

EPA-HQ-OAR-2009-0171

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PART I: SUMMARY

1. The Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (the Finding) and its associated Technical Support Document (TSD) are “highly influential scientific assessments” and are therefore required to comply with section III of the OMB Peer Review Guidelines and accompanying Information Bulletin (OMB 2002; 2004) and the EPA Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by the Environmental Protection Agency (EPA 2002) (the “EPA Guidelines”), which include by reference other EPA policy manuals, including the EPA Quality Manual (EPA 2000) and the EPA Peer Review Handbook (EPA 2006a)
2. The EPA elected to rely “heavily” on “existing” scientific assessments carried out by external parties. EPA guidelines and policies establish procedures which EPA is required to comply with, prior to utilizing scientific assessments carried out by external parties, including international bodies. These procedures include the submission of the scientific assessment by the external party to EPA together with its peer review record and the evaluation of the submission by EPA officials to evaluate the scientific content and the external party’s peer review process. The TSD failed to state that EPA complied with these procedures and there is considerable evidence that EPA did not do so.
3. Although the Intergovernmental Panel on Climate Change (IPCC) has a peer review process, their peer review process does not comply with the OMB and EPA policies for highly

influential scientific assessments in many important respects, including, without limitation, non-compliance in the provision of data to reviewers and transparency. Had the EPA actually carried out the examination of IPCC peer review policy that is required prior to EPA use, it would undoubtedly have identified these and other shortcomings.

4. Further, the peer review process of the TSD itself failed to comply with relevant OMB Guidelines.

PART II: THE TECHNICAL SUPPORT DOCUMENT

5. The Finding and TSD were published on April 17, 2009, together with an announcement that public comments would be received until June 23, 2009.
6. The Finding stated that the TSD “synthesizes” findings from “available” scientific assessments that have gone through “rigorous and transparent peer review” and that “rather than carrying out a new assessment”, EPA relied “heavily” on existing assessment reports:

EPA has developed a technical support document (TSD) which synthesizes major findings from the best available scientific assessments that have gone through rigorous and transparent peer review. The TSD therefore relies most heavily on the major assessment reports of both the Intergovernmental Panel on Climate Change (IPCC) and the U.S. Climate Change Science Program (CCSP). EPA took this approach rather than conducting a new assessment of the scientific literature.

7. The TSD stated that the information in the TSD had been developed in a “manner that is consistent” with EPA Guidelines, but did not identify the precise guidelines that were supposedly applied or describe the procedure by which compliance with these guidelines was carried out.
8. The TSD stated that “peer review” and “transparency” were “key” to the report development process of IPCC and CCSP. The TSD described the IPCC transparency process as follows:

Review Editors for each chapter are responsible for ensuring that all substantive government and expert review comments receive appropriate consideration. For transparency, IPCC documents how every comment is addressed. Each Summary for Policymakers is approved line-by-line, and the underlying chapters are then accepted, by government delegations in formal plenary sessions.

9. The TSD stated that it underwent “a technical review by 12 federal climate change experts, internal EPA review, and interagency review”, listing the 12 federal climate change experts.

PART III:

EPA AND OMB GUIDELINES APPLYING TO “HIGHLY INFLUENTIAL SCIENTIFIC ASSESSMENTS”

10. The TSD is a “highly influential scientific assessment” and is therefore subject to the OMB Final Information Bulletin for Peer Review, EPA Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by the Environmental Protection Agency) together with the EPA Policy Handbook.
11. OMB Guidelines require that EPA ensure that there is a “high degree of transparency about data and methods to facilitate the reproducibility of such information by qualified third parties”

If an agency is responsible for disseminating influential scientific, financial, or statistical information, agency guidelines shall include a high degree of transparency about data and methods to facilitate the reproducibility of such information by qualified third parties." The fact that the use of original and supporting data and analytic results have been deemed "defensible" by peer-review procedures does not necessarily imply that the results are transparent and replicable.

12. OMB Guidelines require that EPA ensure that reviewers have “sufficient background information, including access to key studies, data and models, to perform their role as peer reviewers”, noting that Section III peer review will be “more rigorous” than “some forms of journal peer review”:

Section III(4) requires agencies to provide reviewers with sufficient background information, including access to key studies, data and models,

to perform their role as peer reviewers. In this respect, the peer review envisioned in Section III is more rigorous than some forms of journal peer review, where the reviewer is often not provided access to underlying data or models. Reviewers shall be informed of applicable access, objectivity, reproducibility and other quality standards under federal information quality laws.

13. OMB Guidelines describe standards for peer review, clearly stating that peer review “should not be confused with public comment or other stakeholder processes”.
14. OMB Guidelines require agencies, whenever feasible and appropriate (as in this case) to make the draft assessment available for public comment **at the same time** that it is submitted for peer review:

Whenever feasible and appropriate, the agency shall make the draft scientific assessment available to the public for comment at the same time it is submitted for peer review (or during the peer review process) and sponsor a public meeting where oral presentations on scientific issues can be made to the peer reviewers by interested members of the public.

15. OMB Guidelines require agencies to disseminate the “final peer review report” along with “all materials related to the peer review”:

The agency shall disseminate the final peer review report on the agency's website along with all materials related to the peer review (any charge statement, the peer review report, and any agency response). The peer review report shall be discussed in the preamble to any related rulemaking and included in the administrative record for any related agency action.

16. OMB Guidelines prohibit the participation of “scientists employed by the sponsoring agency” in a Section III review:

In addition to the requirements of Section II (3)(c), which shall apply to all reviews conducted under Section III, the agency -- or entity selecting the reviewers -- shall bar participation of scientists employed by the sponsoring agency unless the reviewer is employed only for the purpose of conducting the peer review (i.e., special government employees).

17. OMB Guidelines require EPA to generally avoid the repeated use of the same reviewers on multiple assessments:

Agencies shall avoid repeated use of the same reviewer on multiple assessments unless his or her participation is essential and cannot be obtained elsewhere.

18. OMB Guidelines require agencies to “consider and address” all reviewer comments and states that a peer review is completed only when this has taken place:

A peer review is considered completed once the agency considers and addresses the reviewers’ comments. All reviewer comments should be given consideration and be incorporated where relevant and valid.

19. OMB Guidelines state that the “principal findings” in “official reports of the National Academy of Sciences” are *generally* presumed not to require additional peer review, but that all other highly influential scientific assessments require a review meeting the standards of Section III:
20. EPA Guidelines state that they were developed in compliance with OMB Guidelines and the related OMB Information Bulletin.
21. EPA Guidelines recognize that OMB Guidelines call for “additional peer review for highly influential scientific assessments”, setting out a series of such obligations in EPA Guidelines Section 6.3:

EPA recognizes that influential scientific, financial, or statistical information should be subject to a higher degree of quality (for example, transparency about data and methods) than information that may not have a clear and substantial impact on important public policies or private sector decisions. A higher degree of transparency about data and methods will facilitate the reproducibility of such information by qualified third parties, to an acceptable degree of imprecision. For disseminated influential original and supporting data, EPA intends to ensure reproducibility according to commonly accepted scientific, financial, or statistical standards. It is important that analytic results for influential information have a higher degree of transparency regarding (1) the source of the data used, (2) the various assumptions employed, (3) the analytic methods applied, and (4) the statistical procedures employed. It is also important that the degree of rigor with which each of these factors is presented and discussed be scaled as appropriate, and that all factors be presented and discussed. In addition, if access to data and methods cannot occur due to compelling interests such as privacy, trade secrets, intellectual property, and other confidentiality protections, EPA should, to the extent practicable, apply especially rigorous robustness checks to analytic results and carefully document all checks that were undertaken.

Original and supporting data may not be subject to the high and specific degree of transparency provided for analytic results; however, EPA should apply, to the extent practicable, relevant Agency policies and procedures to achieve reproducibility, given ethical, feasibility, and confidentiality constraints.

22. EPA Guidelines list and briefly describe a number of agency process to ensure the quality, objectivity, and transparency of “influential” information, noting that many influential products may be subject to more than one of these processes:

Agency-wide processes of particular importance to ensure the quality, objectivity, and transparency of “influential” information include the Agency's Quality System, Action Development Process, Peer Review Policy, and related procedures. Many “influential” information products may be subject to more than one of these processes.

23. EPA Guidelines emphasize the importance of designing an appropriate peer review process.

Section 4.2 states that their peer review policy is described in the EPA Peer Review Handbook:

The basis for EPA peer review policy is articulated in *Peer Review and Peer Involvement at the U.S. Environmental Protection Agency*.⁶ The Peer Review Policy was first issued in January, 1993, and was updated in June, 1994. In addition to the policy, EPA has published a Peer Review Handbook,⁷ which provides detailed guidance for implementing the policy. The handbook was last revised December, 2000 [a 2006 edition is presently available]

24. The EPA Policy Handbook sets out a detailed list of policies and procedures that are essential components of a recognized peer review process. They note in Section 2.5.9 that even “internal peer reviews” should be “formally conducted” and documented:

To be considered a legitimate peer review, internal EPA peer reviews should be formally conducted and documented.

25. EPA Peer Review Handbook Section 2.2.17 states clearly that “work product important to EPA decision-making” is a “candidate for EPA peer review” even if the work product is generated by another an “international body”:

Any scientific and/or technical work product that is used in Agency decision making and is considered influential scientific information or a

highly influential scientific assessment becomes a candidate for peer review regardless of whether the work product is produced by the Agency or another organization. Therefore, all work products important to EPA environmental decision making [underline in original] that are independently generated by other organizations (e.g., other Federal agencies, interagency groups, State and Tribal bodies, environmental groups, industry, educational institutions, **international bodies**) [my bold] need to be considered as candidates for peer review.

26. EPA Peer Review Handbook Section 2.2.17 further states that EPA agency staff are obligated to “examine closely the particulars of the peer review” by the external party to ensure that the peer review is “basically equivalent to what EPA would do”, referring to Section 3.4.9 for a further discussion of how to deal with peer reviewed work product from an external source submitted to EPA:

It is hoped that if the other organization has the work product independently peer reviewed, the peer review will meet the intent of the Agency’s Peer Review Policy and EPA’s proposed use of the product (i.e., **the peer review is basically equivalent to what EPA would do**). Agency staff from the appropriate office(s) should **examine closely the particulars of the peer review** to ensure independence and a conscious effort to incorporate the peer reviewers’ comments into the final work product. If there are perceived, or real, conflicts of interest, this may preclude the use of that peer review and, in those instances, another peer review would be needed. See Section 3.4.9 for considerations of when an outside party conducts and/or funds peer review of their own work product and submits it to the Agency.

27. EPA Policy Handbook Section 3.4.9 notes that reliance on work product peer reviewed by an external source may seem “benign” but is potentially fraught with problems. Section 3.4.9 states that “if the external party submits their work product **and** accompanying peer review”, the EPA should evaluate it for “scientific credibility and validity” as well as “consistency with the provisions of the Peer Review Handbook:

There may be instances where parties external to EPA will want to conduct and/or pay for a preview on a particular work product. This may look benign at first blush, but is a very complex and sensitive situation that can raise significant concerns for conflicts of interest or an appearance of a lack of impartiality for interested parties “paying” for a peer review of their own work product. While the Agency cannot prevent external parties

from conducting and paying for a peer review, **it is desirable that any such peer review is consistent with the intent of the Agency's Peer Review Policy and implements the principles and guidance in this Handbook. If the external party submits their work product and accompanying peer review, the materials should be treated by the Agency as anything else submitted for the Agency's evaluation (i.e., evaluation for scientific credibility and validity, as well as consistency with the provisions of the Peer Review Handbook).**

PART IV

COMPLIANCE WITH OMB AND EPA GUIDELINES

28. Because IPCC is an "external source" to EPA, EPA Guidelines require EPA to follow the procedures described in paragraphs 26-28 above. There is considerable evidence that EPA did not do so.
29. It is beyond the scope of this submission to itemize all the potential aspects where IPCC peer review policies fail to comply with OMB and EPA Guidelines for peer review. However, there is considerable evidence that IPCC peer review policy did not comply with the standards applicable for highly influential scientific information. Several such issues are discussed below, which serve to highlight the apparent EPA failure to provide the evaluation required under EPA guidelines.

A ISSUE ONE – COMPLIANCE WITH SECTION 3.4.9 OF THE EPA POLICY HANDBOOK?

30. Section 3.4.9 of the EPA Policy Handbook requires that any external body wishing its scientific assessment to be considered by EPA must **submit** the scientific assessment **together** with the peer review record to EPA. The TSD provided no evidence that the IPCC ever submitted the Fourth Assessment Report (AR4) together with its peer review record to EPA. Indeed, it seems highly unlikely to me that IPCC did in fact make the submission to EPA that is required to initiate EPA consideration of this external source.

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31. Obviously, the IPCC Fourth Assessment Report is a public document. In addition, IPCC has published a document entitled of Working Group I Review Comments and Responses (IPCC 2007).
32. However, mere publication obviously does not constitute **submission** of the report by IPCC to EPA for a variety of reasons. IPCC guidelines require receipt of the “accompanying peer review”. As discussed below, there are reasons to believe that published peer review record is incomplete in some respects. Without IPCC formally submitting the peer review record and making a clear declaration that the record is complete, EPA is placed in a situation where it is relying on an external source without anyone obligated to clarify issues potentially arising from the source being relied on and without anyone being accountable to it for potential lacunae in the record.
33. Had IPCC submitted the Fourth Assessment Report to EPA, according to Policy Handbook Section 3.4.9, EPA officials would then be required to evaluate the Fourth Assessment Report and its peer review process and ensure, inter alia, that they comply with policies applying to highly influential scientific assessments. It is highly doubtful that any such evaluation ever took place. Had one been carried out (as EPA was obliged), they would presumably have determined that IPCC peer review did not comply with EPA standards in relevant respects as itemized below.

ISSUE TWO: IPCC COMPLIANCE WITH STANDARDS REQUIRED FOR “HIGHLY INFLUENTIAL SCIENTIFIC INFORMATION”?

34. As noted above, EPA and OMB Guidelines establish a rigorous peer review standard for highly influential scientific assessments. The purpose of the following comments is to not to provide the comprehensive evaluation of IPCC peer review policy that ought to have been carried out

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by EPA, but to provide evidence of IPCC non-compliance with key aspects of the required peer review standard.

Access to Data

35. First, contrary to the requirement of OMB Section III, IPCC does not provide “reviewers with sufficient background information, including access to key studies, data and models, to perform their role as peer reviewers” (OMB Section III(4)). I will illustrate this from first hand experience from acting as a peer reviewer for IPCC AR4.
36. As a peer reviewer, I requested supporting data for two papers that IPCC planned to rely on (and did rely on). The IPCC Working Group 1 Technical Services Unit refused to provide the data, stating:

If you wish to obtain data used in a paper then you should make a direct request to the original authors yourself. It would be inappropriate for the IPCC to become involved in that communication and I have no intention of allowing the IPCC support unit to provide you with what would in effect be a secretarial service... I will not be responding to further correspondence on this matter.

37. I then requested the data from the authors and was unsuccessful. I reiterated my request for data to Susan Solomon, Chair of IPCC Working Group I (and now an expert reviewer of the EPA TSD), who replied that, even as an IPCC reviewer, I was **not** entitled to “datasets or computer code or other sources of information”, but only to the papers themselves:

as has already been explained to you in previous correspondence, your interpretation of IPCC procedures in relation to what is made available to reviewers is not correct. The term "materials referenced" used in our rules is unambiguously defined by the list of such "references" given at the end of each chapter. **The term does not extend beyond those cited references to such material as datasets, computer codes**, or other sources of information that those papers may themselves cite or use. [my bold]. As has already been detailed for you by Dr. Manning, the IPCC does not and cannot provide datasets associated with each of the papers cited in the review, whether published or unpublished.

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38. In a letter to IPCC Review Editor John Mitchell in March 2008, Susan Solomon made a similar statement that IPCC would not provide the data contemplated in Section III of the OMB

Guidelines, stating:

IPCC does not have the mandate nor resources to operate as a clearing house for the massive amounts of data used in the referenced papers. The governance of research and requirements of the scientific literature are not IPCC's role.

39. Not only did IPCC refuse to provide the data, but IPCC WGI Chair Solomon even threatened to expel me as an IPCC reviewer if I cited my role as an IPCC reviewer as a justification for

obtaining data from authors, stating:

These considerations and the explanations you have already received made it clear that it is inappropriate to cite a function as a reviewer in the IPCC process as entitling you to access to additional information from authors of the unpublished papers available at our web site, which you have also done. ...

Finally, we must insist that from now on you honor all conditions of access to unpublished, and therefore confidential, material made available for the IPCC review process. The IPCC rules for reviewing draft reports have served the scientific and policy communities well for numerous past international assessment rounds. If there is further evidence that you can not accept them, or if your intent is to use your access to the review process to challenge them, then we will not be able to continue to treat you as an expert reviewer for the IPCC.

40. As a second example, the land portion of the HadCRU temperature index uses station data compiled by Philip Jones and associates at the Climate Research Unit of the University of East Anglia. This data has never been made public. Multiple requests under the UK Freedom of Information have been refused. In response to a request from a scientist for the station data as used by CRU (and thus IPCC), Jones replied:

We have 25 or so years invested in the work. Why should I make the data available to you, when your aim is to try and find something wrong with it.

41. The IPCC prominently used the HadCRU temperature index, but failed to make this data available for expert review.

Due Diligence

42. The primary reason why OMB and EPA guidelines require that reviewers be provided with "sufficient background information, including access to key studies, data and models, to perform their role as peer reviewers", is because OMB and EPA guidelines set out clear responsibilities for peer reviewers, which for EPA reviewers, is further described in various sections of the EPA Peer Review Handbook. Structured peer review is clearly distinguished from a public comment.
43. It is also not well understood that IPCC itself does not carry out any due diligence. This failure is well illustrated by a series of written answers of Michael Mann (Mann 2003) concerning IPCC procedures for the Third Assessment Report (and no relevant procedural changes were made in AR4), the first of which is cited below:

30. Did IPCC carry out any independent programs to verify the calculations that you made in MBH98 or MBH99? If so, please provide copies of the reports resulting from such studies.

Mann: It is distinctly against the mission of the IPCC to "carry out independent programs", so the premise of the question is false. However, the IPCC's author team did engage in a **lively interchanges** about the quality and overall consistency of all of the papers as the chapter was drafted and revised in the course of review.

44. A "lively interchange" is obviously not a satisfactory substitute for the peer review expected for a highly influential scientific assessment.
45. In addition, EPA has established guidelines for statistical practice in EPA documents (EPA 2006b). There is no evidence that IPCC complies with these standards. Indeed, Wegman et al (2006) sharply criticized statistical practices of studies relied upon by IPCC and in written

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answers to questions from a congressional committee, Wegman (2006) even characterized one study (Wahl and Ammann 2007) that IPCC subsequently relied on as having “no statistical integrity”.

46. Considered in the terminology of the EPA Guidelines, the IPCC “peer review” is, in fact, structured more like a “public comment” by interested scientists. For example, no peer reviewers were specifically “charged” (in EPA peer review terms) with specific IPCC sections nor did IPCC provide “charge statements” to reviewers. As a result, many statements in AR4 received no review comments whatever, while review comments on other statements are often dominated by parties to the dispute. Since the chapter authors are themselves often involved in the disputes that they are supposedly assessing, the net result is often a peer review record that falls well short of standards set out for a highly influential scientific assessment.

Transparency

47. There is a substantial gap between IPCC transparency as it is written on paper and as it occurs in practice. IPCC procedures as implemented do not comply with EPA guidelines on transparency. Because IPCC is an international organization, it is not subject to any national or international FOI obligations. In addition, governments in the U.S. and U.K. have taken the position that activities by employees on behalf of IPCC are not subject to national FOI legislation, resulting in a total loss of the transparency contemplated in OMB and EPA guidelines. I will again illustrate this through several examples.
48. IPCC policy requires **all** review comments to be documented. In order to implement this policy, IPCC established a procedure under which reviewers submitted review comments to the Technical Services Unit, which numbered the review comments. Chapter authors then provided

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written responses to the numbered comments (not always responsive to the comment). These numbered comments and author responses are available at a public website.

49. However, some influential IPCC contributors evaded the incorporation of their review comments in the public record, by submitting review comments “privately” to the IPCC chapter authors thereby circumventing the prescribed procedure. I discovered one such incident after I examined the Review Comments pertaining to AR4 chapter 6. I was able to deduce (subsequently confirmed) that Caspar Ammann of NCAR, who held views opposed to ours, had circumvented IPCC procedures by submitting review comments directly to IPCC author Keith Briffa. These comments did not appear in the published peer review record. Efforts to obtain Ammann’s review comments from IPCC or under British FOI legislation or otherwise have proved unsuccessful. Contrary to its supposed commitment to transparency, the IPCC has taken no steps to place the circumvented review comments on the record or otherwise remedy the situation.
50. As a second example, Review Editors have an important role under IPCC policies, a role referred to in the TSD which notes that Review Editors are “responsible for ensuring that all substantive government and expert review comments receive appropriate consideration”.
51. However, the published peer review record contained no information on how Review Editor discharged these responsibilities. David Holland of the U.K. requested such information from the IPCC, which provided only the following form comment as the entire record for 10 of 11 Working Group 1 Review Editors:
- I can confirm that all substantive expert and government review comments have been afforded appropriate consideration by the writing team in accordance with IPCC procedures.
52. The other Review Editor, John Mitchell of the UK Meteorological Office (Met Office), the Review Editor for AR4 chapter 6 provided only the following comment:

I can confirm that the authors have in my view dealt with reviewers comments to the extent that can be reasonably expected.

There will inevitably remain some disagreement on how they have dealt with the reconstructions of the last 1000 years, and there is further work to do here in the future, but in my judgement, the authors have made a reasonable assessment of the evidence they have to hand. The other possible area of contention (within the author team) is on some aspects of sea level rise – this has gone some way towards reconciliation but I sense not everyone is entirely happy

With these caveats I am happy to sign off the chapter, to thank the lead author team for their cooperation, and congratulate them on the chapter.

53. David Holland sought confirmation from Mitchell that this accurately represented the entire corpus of his contributions as IPCC Review Editor. Mitchell stated:

For my own part, I have not kept any working papers. There is no requirement to do so, given the extensive documentation already available from IPCC. :

54. In response to further FOI requests seeking email held by the UK Meteorological Office (the Met Office) pursuant to Mitchell's activities as IPCC Review Editor, the Met Office then stated that Mitchell had acted as an IPCC Review Editor in a "personal capacity" and his correspondence was accordingly not subject to UK Freedom of Information provisions. In response to still further FOI requests regarding whether Mitchell's expenses and salary had been paid during his trips to IPCC destinations, the UK Meteorological Office then agreed that Mitchell had not acted in a "personal capacity" as it had previously claimed and now claimed that the correspondence was exempt from FOI on the basis that providing Mitchell's comments would interfere with their relations with an "international body" (the IPCC). During this process, IPCC had the opportunity to state that the provision of Mitchell's comments would not disturb relations between it and the Met Office, but the IPCC did not do so.

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55. This device eventually used by the UK Met Office to frustrate FOI requests illustrates the amorphous standing of the IPCC under national and international law, which has an important adverse impact on *transparency*.
56. IPCC has not established any administrative procedures equivalent to national FOI legislation nor is there any international court to which an interested party could turn to in order to seek enforcement of such a request. Further, as an international organization, IPCC is not subject to U.S. jurisdiction (and thus is exempt from U.S. FOI legislation) and, to my knowledge, it is not subject to any other national administrative law regime equivalent to the U.S. Freedom of Information (FOI) Act. As a result, it is impossible for an interested party to obtain documents from the IPCC that it would have been able to obtain from an equivalent U.S. agency.
57. In addition, as noted above, some national FOI systems (including the U.K.) include exemptions where disclosure of the requested information affects relations with “international bodies”, of which IPCC is one. Under such systems, documents pertaining to the activities of scientists who participate in IPCC are exempt from FOI, further widening the cone of non-transparency.
58. In the U.S., NOAA has taken a different tactic in response to FOI requests concerning the activities of its employees on behalf of IPCC (for example, Susan Solomon, the Chairman of IPCC WG1 was a NOAA employee and used a NOAA email address for IPCC correspondence). In response to an FOI request for documents pertaining to IPCC review comments held by NOAA employees, NOAA simply denied that *NOAA* held any such documents without providing any legal theory for this implausible statement.

C ISSUE THREE – TEMPERATURE RECONSTRUCTIONS

59. The TSD (p. 26) shows a graphic from NRC, 2006 which appears to provide evidence of a recent uptrend in recent temperatures relative to those experienced in the past millennium.

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60. I have published peer reviewed articles on this issue. I was one of a number of authors who made invited presentation to the NRC 2006 panel on Surface Temperature Reconstructions on temperature reconstructions. Indeed, articles by Ross McKittrick and me were a substantial factor in the convening of this panel. Our articles were discussed in the IPCC AR4.
61. One of the important recommendations of NRC 2006 was that strip bark (bristlecone) tree ring chronologies be “avoided” in temperature reconstructions. Here they were in part responding to our criticism of this particular proxy.
62. However, contrary to this recommendation, the medieval reconstructions used in the NRC 2006 graphic (the one used in the TSD) all employed bristlecone chronologies of the type that NRC 2006 recommended avoidance of. Shortly after the NRC 2006 report, I asked Gerald North, Chairman of the NRC2006 panel in an online colloquy whether they had carried out any due diligence to determine whether these proxies had been used as follows:

The NRC Panel stated that strip-bark tree forms, such as found in bristlecones and foxtails, should be avoided in temperature reconstructions and that these proxies were used by Mann et al. Did the Panel carry out any due diligence to determine whether these proxies were used in any of the other studies illustrated in the NRC spaghetti graph?

63. North in effect admitted that no such due diligence was carried out, stating that they did not “dissect” the studies illustrated in this graphic to determine whether they had used the strip bark proxies whose avoidance had been recommended, while inconsistently confirming that strip bark forms should not be used as follows:

There was much discussion of this matter during our deliberations. We did not dissect each and every study in the report to see which trees were used... The strip-bark forms in the bristlecones do seem to be influenced by the recent rise in CO2 and are therefore not suitable for use in the reconstructions over the last 150 years.

64. In an seminar at Texas A&M University shortly thereafter that was placed online¹, North described operating procedures of the NRC 2006 panel by saying that they "didn't do any research", that they just "took a look at papers", that they got 12 "people around the table" and "just kind of winged it." He said that's "what you do in these sorts of expert panels".
65. Although OMB Guidelines state that NAS panel reports should *generally* be deemed to be compliant with Section III policies, under the circumstances, this general presumption cannot be applied to the data illustrated in the reconstructions of page 26 of the TSD.
66. In the IPCC AR4 statement on this matter quoted by the TSD, IPCC continued to rely heavily on strip bark proxies even though the NRC 2006 recommendation on this matter was available to them. In doing so, they ignored many review comments that explicitly objected to this reliance, with the Review Editor seemingly acquiescing in highly non-responsive author comments. As noted above, John Mitchell, the Review Editor of the relevant chapter, has refused to provide the peer review record of how he discharged his obligations in this matter, initially claiming that he had destroyed all correspondence on this and related matters.

D ISSUE FOUR – TSD PEER REVIEW PROCEDURES

67. As noted above, OMB Section III Guidelines "bar the participation" of scientists employed by the sponsoring agency in peer review of a highly influential scientific assessment. Nonetheless, one of the 12 expert reviewers of the TSD is "Anne Grambsch, EPA".
68. OMB and EPA Guidelines both discourage the repeated use of the same reviewers in multiple assessments. Nonetheless, several of the expert reviewers held senior positions in the assessment studies that were relied upon by the TSD, notably Susan Solomon who had been

¹ <http://www.met.tamu.edu/people/faculty/dessler/NorthH264.mp4>

Chairman of the IPCC AR4 Working Group I and Thomas Karl, who was a senior participant in the U.S. Climate Change Science Program.

69. Contrary to OMB Guidelines, EPA has not published a peer review record of the activities of the expert reviewers of the TSD.

PART V CONCLUSION

70. The Finding and the TSD are highly influential scientific assessments that relied on assessments carried out by parties external to the EPA, including the IPCC. In order for EPA to use an assessment with external party peer review, EPA Guidelines require that IPCC submit the assessment report together with a complete peer review record to EPA and that EPA officials evaluate the assessment and peer review record for compliance with EPA (and OMB) Guidelines. It is highly doubtful that either such a submission or such an evaluation ever happened. In addition, there is considerable evidence that IPCC peer review procedures fall well short of the “rigorous” standard required for highly influential scientific assessments including non-compliance with standards on data availability, due diligence and transparency. In the particular case of 1000-year temperature reconstructions, the TSD applied a graphic that employed proxies which the NRC 2006 panel had said should be avoided. The peer review of the TSD itself did not comply with relevant guidelines.

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