

**Summary Minutes of the
U.S. Environmental Protection Agency (EPA)
Chartered Clean Air Scientific Advisory Committee (CASAC)
and CASAC Sulfur Oxides Panel
Public Teleconference
April 20, 2018**

Date and Time: Friday, April 20, 2018, 9:00 AM – 12:00 PM ET

Location: Telephone Only

Purpose: To discuss the 03-29-18 Draft CASAC Review of the EPA’s Risk and Exposure Assessment (REA) for the Review of the Primary National Ambient Air Quality Standard for Sulfur Dioxide (External Review Draft)¹ and the 03-29-18 Draft CASAC Review of the EPA’s Policy Assessment (PA) for the Review of the Primary National Ambient Air Quality Standard for Sulfur Dioxide (External Review Draft).²

Participants: Chartered CASAC (for full CASAC, see roster³)
Dr. Tony Cox, Chair
Dr. James Boylan
Dr. Judith Chow
Dr. Ivan Fernandez
Dr. Lianne Sheppard

CASAC Sulfur Oxides Panel (for full Panel, see roster⁴)
Dr. Tony Cox, Chair
Dr. James Boylan
Dr. Judith Chow
Dr. Aaron Cohen
Dr. Alison Cullen
Dr. Ana Diez Roux
Dr. Delbert Eatough
Dr. H. Christopher Frey
Dr. William Griffith
Dr. Steven Hanna
Dr. Farla Kaufman
Dr. David Peden
Dr. Lianne Sheppard
Dr. Frank Speizer
Dr. James Ultman
Dr. Ronald Wyzga

Mr. Aaron Yeow, Designated Federal Office (DFO)

Other Attendees (See Attachment A)

Opening Remarks

Mr. Aaron Yeow, DFO, opened the meeting. He noted that as required under the Federal Advisory Committee Act (FACA), the Panel's deliberations are held in public with advanced notice given in the Federal Register,⁵ and the meeting minutes will be made publicly available after the meeting. He stated that there were two public comment periods noted on the agenda,⁶ one for the Draft CASAC REA Report and one for the Draft CASAC PA Report, where members of the public have registered in advance with the SAB Staff Office to make oral comments.⁷ He noted that there were also two clarifying comment periods on the agenda where members of the public could request an opportunity to provide short clarifying comments. He stated that the SAB Staff Office determined that there were no issues with conflict-of-interest nor any issues with an appearance of a lack of impartiality for any of the Panel members. He noted that Mr. George Allen, a CASAC Sulfur Oxides Panel member recused himself from the review and Dr. Larry Wolk, a new Chartered CASAC member recused himself from the review. He then welcomed Dr. Tony Cox as the new CASAC Chair and turned the meeting over to him. Dr. Cox welcomed everyone and provided an overview of the Agenda.

Public Comments on the Draft CASAC REA Report

Lindsey Jones, Texas Commission on Environmental Quality, made an oral statement on the Draft CASAC REA Report⁸ that focused on concurring with the recommendations for inclusion of model performance criteria, discussion of representativeness of modeled populations, and updating AERMOD modeling with recent NEI and ambient SO₂ data. She noted that the goal of the NAAQS and by extension, the REA, was to protect public health from adverse health effects that occur at ambient pollutant concentrations and pointed out statements in the report that did not seem to be in line with this focus. She also indicated that the benefits of reporting all 5-minute SO₂ concentrations was not clear.

Discussion of the REA Report

Dr. Tony Cox asked Dr. Ana Diez Roux, the immediate past CASAC chair to lead the panel through the draft CASAC REA Report. For charge question 4 (three study areas), Dr. Diez Roux indicated that Dr. Eatough had submitted preliminary comments⁹ pertaining to the EPA not addressing the possible importance of emission from smelters and integrated iron and steel mills as modifiers of the effect of SO₂ on asthma. Dr. Sheppard had drafted some proposed text¹⁰ to insert into the report (on page 2, starting at line 20) to address Dr. Eatough's comments. There was discussion regarding Dr. Wyzga's proposed text¹¹ regarding major sources that have closed or implemented changes to reduce SO₂ exposures. The panel agreed that the proposed text would be better placed in the uncertainty section.

For charge question 5 (air quality modeling), on page 3, there was discussion regarding model performance evaluations performed by Drs. Boylan¹² and Hanna¹³ and the panel agreed to changes in the text to reflect their comments. The panel also agreed to add Dr. Boylan's detailed evaluation as an appendix to the report.

In response to the public comments, the panel agreed to clarify the benefits of reporting all 5-minute SO₂ concentrations on page 4, line 32.

For the Letter to the Administrator, the panel agreed to changes to make the language consistent with the changes discussed for the consensus responses to the charge questions. There was discussion regarding how uncertainty and variability should be addressed on page 3 of the letter and how they may affect the margin of safety.

Public Clarifying Comments

Dr. John Vandenberg, EPA National Center for Environmental Assessment (NCEA), provided clarification that their goal was to provide a complete and honest analysis.

The panel had some discussion and agreed to soften some of the language to be more objective and less judgmental.

There was further discussion regarding confidence intervals/prediction intervals from Figure 4-1 and the panel agreed to clarify those comments and recommendations.

Disposition of Draft CASAC REA Report by Chartered CASAC

The Chartered CASAC members approved the report with the revisions discussed.

Public Comments on the Draft CASAC PA Report

Lindsey Jones, Texas Commission on Environmental Quality, made an oral statement on the Draft CASAC PA Report¹⁴ that focused on disagreement with translating REA results into a projected number of expected hospitalizations and disagreement that the current 75 ppb level may not provide an adequate margin of safety due to uncertainties in the dose-response under 200 ppb.

Discussion of the Draft CASAC PA Report

Dr. Tony Cox asked Dr. Ana Diez Roux, the immediate past CASAC chair to lead the panel through the draft CASAC PA Report. For the charge question on Chapter 2, on page 2, the panel agreed to a more succinct version of Dr. Sheppard's proposed insertion,¹⁵ which addressed Dr. Eatough's comments on the ISA.

There was discussion regarding the lack of information about severe asthmatics and children under the age 12 contributing to uncertainty at the bottom of page 3 to page 4. The panel noted that these issues are addressed in other areas of the report and could be clarified in those areas. The panel agreed to add some language to page 6, lines 23 that there are gaps in knowledge regarding the dose-response to SO₂ and impact on health outcomes, but that the uncertainty likely leads to an underestimate of risk in sensitive subgroups.

The panel agreed to revise the Letter to the Administrator to reflect the changes discussed to the consensus responses to the charge questions. There was discussion regarding strengthening the statement on page 3, line 25 of the letter regarding the possibility that the current 75 ppb may not provide an adequate margin of safety in susceptible subpopulations. The panel decided not to revise the sentence.

Public Clarifying Comments on the PA

Lindsey Jones, Texas Commission on Environmental Quality, clarified that her previous comments were not suggesting that there were not at-risk populations or that the absence of data meant that there was no risk to those populations. She did think that there was significant uncertainty in the ways that the

populations would react, but that scientific review of the data should focus on the available published literature. Her comments were focused on the number of hospitalizations estimated, which might seem to suggest more certainty than current data can support.

Disposition of the Draft CASAC PA Report by Chartered CASAC

The Chartered CASAC members approved the report with the revisions discussed.

Summary and Action Items

Mr. Yeow indicated that he will be in touch with the revised reports and deadlines. He indicated that this was the last of the panel’s activities and thanked them for their past three years of service.

The meeting was adjourned by Mr. Yeow at 12:00 pm.

Respectfully Submitted:

Certified as Accurate:

/s/

/s/

Mr. Aaron Yeow
Designated Federal Officer
EPA SAB Staff Office

Dr. Louis Anthony Cox, Jr.
Chair
CASAC

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by Panel members during the course of deliberations within the meeting. Such ideas, suggestions and deliberations do not necessarily reflect consensus advice from the Panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters or reports prepared and transmitted to the EPA Administrator following the public meetings.

Materials Cited

The following meeting materials are available on the CASAC website: <http://www.epa.gov/casac>, at the [April 20, 2018 CASAC Sulfur Oxides Panel Meeting page](#):

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- ¹ 03-29-18 Draft CASAC Review of the EPA's Risk and Exposure Assessment for the Review of the Primary NAAQS for Sulfur Oxides (External Review Draft)
 - ² 03-29-18 Draft CASAC Review of the EPA's Policy Assessment for the Review of the Primary NAAQS for Sulfur Oxides (External Review Draft)
 - ³ Chartered CASAC Roster
 - ⁴ CASAC Sulfur Oxides Panel Roster
 - ⁵ Federal Register Notice Announcing the Meeting
 - ⁶ Agenda
 - ⁷ List of Public Speakers
 - ⁸ Oral Statement from Lindsey Jones, Texas Commission on Environmental Quality on the Draft CASAC REA Report
 - ⁹ 04-11-18 Preliminary Comments from Dr. Delbert Eatough
 - ¹⁰ 04-16-18 Preliminary Comments from Dr. Lianne Sheppard on the Draft CASAC REA Report
 - ¹¹ 04-18-18 Preliminary Comments from Dr. Ron Wyzga on the Draft CASAC REA Report
 - ¹² 04-17-18 Preliminary Comments from Dr. James Boylan on the Draft CASAC REA Report
 - ¹³ 04-17-18 Preliminary Comments from Dr. Steven Hanna on the Draft CASAC REA Report
 - ¹⁴ Oral Statement from Lindsey Jones, Texas Commission on Environmental Quality on the Draft CASAC PA Report
 - ¹⁵ 04-16-18 Preliminary Comments from Dr. Lianne Sheppard on the Draft CASAC PA Report

ATTACHMENT A – Other Attendees
Chartered CASAC and CASAC Sulfur Oxides Panel Public Teleconference
April 20, 2018

Name	Affiliation
Allen, George	Northeast States for Coordinated Air Use Management
Brennan, Tom	EPA
Buckley, Barbara	EPA
Caudill, Anya	Washington State Department of Ecology
Chan, Elizabeth	EPA
DeBruhl, Brandon	Office of Management and Budget
English, Paul	
Fabish, Zachary	Sierra Club
Gilbride, Patrick	EPA
Graham, Stephen	EPA
Hagan, Nicole	EPA
Hemming, Brooke	EPA
Hodson Marten, Elke	Office of Management and Budget
Jones, Lindsey	Texas Commission on Environmental Quality
Kalisz, Cathe	American Petroleum Institute
Lamson, Amy	EPA
Long, Tom	EPA
Lu, Jennifer	Bloomberg Environment
Mazza, Carl	EPA
Mesrobian, Sarah	EPA
Mocka, Corey	EPA
Murphy, Deirdre	EPA
Ollison, Will	American Petroleum Institute
Peffer, Mel	EPA
Reilly, Sean	E&E News
Richmond-Bryant, Jennifer	EPA
Schwab, Margo	Office of Management and Budget
Shirley, Stephanie	Texas Commission on Environmental Quality
Thomas, Amanda	Office of Management and Budget
Thurman, James	EPA
Tillerson, Clint	EPA
Vandenberg, John	EPA
Vitillo, Nicole	New York Department of Health
von Hake, Phil	
Wesson, Karen	EPA
Williams, Melina	EPA