

Charge to the CASAC NO_x SO_x Secondary NAAQS Review Panel

We ask the CASAC NO_x SO_x Secondary NAAQS Panel to focus on the charge questions listed below in their review of the second draft Policy Assessment, but we would appreciate comments on any other topics as well. While we have striven to address a number of key issues in this second draft Policy Assessment, there remain important gaps in our analyses and discussions. We have tried to identify these throughout the document. We plan to provide some additional information regarding analyses of alternative target ANC and target percentage of lakes and streams to protect to the Panel prior to the meeting of the Panel on October 6 and 7.

Chapter 1: Introduction

[no questions]

Chapter 2: Known or Anticipated Ecological Effects

[no questions]

Chapter 3: Considerations of Adversity to Public Welfare

1. What are the Panel's views on the definitions of adversity that are appropriate to consider in determining what constitutes adversity to public welfare relative to the NO_x and SO_x secondary standards?

Chapter 4: Addressing the Adequacy of the Current Standards

2. What are the Panel's views on staff's approach to translating the available evidence and risk information and other relevant information into the basis for reaching conclusions on the adequacy of the current standards and on alternative standards for consideration?

a) In light of the Panel's views on the appropriate definitions of adversity to public welfare (see Chapter 3), do you agree that the current levels of NO_y and SO_x deposition are adverse to public welfare?

3. Has staff appropriately applied this approach in reviewing the adequacy of the current standards and potential alternative standards?

4. Has staff appropriately acknowledged the potential beneficial effects of nitrogen inputs into nutrient limited ecosystems, while maintaining the focus of the review on preventing adverse effects in nitrogen sensitive ecosystems?

Chapter 5: Conceptual Design of an Ecologically Relevant Multi-pollutant Standard

5. What are the Panel's views on staff's revised conceptual framework for the structure of a multipollutant, ecologically relevant standard for NO_x and SO_x? To what extent does the Panel agree that this suggested structure adequately represents the scientific linkages between ecological responses, water chemistry, atmospheric deposition, and ambient NO_x and SO_x?
6. What are the Panel's views on the appropriateness of considering a single national population of waterbodies in establishing standards to protect against aquatic acidification? What are the Panel's views on consideration of alternative subdivisions of the U.S. to identify the spatial boundaries of populations of waterbodies and acid-sensitivity categories, specifically:
 - a) the use of Ecoregion III areas to aggregate waterbodies ?
 - b) the use of ANC to further aggregate Ecoregion III areas into different categories of sensitivity?
 - c) the relative appropriateness of the suggested methods for categorizing spatial boundaries of sensitivity, e.g. on nation, binary sensitive/less-sensitive classes, cluster-analysis based sensitivity classes, and individual ecoregions?
7. What are the Panel's views on the appropriateness of the critical loads that form the basis for the population assessment to determined deposition metrics?
 - a) What are the views of the Panel on the appropriateness of generalizing the f-factor approach to apply to lakes and streams in the Western U.S. and other portions of the Eastern U.S.
 - b) What are the views of the Panel on the filtering criteria used to remove lakes and streams that are naturally acidic or not sensitive to atmospheric deposition?
8. What are the Panel's views on the suggested methods for determining appropriate values of reduced nitrogen deposition in establishing NO_x/SO_x tradeoff curves?
9. What are the Panel's views on the revised characterization of the deposition transference ratios (T_{NO_y} and T_{SO_x})?
10. What are the Panel's views on staff's conclusion that an averaging time of 3 to 5 years is appropriate given the AAPI form of the standard?
11. What are the Panel's views on the preliminary staff conclusions regarding alternative target ANC levels that are appropriate for consideration and the rationale upon which those conclusions are based?
 - a) In light of the Panel's views on the appropriate definitions of adversity to public welfare (see Chapter 3), what are the Panel's views on the appropriateness of the information related to adversity considered by staff in evaluating alternative target ANC levels?
12. What are the Panel's views on the approaches considered by staff for assessing alternative target percentages of water bodies for protection at alternative ANC levels?

Chapter 6: Co-protection for Other Effects Using Standards to Protect Against Aquatic Acidification

13. What are the Panel's views on the utility of the additional analyses of co-protection benefits to inform consideration of alternative levels of the standard?

Chapter 7: Evaluation of Uncertainty and Variability in the Context of an AAPI standard, including Model Evaluation, Sensitivity Analyses, and Assessment of Information Gaps

14. What are the Panel's views on the following:

- The degree to which the chapter appropriately characterizes the potential role of information on uncertainty, sensitivity, and variability in informing the standards?
- The appropriateness and completeness of the evaluation of CMAQ model performance and sensitivity to critical inputs?
- The utility of the analyses of temporal and spatial variability in the deposition transference ratios (T_{NOy} and T_{SOx})?

15. What are the Panel's views on the insights provided by the AAPI sensitivity analysis including:

- The evaluation of elasticities of response?
- The multivariable ANOVA analysis?

16. What are the Panel's views on the discussion of uncertainty in the critical loads models including MAGIC and SSWC?

17. What are the Panel's views on the areas for future research and data collection outlined in this chapter, on relative priorities for research in these areas, and on any other areas that ought to be identified?

Chapter 8: Monitoring

18. What are the Panel's views on using an open inlet to capture all particulate size fractions for the purpose of analyzing for sulfate?

What is your opinion on using existing CASTNET filter packs as a future Federal reference method for sulfate?

19. What are the Panel's views on requiring measurements of ammonia and ammonium to assist implementation of the standard?

20. What are the Panel's views on having a subset (e.g., 3-5 sites) of monitoring stations in different airsheds that measure for the major NOy species; nitric acid, true NO_2 , NO , PAN and p- NO_3 ?

Chapter 9: Conclusions

21. What are the Panel's views on the overall characterization of uncertainty as it relates to the determination of an ecologically-relevant multi-pollutant standard for NO_x and SO_x?
22. What are the Panel's views on the following:
- a. The insights that can be gained into potential alternative additional secondary standards (using the AAPI form) by considering:
 - i. Information from studies on the relationship between mortality in aquatic organisms and pH and ANC?
 - ii. Information from studies on the relationship between fish health and/or biodiversity metrics and pH and ANC?
 - iii. Information on the relationship between pH, Al, and ANC?
 - iv. Information on target ANC levels identified by states and regions, as well as other nations?
 - b. The appropriate role of qualitative and quantitative characterizations of uncertainty in developing standards using the AAPI form?
 - c. The role of considerations regarding the relationship of the standard to:
 - i. the time trajectory of response, e.g. when specific ANC levels are likely to be realized given a specific level of the AAPI?
 - ii. the likelihood of damages to aquatic ecosystems due to episodic acidification events given a specific target for chronic ANC?
 - iii. the levels of co-protection for terrestrial ecosystems against acidification effects and the for aquatic and terrestrial ecosystems against effects of excess nutrient enrichment?
23. What are the Panel's views on Staff's conclusion that the existing secondary standards for NO_x and SO_x should be retained to provide protection against direct adverse effects to vegetation due to gas phase exposures?
24. In light of the Panel's views on what constitutes adverse effects to public welfare (see Chapter 3), what are the Panel's views on:
- a) the degree to which current levels of NO_y and SO_x deposition are adverse to public welfare based on evidence and risk information, and information on adversity provided in Chapters 2,3, and 4?
 - b) target values for ANC that protect against adversity to public welfare in light of the information presented in Chapter 5 concerning levels of ANC and the ecosystem effects associated with those target ANC levels?
 - c) factors relevant in selecting target percentages of waterbodies to protect at alternative target ANC levels to protect against adverse effects to public welfare, and weights to place on those factors?
 - d) alternative standards for NO_x and SO_x that would protect against adverse effects to public welfare based on the AAPI form, and taking into account
 - consideration of target levels of ANC (chapter 5),
 - target percentage of water bodies to protect (chapter 5),
 - consideration of relevant uncertainties in AAPI components (chapter 7), and
 - any other potentially relevant factors, such as levels of co-protection against terrestrial acidification and nutrient enrichment (chapter 6)?