

Preliminary Comments on the PA from Dr. Jack Harkema

Chapter 1

I find the introductory and background material in this chapter to be clearly communicated and appropriately characterized. Table 1-1 provides a nice summary of primary NAAQS for SO_x since 1971.

1.3 provides an adequate introduction to the general approach and organization of the PA.

Chapter 3

In response to the first charge question for Chapter 3, the document overall provides appropriate level of detail in addressing the policy-relevant questions.

The Approach (3.1) is thoroughly and clearly presented in the text.

Figure 3-1 is very helpful and nicely illustrates/summarizes the overall approach of the review of the current primary standard.

The organization around a set policy-relevant questions works well. The questions selected for 3.2 are appropriate, clearly stated and addressed.

The length of Chapter 3 could be substantially and effectively shortened by minimizing reiteration and duplication throughout the document.

More effective use of summary tables would provide more clarity and conciseness. For example, a table listing the key areas of experimental and epidemiological uncertainty would be helpful for 3.2.1.4 (p.3-47, line 29 through p3-28, line 3).

The concluding section of Chapter 3 (3.3; pages 3-58 and 3-59; Key Uncertainties and Areas for Future Research and Data Collection) could be expanded to include other at-risk groups (e.g. obese/overweight, those with type 2 diabetes, newly identified asthmatic phenotypes).

p.3-15. The state of the “current evidence” could be better presented here and elsewhere. Has there been sufficient research since the last review to adequately address uncertainties/data gaps identified in the last PA?

For 3.2, the authors should consider a table of new studies since the last review that has significantly impacted the review and PA. Tables 3-1 is important but the studies are not new.

Would it be more appropriate to use 2016 data, rather than 2015 data, for Table 3-2?

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- 1 p.3-35, 3.2.2.1. Before going into the specifics of each of the study areas, it would be helpful for
2 the authors to explain the key criteria used in the selection of these three locations for the REA.
3
- 4 p.3-36, line 3. A clear definition for “microenvironmental approach” is needed.
5
- 6 p.3-39, line 21 through 3-40, line 4 provides a summary of the strengths of the currently used
7 models for REA, but their limitations should be briefly stated here as well.
8
- 9 p.3-40, line 17-21. Are there two or three sets of risk estimates presented? As written it could be
10 viewed as three risk estimates. Risk 2 has two types of affected people (those with single and
11 those with multiple occurrences of lung function decrements). A little more clarification is
12 needed.
13
- 14 Tables 3-3 and 3-4 are very good.
15
- 16 p.3-48, lines 11-15. Authors should provide more clarity (definition) to the terms “magnitude,”
17 “severity” and “adversity.”
18
- 19 p.3-48, line 21. It is important to be clear on the clinical relevance (adverse or not, with or
20 without respiratory symptoms) of “moderate or greater increases in sRaw” here and elsewhere in
21 the PA (it is nicely stated on p.3-49, lines 24-25).
22
- 23 p. 3-52, lines 19-22. Has the evidence base been significantly augmented since the last review? If
24 so highlight these areas (and those areas where not enough new data had been generated).
25