race on populations with asthma (section 4.1.2);
- Reorganized, clarified and expanded discussion regarding exposure model input data (i.e., body weight, surface area, energy expenditure) and algorithms (i.e., resting metabolic rate, breathing rate) (section 4.1.3);
- Expanded discussion of using activity pattern data from any individual in CHAD, regardless of whether their asthma status is known or unknown, to represent the simulated individuals with asthma (section 4.3.3);
- Additional analysis and revised study area maps to better indicate where study area populations overlap with highest ambient SO₂ concentrations (sections 5.1 and 5.4);
- Updated analysis of the microenvironments where the simulated population experiences the highest exposures (section 5.2);
- Inclusion of number (and percentage) of individuals in the estimates of population exposure and risk of lung function decrements presented in summary tables (section 5.2 and 5.3); and
- Expanded discussion of previously identified uncertainties, as well as identification and discussion of additional uncertainties (Table 6-3).

I am requesting that you forward this memorandum and the attached electronic file containing the REA to the Panel members. This document is also available on the EPA's website at <https://www.epa.gov/naaqs/sulfur-dioxide-so2-primary-air-quality-standards>.

Please accept my gratitude for the advice the Panel has provided throughout our review of the primary SO₂ NAAQS. Should you have any questions regarding the final REA, please contact Dr. Nicole Hagan (919-541-3153; hagan.nicole@epa.gov) or Dr. Stephen Graham (919-541-4344; email graham.stephen@epa.gov).

Attachment

cc: Thomas Brennan, SAB, OA
 Karen Wesson, OAQPS/HEID
 Bob Wayland, OAQPS/HEID
 Nicole Hagan, OAQPS/HEID
 Deirdre Murphy, OAQPS/HEID
 Stephen Graham, OAQPS/HEID
 Richard Wayland, OAQPS/AQAD
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