

1 **Preliminary Comments on the REA from Dr. Donna Kenski**

2
3 General Comments
4

5 The REA is well written and edited, and it communicates the relevant details of the highly
6 technical modeling and data adjustment process with remarkable clarity. It follows the plan laid
7 out in earlier documents faithfully and builds on the work and methods that were developed for
8 the previous SO₂ NAAQS review. I was impressed with both the REA and PA and found very
9 few substantive issues that remain in need of attention.

10
11 **Introduction and Background for the Risk and Exposure Assessment (Chapter 1)**
12

- 13 1. *Does the Panel find the introductory and background material, including that pertaining to*
14 *previous SO₂ exposure/risk assessments, to be clearly communicated and appropriately*
15 *characterized?*

16 Yes, Chapter 1 provides a good summary of the previous review process with just enough
17 detail. It is concise yet thorough. I have no recommended changes.

18
19 **Conceptual Model and Overview of Assessment Approach (Chapter 2)**
20

- 21 2. *Does the Panel find the conceptual model summarized in section 2.1 to adequately and*
22 *appropriately summarize the key aspects of the conceptual model for the assessment?*

23
24 Similarly, Chapter 2 is concise but serves its purpose. Figure 2-1 is difficult to read and
25 should be enlarged.

- 26
27 3. *Does the overview in section 2.2 clearly communicate key aspects of the approach*
28 *implemented for this assessment?*

29
30 Yes, the overview is clear and the accompanying figure is a useful graphical summary of the
31 process.
32

33 **Ambient Air Concentrations (Chapter 3)**
34

- 35 4. *Does the Panel find the description of the three study areas and their key aspects (section*
36 *3.1) to be clear and technically appropriate?*

37
38 The criteria for selecting areas are described clearly and are entirely appropriate. The 3
39 selected areas together make an excellent study group.
40

- 1 5. *Does the Panel find the description of the air quality modeling done to estimate the spatial*
2 *variation in 1-hour concentrations (section 3.2) to be technically sound and clearly*
3 *communicated?*
4

5 This section does a good job justifying the selection of AERMOD and summarizing the
6 steps to produce the hourly data. It does not mention that the background concentrations are
7 added to the estimated source concentrations though – perhaps that should be stated
8 explicitly. I appreciate and applaud the fact that EPA relied on input data developed by the
9 states to build their analyses for this document. I know that the Indiana Department of
10 Environmental Management in particular put enormous effort into SO₂ modeling and it is
11 great to see it used for this review. However, the document doesn't seem to formally
12 acknowledge these state contributions. Please add one, in this chapter or elsewhere.
13

- 14 6. *To simulate air quality just meeting the current standard, we have adjusted model predicted*
15 *1- hour SO₂ concentrations using a proportional approach focusing on the primary*
16 *emissions source in each area to reduce the modeled concentrations at the highest air*
17 *quality receptor to meet the current standard (section 3.4). Considering the goal of the*
18 *analyses is to provide a characterization of air quality conditions that just meet the current*
19 *standard and considering the associated uncertainties, what are the Panel's views on this*
20 *approach?*
21

22 EPA has been through several iterations of this approach and I think it is reasonably well
23 vetted and defensible. However, I was unsure of the rationale for only adjusting the
24 emissions of one primary source in study areas with several large sources. Why is it more
25 realistic – because only the largest source is likely to be controlled? Please elaborate.
26

- 27 7. *A few approaches were used to extend the existing ambient air monitoring data to reflect*
28 *temporal patterns in the study area (section 3.5). Does the Panel find the approaches used*
29 *below to be technically sound and clearly communicated?*
30

31 I like the idea of using the Detroit monitor with continuous 5 min data to estimate the 11
32 other 5-min averages in the Indianapolis data. The use of Proc Expand to fill in missing 1-hr
33 and PMRs is sound and seems free of bias. I also like the new statistics, p90p90 and
34 p90p99. The document does a good job explaining these very convoluted manipulations of
35 the measured and modeled data. But it makes me wonder why we don't spend some of this
36 effort on developing a model that generates 5-minute concentrations rather than jumping
37 through these hoops to make AERMOD output resemble the 5-min measurements. Since the
38 health data point to effects from 5-minute exposures, then we really need a model that can
39 provide those estimates. It doesn't seem like it should be an impossible task.
40
41
42

1 **Population Exposure and Risk (Chapter 4)**
2

- 3 8. *Does the Panel find the presentation of, and approaches used for, key aspects of the*
4 *exposure modeling, including those listed below, to be technically sound and clearly*
5 *communicated?*
6

7 The presentation of data in this Chapter was sound and clearly communicated. However,
8 there is no mention of environmental justice-related impacts. Given the disparities in
9 income and housing that we see in communities around many pollution sources, often also
10 with higher asthma prevalence, I would like to see these addressed specifically. It seems
11 that the REA captures income disparities in its modeling, but it wasn't clear to me if
12 different asthma prevalence in minority populations was included. The PA mentions these
13 characteristics as relevant but also doesn't say if they are specifically addressed.
14

15 **Exposure and Risk Estimates (Chapter 5)**
16

- 17 9. *This chapter is intended to be a concise summary of exposure and risk estimates, with*
18 *interpretation with regard to implications in this review largely being done in the PA. Does*
19 *the Panel find the information here to be technically sound, appropriately summarized and*
20 *clearly communicated?*
21

22 Despite the caveat above (that implications of this work are presented in the PA), I think the
23 reader deserves at least a minimal preview of implications in this document. This chapter
24 was too much summary, not enough detail.
25

26 **Characterization of Uncertainty and Representation of Variability (Chapter 6)**
27

- 28 10. *What are the views of the Panel regarding the technical appropriateness of the assessment of*
29 *uncertainty and variability, and the clarity in presentation?*
30

31 This was the best discussion of uncertainty and variability I've seen in any of the ISAs or
32 REAs to date. EPA has provided a comprehensive treatment of both uncertainty and
33 variability. The tables are very effective at communicating the sources of uncertainty,
34 potential for bias and direction of bias. The sensitivity analyses summarized in Section 6.2.2
35 were especially helpful and provide the readers with additional confidence in the
36 methodologies examined.
37

38 Minor edits
39

- 40 P. 3-35, line 13: change *fewer* to smaller
41 p. 3-35, line 15: 'at above' should be 'at or above'
42 p. 3-35, line 15: 'having' should be 'had'

09-18-17 Preliminary Draft Comments from Clean Air Scientific Advisory Committee (CASAC) Sulfur Oxides Panel. These preliminary pre-meeting comments are from individual members of the Panel and do not represent CASAC consensus comments nor EPA policy. Do not cite or quote.

- 1 p. 3-35, lines 16-17: not sure what this sentence is actually saying, please reword.
- 2 p. 3-35, line 18: change 'are' to 'was'
- 3 p. 4-8, lines 7-11: seems to be a run-on sentence, please edit.
- 4 p. 4-15, line 32: change 'significant' to 'significantly'
- 5 Figs 6-1, 6-2, 6-3 all need the study area name added to the caption
- 6