Compendium of Individual Comments on the draft review of "Valuing Mortality Risk Reductions for Environmental Policy: A White Paper," (December 10, 2010) from the chartered Science Advisory Board. Updated 6-7-11.

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Comments from Dr. Terry C. Daniel

General considerations

Overall the SAB Panel's review is comprehensive, well organized and clearly written. It provides clear and specific guidance to EPA regarding their efforts to revise and upgrade their methods for estimating the "Value of a Statistical Life" (VSL) for use in benefit/cost analyses as well as advice about renaming the construct (VRR, Value of Risk Reduction).

At least some of the public concern about the VSL concept (as applied in public health/environmental protection contexts) runs deeper than the label-change discussion seems to address. The white paper and the SAB review thereof both focus on "economic" perspectives and techniques, with little attention to alternative perspectives (e.g., philosophical, social, psychological). This may be an appropriate restriction for the NCEE writers of the white paper, but SAB should be able to bring a broader view that extends beyond tweaking labels based on proposed "risk communication" research. Perhaps the first issue for the focus groups suggested for said risk communication research should be the relevance/appropriateness of willingness-to-pay models for evaluations of mortality risk in the context of public policy making. The relevant value model issue could be elevated closer to the highest goals of EPA, to protect public health and the environment, and to the broader relationship between EPA and their public/citizen clients.

Related to the above concerns, the panel is correct in suggesting the utility of risk-tradeoff studies. Consistencies (or not) between (risk reduction) wtp estimates and risk-risk (reduction) preferences (e.g., risk reductions with higher wtp are less preferred in direct risk reduction comparisons) are a key source of evidence about the validity of wtp estimates and the theories/practice assumptions on which they are based. In this context, and given the Panel's note of the current inability to support valid wtp estimates that are adequately tuned to specific policy relevant contexts, it would seem to be appropriate that public policy evaluations (including formal b/c analyses) represented by aggregated wtp estimates in dollars be accompanied by clear descriptions of the specific risk, risk-reduction and contextual factors that are involved. This should be in addition to any quantitative characterization of uncertainty (precision, reliability), and might especially include a report of any confirming (or disconfirming) risk-risk (reduction) data.

Specific Quality Review questions

1. Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?
   Yes

2. Are there are any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee's report?
   Technical economic issues appear to have been very well addressed. As noted above, there are some philosophical issues regarding the appropriate model for evaluation of public mortality risk (reduction) that were not sufficiently covered.

3. Is the Committee's report clear and logical?
   Yes, the Panel is to be complemented for a well organized report with clear and specific recommendations.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?
   Yes.

It did seem unusual for the Panel review to include so many unpublished (e.g., "under review") articles in the reference list. Is this what the Panel meant to imply by their call for EPA to make greater use the grey literature?

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Comments from Dr. George Daston

We were asked to address four specific questions as part of the quality review.

1. whether the original charge questions to SAB Standing or Ad Hoc Committees were adequately addressed;
2. whether there are any technical errors or omissions in the report or issues that are inadequately dealt with in the Committee's report;
3. whether the Committee's report is clear and logical; and
4. whether the conclusions drawn or recommendations provided are supported by the body of the Committee's report.

Question 1: I believe that all the charge questions were adequately addressed.

Question 2: I found no technical errors or omissions in the report.

Question 3: I found the report to be clearly and logically presented. My main concern is that the Executive Summary is difficult to read and seems to be disproportionately long compared to the brevity with which most of the charge questions were answered. My suggestion is to structure the Executive Summary along the same outline as the charge questions, and summarize the key recommendation for each charge question.

Question 4: I found the conclusions of the report to be well documented and supported.

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Comments from Dr. Otto Doering (Lead Reviewer)

Valuing Mortality Risk Reductions for Environmental Risk Reduction.

1. Were the original charge questions to SAB standing or Ad Hoc Committee adequately addressed?

   Yes. However, I was concerned with the charge questions. These were primarily extremely narrowly focused, usually on methodological questions, where there are sometimes important broader issues involved that may affect the responses to the narrow questions asked.

   First, the mortality figures have a special role for EPA in the regulatory process. While it was not asked in the charge, it might be helpful to put the mortality methodology in the context of what is asked of these numbers institutionally. It would help the reader to know what are they used for and how the use of these numbers might influence the judgment about how one might proceed methodologically in determining the numbers.

   The charge questions were almost exclusively directed at questions of internal validity. I would argue that the institutional and legal import of these numbers is great enough for the agency that the external validity question should not be ignored. If one considers the context of use, it might shade judgments about methodological questions. This is referred to in the executive summary, page 2, starting line 39; "since these values express demands for different goods by different groups of people, a single 'one size fits all' metric used to express the marginal rate of substitution between health risks and income oversimplifies *the many complex policy contexts in which EPA operates*." At the beginning of the introduction (p.5) some "perspective on the concept of valuing mortality risk reduction and its use in estimating the benefits of environmental policies" is promised to the reader, but the link to the utilization of these numbers in estimating benefits is not drawn. I believe that Value of Risk Reduction may well be the best way to approach the valuation question, but linking this to the task the estimate performs in the regulatory process would strengthen the argument even though there cannot always be context specific estimates. (p.7) What I am suggesting was not asked for, but the breadth and real expertise of the panel might have been drawn on to take this extra step.

   Another question which was only partially asked of the review panel was the time factor question. Charge Question 7 asks about "timely and transparent" manner. The review panel responded in terms of evolution of analysis over time as "data are improved and methods are refined." (p.29). I believe that there is an additional time question that was not fully addressed. Value of risk reduction or other similar measures are based on best estimates of public perceptions of risk and the value of risk reduction at a moment in time. These can change over time (as the differential with respect to cancer risk appears to have done) or instantaneously as the result of an event (i.e. risk from tornadoes in May 2011). I think it might have been worthwhile obtaining the review committees judgment about how time

bound these valuations are and to what extent there needs to be updating or testing of changes in value perceptions over time. There is a recommendation for adjusting income levels over time that reflects some of this need. (lines 19-21, page 24) The linkage to public perception also may mean that we cannot educate the public about the "correct" number to the point where the public response will always be consistent with the best theory. (p. 10)

In the first paragraph of charge question 2, it is asked whether applications of benefits transfer methods to value mortality risk reductions from environmental pollutants can be improved by controlling for more of the attributes that distinguish the source studies from the policy scenario. It might be helpful to add some specific examples that relate to EPA's mission to answer this in addition to the four alternative methods. (p.12) Maybe one might also give some policy context corresponding to examples of study appropriateness when discussing the judgments needed for relevant SP (stated preference) studies when there are not illness profiles that are relevant to the EPA policy contexts. (line 13, p.26)

With respect to Charge Question 4, I agree with the panel's guidance to ensure applicability to the US (p.13) and to look at populations affected by EPA regulations (p.19) – again, the institutional context is paramount here. (This is also indicated on line 13 page 21 in terms of adjusting the sample for the policy context.)

2. Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee's report?

   See above for issues that might have been dealt with beyond the charge questions.

3. Is the Committee's report clear and logical?

   Yes, but this is a report for economists written by economists, so someone not familiar with this area of economics might not get full value from the discussion.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committees report?

   Yes

In summary; I would have liked to see the review committee go beyond the very limited methodological charges given to it. I believe that the external validity question (the so what) raised by some of the methodological questions would have been most valuable to the group within EPA providing the VRR analysis for EPA's institutional mission. The right answer for a methodology question may well relate to the purpose for which a methodology is applied. Some examples or reference to specific institutional requirements for EPA's determinations in the text could assist in making clear the parameters of the methodology recommendations. Some limited text in the introduction explaining why the subject is important and what facets of EPA's roles are involved in these methodological issues might be helpful here as well.

5/30/11

Comments from Dr. Bernd Kahn

For the 4 quality review questions, my responses are, respectively, yes, no, yes, and yes. The Review is well written, clear, and pertinent. The Committee may want to consider the following items:

Charge question 2: The uncertainty is large, both in the decrease in the observed value of the risk of mortality or morbidity, and in the willingness to pay determined by questionnaire, and this uncertainty should be estimated to evaluate whether it makes sense to introduce 'cancer differentials' or other adjustments (for age, income, etc.), or whether such differences lie within the uncertainty of the VSL (or whatever designation).

Charge question 3: What of the common effect of the reverse of altruism (selfishness?), i.e., values of WTP proposed by persons who benefit by reducing the pollutant but believe that another will pay for the risk reduction?

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Comments from Dr. Agnes Kane

Comments on Review of "Valuing Mortality Risk Reductions for Environmental Policy"

The cover letter is succinct and emphasizes the most important concerns raised in this review. The Executive Summary adequately addresses the charge questions and makes clear recommendations based on the body of their report. The review panel is congratulated on their ability to convey complex, subjective concepts clearly and directly while acknowledging limitations of economic analysis. The recommendation to convene focus groups and public discussion is very important to enhancing effective communication between the EPA and the public.

Comments from Dr. Nancy Kim

Not being very familiar with this area, reading the Introduction and the report itself was very useful in providing good background knowledge. The report was interesting and well done.

1. Were the original charge questions to the Panel adequately addressed?

Yes. This is not my area of expertise and I sometimes had a little trouble making sure that I knew the specific answers to the questions. For example, the Panel states that studies that do not use adequate risk data (page 21, line 23) should be excluded. It isn't clear to me if what constitutes adequate risk data has been defined. (either by EPA or the Panel). The response to 8d is another example that isn't clear to me if the question is answered.

2. Are here any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report?

None that I detected.

3. Is the Panel's report clear and logical?

Yes. Well written.

4. Are the conclusions drawn or recommendations provided supported by the body of the Panel's report?

Yes.

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Comments from Dr. Cecil Lue-Hing

Quality Review Questions

General Comments
The Panel has done an excellent job of reviewing the EPA's report, and has offered some meaningful suggestions and recommendations to improve the content of the report.

The Charge Questions
The EPA posed 8 primary charge questions and many more auxiliary questions totaling more than 30.

1-Were the original charge questions adequately addressed?
Yes, the original charge questions were adequately addressed. In addressing these questions the Panel made it clear when it agreed with the EPA, and when it did not. When it disagreed with the EPA the Panel offered suggestions, and/or recommendations aimed at improving the EPA's report.

2-Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the Panel's report?
I do not have the expertise to make such a call.

3-Is the Panel's report clear and logical?
From my vantage point, Yes.

4-Are the conclusions drawn and recommendations provided supported by the body of the Panel's report.
Yes.

Specific Comments
Data Selection & Integrity
The Panel made some critical statements on the issues of data selection and integrity – a) *that the current estimates in the EPA's report depend on studies that are 20-35 years old, and it is time to take advantage of a wealth of new studies and better data*, b) *all studies that rely on data of lower quality than the Census of Fatal Occupational Injuries (CFOI) should be excluded from the EPA's report.*

I believe that both these items should be reflected/included in the transmittal letter to the Administrator. Only item a) is now reflected/included, item b) is not, and should also be included

Transmittal Letter
Include item b) noted above.

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Comments from Dr. L.D. McMullen

Here are my comments of the SAB draft report entitled Review of "Valuing Mortality Risk Reductions for Environmental Policy: A White Paper". This is not an area that I have expertise in, however, I did find the report easy to follow and well written.

1. Were the original charge questions to adequately addressed? **Yes The charge questions had several sub questions that were each answered with a summation at the end of most questions.**

2. Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report? **This is not an area that I'm an expert, but I did not find any errors or omissions.**

3. Is the Panel's draft report is clear and logical? **I feel the report was well organized, clear and logical. The letter to the administrator was the appropriate length and identified the main points. The executive summary did a great job of summarizing the main points in a way that really helped the reader to understand the rest of the report.**

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report? **Yes**

In summary, the report was very well done.

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Comments from Dr. Jana Milford

1. Were the original charge questions to adequately addressed?

Yes.

2. Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report?

No.

3. Is the Panel's draft report is clear and logical? and

Generally yes. However, I felt the responses to Charge questions 4 and 8 could be improved by more clearly delineating whether the Panel's statements and references to the literature pertain to mortality risk reductions or other health risk reductions (treatable illness), or if the distinction doesn't matter for the issue at hand. Scanning the titles in the reference list, it appeared that some of the cited studies dealt with morbidity risk reductions, not mortality.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

Yes. I really liked the report structure the Committee used. The letter to the Administrator and Executive Summary were both very well tailored to their respective target audience, with both supporting information and more technical issues appropriately reserved for the main body of the report.

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Comments from Dr. H. Keith Moo-Young

1. Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?
Yes. The original charge questions were adequately addressed by the committee.

2. Are there are any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee's report?
No technical errors or omissions in the report were determined.

3. Is the Committee's report is clear and logical?
Yes. The report is clear and logical.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

I support the Panel's conclusions and recommendations. In addition, I would strongly support the notion of Valuing Risk Reduction, especially if it can take into account the local and community based approach to estimating the ability of a person to pay for risk reduction. This analysis may have significant impact on how Environmental Justice policies may be established to better protect these communities by using valuing mortality risk reduction methodologies. Further, the Agency may want to establish baseline studies of communities that are more susceptible to environmental hazards and risk based to improve the database and modeling considerations for Environmental Justice policy making decisions.

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Comments from Dr. Eileen Murphy

Responses to Quality Review Questions

Were the original charge questions to the SAB committee adequately addressed?

For the most part, the responses address the charge questions. But there are some instances where the responses either ignore questions or do not adequately address them.

Charge Question 1: EPA asks for associated units to indicate the size of the risk change. The Committee chose not to recommend standard units but provides no justification for doing so.

Charge Question 2: I could not see the connection between Charge Question 2 and the response. In this Charge Question, EPA asks whether applications of benefits transfer methods can be improved by controlling for more attributes that distinguish the source studies from a policy scenario. The Committee's response lumps charge questions 2 and 3 together, although this section is labeled Charge Question 2 and suggests four approaches EPA could consider to estimate a distribution of VRR for relevant cases. Is this related to the charge question, or are these suggested approaches general recommendations? They do not seem to be related to the questions asked. But this could be my ignorance of the subject matter.

Charge Question 4.b. :EPA asks the Committee if any of the studies should be eliminated. The Committee did not address this question and does not provide a rationale for this omission. The Committee states that "…the studies used should adhere to best practices." EPA is asking the Committee for advice on the studies specifically. The charge question was not adequately addressed here.

Charge Question 4.c.: The Committee recommends including grey literature in its databases. I disagree with this recommendation. It is important to include only peer-reviewed literature unless there is compelling evidence to include something that has not been peer-reviewed. The Committee does not provide citations of peer-reviewed literature in response to EPA's question, as EPA requested. I don't know if there are any available published studies or not, but recommending grey literature is not an acceptable response.

Charge Question 5: The Committee recommends that EPA "…explore more flexible methods…" in response to the charge question regarding their approach to accounting for income growth but provides no suggested approaches.

Charge Question 6: I understand why the response to 6.c. is "not relevant," but not 6.d. The Committee recommends using multiple estimates and this charge question seems to pertains to that? It is not clear to me why it is not relevant to respond to this question.

Charge Question 6.f.: The last question – "how should uncertainty in the estimate value(s) of mortality risk reductions be handled in benefits analysis?" is not address at all in the response.

Charge Question 7.c.: The response refers to a paper that is currently "under review." Unless the paper is available, it should not be cited. Also, there is no reference for Cameron, DeShazo and Johnson (2010b). There are references for 2010 and 2010a but not 2010b.

Charge Question 7.d.: EPA is asking Committee to identify statistical approaches. None are recommended. The response does not adequately address the questions in the charge.

Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the committee's report?

I do not have the knowledge to know if there are technical errors or omissions.

Is the committee's report clear and logical?

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Yes, it was easy to follow. One minor note: The introduction is rather lengthy. The report is presenting the actual information about the subject matter rather than commenting or summarizing the EPA document that was being reviewed. While interesting, I don't think it is necessary and I'm not sure it is helpful to EPA.

Are **conclusions drawn or recommendations provided supported by the body of the committee's report?**

Yes, with the exception of citations to unavailable literature. Reports that are under review are not generally available. Some recommendations are based on such reports, so I would consider these recommendations (which are few and only in responses in Charge question 4 and 7) to be less robust than others.

General:

Throughout the report, the Committee is referenced as responding. In fact, it is the Environmental Economics Advisory Committee. It would be better to cite the "Committee" rather than SAB when referring to the advice and recommendations presented.

I strongly disagree with the use of material that is not published, peer-reveiwed and/or not accessible. There are several instances where recommendations are based on documents that are "under review." This work may be significant but should not be cited until such time that they have been reviewed and accepted by an appropriate journal.

Editorial

Letter: There is no date, address, no signatory

p. 2, line 11: need to include date

p. 24, lines 16-39: Rather than separate the last question with the response being "see previous response," just combine these two.

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Comments from Dr. Duncan Patten

1. Were the original charge questions to adequately addressed?
The Panel more than adequately addressed the charge questions and went beyond their response by initially offering commentary on the concepts of mortality risk assessment which greatly adds to an understanding of the overall discussion. The panel does a good job of offering alternatives where appropriate.

2. Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report?
This is outside my immediate area to be able to respond to technical errors.

3. Is the Panel's draft report is clear and logical?
The report is well written and is clear while still offering alternative approaches which could be confusing.
Although not necessary, it might be helpful to have "up front" a glossary of the acronyms used although when they are first used they are based on the initially wording. For example, VSL, VRR, NCEE, WTP, etc.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

A clear approach in the discussions that support the various conclusions. One learns a lot reading this review.

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Comments from Dr. Steve Roberts

1. Were the original charge questions adequately addressed?

The charge questions appear to be adequately addressed. I wonder whether the response to question 6d is appropriate, though. The response to 6d indicates that this question is not relevant given the response to charge question 6b. The response to 6b states that multiple estimates are appropriate to include, and 6d asks a question about multiple samples. This is not my area of expertise, but it is not clear to me why the question in 6d isn't relevant (given the response to 6b).

2. Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report?

I found no technical errors or omissions, but then again I have absolutely no expertise in this subject.

3. Is the Panel's draft report clear and logical?

The report reads well and is logically constructed. As a non-expert in the area, I found the introduction before the responses to charge questions to be helpful in understanding the issues.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

In general, the rationale for each conclusion or recommendation is explained. The first response under charge question 5 might benefit from an example of what is meant by "more flexible methods for understanding the effects of VRR".

Editorial comments:

In some places, the EPA report and questions are presented in the present tense and elsewhere in the past tense. Check for consistent tense.

The review group is defined on page 2 as the "Committee," but in several places the opinions are indicated as coming from the "SAB." While these might be technically interchangeable, to avoid confusion it might be better to stick to one or the other in the report to avoid confusion.

Pg 3, line 14: define "WTP"'

Pg 9, line 22: capitalize "Committee"

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Comments from Dr. Amanda Rodewald

Were the original charge questions to adequately addressed?

Yes.

Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report?

No. I only found a couple of minor mistakes:
Letter to Administrator, page 1, line 41: "led", not "lead"
Executive Summary, page 2, line 11: missing text.

Is the Panel's draft report is clear and logical?

Yes, as a whole.

There was one place where I was confused. In response to Charge Question 6d on page 25 ("*How important is it that estimates be drawn from non-overlapping subsamples? If multiple estimates per study are recommended in the construction of the meta-35 datasets, should the estimates be selected to avoid overlapping sub-samples?")*, the response was "Not relevant (see charge question 6b)." However, the response to charge question 6b did recommend multiple estimates. I am unclear how question 6d is not relevant.

Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

Yes.

Comments from Dr. James G. Sanders

1. Were the original charge questions adequately addressed?

   To the extent that I am capable of reviewing this field, yes, the charge questions were addressed fully by the committee.

2. Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report?

   No.

3. Is the Panel's draft report is clear and logical?

   I believe so.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

   Yes.

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Comments from Dr. Kathy Segerson (Lead Reviewer)

1. Were the original charge questions to adequately addressed?

Yes. In general the report is very thorough and addresses all of the charge questions individually.

2. Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report?

No. The report is technically sound.

3. Is the Panel's draft report is clear and logical?

For the most part, yes, although see my comments below.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

Yes, although again see comments below.

Substantive Comments:

1. The message that is conveyed regarding public vs. private values and the role of altruism is confusing in places and seems somewhat inconsistent across the letter to the administrator, executive summary, and body of the report. For example, the statement in the letter (lines 18-22) suggests that altruism is not very important empirically and that as a result public and private risk estimates should be fairly comparable, implying both should be included. However, the paragraph in the ES (p. 3) on altruism states that "the literature is clear that values driven by paternalistic altruism should be included while values driven by pure altruism need not be counted…" (a statement that is likely to be confusing and should be clarified). It goes on to say that the "SAB recommends that the Agency make no adjustments for altruistic considerations", which seems a bit different from saying both types of estimates should be included. But then the report itself states (p. 14) that the SAB is recommending that EPA explore the difference in estimated values between public and private risk reductions and, if they are sufficiently large, using only one type of study or the other, or adjusting the estimates in some way. This then seems contradicted again on p. 15, lines 9-10. It seems that the message here requires some clarification and a check to ensure it is consistent.

2. p. 4 of ES, line 9-11: It is confusing to see a statement about choice of econometric techniques as the "overall" statement for a section on database development. Also, it is not clear why the committee views this one statement as sufficiently important to warrant inclusion in the executive summary, since it receives relatively little attention in the report itself (p. 31), especially when compared to the total discussion of the issue of database development. In addition, in the report it is discussed under charge question 8, while this paragraph in the ES is presumably a summary of the response to charge question 4.

3. p. 4 of ES, line 32-34: It is not clear to me how the recommendation here differs from the recommendation on p. 3, lines 15-18. In both cases, the SAB seems to be suggesting EPA work toward differentiated risk estimates. If these are two distinct recommendations, the distinction should be clarified.

4. p. 7, lines 13-18, and p. 8, lines 14-15: The language here is much stronger than the language in the letter or the ES. It seems to state explicitly that EPA's current approach is "wrong". If the committee believes that, then this seems to be a sufficiently important point that it should be stated in the letter and the ES. At a minimum, some consistency between the statements here and the tone of the letter and ES, which do not include any language about EPA's current approach being "incorrect" or "wrong."

5. p. 8, lines 12-14, and p. 18, lines 30-32: The report makes a strong plea for differentiating VRR estimates based on personal characteristics, including age. But the implications of this for the value of risks to children is unclear, and the report seems ambivalent on this point. For example, on p. 8, it suggests that heterogeneity across affected subpopulations is simply a case of "different demands by different types of people" or "different WTP of people in different circumstances." But clearly none of the valuation techniques elicit WTP from affected children, and it states on p. 18 that estimates from adults should not be used for children's risks. A more explicit statement about the implications of the report's recommendations for the valuation of risks to children would be very helpful.

6. p. 18, lines 34-35: The committee is recommending an additional criterion: "that the stated preference study should provide evidence that it yields valid estimates of VRR." But isn't this an over-arching criterion that all the other criteria are also striving for? In other words, aren't the other criteria designed to ensure that the estimates are valid? If there are some ways of judging validity that would be included here but are not captured under the other criteria, then it seems they should be stated/listed explicitly. In addition, it is not clear why this is included as an additional criterion for stated preference studies but was not included as an additional criterion for revealed preference studies.

7. While the committee notes the fact that many of the studies currently used by EPA are 20-35 years old, and uses this as support for its recommendations regarding updating, it seems odd that the list of criteria for study selection do not mention explicitly the length of time since the study was conducted as a criterion for consideration. The criteria, along with the discussion about updating, all focuses on adding studies (e.g., new literature as it becomes available) without any discussion of the need to eliminate studies that are "too old." At what point does a study become too old to be relevant? It seems that some discussion of "timeliness" as a criterion is warranted.

8. pp. 22-23: The discussion here about the "grey literature" seems to suggest that non-peer reviewed literature is no different from peer-reviewed literature. I think this is a dangerous suggestion. While I understand the desire not to exclude a study based solely on the fact that it was not published, I am also uncomfortable with the suggestion that peer-review does not provide a form of quality control (or at least not a form that couldn't be replicated by EPA using two-step

process). There is also a question of whether, or when, EPA should include working papers. Many of the papers listed on p. 23 are working papers, and working papers are typically subject to revision before they are ultimately published, in some cases leading to changes in the resulting estimates I don't think it would be advisable to recommend that EPA include estimates from working papers and then have the estimates revised if the final version of the paper is published with different estimates.

9. p. 26, lines 21-28: The first half of this paragraph seems odd. First, it is not clear why there is reference to poorly designed SP studies and no reference to poorly designed RP studies. Second, there needs to be some references to problems that have been "identified over the years." But most importantly, the tone of the paragraph sounds very defensive. I'm not sure what purpose it serves, and would suggest deleting it.

10. p. 27: The response to charge question 6(f) focuses on combining across policy contexts, while the question itself seems to ask about combining across SP and RP methods. Thus, the committee's response does not seem very responsive to the charge question.

Other minor comments:

1. The letter states (lines 25-26) that the report offers technical recommendations on criteria that should be used to select studies for inclusion in the database. The impression is that this is the only technical advice. In fact, there is considerable technical advice on other issues as well.

2. p. 2 of ES, lines 10-11: I don't think this type of statement about approval by the Chartered SAB is typically included in reports.

3. p. 2 of ES, lines 23-24: The statement that "decisions are best made when a policy's cost is compared with its benefits" could be misinterpreted to be a statement that decisions should be based on cost-benefit analysis. I'd suggest rewording this sentence, to simply say something like "Since risk-reducing environmental policies come with a cost, information about the resulting benefits is necessary to determine if the benefits of the resulting improvements outweigh the costs." Alternatively, the report could just state that information about benefits is or should be one important consideration in decisions, without suggesting that net benefits are the only important consideration.

4. p. 2 of ES, line 30: suggest dropping the term "of art". It is likely to be confusing and suggest a type of subjective measure.

5. p. 6, line 18: In noting that VRR is likely to depend on other individual characteristics, it seems that this is intended to capture more than simply "other demands on an individual's wealth" (e.g., quality of life, responsibilities for dependents (other than just financial responsibility)). This statement suggests it is all a wealth effect, which does not seem correct.

6. p. 14, lines 38-41: References should be included here to support the statements about what is considered "legitimate" and what "the literature" has shown.

7. p. 21, lines 34-38: It seems that the discussion here belongs at the top of this page under the additional criterion (c).

8. p. 22, line 7-8: The language here suggests there is some way to clearly define whether data quality of above or below the CFOI benchmark. If this is to be used as a benchmark, it seems that the specific characteristics of this dataset that should be used for comparison is needed.

Compendium of Individual Comments on the draft review of "Valuing Mortality Risk Reductions for Environmental Policy: A White Paper," (December 10, 2010) from the chartered Science Advisory Board. Updated 6-7-11.

Comments from Dr. John E. Vena

Science Advisory Board (SAB) review of the Agency's draft report entitled *Valuing Mortality Risk Reductions for Environmental Policy: A White Paper* (December 10, 2010).

1. Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?

I extend my compliments to the Panel for the comprehensiveness and thoroughness of their review. In particular the panel provided a very effective Introduction of 3.5 pages in length that provided an excellent primer for consideration of issues in the field. This is very helpful to the reader prior to evaluating the response to the charge questions and recommendations. Each of the eight charge questions were adequately addressed with the exception of the response to question 8d. The panel developed well articulated responses.

In response to charge question 1the panel made an excellent recommendation to change terminology by using "value of risk reduction" (VRR). The panel suggested testing the VRR terminology and to explore alternative terminologies in focus groups, discussions and presentations. This is also mentioned in response to other charge questions and the panel mentions a prime opportunity for effective public communication. I recommend that the panel use the term "Engagement" instead of communication. Engagement is a two way process. Communication is part of engagement but only one dimension or aspect of engagement that would inform policy.

The response to charge question 2 included four possible methods to explore alternative methods to estimate a distribution of appropriate VRRs for relevant cases.

The panel provided very succinct and clear justification and recommendation for charge question 3, that the agency make no adjustments for altruistic considerations.

For response to Charge question 4 the panel commented on the eight selection criteria for stated preference studies and recommended an additional criterion which was well justified. For hedonic wage studies detailed comments were provided for each of four criteria and the panel recommended that EPA consider adding four additional criteria. Section ii. Of response to charge question 4 is well written and provides a list of other studies to consider.

Responses to charge questions 5-8 are clear and succinct with the exception of the response to Charge Question 8 d. The response is brief and does not appear to answer the stated question.

2. Are there are any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee's report?

None that I can tell based on my expertise.

3. Is the Committee's report clear and logical?

The cover letter is concise and very effectively highlights the major recommendations. The letter captures the sentiments of the full review report. On page 1 line 33 sate the number of charge questions (eight). On page 2 line 3 replace 'communication' with 'engagement'.

The executive summary is well done and provides an excellent overview of changes in recommendations to the report based on responses to each of the charge questions.
In the executive summary it would be helpful to the reader to better label each of the headings noting the number and subpart of the charge question that is being discussed.

The acronym WTP is first used on page 3 line 14 of the executive summary but the term 'willingness to pay is first used on page 2 line 24. (WTP) should be inserted after the term on page 2 line 24.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

Yes. In my opinion the report is very well written, comprehensive in responses to the charge questions and is well referenced.

Compendium of Individual Comments on the draft review of "Valuing Mortality Risk Reductions for Environmental Policy: A White Paper," (December 10, 2010) from the chartered Science Advisory Board. Updated 6-7-11.

Comments from Dr. R. Thomas Zoeller

The following comments are provided as a review of the SAB's review of EPA's *"Valuing Mortality Risk Reductions for Environmental Policy: A White Paper"*. The Quality Charge questions are:

1. Were the original charge questions to the Panel adequately addressed?
2. Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the draft report;
3. Is the draft report clear and logical; and
4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report.

1. The original charge questions are not described either in the letter to the Administrator or in the Executive Summary. Because there are 8 original charge questions, it is reasonable to exclude these to keep those sections short. However, it might help the reader to understand that there were 8 specific charge questions, and that the SAB panel categorized them for the purpose of brevity in those sections. Otherwise, the charge questions were directly addressed in the main body of the document.
2. This reviewer did not identify technical errors or omissions.
3. The draft report is clear and logical.
4. The recommendations are clear and the support for those recommendations rational.