

Compilation of Comments on SAB Panel Review of EPA Report on the Environment 2007

1. Dr. Jana Milford

The panel has done a good job of addressing the charge questions and the report is generally clear. I especially like the careful way the panel has distinguished between recommendations for revising the 2007 ROE and recommendations for future reports.

p. xiv, line 40. For clarity, the panel could add a sentence to explain why comparison to drinking water MCLs is inappropriate.

p. 10, lines 44-46. Mercury may not be the best example of an environmental contaminant for which exposure on a national scale is (most) relevant, since there is substantial heterogeneity in deposition and environmental concentrations of mercury and in human exposure through fish consumption.

p. 14, lines 12-14. Support needs to be provided for the suggestion that EPA should try to link trends in stratospheric ozone levels to trends in secondary air pollution. Beyond pointing out the conceptual links, separating this effect from other factors seems likely to be a complicated and controversial exercise.

p. 14, lines 22-24. The panel should provide support for the statement that air pollution mixtures account for most health effects.

p. 14, lines 29-31. I'm not sure it's accurate to say NO_x has been controlled to the point where it does not have direct health impacts. Would it be more accurate to say NO_x has been controlled to the point that the existing NAAQS for NO₂ is no longer violated?

p. 15, lines 1-8. The panel should carefully consider the recommendation that EPA discuss "ongoing efforts, activities and/or programs ..." This recommendation seems to go beyond the scope of the charge questions to the panel and likewise beyond the intent of the ROE.

p. 16, lines 4-16. I was confused by the suggestion that the final report should include an air toxics indicator. The version of the ROE provided to us includes a composite air toxics indicator as well as trends in several individual air toxics.

p. 18, lines 19-21. I didn't understand what was meant by "extrapolation of indicator data from national to regional to subregional scales".

p. 19, lines 17-18. I didn't understand what was meant by the suggestion that "more attention needs to be paid ... to using the data to demonstrate how they have improved our understanding of the atmospheric system in the U.S."

p. 34, lines 15-27. The authors did a good job of expressing the difference of opinion among the panel members on this point.

Finally, one technical problem I found in the air chapter of the ROE is that it refers to the 24-hour PM_{2.5} NAAQS as $65 \mu\text{g m}^{-3}$. I believe that NAAQS is now set at $35 \mu\text{g m}^{-3}$.

2. Dr. Michael McFarland

In general, the Panel is commended for providing a clear and well written report summarizing its evaluation of the *Agency's Report on the Environment 2007: Science Report*. Beyond addressing the specific charge questions, the Panel's overarching or "higher level" findings are particularly timely and highlight the acute need for more effective integration, analysis and interpretation of environmental and public health indicator information. The Panel is applauded for its identification and explicit support for developing regional environmental indicators as well as the inclusion of statistical analyses of data to establish scientific confidence in indicator trends.

Given the quality and clarity of its responses, I strongly recommend the report's approval pending minor editorial corrections. The following are my responses to the specific report reviewer questions as well as a couple of general observations.

- a) Were the original charge questions adequately addressed in the draft report?

The Panel's report provides full and comprehensive responses to each of the six charge questions posed by the Agency. The Panel's responses establish a clear direction for the Agency to improve both the structure and content of the current and future ROE reports.

- b) Is the report clear and logical?

Overall, the report is clear and logical. However, in a few places, the report would benefit by providing additional direction to the Agency in terms of how it might sufficiently address the Panel's concerns. For example, while the Panel supports the relaxing of the restrictive indicator selection criteria so that additional indicators can be included (Page 8), it is unclear to the reader if there is an unambiguous and systematic process that could be applied to achieve a scientifically defensible set of credible environmental indicators.

To its credit, the Panel acknowledges that changes to the indicator selection process would not be simple and that the conceptual framework of the report should drive the development of indicator selection criteria. From a reader's standpoint, it would be valuable if this recommendation could be more fully developed.

- c) Are the conclusions drawn and/or recommendations made supported by information found in the body of the draft SAB report?

The Panel provides conclusions and recommendation that are strongly supported by information found in the body of the report. The Panel is also commended for prioritizing its recommendations so that the Agency can effectively commit its scarce resources to those activities that will yield the largest benefit in the development of future ROE.

ADDITIONAL COMMENTS

The following comments are provided simply as observations for the Panel's consideration in completing the final draft of the report.

- a) Page 31 (Line 15-18) – The report implicitly states that “biosolids and compost” are wastes applied to agricultural land. Although the confusion is understandable, from a regulatory (e.g., Clean Water Act, Resource Conservation and Recovery Act, etc.) and agricultural standpoint, biosolids and compost are not wastes but highly valued soil organic and nutritional amendments.
- b) Throughout the current report, the Panel expresses a number of concerns regarding aggregation of regional indicator data to reflect national trends as well as disaggregation of national indicator data to describe regional and/or local environmental conditions. While it is not explicitly stated anywhere in the report, many, if not most, states also generate and publish their own ROE.

It is not entirely apparent from the Panel's report whether the Agency's regional environmental and public health indicator trends are simply a “roll-up” of state available ROE information from that particular region or if the information on regional indicators has been obtained independently. If state furnished information were being used to support regional indicator trends, it is important to establish whether there is mandated uniformity regarding the type and quality of environmental and public health indicators each state must use in preparing its own ROE. High

variability in individual state indicator type and quality requirements would render data aggregation a significant challenge for establishing both regional and national trends.

3. Dr. Rebecca Parkin

SAB Panel's Draft Report

Overarching comments

The Panel has drafted a thorough and balanced report, describing the strengths and limitations of the Agency's draft **Report on the Environment 2007: Science Report (ROE)**. The Panel recognizes the staff's considerable effort, productivity and outputs provided in this unique report. The target audiences for the report and web-based version include scientists and the general public. The Panel's draft report indicates that, although the ROE includes extensive data and many indicators, the lack of clear objectives, unifying conceptual framework, historical contexts, statistical analyses and interpretation, and cross-chapter linkages will very likely limit the ROE's value to and use by its readers.

The Panel's draft is in large part clear, unambiguous and consistent. The report is well organized and consistently states the panel's findings in the Executive Summary, chapters and appendices. Comments most frequently made below relate to terminology (#3, 4, 6, 7 and 10), recommendations (1, 5,8, 9, 12, 17 and 18), and the Executive Summary (#2, 4, 5 and 7). One recommendation is made for the Letter to the Administrator.

Responses to the quality review questions

- a) **The original charge questions to the SAB panel were adequately addressed in the Panel's draft report.** Although parts of some questions were not explicitly addressed for a few chapters, these minor gaps do not result in substantive limitations in the Panel's review and advice to the Agency. The only question entirely missed (on pp. xiii and 13) was Charge Question 6 (technical merit, clarity and communication level) for the entire draft ROE. This question can be readily answered by identifying the recurring statements among the separate chapter responses.
- b) **The Panel's draft report is generally clear and logical.** Major themes are appropriately identified in the Executive Summary. Rationales for major points, such as the limited value of using EPA regions for indicators, are presented throughout the draft report (e.g., pp. 18, 26, 36 and 42). Together the rationales offer considerable support for the Panel's conclusions.

Some sections of the report could be made clearer or stronger. For example:

1. The Panel's recommendations for future ROEs, as well as the 2007 ROE, add value to their response to the Agency. However, switching back and forth between the 2007 and future ROEs can be confusing to the reader. Although Appendices F (2007 ROE) and G (future ROEs) are helpful, they do not include all of the suggestions made in the text (e.g., p. xi, line 20-22; p. 4, lines 30-32; p. 9, lines 34-37; p. 18, lines 34-36). Further, this reviewer would have preferred the use of graphic tools in the text to separate visually the recommendations for the 2007 and future ROEs. For example, "final report" could be underlined and "future reports" could be italicized.
2. P. xi, lines 20: The text on p. 13, lines 22-23 ("data ...not science") is powerful and could be inserted in the Executive Summary to increase the impact of this important limitation of the entire ROE.
3. Pp. xi and 4: "Synthesizing chapter" is used in two ways – to refer to the human health and ecology chapters and to a recommended integrative chapter across the entire ROE. While the Panel very appropriately recommends greater synthesis, it may be clearer to the reader if two different terms are developed to distinguish the former two chapters in the 2007 ROE from the latter recommended chapter for future ROEs.
4. P. xii, l. 33: "Adjusting criteria" is not clear. This term is not used in reference to criteria anywhere else in the Panel's report; instead discussions of applying the criteria too rigidly (e.g., p. 8), having clear and transparent criteria (e.g., p. 13) and relaxing the criteria (e.g., pp. 8, 9 and 25) are used often in the report. Upon comparing the various sections about the criteria for indicators, this reviewer was not clear whether the Panel is concerned that the criteria in use are not appropriate or clear, the criteria are appropriate but the application of them is too rigid, the criteria should be applied in a tiered manner (e.g., classify indicators by level of confidence), or something else. The Panel's intent should be more clearly and consistently stated in the Executive Summary and throughout the report.
5. P. xvi, lines 2-16: This section does not note that the Panel suggests reorganizing this chapter to align with Figure 5.1 (see p. 33, lines 41-44). This is a fundamentally important recommendation that merits inclusion in the Executive Summary, just as reorganization of the ecological chapter is included later on the same page (p. xvi, lines 20-22).
6. P. 4, lines 3 and 7: The close use of "framework" for two different constructs is unnecessarily confusing. Changing the term in line 3 would be more expeditious, as it would not result in other changes to the text.
7. P. 15, lines 7 and 12: The word "must" is used twice here and 15 other times in the draft. This strong verbiage implies that these points are directive to the Agency and therefore belong in the Executive Summary.

If these points are not that significant, then less directive phrasing may be more appropriate wherever “must” is currently used in the draft.

8. P. 15, lines 21-28: The discussion of acid deposition and where it belongs in the ROE should be revised. As now stated, it is not clear whether the Panel is recommending that acid deposition be discussed in several ROE chapters, be addressed in one part and cross-referenced in others, or something else entirely.
9. P. 28, lines 39-40: If these recommendations are for “other parts of future reports” (presumably “each media chapter” as stated in line 43), then this recommendation should be moved to the overarching comments.
10. P. 33, l. 17 (and A-10, l. 24): The use of “interpretation” here may be confused with the statistical interpretations recommended throughout the Panel’s report. Rephrasing this sentence to remove this word would be beneficial.
11. Pp. 37-38: Some text under Questions 1 and 2 provides answers to Charge Questions 2 and 3, respectively. Realignment of some text here would ensure that readers do not miss some of the Panel’s responses.
12. P. 40, lines 2-12: This recommendation seems to be ambitious for the 2007 ROE. Is it actually meant for future ROEs? If not, then describe how feasible it will be for the Agency to meet this recommendation for the 2007 ROE.

c) The conclusions drawn, and/or recommendations made, are usually well supported by the information in the body of the Panel’s draft report. Many examples are provided to illustrate the Panel’s recommendations; e.g.:

13. P. 4: The limited value of stand-alone chapters, insufficiently linked to each other due to the lack of an overarching conceptual framework, is reinforced by comments throughout the report.
14. P. 14 and 24: The need for historical contexts to improve the ROE’s value to readers is supported with arguments several times.
15. P. 16, lines 28-31: The draft ROE uses the same brief description of NEI over and over. The Panel is correct to point out this unnecessary limitation in the ROE.

A few sections would benefit from more support.

16. Pp. 14, 18, and 43: The bases for indicators and regions could be better supported in these sections.
17. P. 34, lines 12-13: This raises an issue noted in the Land comments (pp. 31, A-11 and A-12). The recommendation is not supported sufficiently here. Is the Panel suggesting that the pesticide issues need to be cross-referenced in the Land chapter or removed entirely there?
18. P. 37, lines 35-36: This recommendation is not clear. In Chapter 5, there are hundreds of keyword “hits” for at-risk subpopulations including:

children, the elderly, immune compromised, pregnant and nursing women, pre-term babies, asthmatics and people with other preexisting diseases. This recommendation needs to be supported with more explanation of the Panel's concern and how the discussion should be "expanded."

Technical errors or omissions

19. P. xv, l. 42 and p. 35, l. 33: Hospital and emergency department discharge data are available in the National Hospital Discharge Survey reports at <http://www.cdc.gov/nchs/>
20. P. 36, lines 36-46: Note that some states periodically publish cancer and other disease data reports that provide data on county and/or major metropolitan scales.
21. P. 37, l. 18: Datasets can be found in National Vital Statistics Reports online at <http://www.cdc.gov/nchs>

Suggested edits

22. P. xi, l. 9 and p. 3, l. 15: Add "respectively" after G
23. P. xi, l. 13-14: This subheading implies that the recommendations will apply to the final ROE 2007. However, many recommendations refer to future ROEs only. This reviewer suggests that the subheading be changed.
24. P. A-7, l. 12: This is not a grammatically correct sentence.
25. P. A-11, l. 3-4: Minor edits are needed at end of line 3 and beginning of line 4.

Letter to the Administrator

One major finding of the SAB panel is that the limitations of the ROE are in part due to the way indicator selection criteria are used. This reviewer believes that adding this point to the letter would highlight this concern, strengthen the letter and increase the likelihood that this issue will be addressed.

The Panel appropriately notes that the development of ROEs should be embedded in the Agency's ongoing activities.

4. Dr. Thomas Theis

I've skimmed the EPA ROE 2007 draft, and read through the SAB review. In general I think the ROE is badly flawed and the SAB has made an exemplary attempt to point out why this is so, and made several very good suggestions for improvement. Basically the ROE encourages the notion that environmental quality consists of a series of measurements of contaminants, and that the human relationship to the environment is one in which we must be "protected" (presumably from ourselves). In my opinion the Agency is missing out on a great

opportunity to use the ROE as a way to educate the public on the interdependencies that exist among environmental systems, and the dependencies of human society on ecosystem functioning. The best example, in Chapter 10 of the SAB report, is the recommendation to begin the task of measuring ecosystem goods and services, and track them over time. In this way it becomes much easier to make the case that environmental protection isn't just something we should do (e.g. because it is the "right" thing to do), it is something that is integral to human commerce and civilization, with connections to our economic as well as physical well-being. If I have a wish it is that the SAB report makes this point as forcibly and as clearly as possible.

5. Dr. Jill Lipoti

Tom: I have reviewed the SAB Advisory on the EPA's Report on the Environment 2007. I also used the links that you provided to take a look at the EPA ROE itself. I thought the panel did an excellent job of pointing out the problems with the ROE 2007, while acknowledging the importance of the ROE and encouraging the EPA to continue to produce such reports.

a) the original charge questions to the SAB Standing or Ad Hoc Committee/Panel were adequately addressed in the draft report;

Yes.

b) the draft report is clear and logical; and

I think the organization of comments chosen by the panel will make it very easy for EPA to sort the comments for response into those for particular media (air, water, land) and those which pertain to all groups.

c) the conclusions drawn, and/or recommendations made, are supported by information in the body of the draft SAB report.

Yes. I liked the discussion on page 8 regarding indicator selectivity and how the selection criteria was responsive to comments from the last SAB review, but now were seen as too restrictive and excluded indicators which may have been useful. The discussion about regional indicators will also be very useful for the Agency.

6. Dr. Judith Meyer

I commend the panel for what appears to be a thorough review of this report and well-organized responses to the charge questions. The review is clear and logical, and most recommendations were well supported by information in the review (see detailed comments below for those where I had some concerns).

I particularly appreciated the way the panel divided its recommendations into those that apply to the final version of the 2007 Report vs. those that apply to

future Reports and that they are summarized in Appendices F and G. My concern is that even with that organization, there are 52 recommendations for the final Report and 34 for future Reports. It was not apparent to me how the panel decided which recommendation fit into which category, and the relative distribution of recommendations into the two categories varied considerably by chapter. For example, air had 12 for the final Report and 1 for future Reports, whereas water had 4 for the final Report and 20 for future Reports. Does it represent different degrees of impatience of panel members? Some explanation of how the panel decided where to place each recommendation is needed. Did the panel discuss the feasibility of incorporating 52 recommendations into the Final Report – will this change it to a 2010 report instead of a 2007 Report?

My detailed comments below suggest recommendations that I think deserve to be highlighted by placement in the Executive Summary as well as suggestions for improving their clarity. In general I found the recommendations well supported by the information in the review.

DETAILED COMMENTS

Page, line number

Letter

2, 3: add climate change to the list of environmental pressures. It is included in this list presented in the Exec Sum, so it seems strange to be left out here.

Executive Summary

xi, 27: I question the statement that organization of the chapters into individual media “makes sense.” In what context? It makes sense in that EPA is organized according to those stovepipes, but this perpetuates that approach, which SAB has criticized. I wholeheartedly agree with the committee’s recommendation in bold (calling for the conceptual framework that illustrates the connections), but think that the statement that the organization “makes sense” is contradictory to that recommendation. It would be better to state that it is consistent with EPA’s programmatic configuration rather than that it makes sense.

Review

1,36: The panel notes that this report is unique. I am somewhat confused by that statement because I am familiar with the Heinz Center’s efforts at providing a report on the environment, and I am certain panel members are as well. In some cases this report appears to use some of the indicators used by the Heinz Center (this is mentioned in a discussion of flow regimes). Is there a place in the Report where this effort is placed in the context of the other on-going efforts of reporting condition of the environment? What makes this report unique?

1,44: The panel recommends (as did SAB 2004) that more resources be put toward this effort. It doesn't sound as though EPA changed anything after the first recommendation, and it is not clear that they will this time either. Was the panel given any actual data on resources put toward the 2007 report vs. the 2003 report? It would strengthen the case if those data could be included in this review. Also did the panel discuss the scale of additional resources needed? Just asking for more strikes me as very vague. 10% more? 50%? A doubling? Some ballpark estimate would strengthen the case. (And if it is provided, it should be incorporated into that recommendation in the letter and the Exec Sum.)

3, 41: "its value is limited" Actually the panel was harsher than that in saying this should not be called a science report. Why was it softened here and in the Exec Sum? And why was not that recommendation included in bold rather than just discussed in a paragraph (lines 27-33). It is a particularly telling comment.

4, 2: see earlier comment on organization making sense.

4, 12-23: The two recommendations are confusing in that they are somewhat contradictory. The first says there are analyses of status and trends, the second says that there is little trend analysis.

5, 22-24: The idea of using the figure to help organize the report and show the relationships among the different chapters at the beginning of each chapter is a great one!

7, 14-15: It was not clear what the panel was saying about the "policy relevant" questions and where they would fit in this conceptual framework.

9, 2-3: This is an excellent recommendation that deserves a place in the Executive Summary.

pp. 8-9: I was confused about how indicators were included. On p. 8, the recommendation (17-19) implies that indicators were not used if data were not available, but on p. 9 (e.g., 18-19) the review implies that the indicator was used but trends were not reported. Were indicators actually eliminated when the data requirements were not met? Or were indicators included, but no status or trend reported because data requirements were not met? Those are two different things, and the panel was not clear in what they meant by "indicators were eliminated."

10, 18-20: This first recommendation seems fundamental to the criticism of the entire review, but this is the first time I have seen it! If there is not a transparent set of indicator metrics that are well justified, that is a very important finding and one that deserves being included in an Exec Sum and Letter.

10, 21-22: This second recommendation is an excellent idea and one that deserves to be a part of the Executive Summary.

17, 5: Just a question. Are greenhouse gases included in the air chapter? If not, the panel should comment on that.

Air chapter: I am not an air expert, but I thought that Wagner's letter on light pollution had some merit. Did the panel address nighttime light at all? Was any indicator proposed to cover this?

19, 17: The recommendation on greater incorporation of the "one atmosphere" approach is excellent and deserves to be incorporated into the Executive Summary. It could be incorporated into the recommendation on xi, 31-36.

20, 27: It is not clear into what context the panel is recommending the Report be placed.

21, 1-3: What would make it adequate? Incorporation of a measure of quality? If so, that should be stated.

22, 35-45: In Appendix A (A-6) I recall reading a criticism that sediment quality was included for estuarine but not freshwater sediments. It seems that recommendation belongs in this list. Also that criticism made me wonder whether any indicator addressed sediment loads. If not, that is a glaring omission. I presume the panel discussed this.

23, 22: I find it incredible that these pathogen indicators were not included. This needs to be incorporated into the Executive Summary and could easily be done on xiv, 39 (I think that is what the panel is hinting at in this line, but why not be more direct!).

Water chapter: There was no mention in this review of any indicator addressing restoration activities (e.g., dam removals that would enhance connectivity in flowing waters) or any mention of incorporation of restoration actions in a discussion of observed trends. Did the Report contain any discussion of restoration activities? Did the panel consider this at all?

30, 1-6: This more detailed comment about developing qualitative and quantitative trends seems to apply to the whole Report and not just the land chapter. These ideas should be incorporated into the overarching section and into the trend comments in the Executive Summary.

37, 35: A mention of the need to incorporate sensitive populations surely belongs in the summary of the human health chapter in the Executive Summary.

A-5, 42: Do NOT recommend calling it "ortho-P". DIP is fine. The chemical analyses commonly used do not measure only ortho-P so it is not correct to call it that.

A-18, 21: MEA stands for Millennium Ecosystem Assessment NOT Midwest Environmental Advocates – were you guys just checking to see if we were really reading this whole document?!!! (I didn't read Appendix B)

C-2: Some of the arrows in the figure could be simplified. Clearly waste and cover/use under land also influence ecological condition, not just soil. Just draw arrows from the box as a whole to the components of the ecological condition box. The three arrows from the land box to the human health box could be combined to one arrow from the whole land box. The same applies to the two arrows from the water box to the health box.

EDITORIAL COMMENTS

LETTER

1, 23: clarify by calling it “SAB’s 2004 advice”

EXECUTIVE SUMMARY

xi, 2: “its value is limited” rather than “it is limited”

xi, 44: “such conclusions and statements of significance.”

REVIEW

12, 15: “connectivity analyses” would make more sense

15, 31: “in the final Report.”

19-21: The comments on the water chapter are in a somewhat different format than the other chapters. They are mostly short bullets and not longer explanatory paragraphs.

E-1, 40: “completely” instead of “completed”

7. Dr. Kenneth Dickson

I think the report provides some excellent recommendations on how to improve the report. The letter to the administrator highlights the major recommendations for improvement and correctly advises the Administrator that to do an adequate job will require integrating it into the core mission –directed activities and an increased investment in resources .

The SAB Advisory panel effectively addressed their charge

The draft report was clear and logical.

The report was well organized and provides supportive information for the recommendations.

One area that I did not find addressed in the Advisory panel's report is whether or not EPA did a good job in the draft EPA Environment 2007 report of communicating with the public. I noted that one of the goals for the ROE 2007 report was "to communicate with the general public." Was the report written in a style that the general public could understand and arrive at informed conclusions about the status of the environment? Since the Advisory Panel suggested the addition of a Conclusion chapter, I suspect that the draft reviewed might not have been citizen friendly.

I noticed on the EPA website that EPA plans to produce a companion report titled Highlights of Conditions and Trends which is probably directed at the general public. However, in light of the Advisory Panel's observation that there was very little information in the report on trends and little statistical analyses of data is it appropriate to attempt to report on trends to the general public.

8. Dr. Rogene Henderson

General Comment:

I found the organization of the advisory to be excellent. I liked separating the recommendations that could be applied to the current report from those that were appropriate for consideration for future reports. I liked having the overall recommendations and the responses to the charge questions given in bold type, followed by a brief explanation. The use of the Appendices to expand on the different aspects of the report made the main body of the report more readable.

Because of my background and expertise, I have concentrated on the parts of the advisory related to the air program and to human health.

Specific Comments:

Executive Summary

1. I found the recommendations to be reasonable but had questions about two of them.

In the Executive Summary, in the discussion on indicators (page xii) there is a discussion on the need to distinguish between data gaps and data limitations. This may be true, but I do not think a clear case was made for it. This is also mentioned on page 9, lines 33-40. I think of data gaps as one of the limitations that might be discussed. In other words, "limitations" is a broader term than "data gaps." The authors need to clarify the distinction they would like to make.

2. Also in the Executive Summary, on page xiii, the statement is made that “regional data are not a substitute for national or even representative national data.” But the rest of that paragraph points out the benefits of using regional data. In a country as large as the US, I think it is reasonable to expect that the data may differ drastically between regions and it would be valuable to recognize such differences. I am sure that the west will differ from the east in both status and trends. This topic is discussed in much more detail on pages 10-12, and in other places in the report, but many people will only read the Executive Summary. The recommendation in the ES needs to be clarified. What does the Panel recommend that the EPA do?

Air Chapter

This is well written and I agree with the recommendations, especially those related to emphasizing “one atmosphere.”

Page 14, line 39: I am not sure I understand this sentence and would leave it out.

Page 16, lines 42-46: The use of the terms “primary pollutants” and “secondary pollutants” could be confusing. I am not sure what is meant, and the terms “primary” and “secondary” are already used in the air pollution area to refer to health versus welfare standards. Could other terms be used?

Human Health Chapter

I agree with the recommendations in this section of the advisory.

Page 35, line 14: I would insert “or morbidity” after “mortality” on this line. After all, it is not just death we are concerned with.

Page 35, line 18 and following: I agree wholeheartedly with the discussion of the value of regional data found here, but it seems to contrast with the executive summary, page xiii, lines 27-28. I think the Executive Summary should be clarified to agree with the text found in the rest of the report.

9. Dr. Virginia Dale

The report is comprehensive and very useful for the Agency. It is helpful to have specified what changes should be made to the current report as compared to future reports. The strong support for continuing and enhancing this type of reporting by the Agency is well documented and important. The report does a good job of addressing the charge questions and is clear for the most part.

I do have a few suggestions to improve the clarity and will bring a marked up hard copy to the February 28 SAB meeting in Washington.

- The report mentions climate change as being an important factor (p. x), and this environmental pressure should be added to the letter (p. ii).
- It is not clear why and is distracting that some sentences are bold in the executive summary. I suggest they not be in bold. Instead see my next suggestion to highlight important material.
- The bullets on pages xi to xiii are in different styles (some are sentences some are phrases and some are only two words). I suggest that they all be made into strong active sentences like the second bullet on page xii. They can then serve as topic sentences, which are lacking in these bulleted paragraphs.
- The sentence about significance of findings (page xi, lines 40-43) should be moved to the next bullet that deals with statistics.
- Suggested for slight wording changes and corrections to the punctuation are made on the hard copy.

Congratulations to the committee for an excellent report.