

**U.S. Environmental Protection Agency
Science Advisory Board
Integrated Nitrogen Committee**

Public Teleconference
June 8, 2010
1:00 – 5:00 p.m. (Eastern Daylight Time)

Participants:

Members of the EPA Science Advisory Board (SAB) Integrated Nitrogen Committee (INC): Otto Doering (Chair), Viney Aneja, Ellis Cowling, Russell Dickerson, James Galloway, William Herz, Donald Hey, JoAnn Lighty, William Mitsch, Arvin Mosier, Hans Paerl, Paul Stacey, and Thomas Theis (See INC Roster)¹.

EPA Staff: Thomas Armitage, SAB Staff Office, Danielle Stephan, EPA Office of Water, Phil Zeredine, EPA Office of Water.

Other: The following individuals requested the call-in number: Doug Austin, Institute of Clean Air Companies; Christopher Clark, AAAS Science and Technology Policy Fellow; Anne Coan, North Carolina Farm Bureau Federation; Tom Moore, Western Governors Association; Burlison Smith, Policy Navigation group; and Tamara McCann Thies, National Cattlemen's Beef Association

Purpose:

The purpose of the teleconference meeting was to discuss revisions in the Committee's draft report² in response to comments from the Chartered Science Advisory Board.

Summary of the Discussion: The meeting was announced in the Federal Register³ and proceeded according to the meeting agenda⁴. Thomas Armitage, Designated Federal Officer (DFO) for the INC convened the call at 1:00 p.m. Eastern Daylight Time and called the roll. Dr. Otto Doering, Chair of the INC reviewed the objectives for the meeting. He stated that the Integrated Nitrogen Committee Subject Leads had revised Committee's draft report on reactive nitrogen in response to comments from the Chartered Science Advisory Board. He noted that the revised report had been sent to members of the Committee for review. He further stated that the purpose of the teleconference was to discuss the revised report and reach agreement on any additional changes that should be incorporated before the report was sent to the Chartered Board for quality review. Dr. Doering then reviewed the teleconference agenda. He stated that he wanted to discuss parts of the report in the following order: 1) chapters 1-6, 2) the executive summary, and 3) the letter to the Administrator. The following is a summary of the issues discussed.

Restructuring of the Report

Dr. Doering asked the Designated Federal Officer (Dr. Armitage) to summarize how the report had been restructured.

Armitage stated that the Chartered SAB had recommended that the report be restructured to provide chapters that were more narrowly focused on discrete topics, and had recommended that some of the technical material be moved into appendices. Dr. Armitage stated that, in response to the SAB comments, the three chapters of the previous draft had been restructured into six chapters. He briefly described the six chapters that addressed the following topic: 1) introduction, 2) Sources, Transfer, and Transformation of Reactive Nitrogen in Environmental Systems 3) Impacts of Reactive Nitrogen on Aquatic, Atmospheric, and Terrestrial Ecosystems, 4) Metrics and Current Risk Reduction Strategies for Reactive Nitrogen, 5) Integrated Risk Reduction Strategies for Reactive Nitrogen, and 6) SAB Recommendations for Nr Data Collection, Risk Management, and Research. Armitage stated that all of the Committee's findings and recommendations had been included in Chapter 6.

Dr. Doering asked the Committee members to comment on whether they were in agreement with the new structure of the report.

A member stated that the new executive summary was mostly parts of the old executive summary. He asked whether Table 1 in the executive summary had been changed. Dr. Doering responded that some minor clarifications had been included in Table 1 in response to SAB comments, but most of the table had not been changed.

A member stated that when the report is sent to the Board for the second quality review, it would be helpful to provide a summary of how the SAB comments had been addressed. Dr. Doering stated that this summary had been developed when the Subject Leads discussed revisions. Dr. Doering asked the DFO to prepare the summary of changes in response to the SAB comments.

A member stated that Chapter 6 had been developed in response the chartered SAB comments indicating that the findings and recommendations should be linked to the four study objectives. He stated that this and other changes to restructure the report had been responsive to the SAB comments. The member stated that he had provided alternative wording for the opening paragraph of the report and would like to see it incorporated.

A member stated that in response to the SAB comments, he had developed a new section on freshwater effects of reactive nitrogen. He stated that if any members had comments on that section they should be discussed.

A member stated that the findings and recommendations had been presented in Chapter 6 and linked to each of the four study objectives. However, he questioned how the order of the list of findings and recommendations under each study objective had been determined. Dr. Armitage noted that the findings and recommendations were presented

in the order in which they appeared in the previous chapters of the report. The member indicated that it would be preferable to list the more significant findings and recommendations first. Dr. Doering responded that he would look at the order in which the findings and recommendations were presented under each study objective in Chapter 6 and determine whether reordering was needed.

A member suggested that the discussion of impact of reactive nitrogen on freshwater systems should address the impact on potability. A member stated that too much nitrate can cause health impacts.

Freshwater Impacts Section

A member stated that the freshwater section focused on eutrophication. He stated that the human health impacts could be addressed in a separate paragraph but an extensive discussion of this was not needed in the report. Another member stated that a U.S. Geological Survey report on nitrate in wells was available and provided useful information.

A member suggested that the freshwater impacts section be retitled “Impacts on Freshwater Ecosystems.” He noted that a paragraph on human health impacts could be added.

Two members suggested that a brief section on human health impacts of nitrogen in freshwater be added to the report to parallel to the existing section 3.1.1. A member noted that additional information in this section could also be added to Table 1.

Discussion of Chapter 1

A member stated that the quality of Figure 2 should be improved. The DFO noted that he SAB Staff Office intended to do additional work on the report layout and copy editing. He stated that he would look into improving the quality of the figure as part of this work.

Discussion of Chapter 2

A member noted that in Section 2.2 of the report (sources of Nr New to the Environment) fossil fuels were mentioned before the Haber-Boesch process. He suggested that the Haber-Boesch process be mentioned first because it produced four times more reactive nitrogen. Other members commented that fossil fuels were mentioned first because they might be more manageable.

Dr. Doering indicated that to address the importance of the Haber-Bosch process he would include a statement in the introductory sentences on page 29 recognizing the relative contribution agricultural activities and fossil fuels as sources of reactive nitrogen, and stating that the report would first review the contribution of fossil fuels. Other members agreed with this suggestion.

A member described text that had been added to recommend consideration of NO_y as a supplement or replacement for the current NO₂ National Ambient Air Quality Standard and asked whether members were in agreement with this new text. Dr. Doering stated that he was in agreement and other members did not object to this new text.

Chapter 3

Members stated that a new section should be inserted before the current Section 3.1.1. They suggested that this section be titled “Impacts of reactive nitrogen on drinking water quality and swimmability.”

Members discussed the focus of Section 3.1 and agreed that it should be retitled “Impacts on Freshwater Ecosystems.”

A member noted that wetlands were not discussed in Section 3.2.1. Another member suggested that a paragraph addressing wetlands should be written and included in Section 3.1.1.

Chapter 4

Members noted a number of editorial corrections that were needed in Chapter 4.

A member questioned whether the caption in Figure 17 should be “Tonnes N” or “Tons N” The chair stated that Dr. Moomaw should send a note to the DFO providing the correct caption for the figure.

A member stated that references should be provided for Figures 16 and 17. The Chair stated that Dr. Moomaw should provide the DFO with references and any updates needed in Figures 16 and 17.

Chapter 5

Committee members did not suggest changes in Chapter 5.

Chapter 6

A member suggested that the discussion of near-term target goals on page 141, lines 5 and 6 should indicate that the targets could be attained in 10-20 years. Other members agreed with this change.

A member stated that the near term target goals described in section 6.3 reflected recommended management options and that this should be made clear in both the executive summary and the introductory sentences in section 6.3.

A member suggested some changes in the discussion of the targeted construction grants program (in the text describing target goal #4 and in the executive summary).

A member suggested changes in the text describing target goals 1, 2, and 3. He indicated that “the Committee suggests” should be replaced with “the Committee finds.” Members agreed with this. A member stated that the text in target goal #1 would have to be revised to incorporate the finding language.

A member stated that language should be incorporated into section 6.3 to indicate that the goals are not unattainable. A member stated that the text in section 6.3 should indicate that the goals can be attained with aggressive implementation.

Members discussed whether the findings and recommendations were listed in the appropriate order under each of the objectives in Section 6.4. The Chair stated that it was important to group the findings and recommendations by the four study objectives. The DFO reiterated that the findings and objectives were listed in the order in which they appeared in the report. The member stated that he would like to reorder the findings and recommendations.

A member pointed out an error on page 151 line 10 and some corrections needed in the references.

Executive Summary

The Committee discussed a number of editorial changes in the executive summary. A member suggested a wording change in the discussion of “four recommended management options” on page 17 of the executive summary. A member stated that page 2, line 6 of the report should be revised to state that the Committee evaluated nitrogen inputs to the United States in 2002. (i.e., change 2004 to 2002). A member stated that on page 13, line 29 “Army” should be changed to “U.S. Army Corps of Engineers.” On page 15 lines 38 and 45, “land grant universities” should be changed to “universities.”

A member suggested that the executive summary should be made shorter. The Committee discussed several options to make the executive summary more concise. A member stated that he wanted to provide suggestions to make the executive summary shorter.

A member stated that the first paragraph in the executive summary should clearly state the problem. He noted that the draft report needed a clear problem statement. He suggested that the problem statement on page 4 (Impacts of reactive nitrogen on human health and the environment) should be emphasized at the beginning of the report.

A member suggested that the executive summary could be shortened by summarizing the points currently included on pages 12-18.

The Committee discussed whether the executive summary paragraph titled, *Impacts of reactive nitrogen on human health and the environment* should be moved forward to the beginning. A member suggested that a new opening paragraph was needed in the

executive summary. He suggested some text to be included. Another member stated that he thought the paragraph on the impacts of reactive nitrogen on human health and the environment should be inserted after the first paragraph of the executive summary.

Dr. Doering stated that he would like to include problem statement language in the first paragraph. He stated that sentences addressing the impacts of reactive nitrogen could be moved forward into the first paragraph and lines 31-50 on page 4 and table 2 would be included before the paragraph discussing the nitrogen cascade.

Letter to the Administrator

Members discussed a number of changes in the Letter to the Administrator. A member stated that the time frame on line 16 on page iii should be changed to “10-20 years.” A member suggested a change in the signature block.

A member requested changing the sentence on line 33 of the first page to indicate that “Excessive” forms of reactive nitrogen adversely affect ...”.

A member noted the second bullet on page ii, the letter indicated that much of the reactive nitrogen was lost to the environment. The member noted that it was important to recognize the importance of using nitrogen for food production. Other members stated that they liked the bullet as written. However it was decided that the sentence on line 15 page ii should be rewritten as “Much of the reactive nitrogen used to ensure a plentiful supply of food, fiber, and biofuel is released to the environment...”

A member suggested revising the sentence on page 1, line 34 of the executive summary to state that “The denitrification process provides a major pathway for removal of reactive nitrogen from the environment, but produces some nitrous oxide that is a powerful global warming gas and a stratospheric ozone depleter.”

A member suggested that the paragraph on lines 29-39 on the first page of the letter should indicate that different ecosystems have the capacity to convert reactive nitrogen to nitrogen gas.

A member stated that line 21 on page ii of the letter should be revised to state that introduction of reactive nitrogen causes “loss of drinking water potability” rather than loss of drinking water.

A member suggested that the paragraph beginning on line 14 of page iii should indicate that a specific action to achieve reduction in reactive nitrogen loss to the environment is large scale creation of wetlands. He stated that he would send a text change to the DFO.

A member requested that in line 12 page ii “inorganic fertilizers” be replaced with “synthetic fertilizer.”

Summary and next steps

Dr. Doering thanked the members for their comments. He stated that the DFO would prepare a summary of the changes discussed and send it to members. He stated that specific assignments addressing changes discussed would be included in the summary. He stated that members should send the revised text to the DFO for incorporation into the report. The revised report would then be provided to the committee for review and concurrence to send it to the Chartered SAB for a second quality review.

Respectfully Submitted:

Certified as True:

/Signed/

/Signed/

Dr. Thomas Armitage
Designated Federal Officer

Dr. Otto Doering, Chair
SAB Integrated Nitrogen Committee

Materials Cited

The following meeting materials are available on the SAB Integrated Nitrogen committee Web site,

<http://yosemite.epa.gov/sab/sabproduct.nsf/02ad90b136fc21ef85256eba00436459/c83c30afa4656bea85256ea10047e1e1!OpenDocument> at the June 8, 2010 Meeting Page

¹ Roster, Integrated Nitrogen Committee, June 8, 2010

² Draft Report: Reactive Nitrogen in the United States; An Analysis of Inputs, Flows, Consequences, and Management Options (Draft, May 28, 2010)

³ Federal Register Notice Announcing the Meeting

⁴ Agenda for the June 8, 2010 teleconference