U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF INSPECTOR GENERAL

Catalyst for Improving the Environment

Procedural Review of EPA's Greenhouse Gases Endangerment Finding Data Quality Processes

Report No. 11-P-0702

September 26, 2011

Report Contributors: Rick Beusse
Bao Chuong
James Hatfield
Andrew Lavenburg

Abbreviations

ANPR	Advance notice of proposed rulemaking
AR4	*Fourth Assessment Report* (IPCC)
CAA	Clean Air Act
CCSP	U.S. Climate Change Science Program
CRU	Climatic Research Unit (University of East Anglia)
DQA	Data Quality Act
EO	Executive order
EPA	U.S. Environmental Protection Agency
IPCC	Intergovernmental Panel on Climate Change
NAS	National Academy of Sciences
NASA	National Aeronautics and Space Administration
NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NRC	National Research Council
OAR	Office of Air and Radiation
OIG	Office of Inspector General
OMB	Office of Management and Budget
TSD	Technical support document
USGCRP	U.S. Global Change Research Program

Cover photo: An image of the Earth. (digital image created by NASA)

U.S. Environmental Protection Agency
Office of Inspector General

11-P-0702
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At a Glance

Catalyst for Improving the Environment

Why We Did This Review

The Ranking Member, Senate Committee on Environment and Public Works, requested that we determine whether the U.S. Environmental Protection Agency (EPA) followed key federal and Agency regulations and policies in developing and reviewing the technical data used to make and support its greenhouse gases endangerment finding.

Background

On December 15, 2009, EPA published its Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act. As the primary scientific basis for EPA's finding, the Agency relied upon assessments conducted by other organizations. EPA summarized the results of these and other scientific assessments in a technical support document (TSD).

For further information, contact our Office of Congressional and Public Affairs at (202) 566-2391.

The full report is at:
www.epa.gov/oig/reports/2011/20110926-11-P-0702.pdf

Procedural Review of EPA's Greenhouse Gases Endangerment Finding Data Quality Processes

What We Found

EPA met statutory requirements for rulemaking and generally followed requirements and guidance related to ensuring the quality of the supporting technical information. Whether EPA's review of its endangerment finding TSD met Office of Management and Budget (OMB) requirements for peer review depends on whether the TSD is considered a highly influential scientific assessment. In our opinion, the TSD was a highly influential scientific assessment because EPA weighed the strength of the available science by its choices of information, data, studies, and conclusions included in and excluded from the TSD. EPA officials told us they did not consider the TSD a highly influential scientific assessment. EPA noted that the TSD consisted only of science that was previously peer reviewed, and that these reviews were deemed adequate under the Agency's policy. EPA had the TSD reviewed by a panel of 12 federal climate change scientists. This review did not meet all OMB requirements for peer review of a highly influential scientific assessment primarily because the review results and EPA's response were not publicly reported, and because 1 of the 12 reviewers was an EPA employee.

EPA's guidance for assessing data generated by other organizations does not include procedures for conducting such assessments or require EPA to document its assessment. EPA provided statements in its final findings notice and supporting TSD that generally addressed the Agency's assessment factors for evaluating scientific and technical information, and explained its rationale for accepting other organizations' data. However, no supporting documentation was available to show what analyses the Agency conducted prior to disseminating the information.

Our evaluation examined the data quality procedures EPA used in developing the endangerment finding. We did not assess whether the scientific information and data supported the endangerment finding.

What We Recommend

We recommend that EPA (1) revise its *Peer Review Handbook* to accurately reflect OMB requirements for peer review of highly influential scientific assessments, (2) instruct program offices to state in proposed and final rules whether the action is supported by influential scientific information or a highly influential scientific assessment, and (3) revise its assessment factors guidance to establish minimum review and documentation requirements for assessing and accepting data from other organizations. EPA stated that its response to the final report will address our recommendations.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

September 26, 2011

MEMORANDUM

SUBJECT: Procedural Review of EPA's Greenhouse Gases Endangerment Finding Data Quality Processes
Report No. 11-P-0702

FROM: Arthur A. Elkins, Jr.
Inspector General

TO: Gina McCarthy
Assistant Administrator for Air and Radiation

Paul Anastas
Assistant Administrator for Research and Development

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

The estimated direct labor and travel costs for this report are $297,385.

Action Required

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 calendar days. You should include a corrective actions plan for agreed-upon actions, including milestone dates. Your response will be posted on the OIG's public website, along with our memorandum commenting on your response. Your response should be provided as an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that you do not want to be released to the public; if your response contains such data, you should identify the

data for redaction or removal. We have no objections to the further release of this report to the public. We will post this report to our website at http://www.epa.gov/oig.

If you or your staff have any questions regarding this report, please contact Wade Najjum, Assistant Inspector General for Program Evaluation, at (202) 566-0827 or najjum.wade@epa.gov; or Rick Beusse at (919) 541-5747 or beusse.rick@epa.gov

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Chapter 1
Introduction

Purpose

On April 7, 2010, the Ranking Member, Senate Committee on Environment and Public Works, requested that the Office of Inspector General (OIG) conduct a review of the process the U.S. Environmental Protection Agency (EPA) used to make and support its greenhouse gases endangerment finding. Based on this request, our objective was to determine whether EPA followed key federal and Agency regulations and policies in obtaining, developing, and reviewing the technical data used to make and support its greenhouse gases endangerment finding. The Senator also posed seven questions he wanted us to address in fulfilling our objective. Answers to those seven questions are in appendix A.

Background

On December 15, 2009, EPA published its Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (CAA)[1] (hereafter referred to as the endangerment finding). Specifically, the EPA Administrator determined that:

- Six greenhouse gases taken in combination endanger both the public health and the public welfare of current and future generations.

- Greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas air pollution that endangers public health and welfare under CAA Section 202(a).

This action was the culmination of an October 1999 rulemaking petition that asked EPA to regulate greenhouse gas emissions under Section 202(a) of the CAA. EPA denied this petition in September 2003, and the petitioners appealed this decision to the Court of Appeals for the District of Columbia Circuit,[2] which upheld EPA's denial. The petitioners then appealed to the Supreme Court of the United States. On April 2, 2007, in *Massachusetts v. EPA*,[3] the Supreme Court found that greenhouse gases are air pollutants covered by the CAA. Further, the Supreme Court ruled that the Administrator must determine whether emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or

[1] "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Rule," Federal Register / Vol. 74, No. 239 / Tuesday, December 15, 2009 / Rules and Regulations, p. 66496.
[2] 415 F.3d 50 (D.C. Cir. 2005)
[3] 549 U.S. 497 (2007)

whether the science is too uncertain to make a reasoned decision. Appendix B shows the timeline of key events leading to the issuance of the endangerment finding.

Clean Air Act Section 202 Requirements for Endangerment Findings

Section 202(a)(1) of the CAA states:

> The Administrator shall by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare. Such standards shall be applicable to such vehicles and engines for their useful life (as determined under subsection (d), relating to useful life of vehicles for purposes of certification), whether such vehicles and engines are designed as complete systems or incorporate devices to prevent or control such pollution.

Information Used to Support the Endangerment Finding

The primary scientific basis for EPA's finding that greenhouse gases endanger public health and welfare were assessments conducted by (1) the U.S. Global Change Research Program (USGCRP) (formerly known as the U.S. Climate Change Science Program (CCSP), (2) the Intergovernmental Panel on Climate Change (IPCC), and (3) the National Research Council (NRC). EPA summarized the results of these and other assessments in a technical support document (TSD).

U.S. Global Change Research Program

USGCRP coordinates and integrates federal research on changes in the global environment and their implications for society. Thirteen departments and agencies, including EPA, participate in USGCRP, which was known as the CCSP from 2002 through 2008. The program is steered by the Subcommittee on Global Change Research under the Committee on Environment and Natural Resources, overseen by the Executive Office of the President and facilitated by an Integration and Coordination Office. According to EPA's TSD, the scientific information produced by CCSP (now USGCRP) that EPA "relied upon most heavily" included 16 synthesis and assessment products issued from 2006 through 2009.

According to its *Guidelines for Producing CCSP Synthesis and Assessment Products*, issued December 2004, CCSP products will be considered federal government disseminations and must be prepared in conformance with the provisions of the Data Quality Act (DQA).

Intergovernmental Panel on Climate Change

IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme as an effort by the United Nations to provide the governments of the world with a clear scientific view of what is happening to the world's climate. IPCC periodically issues assessment reports on climate change. Its most recent assessment, the *Fourth Assessment Report* (AR4) was issued in 2007 and, according to EPA's TSD, was heavily relied upon by EPA for its endangerment finding. The AR4 included three working group reports[4] and a *Synthesis Report*.

According to IPCC's *Procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of IPCC Reports*, IPCC reports undergo a three-stage review process: (1) expert review; (2) government/ expert review; and (3) government review of summaries, synthesis reports, and overviews. According to IPCC's procedures, the first draft of a report is subject to expert review, which should include:

- Experts who have significant expertise and/or publications in particular areas covered by the report
- Experts nominated by governments as coordinating lead authors, lead authors, contributing authors, or expert reviewers as included in lists maintained by the IPCC Secretariat
- Expert reviewers nominated by appropriate organizations

After the initial draft report is revised in response to expert review comments, the revised draft is sent out for government expert review. For the IPCC's AR4 Working Group I and II draft reports, the U.S. government review was managed by USGCRP. According to the USGCRP representative coordinating the review, the U.S. expert review included soliciting comments through a Federal Register notice. Additionally, a panel of government representatives from the 13 U.S. agencies and departments that USGCRP comprises was convened to review, approve, and consolidate the comments received in response to the Federal Register notice. These comments were submitted to IPCC and made available to the public.

For the final U.S. government review, the USGCRP coordinating official told us that comments were solicited from all 13 USGCRP participating

[4] Working Group I report, *The Physical Science Basis;* Working Group II report, *Impacts, Adaption, and Vulnerability;* and Working Group III report, *Mitigation of Climate Change.*

agencies and departments. According to the USGCRP representative, the IPCC summaries for policymakers for all three working group reports were accepted by the U.S. government at an IPCC plenary session. EPA participated in the U.S. delegation that approved of the summary for policymakers for the Working Group II report, *Impacts, Adaptation, and Vulnerability*.

National Research Council

NRC is part of the National Academies, which also comprise the National Academy of Sciences (NAS), National Academy of Engineering, and Institute of Medicine. These private, nonprofit institutions provide science, technology, and health policy advice under a congressional charter. According to EPA's TSD, EPA primarily relied upon four NRC reports in developing its finding. These reports were issued from 2001 through 2008. According to NRC:

> Any National Academies report (including meeting summaries, signed papers, letter reports, or other study products) must be reviewed by a diverse group of experts other than its authors before it may be released outside the institution. This independent, rigorous review is a hallmark that distinguishes the National Academies from many other organizations offering scientific and technical advice on issues of national importance.

EPA's Technical Support Document

EPA's TSD for its endangerment finding summarized the results and conclusion of the aforementioned scientific assessments and studies. The draft TSD was originally prepared in 2007 in conjunction with EPA's efforts to establish a rule controlling greenhouse gas emissions from light-duty vehicles and transportation fuels. This draft rule was sent to the Office of Management and Budget (OMB) but never finalized. Subsequently, EPA issued an advance notice of proposed rulemaking (ANPR)[5] asking for public comment on its plans to issue a stand-alone endangerment finding for greenhouse gases. A revised TSD was made publicly available by EPA to accompany the ANPR. On April 24, 2009, EPA published its proposed endangerment finding,[6] which noted that EPA had updated its TSD to reflect the results of 11 recent CCSP reports, as well as more recent climate data from federal agencies. The final endangerment finding was published in the Federal Register on December 15, 2009.[7] A final TSD accompanied the finding. The TSD reflected changes to include the most recent

[5] Federal Register / Vol. 73, No. 147 / Wednesday, July 30, 2008 / Proposed Rules, p. 44354.
[6] Federal Register / Vol. 74, No. 78 / Friday, April 24, 2009 / Proposed Rules, p. 18886.
[7] Federal Register / Vol. 74, No. 239 / Tuesday, December 15, 2009 / Rules and Regulations, p. 66496.

comprehensive assessment of USGCRP, up-to-date observational data for a number of key climate variables from the National Oceanic and Atmospheric Administration (NOAA), and up-to-date emissions data from EPA's annual inventory of greenhouse gases. Additionally, EPA made other edits and updates to the TSD in response to comments received on the proposed rule.

In its endangerment finding, the Agency recognized that scientific research on climate change issues was an ongoing process. Since EPA's endangerment finding was issued in December 2009, NRC has published a series of climate change reports. In its May 2010 report, *Advancing the Science of Climate Change*, NRC concluded:

> A strong, credible body of scientific evidence shows that climate change is occurring, is caused largely by human activities, and poses significant risks for a broad range of human and natural systems.

In addition, IPCC has begun preparations for its *Fifth Assessment Report* on climate change. In June 2010, IPCC selected authors and reviewers for its *Fifth Assessment Report*.

The Data Quality Act and Key Requirements for Information Quality

Congress enacted the DQA in 2000. The DQA directed OMB to issue guidelines to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies in fulfillment of the purposes and provisions of the Paperwork Reduction Act. The OMB guidelines were to require each federal agency subject to the guidelines to:

- Issue guidelines ensuring and maximizing the quality, objectivity, utility, and integrity of information, including statistical information, disseminated by the agency

- Establish administrative mechanisms allowing affected persons to seek and obtain correction of information maintained and disseminated by the agency that does not comply with the guidelines

- Report periodically to the OMB Director on (i) the number and nature of complaints received by the agency regarding the accuracy of information disseminated by the agency, and (ii) how such complaints were handled by the agency

Accordingly, OMB issued its final *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies* in January 2002.[8]

OMB Final Information Quality Bulletin for Peer Review

To improve the quality of scientific information used by federal agencies, in addition to its January 2002 guidelines OMB also developed a *Final Information Quality Bulletin for Peer Review.* This bulletin was published in the Federal Register[9] in January 2005, and established government-wide guidance for enhancing the practice of peer review of government science documents. The bulletin defined two types of information requiring peer review, "influential scientific information" and "highly influential scientific assessments."

Influential Scientific Information

The OMB bulletin requires each agency to subject influential scientific information to peer review prior to dissemination. The guidelines provide agencies broad discretion in determining what type of peer review is appropriate and what procedures should be employed to select appropriate reviewers. Agencies do not have to subject influential scientific information to additional peer review if the information has already been subjected to adequate peer review. In determining whether prior peer review is adequate, OMB's bulletin states that agencies shall give due consideration to the:

- Novelty and complexity of the science to be reviewed
- Importance of the information to decisionmaking
- Extent of prior peer reviews
- Expected benefits and costs of additional review

Principal findings, conclusions, and recommendations in official reports of NAS are generally presumed to have been adequately peer reviewed.

Highly Influential Scientific Assessment

OMB requires a more rigorous form of peer review for influential scientific information products that are considered highly influential scientific assessments. OMB defines a scientific assessment as:

> . . . an evaluation of a body of scientific or technical knowledge which typically synthesizes multiple factual inputs, data, models, assumptions, and/or applies best

[8] A February 5, 2002, Federal Register notice corrected errors in the January 2002 version. OMB published the final corrected guidelines in the Federal Register on February 22, 2002, Volume 67, No. 36, p. 8452.
[9] Federal Register / Vol. 70, No. 10 / Friday January 14, 2005 / p. 2664.

professional judgment to bridge uncertainties in the available information.

A highly influential scientific assessment is a scientific assessment that:

- Could have a potential impact of more than $500 million in any year on either the public or private sector, or
- Is novel, controversial, or precedent setting, or has significant interagency interest

For highly influential scientific assessments, OMB guidance requires more attention to peer review consideration such as individual versus panel review, timing, scope of the review, selection of reviewers, disclosure and attribution, public participation, and disposition of reviewer comments. If the material to be disseminated falls within OMB's definition of highly influential scientific assessment, OMB requires the agency to adhere to the peer review procedures identified in Section III of its bulletin.

OMB guidance also requires that agencies certify compliance with the requirements of the bulletin and information quality guidelines when using influential scientific information or highly influential scientific assessments to support a regulatory action. This certification and other relevant materials should be included in the administrative record for the action.

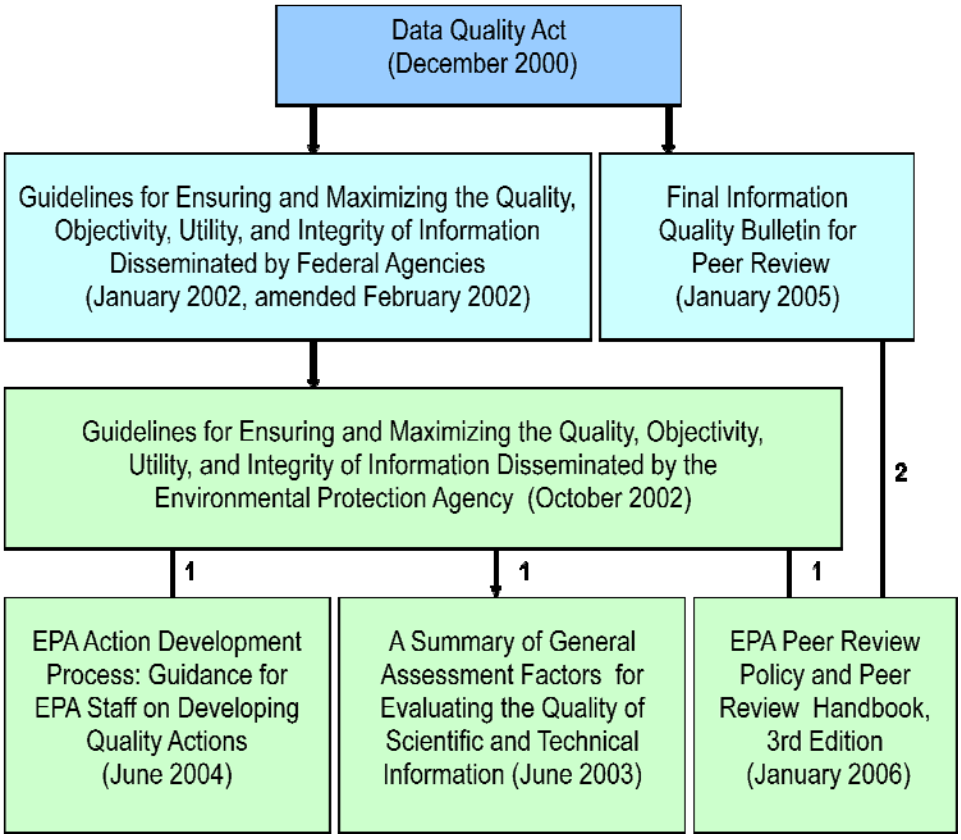
EPA's Information Quality Guidelines

In response to OMB's data quality guidelines, EPA issued its *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency* (hereafter referred to as EPA information quality guidelines) in October 2002. Consistent with OMB's guidelines, EPA's information quality guidelines state that the quality of information is determined by the objectivity, integrity, and utility of that information. EPA's information quality guidelines cite various policies and procedures that EPA uses to ensure and maximize the quality of the information that it disseminates.

EPA's information quality guidelines outline examples of existing Agency guidelines and policies in place to address quality, objectivity, utility, and integrity of information. These examples include EPA's *Peer Review and Peer Involvement at the U.S. Environmental Protection Agency* (hereafter referred to as EPA's peer review policy) and the *Action Development Process: Guidance for EPA Staff on Developing Quality Actions* (hereafter referred to as action development process guidance). EPA's guidance for implementing its peer review policy is contained in EPA's *Peer Review Handbook.* EPA's action development process and guidance are outlined in the action development process guidance. Earlier versions of these guidance documents existed before Congress passed the

DQA. A third key guidance document, *A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information*, identifies the factors that EPA generally considers in evaluating the quality and relevance of scientific and technical information from outside sources. According to the document's introduction, the document does not constitute new data quality considerations, but provides transparency and information about the Agency's existing procedures. Key congressional, OMB, and Agency information quality requirements and guidance are shown in figure 1.

Figure 1: Key data quality requirements and guidelines



Source: OIG analysis of key federal and EPA information quality criteria.

Notes:
1 – EPA had established action development and peer review processes before the DQA. EPA's October 2002 guidelines incorporate these processes as part of the Agency's overall system for ensuring and maximizing data quality. The guidelines noted that EPA would develop assessment factors for reviewing the quality of information developed by external parties before EPA uses that information.
2 – EPA had a peer review process in place before the DQA. The 3rd edition of EPA's handbook incorporated the requirements of OMB's bulletin.

Descriptions of these three key EPA guidance documents follow.

Action Development Process: Guidance for EPA Staff on Developing Quality Actions

EPA's guidance for developing quality actions, the *Action Development Process: Guidance for EPA Staff on Developing Quality Actions*, is intended to ensure that the Agency uses quality information to support its actions and ensure that scientific, economic, and policy issues are adequately addressed at the right stages in action development. EPA actions subject to the action development process include rules, policy statements, risk assessments, guidance documents, models that may be used in future rulemakings, reports to Congress that are statutorily mandated, and strategies related to regulations.

The action development process guidance requires EPA program offices to classify actions as Tier 1, Tier 2, or Tier 3. Tier 1 actions are top actions that demand the ongoing involvement of the Administrator's office and extensive cross-Agency involvement on the part of the Assistant and Regional Administrators. Scientific or economic issues that are precedent setting or controversial, or economically significant per Executive Order (EO) 12866, should be considered Tier 1 actions. All Tier 1 and Tier 2 actions are expected to include an "analytic blueprint." An analytic blueprint lays out a workgroup's plans for the data collection and analyses that will support development of a specific action. The analytic blueprint spells out how this information will be collected, peer reviewed, and used to develop the action within a specific budget and timeframe.

A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information

EPA's general assessment factors guidance document describes EPA's quality expectations for scientific and technical information, including information that is voluntarily submitted by or collected from external sources. It draws from existing Agency information quality systems, practices, and guidelines to describe the types of considerations EPA takes into account when evaluating the quality and relevance of scientific and technical information. According to the guidance, EPA typically takes into account the following five general assessment factors when evaluating the quality and relevance of scientific and technical information:

- **Soundness:** The extent to which the scientific and technical procedures, measures, methods, or models employed to generate the information are reasonable for, and consistent with, the intended application.

- **Applicability and utility:** The extent to which the information is relevant for the Agency's intended use.

- **Clarity and completeness:** The degree of clarity and completeness with which the data, assumptions, methods, quality assurance, sponsoring organizations, and analyses employed to generate the information are documented.

- **Uncertainty and variability:** The extent to which the variability and uncertainty (quantitative and qualitative) in the information, or in the procedures, measures, methods, or models, are evaluated and characterized.

- **Evaluation and review:** The extent of independent verification, validation, and peer review of the information or of the procedures, measures, methods, or models.

EPA drew from existing Agency quality systems, practices, and guidelines in creating its general assessment factors. According to EPA's guidance, the assessment factors did not constitute a new process for evaluating information.

EPA's Peer Review Policy and *Peer Review Handbook*

EPA's peer review policy consists of the following provisions:

- Peer review is encouraged and expected for all scientific and technical information that is intended to inform or support Agency decisions.

- Influential scientific information, including highly influential scientific assessments, should be peer reviewed in accordance with the Agency's *Peer Review Handbook*.

- External peer review is the expected procedure for highly influential scientific assessments.

- External peer review is the approach of choice for influential scientific information intended to support important decisions, or for work products that have special importance in their own right.

- All Agency managers are accountable for ensuring that Agency policy and guidance are appropriately applied in determining whether their work products are influential or highly influential, and for deciding the nature, scope, and timing of their peer review.

- Peer review is not restricted to the nearly final version of work products, as peer review at the planning stage can often be extremely beneficial.

The Agency's *Peer Review Handbook* incorporates the provisions of EPA's peer review policy and outlines the Agency's procedures and processes for peer review. As stated in the handbook, EPA's underlying principle is that "all influential scientific and technical work products used in decision making will be peer reviewed."

After a work product is determined to be an influential scientific or technical work product, the next key determination is whether the product is a highly influential scientific assessment. Highly influential scientific assessments are expected to undergo external peer review in accordance with the procedures outlined in OMB's *Final Information Quality Bulletin for Peer Review*. According to the handbook, any scientific or technical work product used in Agency decisionmaking should be considered a candidate for peer review, even if EPA did not develop the work product. If these work products have been previously peer reviewed, EPA can accept the peer review if it meets the intent of the Agency peer review policy and the Agency's intended use of the product. The handbook states that the appropriate EPA office:

> . . . 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.

In response to the provisions of OMB's bulletin on peer review, the *Peer Review Handbook* recommends placing language in the preamble of proposed or final rules, ANPRs, or other substantive actions stating that EPA conducted a peer review of influential scientific information or highly influential scientific assessments in accordance with OMB's *Final Information Quality Bulletin For Peer Review*. Further, EPA's action memoranda from the program office to the EPA signer of the rule should state that EPA followed the EPA peer review policy with respect to the information supporting the action.

Scope and Methodology

We conducted our work at EPA's Office of Air and Radiation (OAR), Office of Atmospheric Programs, in Washington, DC. To assess EPA's compliance with key regulations and guidance governing information quality, we reviewed the following documents:

- Data Quality Act
- OMB, *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*
- OMB, *Final Information Quality Bulletin for Peer Review*
- EPA, *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency*
- EPA, *Action Development Process: Guidance for EPA Staff on Developing Quality Actions*
- EPA, *Peer Review and Peer Involvement at the U.S. Environmental Protection Agency*
- EPA, *Peer Review Handbook*
- EPA, *A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information*

In addition to reviewing and analyzing key federal and Agency requirements for information quality, we also reviewed EPA's compliance with federal regulations and EOs governing the regulatory development process.

We conducted our field work from April 2010 to April 2011. We conducted this evaluation in accordance with generally accepted government auditing standards. Those standards require that we obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our evaluation objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our objectives. Appendix C provides a detailed description of our scope and methodology.

Limitations

Our evaluation focused only on EPA's process for developing the endangerment finding and ensuring information quality. We did not evaluate the effectiveness of IPCC's or other organizations' information quality procedures. We did not test the validity of the scientific or technical information used by EPA to support its endangerment finding, nor did we evaluate the merit of the conclusions or analyses presented in EPA's endangerment finding. We did not make conclusions regarding the impact that EPA's information quality control systems may have had on the scientific information used to support the endangerment finding.

Chapter 2
EPA's TSD Peer Review Methodology Did Not Meet OMB Requirements for Highly Influential Scientific Assessments

EPA fulfilled the statutory requirements for notice and comment rulemakings mandated in the Administrative Procedure Act and in Section 307 of the CAA, and employed several of its processes designed to ensure data quality. Whether EPA followed all key federal and Agency requirements and policies in peer reviewing its endangerment finding TSD depends upon how the document is defined according to OMB's bulletin on peer review. We interpreted OMB's guidance to indicate that the TSD was a highly influential scientific assessment. EPA's peer review did not meet all OMB requirements for such documents. EPA had the TSD reviewed by a panel of 12 federal climate change scientists. However, the panel's findings and EPA's disposition of the findings were not made available to the public as would be required for reviews of highly influential scientific assessments. Also, this panel did not fully meet the independence requirements for reviews of highly influential scientific assessments because one of the panelists was an EPA employee. Further, in developing its endangerment finding, we found that OAR did not:

- Include language in its proposed action, final action, or internal memoranda that identified whether the Agency used influential scientific information or highly influential scientific assessments to support the action. OAR also did not certify that the supporting technical information was peer reviewed in accordance with EPA's peer review policy.

- Prepare a complete analytic blueprint outlining its approach for reviewing the technical data needed to support its action as recommended by the Agency's action development process. OAR also did not follow some of the procedural guidelines in EPA's action development process.

OAR officials told us that a peer review of the TSD in accordance with Section III of OMB's bulletin on peer review was not required because they did not consider the TSD a scientific assessment. They noted that the TSD consisted only of science that was previously peer reviewed and that these reviews were deemed adequate under the Agency's policy. They also stated that, as described in the final Federal Register notice, the Administrator primarily relied upon assessments conducted by other organizations rather than the TSD, which summarizes the conclusions and findings of these other assessments. OMB's Associate Administrator, Office of Information and Regulatory Affairs, in response to our draft report, stated that OMB believes that EPA reasonably interpreted the OMB bulletin in concluding that the TSD did not meet the bulletin's definition of a

highly influential scientific assessment. We did not analyze the effect that any of these conditions had on the TSD's presentation or the Administrator's decision.

EPA's Endangerment Finding Required a High Standard of Information Quality

Because of the influential nature of the Agency's endangerment finding and the supporting technical information, federal and Agency guidelines called for EPA to apply a rigorous standard of quality to the information disseminated as part of its endangerment finding. EPA's information quality guidelines identify its action development process, peer review procedures, and other related procedures as processes of particular importance for ensuring the quality, objectivity, and transparency of influential information.

EPA's action development process requires the program office developing an action to designate its action by tier level. Tier 1 actions are top actions that demand the ongoing involvement of the Administrator's office and extensive cross-Agency involvement on the part of the EPA Assistant and Regional Administrators. A key requirement for Tier 1 actions is the development of an analytic blueprint. An analytic blueprint lays out the approach for collecting and reviewing the data that support the action.

As outlined in OMB and EPA guidance, an important method for ensuring data quality is the external peer review process. The nature of the technical information supporting an action determines the level and extent of peer review. Influential scientific information is expected to be peer reviewed. OMB's *Final Information Quality Bulletin for Peer Review* and EPA's *Peer Review Handbook* describe criteria for information to be classified as influential scientific information. EPA's criteria include information that:

- Focuses on significant emerging issues
- Has significant cross-Agency/interagency implications

Highly influential scientific assessments are a subset of influential scientific information that must undergo specific minimum requirements for external peer review. OMB's peer review bulletin requires external peer review of highly influential scientific assessments unless an agency employs an acceptable alternative procedure, as provided in Section IV of the bulletin, or the assessment meets the exemptions outlined in Section IX of the bulletin. Examples of the listed acceptable alternative procedures include relying on scientific information produced by NAS, commissioning NAS to peer review the work product, and employing procedures approved by the OMB Office of Information and Regulatory Analysis Administrator in consultation with the Office of Science and Technology Policy. Examples of the listed exemptions include information related to national security, financial information, and information involving a health or safety dissemination that is time sensitive.

EPA Employed Procedures to Ensure Data Quality and Fulfilled the Basic Requirements for Federal Rulemaking and Other Statutory and Executive Order Requirements

EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency* describe many policies and procedures that EPA uses to ensure and maximize the quality of data it disseminates. Examples of processes that EPA used to help ensure and maximize the quality of information used to support its endangerment finding included:

- Holding public hearings after issuing the proposed rule.
- Obtaining reviews of the draft TSDs by federal experts.
- Providing a predissemination review for other federal agencies.
- Addressing information concerns through the public comment process for its proposed rule. The Agency developed 11 volumes of responses to comments to address significant public comments received in response to the proposed finding.
- Providing additional information and analysis in response to 10 notice and comment petitions for reconsideration received after its final rule was issued.
- Placing the action in the appropriate tier (Tier 1) and establishing a workgroup to develop the rule.
- Addressing comments received on the TSD from workgroup members, federal experts, OMB, and other agencies.

EPA also fulfilled the statutory requirements for notice and comment rulemakings mandated in the Administrative Procedure Act and in Section 307 of the CAA. Additionally, EPA fulfilled the requirements in other statutes and EOs affecting EPA rulemakings, where applicable. A detailed list of the statutes and EOs we examined is in appendix C.

EPA's Review of Its TSD Did Not Meet All OMB Peer Review Requirements for Highly Influential Scientific Assessments

OAR had the TSD reviewed by a panel of climate change scientists. This review did not meet all of OMB's peer review requirements for highly influential scientific assessments. The methodology that OAR employed for this review was within the discretion afforded by OMB guidance for peer reviews of influential scientific information, but not for highly influential scientific assessments. In our

opinion, the TSD is a highly influential scientific assessment and thus it required a peer review as described in Section III of OMB's *Final Information Quality Bulletin for Peer Review*. OAR officials explained that, in their view, a more formal review of the TSD was not needed because:

- They did not consider the TSD to be a scientific assessment because it only summarized existing findings and conclusions and provided no new findings or conclusions.

- The core references relied upon for the TSD had been peer reviewed in a manner consistent with OMB's bulletin. OAR pointed out that the information had been reviewed and vetted by the scientific community through the IPCC, USGCRP/CCSP, and NRC review procedures.

OMB's peer review bulletin distinguishes between influential scientific information and highly influential scientific assessments, and affords federal agencies more discretion for the type of peer review mechanism and reviewer selection process they use for influential scientific information. Section II of the bulletin describes the minimum standards for peer review of influential scientific information. Section III of OMB's bulletin prescribes additional and more prescriptive standards for peer review of highly influential scientific assessments, a subset of influential scientific information. Thus, an important determination for peer review purposes is whether supporting influential scientific information is considered a highly influential scientific assessment. OMB's peer review bulletin defines a scientific assessment as:

> . . . an evaluation of a body of scientific or technical knowledge that typically synthesizes multiple factual inputs, data, models, assumptions, and/or applies best professional judgment to bridge uncertainties in the available information.

We contacted OMB, as the originator and creator of the *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies* and the *Final Information Quality Bulletin for Peer Review,* to clarify whether a document summarizing existing findings and conclusions of other peer-reviewed scientific assessments, but not offering any new analyses or conclusions, would meet OMB's definition of a scientific assessment (see appendix D). We provided OMB with a copy of our assignment notification letter to EPA, the Ranking Member's letter requesting our review, and a set of questions pertaining to the guidance in OMB's *Final Information Quality Bulletin on Peer Review.* OMB's Assistant General Counsel provided the following interpretation to us via electronic mail (appendix E contains OMB's complete response):

> An annotated bibliography would generally not be considered a scientific assessment; however, a document summarizing the "state of the science" would be, as it implicitly or explicitly weighs the strength of the available evidence.

Based on the above interpretation, by providing a summary of existing findings and conclusions from IPCC, USGCRP/CCSP, NRC, and other reports, OAR implicitly and explicitly weighed the strength of the available science by its choices of information, data, studies, and conclusions included in and excluded from the TSD. Also, in our judgment the TSD synthesizes multiple factual inputs, data, models, and assumptions. The Agency stated in its endangerment finding that it "gave careful consideration to all the scientific and technical information in the record." EPA's TSD referenced multiple sources (some cited within the assessment reports, and some not), including "up-to-date" data from sources other than the "major scientific assessments." In evaluating the scientific information, the Agency stated that it "placed limited weight on the much smaller number of individual studies that were not considered or reflected in the major assessments." EPA reviewed such studies "largely to see if they would lead EPA to change or place less weight on the judgments reflected in the assessment report." The Agency stated in the endangerment finding that "the studies did not change the various conclusions or judgments EPA would draw based on the assessment reports." Thus, in our opinion, the TSD is a scientific assessment.

Further, the TSD meets OMB's definition of a highly influential scientific assessment because it is "novel, controversial, or precedent-setting or has significant interagency interest." Statements in the Agency's proposed and final notices for the endangerment finding also suggest that the TSD is a highly influential scientific assessment. For example, EPA's proposed Federal Register notice stated:

> 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.

Further, in describing the science on which the finding was based, the final Federal Register notice stated:

> In 2007, EPA initiated its assessment of the science and other technical information to use in addressing the endangerment and cause or contribute issues before it under CAA section 202(a). This scientific and technical information was developed in the form of a TSD in 2007. An earlier draft of this document was released as part of the ANPR published July 30, 2008 (73 FR 44353).

We asked OAR if it sought guidance from EPA's Science Policy Council on its choice of peer review methodology for the TSD; OAR confirmed that it did not. OAR pointed out that OMB had coordinated the interagency review process for the TSD and had cleared the document as part of EPA's endangerment finding. However, OAR never formally categorized the nature of the document; i.e., OAR never stated whether it was influential scientific information or a highly influential scientific assessment.

OAR had the TSD reviewed by 12 climate change experts. This panel was charged with reviewing the TSD to make sure it was "a fair and accurate reflection of the current state of climate change science as embodied in the major assessments reports such as IPCC, USGCRP/ CCSP, and NRC." The panel conducted three such reviews (the same 12 experts were used for the three reviews) at different stages and provided its comments to EPA. EPA maintained a record of all reviewer comments. EPA also maintained a record of its response and disposition of the reviewers' comments to the initial draft TSD that accompanied the 2007 Office of Transportation and Air Quality rulemaking. EPA did not maintain a record of its response and disposition of comments for the two TSDs that accompanied the proposed and final rules. Additionally, the panel's results and EPA's response to the panel's results were not made available to the public as is required for a peer review of a highly influential scientific assessment. We also noted that this panel did not fully meet the independence requirements for reviews of highly influential scientific assessments because one of the panelists was an EPA employee. The OMB bulletin for peer review states that "scientists employed by the sponsoring agency are not permitted to serve as reviewers for highly influential scientific assessments." See appendix A, question 5, for a more detailed discussion of the expert panel process.

We discussed our conclusions with EPA and provided EPA with a draft discussion document outlining our preliminary observations. Since our conclusion was based on our interpretation of OMB peer review guidance, including the clarification OMB provided to us (see appendix E), EPA sought our permission to discuss our initial conclusions with OMB. We agreed that EPA could discuss our results with OMB. OMB's Deputy General Counsel subsequently provided us with an electronic mail correspondence stating:

> OMB believes that EPA reasonably determined that the Endangerment TSD itself (as opposed to the underlying peer-reviewed scientific assessments of the NRC, IPCC, USGRCP identified and discussed in the TSD) did not have the impacts or characteristics required to meet the OMB Bulletin's definition of a highly influential scientific assessment.

OMB noted that its original interpretative statement to us was general in nature and was not specific to the endangerment finding TSD. OMB also requested to be

allowed to comment on the formal draft report. Appendix F contains OMB's subsequent correspondence.

Regardless of the interpretations applied to the endangerment finding TSD, we noted that a flowchart on page 2 of EPA's *Peer Review Handbook* indicates that highly influential scientific assessments do not require an external peer review if the assessment only consists of science previously peer reviewed and the peer review is deemed adequate under the Agency's policy. While this interpretation is correct for influential scientific information, OMB's peer review guidance does not provide for such an exception for highly influential scientific assessments.

OAR Did Not Certify Its Compliance With OMB's Peer Review Bulletin and EPA's Peer Review Policy

OAR did not certify its compliance with OMB's peer review bulletin and EPA's peer review policy. Further, EPA did not identify whether the information supporting its action was influential scientific information or a highly influential scientific assessment. Properly identifying the information is a prerequisite to determining the applicable peer review procedures per OMB's peer review bulletin and EPA's peer review policy.

OMB's *Final Information Quality Bulletin for Peer Review* requires an agency relying on influential scientific information or a highly influential scientific assessment to support a regulatory action to include in the administrative record for that action a certification explaining how the agency complied with the requirements of the OMB peer review bulletin and the applicable information quality guidelines. Appendix C of EPA's *Peer Review Handbook* provides detailed guidelines regarding the language and mechanisms EPA should use to certify its compliance with OMB and EPA peer review requirements. When using either influential scientific information or a highly influential scientific assessment as the underlying information to support an Agency action, EPA's *Peer Review Handbook* states that the Agency should insert language into the preamble of the proposed and final rules that:

1. States that the action was supported by influential scientific information or a highly influential scientific assessment

2. Certifies that EPA conducted a peer review of the supporting information in accordance with OMB's *Final Information Quality Bulletin for Peer Review*

Additionally, EPA's *Peer Review Handbook* directs the Agency to include a statement in its action memorandum that the Agency followed its peer review policy with respect to the influential scientific information or highly influential scientific assessments supporting the action. If the policy was not followed, the action memorandum should explain why not. If influential scientific information

or highly influential scientific assessments were not used to support the action, the action memorandum should include a statement to that effect.

EPA did not provide statements in the preamble to either the proposed or final endangerment findings describing whether influential scientific information or highly influential scientific assessments were used to support the finding. Additionally, EPA did not provide a statement certifying that it conducted a peer review of the information supporting the findings in accordance with OMB's *Final Information Quality Bulletin for Peer Review*. Briefing documents for the EPA Administrator stated that the TSD would be reviewed by federal climate change experts. However, this documentation also did not identify whether the TSD was influential scientific information or a highly influential scientific assessment, nor did it describe how the proposed review would comply with OMB's peer review requirements and EPA's peer review policy.

Additionally, EPA's action memoranda for the proposed and final findings did not state that the Agency followed its peer review policy with respect to the underlying information supporting the endangerment findings. EPA also did not provide any statements in its action memoranda for either the proposed or final findings that identified whether the supporting information was influential scientific information or a highly influential scientific assessment. In responding to our draft report findings, the Agency characterized the TSD as influential scientific information and thus not subject to OMB's peer review requirements for highly influential scientific assessments.

OAR Did Not Follow Some Steps in the Action Development Process

The development of the endangerment finding did not follow all action development process steps as outlined in EPA's action development process guidance. This was due, in part, to the finding originally being included as part of a proposed greenhouse gases transportation rule developed in 2007. EPA withdrew this rule after enactment of the Energy Independence and Security Act. In July 2008, EPA issued an ANPR asking for comment on the ramification of an endangerment finding and on the underlying science. When EPA initiated a formal action development process for the stand-alone greenhouse gases endangerment finding in early March 2009, the TSD in support of the finding had already been through several iterations and one round of review by a panel of federal climate change scientists. Further, the OAR program office had already briefed the Administrator on potential options for making an endangerment finding. Thus, when the formal workgroup was convened to develop the proposed stand-alone endangerment finding, OAR used the same approach it used for the original 2007 action and the 2008 ANPR.

When OAR began the action development process for the stand-alone endangerment finding in March 2009, it designated the action as a Tier 1 action. According to EPA's action development process guidance, the workgroup should

prepare a preliminary analytic blueprint detailing its approach to developing the supporting data for the action. This guidance states that the preliminary analytic blueprint is revised and finalized once the workgroup receives "Early Guidance from senior management." Among other things, the analytic blueprint identifies the type of information EPA plans to use to support the action, and addresses the question of whether external peer review will be needed to meet the requirements of the Agency's peer review policy.

An analytic blueprint was developed as part of the 2007 rulemaking on greenhouse gas emission control for light-duty vehicles and transportation fuels. This blueprint contained an outline for the endangerment finding portion of the rulemaking. The outline listed the IPCC, CCSP (USGCRP), and NRC reports as core references for the development of OAR's TSD. However, the outline did not explain what reviews were needed before accepting the other organizations' data or how the TSD would be peer reviewed. For the stand-alone endangerment finding, a revised analytic blueprint was not prepared. Instead, the action went forward using the approach to developing and reviewing the TSD that had been previously approved in 2007.

Although the analytic blueprint for the 2007 action did not describe how the TSD would be peer reviewed, OAR prepared nine briefing documents for EPA senior management that provided details on the Agency's plans for preparing and peer reviewing the TSD. These briefings were conducted from May through September 2007. These briefing documents outlined the Agency's approach but did not explain why it chose not to have a formal external peer review of the TSD. Two of the nine briefing documents were prepared for presentation to the former EPA Administrator. The current Administrator was made aware of the approach OAR was taking with the TSD in a February 2009 briefing. We also noted that the former EPA Administrator provided early guidance to the initial 2007 workgroup for developing the endangerment finding portion of the action. According to EPA, early guidance was provided for the 2009 action during briefings with the Administrator.

OAR also did not follow certain procedural guidelines outlined in the action development process. These deviations included (1) not having a workgroup meeting to discuss the options and policies to be considered at the October 29, 2009, options selection meeting; (2) reducing the time to review options selection meeting materials; (3) not including all reviewing offices' positions in the options selection meeting materials; (4) not documenting the options selection meeting decisions; and (5) not providing a complete final Agency review package to the Assistant Administrators/Regional Administrators, workgroup members, and Regulatory Steering Committee representatives/regional regulatory contacts prior to the final Agency review meeting.

In our opinion, the potential impact of these procedural deviations on the quality of the action is debatable. The EPA Office of Policy, Regulatory Management

Division Director, who is also chair of the Regulatory Steering Committee, said that the action development process guidance is supposed to be flexible. However, in our view, reducing the time to review materials and not providing all materials have the potential to hinder a reviewer's ability to comment on a proposed action.

Conclusions

In our opinion, the endangerment finding TSD is a highly influential scientific assessment that should have been peer reviewed as outlined in Section III of OMB's *Final Information Quality Bulletin for Peer Review*. OAR never formally designated the document as either influential scientific information or as a highly influential scientific assessment in the preamble to the proposed and final endangerment findings or in its internal documentation. EPA did not consider the TSD to be a highly influential scientific assessment.

Additionally, OAR did not adhere to some of its internal processes established to guide Tier 1 actions. We noted that OAR had completed many of the processes and steps outlined in its guidance to ensure the quality of the information the Administrator used in making her determination. Those processes are intended to help ensure EPA develops quality actions and to provide assurance on data quality. We concluded that the Agency did not complete some of these key requirements and recommended actions. We did not analyze the quality of the scientific information and data used to support the Administrator's decision.

Recommendations

We recommend that the Assistant Administrator for Research and Development direct the EPA Science Policy Council to:

1. Revise the flowchart on page 2 of EPA's *Peer Review Handbook* to ensure that the flowchart accurately depicts OMB requirements for external peer review of highly influential scientific assessments.

2. Instruct program offices that, when using influential scientific information or highly influential scientific assessments supporting an action, to:

    a. Include language in the preamble of proposed and final rules that specifically states that the action was supported by influential scientific information or a highly influential scientific assessment, and certifies that EPA conducted a peer review of the supporting information in accordance with OMB's *Final Information Quality Bulletin for Peer Review.*

b. Include a compliance statement in its action memoranda stating that the Agency followed its peer review policy.

Agency Comments and OIG Evaluation

The Agency requested that the final OIG report provide more context regarding the extent of peer review conducted for the underlying scientific assessments and the extent of EPA's peer and public review of its TSD. We added descriptions of the peer review procedures of IPCC, USGCRP, and NRC to chapter 1 of the final report. However, we believe the draft report contained sufficient information on EPA's peer and public review of its TSD.

The Agency disagreed with our conclusion in the draft report that the TSD was a highly influential scientific assessment and thus subject to certain peer review requirements that EPA did not implement. EPA responded that the TSD does not meet the OMB definition of a scientific assessment in that no *weighing* of information, data, and studies occurred in the TSD. EPA maintained that this process had already occurred in the underlying assessments, where the scientific synthesis occurred and where the state of the science was assessed. EPA stated that the TSD is not a scientific assessment, but rather a document that summarized in a straightforward manner the key findings of NRC, USGCRP, and IPCC. In our opinion, the TSD met the definition of a scientific assessment in that it evaluated a body of scientific knowledge and synthesized multiple factual inputs. While we agree that the primary information EPA relied upon were scientific assessments, these assessments were voluminous and numerous. Thus, EPA had to weigh the conclusions and information in those assessments in deciding which information to present in its TSD. In addition, the TSD included information from outside these assessments, such as greenhouse gas emissions data and statements from government officials regarding national security consequences of climate change.

EPA disagreed with a heading in our draft report stating that "OAR Did Not Identify the Specific Type of Information Supporting Its Action or Certify Compliance with EPA's Peer Review Policy." EPA responded that the full endangerment record, including the endangerment finding, TSD, and the response to comments, provided extensive discussions regarding the type of information supporting the finding. However, EPA acknowledged that the record did not contain a specific discussion of the TSD and its peer review in terms of the peer review requirements for influential scientific information. EPA agreed that including a clearer discussion of this issue could have been helpful and could have avoided confusion. We agree that the endangerment finding record provided extensive discussion of the type of information supporting its finding, but not in the manner required by OMB's peer review bulletin and EPA's peer review policy. We changed the title of this subsection in the final report to more accurately reflect our conclusion.

With respect to EPA's implementation of the procedures outlined in its action development process, EPA responded that our draft report did not present a balanced discussion of the actions EPA took to achieve the goals and communicate the major components of an analytic blueprint to all program offices and workgroup members. We made minor revisions to the final report in this section. However, our draft report acknowledged that even though EPA did not revise its analytic blueprint for the stand-alone endangerment finding action, it prepared nine briefing documents for EPA senior management that provided details on the Agency's plans for preparing and peer reviewing the TSD.

EPA did not propose any corrective actions for the recommendations in the draft report. EPA stated that it will address any recommendations in its written response to the final report. EPA suggested that we clearly state in our final report that our conclusion is based on our opinion that the TSD is a highly influential scientific assessment, and that if the TSD is in fact not a highly influential scientific assessment, then such conclusions, and perhaps attendant recommendations, would not apply. We did not make any clarifications to the final report in response to this comment, because our recommendations address the Agency's action development process and are not dependent upon whether the endangerment finding TSD was considered influential scientific information or a highly influential scientific assessment. We consider recommendations 1 and 2 unresolved. Detailed responses to EPA comments on the draft report are included in appendix G.

OMB Comments and OIG Evaluation

OMB stated that it believes that EPA reasonably interpreted the OMB peer review bulletin in concluding that the TSD did not meet the bulletin's definition of a highly influential scientific assessment. OMB commented that EPA concluded that it was the separate, underlying assessments of the IPCC, USGCRP, and NRC that met OMB's definition of a scientific assessment. EPA's TSD, according to OMB, provided a condensed form of the three underlying assessments. OMB further stated that, rather than creating a new scientific assessment, it understood EPA's TSD to include a "reader-friendly" version of the passages from the underlying assessments on which EPA was relying. We agree that the primary underlying assessments that EPA relied upon in developing its TSD were scientific assessments. However, by synthesizing the findings, conclusions, and other information from these assessment reports, as well as from other sources, in its TSD, EPA evaluated the state of science and produced an entirely new and separate document that met OMB's definition of a scientific assessment.

OMB also stated that it believes EPA reasonably concluded that it was the underlying assessments that were identified in the TSD, and not the TSD itself, that proved "highly influential" to EPA's determination in its endangerment finding. We agree that the major assessments cited in EPA's TSD are "highly influential." We also believe that the TSD is "highly influential" because it

provided scientific and technical information in support of a Tier 1, significant regulatory action. The stated purpose of the TSD was ". . . to provide scientific and technical information for an endangerment and cause or contribute analysis regarding greenhouse gas (GHG) emissions. . . ." EPA documentation indicated the TSD played a role in informing the Administrator's endangerment decision. For example, the former Director of EPA's Climate Change Division told us in an August 2010 e-mail that former EPA Administrator Johnson reviewed the entire TSD in 2007 and found the science in it to be the basis for his core decision that there was endangerment. Also, in the endangerment finding EPA described the April 2009 TSD as the "underlying scientific and technical basis" for the Administrator's proposed findings. Responses to OMB's comments on the draft report are included in appendix H.

Chapter 3
EPA Procedures for Assessing External Data Are Unclear

We found that EPA relied upon descriptions of other organizations' information quality processes and U.S. government acceptance[10] of work products in determining that the scientific work products it used to support the endangerment finding met OMB and EPA requirements for data quality. The Agency provided statements in its final findings notice and supporting TSD that generally addressed the Agency's assessment factors for evaluating scientific and technical information. Additionally, EPA addressed public comments to the proposed rule in an 11-volume response to comment document. EPA responded to specific concerns related to the major assessment reports summarized in the TSD, as well as data quality issues. However, no contemporaneous documentation was available to show what analyses the Agency conducted prior to dissemination of the information in its advance notice and proposed action. The Agency's guidance for assessing outside sources of data does not include procedures for conducting these assessments or require the Agency to document its assessments.

EPA Guidance for Assessing Externally Generated Data Can Be Improved

EPA's *A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information* contains guidance on the factors that EPA staff should consider in evaluating the quality and relevance of information, regardless of source. However, this guidance document does not identify specific steps or procedures EPA personnel should use in determining whether scientific and technical information is of acceptable quality, nor does it identify the documentation requirements for these determinations.

Section 2.2.17 of EPA's *Peer Review Handbook* contains peer review considerations for products submitted to EPA for use in decisionmaking. These considerations can be used to address the "evaluation and review" factor identified in EPA's guidance, *A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information*. According to the *Peer Review Handbook*, "It is hoped that if the other organization has the work

[10] U.S. government representatives, led by the White House Office of Science and Technology Policy and U.S. Department of State, approved the "Summaries for Policymakers" for each of the four volumes of the IPCC AR4 in 2007. IPCC procedures state that "approval" means "the material has been subjected to detailed, line by line discussion and agreement." In addition to approval of the "Summaries for Policymakers," a director of Operations with IPCC told us that participating governments, including the U.S. government, accepted the underlying working group chapters by acclamation during IPCC plenary sessions. "Acceptance," according to IPCC procedures, means that "the material has not been subject to line by line discussion and agreement, but nevertheless presents a comprehensive, objective and balanced view of the subject matter."

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)." The handbook states that "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." The handbook does not describe any documentation requirements for this review.

We found that EPA did not contemporaneously document how it applied and considered the assessment factors in determining whether the IPCC and other assessment reports were of sufficient quality, objectivity, utility, and integrity. EPA described the IPCC review procedures and how they met EPA data quality requirements in the proposed and final rulemakings. However, the Agency did not conduct any independent evaluations of IPCC's compliance with IPCC procedures, nor did EPA document any specific processes it employed to evaluate the scientific and technical information included in IPCC's AR4 prior to EPA disseminating that information. An OAR manager told us that OAR routinely applies the assessment factors to information it receives or gathers, including the IPCC assessment reports, but that the Agency did not have any procedures in place to document how these factors are applied.

In its endangerment finding, EPA cited several reasons for relying on the findings from the IPCC, USGCRP, and NRC assessments as the primary basis for the endangerment decision. These reasons included the "rigorous and exacting standard of peer review" employed by these organizations, as well as U.S. government acceptance of IPCC's AR4. The Agency also stated in its response to comments document that it was an active participant in the USGCRP and IPCC assessments. According to EPA's response to comments document, it "was the lead agency for three significant reports under the USGCRP and recently completed an assessment addressing the climate change impacts on air quality in the United States." EPA was also involved in a review of IPCC's AR4, and in particular took part in the approval of the summary for policymakers for the Working Group II volume, *Impacts, Adaptation, and Vulnerability*.

EPA stated in its endangerment finding that it had maintained "the highest level of adherence to Agency and OMB guidelines for data and scientific integrity and transparency." With respect to accepting and disseminating data produced by other organizations, OMB told us:

> If an agency uses another organization's data or analysis to support their policy, they are disseminating that information. As such, that information becomes subject to the Agency's Information Quality Guidelines and the Bulletin for Peer Review.

> Therefore, in evaluating whether to disseminate the information, the agency must determine whether the information complies with the Agency's Information Quality Guidelines.
>
> and
>
> If an assessment has been endorsed by one agency within the U.S. Government, and is going to be used by another agency, the agency using the information should ensure that the assessment is consistent with its own Information Quality Guidelines.

Because EPA used information from other organizations to support its findings, EPA, in evaluating whether to disseminate[11] that information, should have determined whether the assessments referenced in the TSD (e.g., IPCC's AR4) complied with EPA's information quality guidelines, and whether the peer reviews of these assessments met OMB's requirements for peer review of scientific assessments. U.S. government acceptance of the documents did not relieve EPA of its responsibility to determine whether the data met EPA's information quality guidelines before disseminating the information. We reviewed EPA's descriptions of how the IPCC review process met EPA quality guidelines to determine whether EPA addressed all applicable OMB requirements in Section III of its *Final Information Quality Bulletin for Peer Review*. These descriptions did not address all applicable OMB requirements for highly influential scientific assessments. Table 2 summarizes the results of our review.

Table 2: EPA's examination of IPCC's AR4 peer review

OMB criterion for peer review of highly influential scientific assessments	Did EPA address the OMB criterion in Federal Register notice or response to comments?
Expertise and balance of peer reviewers	Yes
Conflicts of interest of peer reviewers	No
Independence of peer reviewers	Yes
Rotation of peer reviewers	No
Information access for peer reviewers	No
Opportunities for public participation	Yes
Transparency of review process	Partially[a]
Management of the peer review	Not Applicable[b]

Source: OIG analysis of EPA's response to comments to the proposed rule.

[a] Transparency was generally addressed but not for all elements. For example, EPA did not discuss whether IPCC procedures required a description of the credentials and relevant experiences of each peer reviewer.
[b] This criterion only applies to peer reviews managed by a federal agency.

[11] OMB defines "dissemination" as "agency initiated or sponsored distribution of information to the public" (see 5 Code of Federal Regulations 1320.3(d) (definition of "Conduct or Sponsor")). Therefore, information submitted to the public as part of an advance notice or proposed action has been "disseminated" according to OMB's definition.

After disseminating its endangerment finding, in response to petitions for reconsideration, the Agency took further steps to examine and evaluate IPCC procedures. As part of this process, the Agency evaluated evidence provided by petitioners related to allegations that IPCC peer review and report development procedures were designed inappropriately.

Conclusions

EPA determined that the IPCC assessment and other outside reports met EPA's information quality guidelines and were sufficiently peer reviewed. EPA's reasoning was described in its response to comments on the proposed rule. However, no supporting analytical information was available to show how EPA made its determination prior to disseminating the information. EPA's guidance for assessing the quality of externally generated information does not provide procedures or steps for assessing outside data or requirements for documenting such analysis.

Recommendation

We recommend that the Assistant Administrator for Research and Development:

3. Revise EPA's guidance document, *A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information,* to establish minimum review and documentation requirements for assessing and accepting data from other organizations.

Agency Comments and OIG Evaluation

The Agency did not concur with the conclusions in our draft report that EPA did not conduct any independent evaluations of IPCC's compliance with IPCC procedures, and that EPA did not document any specific processes it employed to evaluate the scientific and technical information included in IPCC's AR4. EPA stated that the scientific assessments it utilized, namely those from NRC, IPCC, and USGRCP, underwent their own peer review processes, which are well known and accepted by the U.S. government. According to EPA, these processes are accepted by the U.S. government as appropriate mechanisms to ensure the quality of the science assessments. We agree that EPA took additional steps to evaluate and examine IPCC procedures in response to specific allegations made by petitioners, and we added a paragraph to the final report to reflect this. However, the conclusions presented in our draft report remain valid. Our conclusions focused on how EPA evaluated the quality of externally generated information *prior* to EPA disseminating that information.

Regarding the IPCC review process, EPA stated that it devoted significant staff time to reviewing the IPCC assessment reports, providing comments during an interagency process, participating in that interagency process to prioritize U.S. government comments, and approving the summaries of the IPCC reports in a detailed line-by-line process. EPA commented that our draft report did not include the examples of instances in which EPA specifically discussed and documented throughout the endangerment finding record how the IPCC peer review procedures meet EPA and OMB guidelines. We added statements to chapter 1, chapter 3, and appendix A of the final report to indicate EPA's involvement in the IPCC process, including its participation in the U.S. delegation approving the Working Group II report for the AR4. However, the only organization for which OMB guidance specifically allows federal agencies to presume findings and conclusions to be adequately peer reviewed is NAS. We believe that EPA's guidance for assessing the quality of information generated by outside sources, other than NAS, does not provide procedures or steps for assessing outside data or requirements for documenting such analysis.

The Agency also disagreed with several of the points provided in table 2 of chapter 3, and directed the OIG to its response to petitions document as evidence of additional EPA review and analysis of IPCC procedures. We believe the information in table 2 of chapter 3 to be accurate and did not make changes to the table from our draft report. We consider recommendation 3 unresolved. Detailed responses to EPA comments on the draft report are included in appendix G.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in $000s)	
Rec. No.	Page No.	Subject	Status[1]	Action Officials	Planned Completion Date	Claimed Amount	Agreed-To Amount
1	22	Direct the EPA Science Policy Council to revise the flowchart on page 2 of EPA's *Peer Review Handbook* to ensure that the flowchart accurately depicts OMB requirements for external peer review of highly influential scientific assessments.	U	Assistant Administrator for Research and Development			
2	22	Direct the EPA Science Policy Council to instruct program offices that, when using influential scientific information or highly influential scientific assessments supporting an action, to: a. Include language in the preamble of proposed and final rules that specifically states that the action was supported by influential scientific information or a highly influential scientific assessment, and certifies that EPA conducted a peer review of the supporting information in accordance with OMB's *Final Information Quality Bulletin for Peer Review.* b. Include a compliance statement in its action memoranda stating that the Agency followed its peer review policy.	U	Assistant Administrator for Research and Development			
3	29	Revise EPA's guidance document, *A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information*, to establish minimum review and documentation requirements for assessing and accepting data from other organizations.	U	Assistant Administrator for Research and Development			

[1] O = recommendation is open with agreed-to corrective actions pending
C = recommendation is closed with all agreed-to actions completed
U = recommendation is unresolved with resolution efforts in progress

Appendix A

Answers to Specific Questions From the Ranking Member

This appendix presents the results of our review for the questions posed by the Ranking Member, Committee on Environment and Public Works, United States Senate.

1. Did EPA conduct an examination of the IPCC procedures, including the IPCC process for handling review comments? How did EPA determine that the IPCC process satisfied EPA's obligations to follow the Data Quality Act and the Agency's, as well as OMB's, peer review guidelines? How was this determination documented?

As discussed in chapter 3, EPA examined IPCC procedures to the extent that EPA described these procedures in its proposed and final endangerment finding packages. Although OAR did not contemporaneously document its determinations regarding compliance with the DQA or OMB's or the Agency's peer review guidelines prior to disseminating its endangerment finding, the Agency stated in both the proposed and final findings that it adhered to its information quality guidelines in developing its findings and associated TSD. EPA also identified several reasons in its response to comments document as to why it believed the supporting information in its TSD adhered to a basic standard of quality, including objectivity, utility, and integrity. After disseminating its endangerment finding, in response to petitions for reconsideration, the Agency took further steps to examine and evaluate IPCC procedures. As part of this process, the Agency evaluated evidence provided by petitioners related to allegations that IPCC peer review and report development procedures were designed inappropriately.

EPA Examination of IPCC Procedures

EPA provided detailed descriptions of the IPCC principles and procedures in documents associated with its endangerment and cause or contribute findings for greenhouse gases. These documents included:

- The final findings (Section III.A)
- The TSD accompanying the proposed and final findings
- EPA's response to comment document
- EPA's response to petitions document

According to EPA, the assessment reports summarized in the TSD, including IPCC's AR4, "were prepared following rigorous and transparent processes addressing such issues as the nomination and selection of authors, the caliber of literature reflected in the assessment, and the processes for review and revision of reports."

EPA also stated in its TSD that the procedures employed by the IPCC, among others, provided the Agency with assurances that the assessment material was well vetted by both the climate change community and by the U.S. government.

How EPA Determined That IPCC Procedures Met Applicable Information Quality Criteria

EPA did not provide documentation to describe the specific processes it used to determine that IPCC's procedures met the applicable information quality criteria. An OAR manager told us that the Agency routinely applies its *General Assessment Factors for Evaluating the Quality of Scientific and Technical Information*, and that these factors were considered when the Agency evaluated the information generated by IPCC's AR4. However, the Agency did not have procedures in place to document who evaluated the quality of information, or how the assessment factors were considered by the Agency in evaluating the information from IPCC.

Although EPA did not clearly document how it examined the IPCC's procedures, the Agency provided several reasons as to why it believed the information in IPCC's AR4 was of sufficient quality, objectivity, utility, and integrity. According to EPA, the IPCC procedures met applicable information quality criteria because:

- IPCC's AR4 was reviewed and formally approved and accepted by the U.S. government.
- EPA's familiarity with procedures used by IPCC resulted in EPA's confidence that these procedures were consistent with federal information quality guidelines for quality, objectivity, utility, and integrity.
- EPA stated that it "thoroughly reviewed and evaluated the author selection, report preparation, expert review, public review, information quality, and approval procedures of IPCC, USGCRP/CCSP, and NRC to ensure that the information adhered 'to a basic standard of quality, including objectivity, utility, and integrity.'"

EPA was also involved in a review of IPCC's AR4, and in particular took part in the approval of the summary for policymakers for the Working Group II volume, *Impacts, Adaptation, and Vulnerability*. Additionally, in response to petitions for reconsideration of its endangerment finding action, the Agency assessed specific critiques of IPCC procedures. In summary, EPA concluded that:

- In regard to concerns that some draft assessment reviewers should have also been listed as report contributors, it was proper to not list certain scientists as contributing authors as they did not contribute significantly to the writing and editorial decisions in developing any AR4 chapter, including chapter 6 of Working Group I's contribution (Jansen et al., 2007). Therefore, these reviewers' objectivity was not compromised during the peer review process.
- IPCC authors did not cite their own studies more frequently than what was acceptable and reasonable.
- IPCC authors were not directed to focus on policy-prescriptive conclusions, but rather implemented IPCC guidelines by presenting policy-relevant and neutral findings.
- IPCC authors did not alter the content of reports to eliminate suggestions of nonconsensus.
- Collaborations among IPCC authors and reviewers prior to the development of AR4 did not compromise objectivity or generate conflicts of interest.

- IPCC's peer review processes are appropriate and adequate, and were properly implemented.
- IPCC authors did not manipulate deadlines for receipt of new literature.
- IPCC's very limited use of gray literature[12] does not call into question the quality and objectivity of the assessment reports.

EPA Did Not Evaluate IPCC's Compliance With Its Procedures

EPA did not evaluate IPCC's compliance with its principles and procedures. According to the chief of the Climate Science and Impacts Branch, EPA had no reason not to accept the IPCC assessment reports as valid and of high quality. EPA was part of the IPCC process, and the U.S. government was broadly involved with the IPCC, including the development, review, and approval of IPCC's AR4. Therefore, EPA felt confident accepting IPCC's AR4 as valid and of high quality.

2. IPCC procedures require that it consider all information and scientific viewpoints. Examine how EPA evaluated and determined that the IPCC examined all viewpoints.

In general, EPA evaluated whether IPCC considered all scientific viewpoints during the development of its AR4 through a review and examination of IPCC's procedures. Formal comments that alleged IPCC did not consider all scientific viewpoints in developing its AR4 were submitted to EPA during the public comment period for the proposed findings, and in petitions for reconsideration that were submitted after the final findings were published.

In responding to public comment for the proposed findings, the Agency relied upon its understanding of the stated IPCC process to ensure that all viewpoints were considered. For example, EPA stated in its response to comment document that it "carefully reviewed the IPCC procedures" and concluded that there was no evidence to show that alternative perspectives were not incorporated into the IPCC process. The Agency also noted the breadth and scope of IPCC's review process, in interviews and in the endangerment finding itself, as a characteristic that helped to include all viewpoints.

IPCC's AR4 was described by EPA as "robust." EPA noted the following about the IPCC process:

- IPCC's AR4 synthesized thousands of individual studies and conveyed the consensus conclusions on the body of scientific literature.
- More than 6,000 peer-reviewed publications were cited by IPCC Working Group I.
- "In implementing [IPCC's] procedures across the three working groups of the IPCC's AR4, 1,250 scientists (450 lead authors and more than 800 contributing authors) from 130 countries served as authors and more than 2,500 experts provided over 90,000 review comments."

[12] "Gray literature" is written material, such as a report, that is not published commercially or is not generally accessible.

Since issuing its final findings in December 2009, EPA received 10 petitions requesting that EPA reconsider its findings. As part of their request for reconsideration, petitioners claimed that IPCC suppressed dissenting views during the development of its AR4, and some of the petitioners provided e-mails from University of East Anglia Climatic Research Unit (CRU) scientists as part of the evidence to support this claim. Similar to the response EPA provided in its response to comments document for the proposed findings, EPA again referred to the IPCC procedures as a means of ensuring that all scientific views were considered during the development of the AR4. According to EPA's response to petitions document:

> . . . the IPCC processes have been developed for the express purpose of ensuring integrity and avoiding any possibility of bias in the conclusions drawn from the scientific literature. The level of detail and clarity of the requirements—especially concerning report review, the specific responsibilities of review editors to assess the quality of author responses to comment, and the transparency of the record of comments and responses—provide the foundation for ensuring that the reports are credible and sound.

In response to one particular petitioner comment, EPA reviewed the IPCC AR4 to determine how two particular references were included in the assessment. The Agency found that the IPCC AR4 report cited the two references, thus providing " . . . stronger support for the proposition that the IPCC assessed and cited critical literature than for the petitioners' view that these events demonstrate that the IPCC is biased." Further, EPA stated that its conclusions on this issue were consistent with the findings of the Independent Climate Change E-mails Review investigation, which stated that the panel has "not found any direct evidence to support the allegation that members of CRU . . . misused their position on IPCC to seek to prevent the publication of opposing ideas." In all instances, EPA found that the petitioners did not present sufficient evidence to demonstrate that the IPCC did not consider all scientific viewpoints during the development of its AR4.

3. Was EPA aware of editing of final IPCC assessment reports after the reviewers submitted their final comments?

According to the counsel for the Air and Radiation Law Office of Office of General Counsel, OAR was not aware of editing of the final IPCC AR4 after the reviewers submitted their final comments. An OAR manager said that based on EPA's knowledge of the IPCC procedures, OAR had no reason to think this was an issue. The manager also noted that the Agency had not asked IPCC whether such editing had occurred. An OAR manager noted that a concern was raised about improper edits being made to the second IPCC assessment report in 1995; however, this concern was not substantiated. The OAR manager added that the concern about the second IPCC assessment report prompted IPCC to change its review and editing procedures to the current procedures.

4. Was the Endangerment Finding's Technical Support Document (TSD) subjected to peer review as specified in the EPA Peer Review Handbook? If not, please provide EPA's explanation for why it was not.

EPA did not conduct a peer review of the TSD that met all recommended steps in the *Peer Review Handbook* for peer reviews of influential scientific information or highly influential scientific assessments. EPA's peer review policy states that "for influential scientific information intended to support important decisions, or for work products that have special importance in their own right, external peer review is the approach of choice" and that "for highly influential scientific assessments, external peer review is the expected procedure." According to the policy, external peer review involves reviewers who are "independent experts from outside EPA." The handbook provides examples of "independent experts from outside EPA," that include NAS, an established Federal Advisory Committee Act mechanism (e.g., Science Advisory Board), and an ad hoc panel of independent experts outside the Agency. The handbook lays out a number of procedural steps involved in an external peer review.

EPA had the TSD reviewed by 12 federal climate change experts. While all but one of the experts was from outside EPA, this review did not follow all recommended steps of an external peer review outlined in the handbook. For example, EPA did not create a formal peer review record, have the expert panel prepare a peer review report, prepare an Agency response to reviewer comments on the TSD that accompanied the proposed and final rules, obtain written management approval of EPA's response to the reviewers' comments on the TSD that eventually accompanied the ANPR, or include peer review certification in the preamble to the rule. OAR officials explained that an external peer review of the TSD was not needed because (1) they did not consider the TSD to be a scientific assessment because it only summarized existing findings and conclusions and provided no new findings or conclusions, and (2) the core references relied upon for the TSD had been peer reviewed in a manner consistent with the OMB bulletin.

Although the Agency did not conduct all of the recommended steps in its *Peer Review Handbook*, the handbook and OMB guidance allow discretion in the methodology used to peer review influential scientific information. OMB does not provide such discretion for highly influential scientific assessments, and peer review of these assessments must meet the minimum peer review requirements outlined in Section III of OMB's *Final Information Quality Bulletin on Peer Review*. Both EPA and OMB disagreed with our conclusion that the TSD met the definition of a highly influential scientific assessment and should have been reviewed in accordance with the minimum requirements of Section III. For more information on this subject, refer to chapter 2 of our report.

5. EPA has acknowledged sending the Draft TSD to a group of federal climate change experts for review. Apparently this was done for a number of versions of the Draft TSD. Were changes made to the Draft TSD based on these federal reviewers' comments? Did this process follow EPA's, as well as OMB's, peer review guidelines?

Changes were made to draft versions of the TSD in response to comments from 12 federal climate change experts. The draft TSD was formally reviewed by the 12 federal climate change experts on three occasions (August 16 to September 4, 2007; March 9–16, 2009; and

October 9–19, 2009). EPA made changes to the draft TSD after each of these reviews. Specifically, changes were made to the draft TSD before it was published with the:

- ANPR
- Proposed endangerment finding
- Final endangerment finding

EPA maintained documentation showing its response to and disposition of reviewer comments for the first draft TSD that accompanied the ANPR. However, EPA did not maintain documentation showing its response to and disposition of comments reviewers made to the versions of the TSD that accompanied the proposed and final actions. While our review of subsequent versions of the TSD indicated that changes were made after receipt of the reviewers' comments, we did not attempt to trace all potential changes back to revised TSDs.

The federal climate change expert review of the TSD did not follow all the recommended procedures outlined in the *Peer Review Handbook* or OMB's guidelines for peer review of influential scientific information or highly influential scientific assessments. According to EPA's *Peer Review Handbook*, an external peer review mechanism is the preferred choice for influential scientific information, and highly influential scientific assessments are expected to undergo external peer review. However, the following items specified in the handbook for external peer review were not developed or obtained:

- Formal peer review record
- Peer review report
- EPA's response to the reviewers' comments on the TSD that accompanied the proposed rule, and comments on the TSD that accompanied the final rule
- Written management approval of EPA's response to the reviewers' comments on the TSD that eventually accompanied the ANPR

The review panel was predominantly an external panel, as 11 of the 12 panelists worked for other federal agencies. One of the panelists was an EPA employee. None of the 12 panelists participated in the drafting of the TSD. According to OAR managers, the TSD did not require an external peer review because the scientific assessments it relied upon had already been rigorously reviewed. Thus, EPA did not need to follow the *Peer Review Handbook* procedures for external peer review in conducting the federal climate change expert review.

6. Assess the Interagency review process used in developing the Endangerment Finding. Were there significant interagency comments on the finding? How were these resolved?

The TSD was subject to OMB/interagency review prior to publication of EPA's ANPR, proposed findings, and final findings. For each review, EPA addressed and resolved interagency comments on the TSD to OMB's satisfaction. In some cases, EPA made changes to the TSD in response to comments, and in other cases, EPA explained why it did not agree with the comment or did not make changes to the TSD.

The OMB/interagency review process for the version of the TSD that accompanied EPA's ANPR on the Regulation of Greenhouse Gases under the CAA did not result in any significant comments.

The OMB/interagency review process for the version of the TSD that accompanied the proposed findings resulted in 86 comments. In general, the comments related to:

- Requesting certain TSD language be more consistent with cited literature
- Inserting additional citations or clarifying existing citations
- Requesting clarification or additional evidence for statements made in the TSD
- More clearly stating uncertainties associated with some findings
- Differentiating between U.S. and international impacts of climate change

EPA made changes to the draft TSD to address 39 comments. For 45 other comments, EPA did not make changes to the draft TSD, but provided responses to OMB with its rationale for not doing so. In two instances, EPA's actions to address the OMB/interagency comments did not appear to be directly responsive to the comments; however, we did not find these two instances to be of significance. OMB approved all EPA actions and responses to OMB/interagency review comments.

There were no OMB/interagency comments provided for the version of the TSD that accompanied the final findings.

7. In recent months a number of e-mails from the Climatic Research Unit ("CRU") of the University of East Anglia in the United Kingdom were released. EPA has claimed that these e-mails do not affect the fundamental findings of the IPCC assessment reports. What independent analyses has EPA conducted to reach this conclusion, in particular its conclusion regarding the HadCRUT temperature dataset and its relation to the other data sets used in the endangerment finding from NOAA and NASA [National Aeronautics and Space Administration]?

In November 2009, subsequent to publication of EPA's proposed finding, approximately 1,000 e-mails were hacked from the servers of the University of East Anglia CRU and made public. CRU is recognized for its climate change research and, since 1978, had developed and maintained a land-based temperature record widely used by climate change researchers. According to CRU, its staff have been heavily involved in the IPCC assessments, and CRU's work has been used by IPCC in construction of future climate projections. The content of the e-mails caused some to challenge the work of CRU and the conclusions of the IPCC. Since EPA relied heavily upon IPCC's AR4 in developing the TSD for its endangerment finding, concerns have been raised about EPA's acceptance and use of this information in light of federal and Agency information quality guidelines.

In response to allegations that CRU scientists acted inappropriately in handling their data and improperly influenced the process of advising policymakers, the University of East Anglia commissioned two studies. An April 2010 study, chaired by Professor Ron Oxburgh, examined the integrity of the research published by CRU. A July 2010 study, chaired by Sir Muir Russell, examined the conduct of the CRU scientists. In general, the studies found that there was no deliberative scientific malpractice at CRU, and that there was no evidence of CRU scientists' behavior that would undermine the conclusions of the IPCC assessments. However, the Oxburgh report also concluded that there would be benefits to CRU collaborating with professional

statisticians to aid their research, and noted that there were unresolved questions relating to the availability of environmental datasets. Further, the Russell report found that both CRU scientists and the University of East Anglia failed to display the proper degree of openness regarding their research.

In March 2010, the United Nations and IPCC requested the InterAcademy Council, a multinational organization of science academies, to conduct an independent review of IPCC's procedures and processes. The InterAcademy Council released its final report in August 2010, concluding that the IPCC assessment process had been successful and "served society well." However, the InterAcademy Council also found that some fundamental changes to the IPCC processes and management structure were essential. Its report offered multiple recommendations for improving the IPCC procedures. These recommendations primarily related to governance and management; the review process; and characterizing and communicating uncertainty, communications, and transparency in the assessment process.

EPA evaluated the concerns related to the CRU/HadCRUT[13] temperature record as part of a two-step process. The first step of EPA's evaluation was after the public comment period for its proposed findings ended on June 23, 2009, and the second step was in response to 10 petitions for reconsideration that EPA received after it issued its December 2009 final findings. EPA did not provide the OIG with documentation for either step that showed it had independently verified the temperature records for CRU, NOAA, or NASA. Instead, EPA relied on external peer review and investigations of the datasets, as well as the larger body of scientific evidence, to ensure that the data met federal and Agency information quality guidelines. However, EPA also reviewed CRU e-mails, as well as underlying scientific literature, in addressing petitioner concerns related to the CRU/HadCRUT temperature record.

The Agency's determination that the temperature records (from CRU, NOAA, and NASA) were independent and valid, and that they were properly considered in the IPCC assessments, was largely based on the following factors:

- The temperature datasets had been subject to formal, independent, external peer review.
- The temperature records were part of a large body of scientific evidence that included multiple lines of evidence showing a warming of the climate system.
- The temperature records were considered by IPCC as "one line of evidence among many" that presented a broad range of indicators that global warming was occurring.
- An independent investigation issued in March 2010 by the UK House of Commons Science and Technology Committee verified the CRU data and results and found that the NOAA, NASA, and CRU datasets were independent.

To obtain an expert opinion on the relationship between NOAA temperature datasets and other key datasets used in IPCC's AR4, in July 2010, we discussed these records with the Director of NOAA's National Climatic Data Center (NCDC). According to the NCDC Director, while NCDC, NASA, and CRU each employ different methodologies to analyze the raw temperature

[13] HadCRUT is a global surface dataset maintained by the United Kingdom's Hadley Centre and CRU.

data they collect, the long-term temperature trend analyses produced by all three organizations generally agree with each other. Further, he told us that IPCC recognized that the temperature datasets generated by NCDC, NASA, and CRU were all quite important in demonstrating the robustness of data for the temperature trends discussed in IPCC's AR4. The NCDC Director said that even if the CRU temperature data were completely disregarded, the NCDC and NASA temperature datasets, along with other indicators such as sea level data, sea ice melting, ice sheet melting, subsurface ocean temperatures, lake and river freeze dates, glacier retreat, and biological indicators, were capable of demonstrating that the weight of scientific evidence overwhelmingly pointed toward a long-term trend of global warming.

Information quality guidelines from both OMB and EPA state that if data and analytical results are subject to formal, independent, external review, then the information may generally be presumed to be of acceptable objectivity. The presumption of objectivity ensured by peer review is rebuttable, but the burden of proof lies with the complainant or petitioner. According to EPA, the CRU, NOAA, and NASA datasets have all been widely reviewed and assessed within the climate change community, thus ensuring objectivity. In its response to 10 petitions for reconsideration of the endangerment finding, EPA concluded that "petitioners have failed to consider or rebut" the body of evidence (which includes the temperature records) supporting the IPCC and USGCRP conclusions that warming of the climate system in recent decades is unequivocal.

Appendix B

Timeline of Key Events Leading to Issuance of Endangerment Finding

Date	Event
10/20/99	Rulemaking petition filed asking EPA to regulate greenhouse gas emissions from new motor vehicles.
09/08/03	EPA denied rulemaking petition.
04/02/07	Supreme Court ruled that greenhouse gases are air pollutants under CAA, and that EPA must determine whether greenhouse gases emitted from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health and welfare.
05/14/07	President Bush issued EO 13432 on *Cooperation Among Agencies in Protecting the Environment With Respect to Greenhouse Gas Emissions From Motor Vehicles, Nonroad Vehicles, and Nonroad Engines*.
05/18/07	Acting Assistant Administrator for OAR briefed on the plan for developing the endangerment finding.
06/07	Office of Transportation and Air Quality workgroup formed to develop light-duty vehicles and transportation fuels greenhouse gas emissions rule. Office of Atmospheric Programs tasked with developing the endangerment finding portion of the rule.
06/01/07	Acting Assistant Administrator for OAR briefed on plan for developing the endangerment finding.
06/01/07	Administrator Johnson briefed on the approach and process for the endangerment finding.
06/18/07	Acting Assistant Administrator for OAR briefed on EPA's plan for developing the endangerment finding.
06/27/07	Other federal agencies briefed on approach for developing TSD and findings.
07/05/07	Acting Assistant Administrator for OAR briefed on endangerment finding progress.
07/20/07	Acting Assistant Administrator for OAR given early guidance prebrief.
07/25/07	Administrator Johnson briefed on early guidance.
08/08/07	EPA senior management given update briefing.
08/08/07	Draft TSD sent to workgroup members for review.
08/08/07	Other federal agencies briefed on EPA's plans for the endangerment finding.
08/08/07	Administrator Johnson's early guidance memo distributed to workgroup.
08/16/07	Draft TSD sent to federal climate change experts for review.
08/28/07	Draft TSD sent to workgroup members for review.
09/25/07	Endangerment finding status update provided to Acting Assistant Administrator for OAR.
10/04/07	Final options selection meeting held with Acting Assistant Administrator for OAR.
10/22/07	Administrator Johnson briefed on endangerment finding.
11/08/07	Administrator Johnson briefed on endangerment finding.
12/04/07	Final Agency review meeting held for the endangerment finding preamble portion of the Office of Transportation and Air Quality rulemaking.
12/05/07	Draft proposed rule sent to OMB. (Rule never reviewed by OMB because new corporate average fuel economy standards were established in late 2007.)
07/11/08	EPA signed ANPR for regulating greenhouse gas emissions under CAA (published at 73 Federal Register 44354, July 30, 2008).
01/27/09	Senior Climate Policy Counsel to Administrator briefed.
02/04/09	Administrator Jackson briefed.

Date	Event
02/27/09	Regulatory Steering Committee approved tiering of action.
03/03/09	Endangerment finding workgroup held its first meeting.
03/05/09	Draft options selection briefing sent to EPA workgroup.
03/06/09	Administrator Jackson briefed on options selection.
03/09/09	Draft TSD sent to workgroup members and federal climate change experts for review.
03/11/09	Workgroup meeting held.
03/16/09	OMB briefed.
03/18/09	Final Agency review meeting held for draft proposed endangerment finding.
03/20/09	Draft proposed endangerment finding and TSD sent to OMB for review.
03/27/09	EPA Office of Policy, Economics and Innovation approved tiering.
04/07/09	OMB sent comments on draft proposed findings and TSD to EPA.
04/08/09	Revised draft proposed findings sent to OMB for review.
04/09/09	Revised draft TSD sent to OMB.
04/10/09	OMB sent more comments on draft TSD and proposed draft findings.
04/13/09	OMB signed off on final proposal.
04/14/09	Revised draft TSD sent to OMB for review.
04/17/09	Administrator Jackson signed proposed rule.
05/18/09	Public hearing held in Arlington, Virginia.
05/21/09	Public hearing held in Seattle, Washington.
06/23/09	60-day public comment period on proposed findings ends.
10/07/09	Workgroup meeting held.
10/09/09	Draft final TSD sent to federal climate change experts for review.
10/13/09 and 10/16/09	Draft TSD made available to workgroup members for review.
10/16/09	Workgroup meeting held.
10/26/09	Workgroup meeting held.
10/29/09	Options selection meeting held with Administrator Jackson.
11/02/09	Draft final findings sent to Assistant Administrators of workgroup members for review.
11/05/09	Final Agency review held for draft final findings.
11/06/09	Draft final findings and TSD sent to OMB for review.
11/25/09 and 11/30/09	OMB sent comments on draft final findings to EPA. (No comments on the TSD.)
12/03/09	Revised draft final findings sent to OMB for final review.
12/07/09	Final findings signed by Administrator Jackson.

Appendix C

Details on Scope and Methodology

Our evaluation focused on the processes employed by EPA in developing EPA's Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the CAA. Based on a request from the Ranking Member of the United States Senate Committee on Environment and Public Works, our primary objective was to determine whether EPA followed key federal and Agency regulations and policies in obtaining, developing, and reviewing the technical data used to support its endangerment finding. To assess EPA's compliance with key federal and Agency regulations, policies, and guidance governing information quality, we reviewed the following documents:

- Data Quality Act, also known as the Information Quality Act, as provided under Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554, December 2000).
- *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*, OMB, January 3, 2002 (as amended February 22, 2002).
- OMB's *Final Information Quality Bulletin for Peer Review*, December 16, 2004.
- *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency*, EPA/260R-02-008, October 2002.
- *Action Development Process: Guidance for EPA Staff on Developing Quality Actions*, Office of Policy, Economics, and Innovation Regulatory Development Series, EPA, June 30, 2004.
- *Peer Review and Peer Involvement at the U.S. Environmental Protection Agency,* EPA's peer review policy, EPA Administrator, January 31, 2006.
- *U.S. Environmental Protection Agency Peer Review Handbook,* 3rd Edition, EPA/100/B-06/002, Science Policy Council, EPA, 2006.
- *Assessment Factors: A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information,* EPA 100/B-03/001, Science Policy Council, EPA, June 2003.

Additionally, we reviewed the legislative history of the CAA to understand the congressional intent of the statute with regard to a finding of endangerment.

We reviewed the following EPA documents to determine whether the Agency followed the information quality guidelines provided above:

- Action development package, including the following documents:
  - Action initiation (tiering) form
  - Documentation of EPA's early guidance on the preliminary analytic blueprint
  - Options selection briefing package
  - Documentation of the options selection briefing meeting
  - Documentation summarizing the results of the final Agency review meeting

- Documentation of any EPA reviews of IPCC's reporting process
- Copies of any external peer review reports, including EPA responses to peer review comments
- Names and affiliations for the 12 federal climate change experts involved in the review of the TSD
- Comments received from the 12 federal climate change experts and EPA's response to the comments
- Rule and Policy Information Development System (RAPIDS) data for the action, including the list of workgroup members
- Documentation of analyses EPA has conducted to conclude that the use of HadCRUT temperature data does not impact the fundamental findings of the IPCC report and EPA's endangerment finding
- Draft versions of TSD submitted to OMB for review, and OMB's comments
- Comments received from other federal agencies during interagency review

We also requested the preliminary and detailed analytic blueprints for the endangerment finding, as well as workgroup meeting minutes, from the Agency. However, the Agency did not create an analytic blueprint for the stand-alone action, nor maintain documentation of workgroup meeting minutes.

We also reviewed EPA's proposed and final endangerment findings, its TSD, EPA's response to public comments on the proposed rule (EPA's response to comment document), and EPA's response to petitions for reconsideration.

To evaluate EPA's review of its TSD, we reviewed multiple draft versions of the TSD, as well as federal expert reviewer comments, and compared the process followed to the guidelines provided in EPA's *Peer Review Handbook* and OMB's *Final Information Quality Bulletin for Peer Review*. We assessed the OMB/interagency review process by examining information contained in the EPA docket, and requested additional documentation from EPA regarding interagency comments for the TSD accompanying the ANPR, the proposed rule, and the final rule. We also asked OMB to clarify whether a document summarizing existing findings and conclusions of other peer-reviewed scientific assessments, but not offering any new analyses or conclusions, would meet OMB's definition of a scientific assessment (see appendix D).

In addition to key federal and Agency requirements for information quality, we also reviewed EPA's compliance with the following statutes and EOs governing the regulatory development process:

- Administrative Procedure Act (5 USC §551 et seq. (1946))
- Congressional Review Act (5 USC §801 et seq. (1996))
- National Technology Transfer and Advancement Act (15 U.S.C. §3701 et seq. (1996))
- Paperwork Reduction Act (44 USC §3501 et seq. (1980))
- Regulatory Flexibility Act as amended by the Small Business Regulatory Enforcement Fairness Act (5 USC §601 et seq. (1980))
- Unfunded Mandates Reform Act (2 USC §658 et seq. and 2 USC 1501 et seq. (1995))

- EO 12866: *Regulatory Planning and Review*, September 30, 1993
- EO 12898: *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, February 11, 1994
- EO 13045: *Protection of Children from Environmental Health Risks and Safety Risks*, April 21, 1997
- EO 13132: *Federalism*, August 4, 1999
- EO 13175: *Consultation and Coordination with Indian Tribal Governments*, November 6, 2000
- EO 13211: *Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use*, May 18, 2001
- EO 13272: *Proper Consideration of Small Entities in Agency Rulemaking*, August 13, 2002

We also conducted numerous interviews with EPA and non-EPA personnel to corroborate and examine further the process EPA used to make and support the endangerment finding.

Review of Management (Internal) Controls

Generally accepted government auditing standards require that auditors obtain an understanding of internal controls significant to the audit objectives and consider whether specific internal control procedures have been properly designed and placed in operation. We examined management and internal controls as they related to our objective. We reviewed the federal statutes and guidance related to information quality, and focused on EPA's adherence to, and implementation of, those statutes and guidance. We tested whether EPA's internal policies and procedures were applied properly during the development of its endangerment finding, and how they were applied. In general, we examined whether management controls were effective through document review and analysis, corroborated with testimonial evidence. In cases where documentation was lacking, we reviewed procedures to determine whether design or implementation problems existed. The recommendations in our report reflect alternative actions or additional steps that could be taken to improve the management control weaknesses we found.

Prior Reports

There were no previous EPA OIG or U.S. Government Accountability Office evaluations or audits applicable to this evaluation.

OIG Request to OMB for Clarification of the Definition of a Highly Influential Scientific Assessment

The following questions were submitted to OMB in an August 11, 2010, e-mail to the OMB Assistant General Counsel.

This e-mail is a follow-up to your prior communication with *[name]* of EPA's Office of Inspector General (OIG). As *[name]* may have expressed to you, the EPA OIG is currently evaluating EPA's development of its endangerment and cause or contribute findings for greenhouse gases. Our objective is to determine whether EPA followed key federal and Agency regulations and policies in developing and reviewing the technical data used to support and make its endangerment finding. This evaluation was initiated based on a request from Senator James M. Inhofe, Ranking Member, Senate Committee on Environment and Public Works. Attached below are copies of the Senator's request letter and the OIG's notification memo to EPA's Assistant Administrator for Air and Radiation.

In order to assess the process that EPA used, we are interested in discussing certain criteria issued by OMB. Specifically, we would like input from your office to address the following questions:

1. In order to ensure that information meets the basic definition of "quality" provided in OMB's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies* and OMB's *Final Information Quality Bulletin for Peer Review*,

    a. To what extent should a Federal agency review another organization's data quality and peer review processes (e.g., document all processes, document and test processes, test selected processes, etc.) before disseminating information from a peer reviewed scientific assessment published by that organization?

    b. If such a scientific assessment has been reviewed and endorsed by the U.S. Government, what impact does this have on the level of review (e.g., less review, same level of review, no review, etc,) needed by a Federal Agency to ensure the information in the assessment meets OMB's basic definition of "quality"?

2. OMB's *Final Information Quality Bulletin for Peer Review* defines a scientific assessment as "...an evaluation of a body of scientific or technical knowledge, which typically synthesizes multiple factual inputs, data, models, assumptions, and/ or applies best professional judgment to bridge uncertainties in the available information." Is a document that summarizes the results and conclusions of other peer reviewed scientific assessments, but offers no new analysis or conclusions, considered a scientific assessment according to OMB's definition?

We would be pleased to meet with you to discuss the above questions at your earliest convenience. You may contact me at the number below. Alternatively, we can accept written responses to our questions if a meeting is not feasible. In this event, we request written input from your office on the questions above by Friday, August 20, 2010.

If you have any questions or concerns about our request, please feel free to contact me.

OMB Clarification of the Definition of a Highly Influential Scientific Assessment

The following information was provided to the OIG in a September 10, 2010, e-mail from the OMB Assistant General Counsel in response to questions the OIG submitted on August 11, 2010.

1. In order to ensure that information meets the basic definition of "quality" provided in OMB's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies* and OMB's *Final Information Quality Bulletin for Peer Review*,

a. To what extent should a Federal agency review another organization's data quality and peer review processes (e.g., document all processes, document and test processes, test selected processes, etc.) before disseminating information from a peer reviewed scientific assessment published by that organization?

> "If an agency uses another organization's data or analysis to support their policy, they are disseminating that information. As such, that information becomes subject to the Agency's Information Quality Guidelines and the Bulletin for Peer Review.
>
> Therefore, in evaluating whether to disseminate the information, the agency must determine whether the information complies with the Agency's Information Quality Guidelines. OMB recognizes that information quality can be costly and encourages agencies to consider the social value of better information in different contexts. OMB's guidelines recognize that some government information may need to meet higher or more specific standards than would apply to other types of government information. OMB's guidelines encourage agencies to weigh the costs and benefits of higher quality information; the more important the information, the higher the quality standards to which it should be held. Information that is most likely to have influence on important public and private sector decisions requires a higher level of quality[i].
>
> The second step is for the agency to determine whether a specific piece of information is subject to the Bulletin for Peer Review. Not every article cited in a preamble or risk assessment, for instance, is subject to the Bulletin. Only scientific information that is important to the conclusion being drawn by the agency is subject to the Bulletin. For information that is subject to the Bulletin, the agency must either conduct a new peer review of that information or determine that the prior peer review meets the requirements of the Bulletin for either a peer review or alternative process. When the Agency itself has reviewed or otherwise synthesized or evaluated a body of peer reviewed literature, the Agency's assessment would be subject to the Bulletin if it is deems to be 'influential scientific information.'

> Finally, in the case of EPA, we note that in 2003, EPA released A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information" (see: http://www.epa.gov/OSA/spc/pdfs/assess2.pdf). The EPA document states: "The Agency believes that the summary of general assessment factors provided in this document will serve to increase the extent to which the information-generating public builds quality considerations into the generation and documentation of their information products. The Agency expects that the resulting improvements in the quality of such information will enable the Agency to more fully utilize and disseminate such information."

b. If such a scientific assessment has been reviewed and endorsed by the U.S. Government, what impact does this have on the level of review (e.g., less review, same level of review, no review, etc,) needed by a Federal Agency to ensure the information in the assessment meets OMB's basic definition of "quality"?

> "If a scientific assessment is deemed subject to the Bulletin and has been reviewed by the agency pursuant to the Bulletin, no additional peer review is needed. If a scientific assessment was created by and peer reviewed by a different agency of the U.S. Government than the agency that is using it in its policy, the agency using the document in its policy is responsible for determining whether the prior review was consistent with the level of rigor necessary for the use to which the assessment will now be put. Similarly, if an assessment has been endorsed by one agency within the U.S. Government, and is going to be used by another agency, the agency using the information should ensure that the assessment is consistent with its own Information Quality Guidelines."

2. OMB's *Final Information Quality Bulletin for Peer Review* defines a scientific assessment as "...an evaluation of a body of scientific or technical knowledge, which typically synthesizes multiple factual inputs, data, models, assumptions, and/ or applies best professional judgment to bridge uncertainties in the available information." Is a document that summarizes the results and conclusions of other peer reviewed scientific assessments, but offers no new analysis or conclusions, considered a scientific assessment according to OMB's definition?

> "An annotated bibliography would generally not be considered a scientific assessment; however, a document summarizing the 'state of the science' would be, as it implicitly or explicitly weighs the strength of the available evidence."

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[i] Per OMB's government-wide guidelines, "Influential" information is subject to higher standards of quality. "Influential" means that information that the agency can reasonably determine that dissemination of the information will have or does have a clear and substantial impact on important public policies or important private sector decisions. Each agency is authorized to define "influential" in ways appropriate for it given the nature and multiplicity of issues for which the agency is responsible. With several important exceptions and qualifications (e.g., privacy, intellectual property rights, and other confidentiality protections) influential information should be reproducible by qualified third parties.

OMB's Views on the Application of OMB's Peer Review Bulletin and Information Quality Guidelines to EPA's TSD for the EPA Endangerment Finding

The following information was provided to the OIG in an April 15, 2011, e-mail from the OMB Deputy General Counsel.

We understand that your office authorized EPA to share with OMB information from a preliminary draft of your report on this matter, and we accordingly reached out to your office to discuss this matter further. Thus, in my email to [*OIG staff*] (separately attached), I had explained that the questions that your office had posed to OMB last August were of a general nature concerning OMB's Information Quality Guidelines and Peer Review Bulletin, and that OMB's responses accordingly did not express any views regarding the application of the OMB Guidelines and/or the Bulletin to any particular agency document. In his email to me (below), [*the OIG Assistant Inspector General for Program Evaluation*] had indicated that it would be appropriate for OMB to provide EPA with OMB's views regarding the application of the OMB Bulletin and Guidelines to a particular EPA document: namely, the Technical Support Document that EPA issued in connection with its Endangerment Findings (the "Endangerment TSD").

Consistent with that approach, OMB provided EPA with OMB's views regarding the application of the Bulletin and Guidelines to the Endangerment TSD, and it is OMB's understanding that EPA communicated OMB's views to your office. OMB would further like to take this opportunity to provide directly to you OMB's views on this particular matter.

As communicated to EPA several weeks ago, OMB's views are as follows.

> OMB's Peer Review Bulletin grants agencies "broad discretion to weigh the benefits and costs of using a particular peer review mechanism for a specific information product." With respect to the relationship between the Endangerment TSD and OMB's Bulletin, the threshold question is whether EPA should have determined that the TSD met the definition of a "highly influential scientific assessment." If so, the Endangerment TSD would have been subject to the stricter minimum requirements for peer review contained in Section III of the OMB Bulletin.
>
> OMB believes that EPA reasonably determined that the Endangerment TSD itself (as opposed to the underlying peer-reviewed scientific assessments of the NRC, IPCC, USGRCP identified and discussed in the TSD) did not have the impacts or characteristics required to meet the OMB Bulletin's definition of a highly influential scientific assessment. In making its endangerment findings, EPA noted that the underlying "scientific assessments of the IPCC,USGRCP, and the NRC represent the best reference materials" on which it was prepared to rely; that it had determined not "to perform a new

and independent assessment of all of the underlying climate change science"; and that it had "no reason to believe that putting this significant body of work aside and attempting to develop a new and separate assessment would provide any better basis for making the endangerment decision." Thus, it was not the Endangerment TSD prepared by EPA itself but the conclusions of these three underlying peer-reviewed scientific assessments that informed the agency's decision.

If the document does not meet the definition of a "highly influential scientific assessment," but meets the definition of "influential scientific information," then it is subject to more discretionary requirements contained in Section II of the OMB Bulletin. OMB believes that the EPA complied with those requirements. More specifically, the process through which EPA reviewed this document was a permissible exercise of the discretion afforded agencies under Section II of the OMB Bulletin, which provides that for such information "agencies need not have further peer review conducted on information that has already been subjected to adequate peer review." Pages 2 through 8 of the Endangerment TSD transparently discuss the extent to which EPA relied on information that has already been subjected to such peer review. The same section discusses the process by which EPA subjected the document to public comment, a technical review by federal climate change experts, and an interagency review. Finally, EPA acknowledged that the agency must ensure consistency with its own Information Quality Guidelines, and openly discussed how it prepared the document to be consistent with those guidelines.

We would appreciate if your office would take into consideration, during its review, these OMB views regarding the application of OMB's Bulletin and Guidelines in this particular context. As [*the OIG Assistant Inspector General for Program Evaluation*] indicated in his email to me, we would further appreciate the opportunity to review subsequent iterations of your office's description of OMB's views with respect to this matter, so that we may provide further input as needed.

Agency Comments on Draft Report and OIG Evaluation of Agency Comments

MEMORANDUM

June 17, 2011

SUBJECT: U.S. Environmental Protection Agency (EPA) Response to Draft OIG Report Dated May 3, 2011, *Procedural Review of Greenhouse Gases Endangerment Finding Data Quality Processes*, Project No. OPE-FY10-0017

FROM: Gina McCarthy
Assistant Administrator for Air and Radiation

Paul Anastas, PhD
Assistant Administrator for Research and Development

Malco lm D. Jackson
Assistant Administrator for Environmental Information and Chief Information Officer

TO: Wade T. Najjum
Assistant Inspector General for Program Evaluation

EPA appreciates the opportunity to comment on the Office of the Inspector General (OIG) draft report, *Procedural Review of Greenhouse Gases Endangerment Finding Data Quality Processes*, dated May 3, 2011.

The endangerment finding that greenhouse gases in the atmosphere threaten public health and welfare is based on the best available peer-reviewed science, and we appreciate OIG's statement that this report does not purport to evaluate the quality of the underlying science supporting the endangerment finding. The scope of OIG's analysis should be highlighted, as this report addresses only procedural issues, and none of these procedural issues relate to the body of science that formed the basis for the Administrator's decision. Although the draft report states that the OIG did not assess the quality of the scientific information and data EPA used to support the endangerment finding, we remain concerned about the potential for this report to mislead readers about the scientific content underlying EPA's greenhouse gas endangerment finding.

Our comments here and in the enclosed attachment address six major concerns that we believe require your attention and consideration before issuance of the final report.

First, we appreciate the efforts that the OIG report makes to provide context. We believe additional context will provide the reader a more balanced picture. The report should clearly state that:

- All of the science used to support the endangerment finding is from peer-reviewed scientific assessments;

OIG Response 1: Our report acknowledges that EPA relied on the major assessments of USGCRP, IPCC, and NRC as the primary scientific basis for its endangerment finding, and describes the peer review processes for these assessments. However, EPA also used sources other than scientific assessments to support its endangerment finding. Thus we have not included this statement in our final report. See OIG Response 12, below, for further details.

- These scientific assessments utilized by EPA, namely those from the National Research Council (NRC), the Intergovernmental Panel on Climate Change (IPCC), and U.S. Global Change Research Program (USGRCP), underwent their own peer-review processes that are well known and accepted by the U.S. Government;

OIG Response 2: We added descriptions of the peer review procedures of USGCRP, IPCC, and NRC to chapter 1 of the final report. EPA states that the peer review processes of each of the organizations mentioned are "accepted by the U.S. Government." However, the only organization for which OMB guidance specifically allows federal agencies to presume findings and conclusions to be adequately peer reviewed is NAS.

As noted in chapter 3 of our report, with respect to accepting and disseminating data produced by other organizations, OMB, in an e-mail to us from the Assistant General Counsel, told us:

> If an agency uses another organization's data or analysis to support their policy, they are disseminating that information. As such, that information becomes subject to the Agency's Information Quality Guidelines and the Bulletin for Peer Review.
>
> Therefore, in evaluating whether to disseminate the information, the agency must determine whether the information complies with the Agency's Information Quality Guidelines.
>
> and
>
> If an assessment has been endorsed by one agency within the U.S. Government, and is going to be used by another agency, the agency using the information should ensure that the assessment is consistent with its own Information Quality Guidelines.

- The scientific assessments of the NRC, IPCC, and the USGRCP, not EPA's technical support document (TSD), served as the scientific underpinnings of the endangerment finding; and

OIG Response 3: We agree that the scientific assessments of NRC, IPCC, and USGRCP served as the scientific underpinnings of the endangerment finding**.** However, the document that EPA created to present this information in support of its endangerment finding was the TSD. We believe that EPA's comments to our draft report understate the role of the TSD in the overall development of its endangerment finding. While the TSD heavily relied on information from the major assessment reports of USGCRP, IPCC, and NRC, the TSD itself played a role in informing the Administrator's endangerment decision. For example, the former Director of EPA's Climate Change Division told us in an August 2010 e-mail that former EPA Administrator Johnson reviewed the entire TSD in 2007 and found the science in it to be the basis for his core decision that there was endangerment. Further, a briefing document provided to EPA Administrator Jackson in February 2009 stated that the TSD "became the basis for discussions and eventually December 2007 proposal." Also, in the endangerment finding itself, EPA described the April 2009 TSD as the "underlying scientific and technical basis for the Administrator's Proposed Findings. . . ."

- The TSD summarized material that had already undergone peer review, and was itself subject to extensive expert, internal EPA, interagency, and public reviews.

OIG Response 4: In chapter 2 of our report (p. 16) we note that EPA obtained reviews of the draft TSDs by federal experts, provided a predissemination review for other federal agencies, and addressed comments received on the TSD from workgroup members, federal experts, OMB, and other agencies. Further discussion of the review process that EPA used for its TSD is also provided in our answers to questions 4, 5, and 6 in appendix A of the final report.

Further discussion regarding the review processes utilized by the assessment reports can be found in section A.1 of the attachment.

Second, EPA does not concur with the OIG's opinion that EPA's TSD is a "highly influential scientific assessment" (HISA) according to the OMB Peer Review Bulletin. The TSD is "influential scientific information" (ISI), and OMB, the agency charged with administering the Data Quality Act (DQA), agrees. As shown in Appendix G of the draft OIG report, OMB believes that EPA reasonably determined that the TSD itself (as opposed to the underlying peer-reviewed scientific assessments of the NRC, IPCC, and USGRCP summarized in the TSD) did not have the impacts or characteristics required to meet the OMB Peer Review Bulletin's definition of a HISA. The OIG has mistakenly concluded that EPA's TSD is a HISA. A "scientific assessment" (a prerequisite for being a HISA) is defined in OMB's Peer Review Bulletin as "an evaluation of a body of scientific or technical knowledge, which typically synthesizes multiple factual inputs, data, models, assumptions, and/or applies best professional judgment to bridge uncertainties in the available information." The TSD did not conduct such an evaluation. No *weighing* of information, data and studies occurred in the TSD. That had already occurred in the underlying assessments, where the scientific synthesis occurred and where the state of the science was assessed. The TSD is not a scientific assessment, but rather summarized in a straightforward manner the key findings of the NRC, the USGCRP and IPCC. EPA is confident that a comprehensive review of this issue leads to the conclusion that the TSD is not a HISA, but rather ISI.

OIG Response 5: In our opinion, the TSD meets the definition of a scientific assessment provided in the OMB peer review bulletin. The TSD synthesized multiple factual inputs, data, models, and assumptions. The primary inputs to the TSD were the three major assessment reports—IPCC, NRC, and USGCRP—but EPA synthesized the data, models, risk assumptions, and the general findings and conclusions from these underlying reports, as well as other information from other sources, into a single document—its TSD.

While information from the "major scientific assessments" may have formed the foundation of the Agency's endangerment finding, it should be noted that the Agency stated in its endangerment finding that it "gave careful consideration to all the scientific and technical information in the record." EPA's TSD referenced multiple sources (some cited within the assessment reports, and some not), including "up-to-date" data from sources other than the "major scientific assessments." In evaluating the scientific information, the Agency stated that it "placed limited weight on the much smaller number of individual studies that were not considered or reflected in the major assessments." EPA reviewed such studies "largely to see if they would lead EPA to change or place less weight on the judgments reflected in the assessment report." The Agency stated in the endangerment finding that "the studies did not change the various conclusions or judgments EPA would draw based on the assessment reports."

Descriptions in the endangerment finding and TSD show that the Agency placed greater emphasis on certain sources of information. EPA synthesized conclusions and scientific findings from various assessment reports, and other sources, in a single document that had as a stated purpose "to provide scientific and technical information for an endangerment and cause or contribute analysis regarding greenhouse gas (GHG) emissions." Therefore, we continue to believe that EPA's TSD meets OMB's definition of a "highly influential scientific assessment," thus requiring the Agency to have met all applicable OMB peer review requirements for such types of information.

The Agency's response states that OMB agreed with EPA that the TSD was influential scientific information (but not a highly influential scientific assessment). We do not agree with this characterization of OMB's response. OMB stated that it believed EPA reasonably interpreted OMB guidance in determining that the TSD was not a highly influential scientific assessment. OMB's response does not specifically provide OMB's opinion on whether the TSD is influential scientific information or a highly influential scientific assessment. Instead, OMB opines on the reasonableness of the EPA's determination. We also note that EPA did not categorize the TSD as influential scientific information during the action development process. EPA first described the TSD as influential scientific information when it responded to the OIG draft report.

Furthermore, the OIG should clearly indicate that agencies are given discretion to make determinations as to the level of review required. EPA went far beyond the requirements for peer review of an ISI by conducting multiple expert, interagency and public reviews that were reasonable and appropriate to ensure the credibility of the TSD. OMB also states that EPA satisfied all peer review requirements for ISIs set out in the OMB Peer Review Bulletin.

OIG Response 6: Our draft report specifically stated that "the methodology that OAR employed for this review was within the discretion afforded the Agency for peer reviews of influential scientific information." However, as the draft report also stated in appendix B, "EPA did not conduct a peer review of the TSD that met all *recommended* (emphasis added) steps in the Peer Review Handbook for peer reviews of influential scientific information or highly influential scientific assessments." We believe our draft report to be accurate in these statements, and thus made no further change on this matter in the final report. See OIG Response 55 for further details.

Even assuming OIG continues in its current view that the TSD is a HISA, the discussion in the draft OIG report indicates that OIG believes EPA failed to satisfy, in part, one of the several peer review requirements for a HISA. If OIG continues with that view, then the final OIG report should indicate that EPA did not consider the TSD to be a HISA, but OIG believes the extensive peer review conducted by EPA satisfied all but one of the OMB peer review requirements for HISAs, and partially satisfied that one requirement. There are substantial and reasonable grounds

for EPA's and OMB's views that the TSD is not a HISA, and OIG should at the most conclude that in its view the TSD may or may not be a HISA. OIG needs to state its conclusion in a manner that is accurate and will avoid misrepresentation. See section A.2 of the attachment for more information.

OIG Response 7: OIG Responses 28 through 33 provide specific details regarding how EPA's review of its TSD compared to each of the OMB peer review requirements for highly influential scientific assessments.

Third, EPA does not concur with the OIG statements that the *Agency did not conduct any independent evaluations of IPCC's compliance with IPCC procedures, nor did EPA document any specific processes it employed to evaluate the scientific and technical information included in IPCC's Fourth Assessment Report.* EPA thoroughly documented the peer review processes used by the organizations (e.g., IPCC, NRC, and USGCRP) that issued the underlying scientific assessments. This information is in the docket for the endangerment finding itself and available publically. These processes are well known and accepted by the U.S. government as appropriate mechanisms to ensure the quality of the science assessments. Regarding IPCC, EPA devoted significant staff time to review the IPCC assessment reports, provided comments during an interagency process, participated in that interagency process to prioritize U.S. government comments, and approved the summaries of the IPCC reports in a detailed line-by-line process. The OIG draft report does not include the examples where EPA specifically discussed and documented throughout the endangerment finding record how the IPCC peer review procedures meet EPA and OMB guidelines. See section A.3 of the attachment for more information.

OIG Response 8: We added statements to chapter 1, chapter 3, and appendix A of the final report to indicate EPA's involvement in the IPCC process, including its participation in the U.S. delegation approving the Working Group II report for the AR4. Further analysis of EPA comments regarding its analysis and documentation of IPCC procedures is provided in OIG Responses 46 through 52.

Fourth, EPA identified the specific type of information supporting the endangerment finding. The final endangerment finding devotes an entire section to "The Science On Which the Decisions are Based" (Section III. A).[1] There, after discussing why EPA chose to primarily rely on the major scientific assessments of USGCRP, IPCC and NRC to inform the Administrator's judgment, EPA states that these assessments "maintain the highest level of adherence to Agency and OMB guidelines for data and scientific integrity and transparency" (74 FR 66511). The full endangerment record, including the findings as well as the TSD and the Response to Comments, provide extensive discussions regarding the type of information supporting the endangerment finding. See section A.4 of the attachment for additional information.

OIG Response 9: We revised the title of this section to more accurately reflect our findings. Our finding was not that EPA failed to indentify the sources of information it used to support its endangerment finding. Rather, we found the Agency did not follow OMB and EPA requirements to discuss such information in terms of whether it was influential scientific information or highly influential scientific assessments. Further, EPA did not certify in the administrative record for the endangerment finding that its review of the TSD met applicable OMB peer review requirements. Further analysis regarding EPA's comments related to this finding is provided in OIG Response 42.

[1] Endangerment finding available at http://epa.gov/climatechange/endangerment.html.

Fifth, EPA followed its Action Development Process. In 2007, EPA's Office of Transportation and Air Quality initiated a rulemaking to determine whether greenhouse gas emissions from sources covered under Section 202(a) of the Clean Air Act cause or contribute to air pollution that endangers public health or welfare, and if so, to set new standards for certain motor vehicles. As part of this effort, EPA held an early guidance meeting and outlined a "plan for developing the Endangerment Finding." Management briefings (provided to OIG) regarding the development plan communicated the topics covered in an Analytic Blueprint, including the approach, scope, underlying science, and review mechanisms for the TSD and endangerment finding process. In 2009, EPA management separated the elements of the original action into separate actions. Hence, the 2009 action was not a new action that required the workgroup to - start over. In 2009, EPA management chose to proceed using the same approach for the TSD identified in 2007. This is a common agency practice. However, the draft OIG report makes no attempt to take into account the flexibility and discretion provided by the Agency guidance itself. Please see section A.5 of the attachment for more information.

OIG Response 10: We believe that the report provides sufficient context for how EPA developed this action. See OIG Responses 43, 44, and 45 for our analysis of specific EPA comments related to our evaluation of EPA's action development process for its endangerment finding.

We have serious concerns about the information you have included in Appendix B of your draft report. This is where you chose to include your answers to Senator Inhofe's questions. It appears as though the responses may have been developed prior to the release of your preliminary position paper. We ask that your responses to the Senator align with the information included in the body of your report. See additional information in section B of the attachment.

OIG Response 11: We believe that our responses to the Senator's questions align with the information included in the body of our report. Where we deemed appropriate, we made minor changes to the report to include additional context in addressing the Senator's questions. Any instances where we made changes to our report based on EPA comments are noted in OIG Responses 46 through 60 in our detailed responses to EPA's comments on appendix B of the draft report.

We appreciate OIG's draft recommendations regarding revision of a figure in the EPA Peer Review Handbook, inclusion of key terms regarding peer review in certain Agency documents and memoranda, and revision of Agency guidance and documentation procedures for use of data from other organizations. We understand that the findings and conclusions are the premise to developing your final recommendations. As required by EPA Order 2750, our written response to the final report will address any recommendations that may be included at that time. We will consider any recommendations on their own merit and, if applicable, provide a corrective action plan and/or offer alternative solutions to the report's recommendations.

If you or your staff have any questions, please contact David LaRoche at (202) 564-3926 or Norman Adkins at (919) 541-0872.

Attachment

cc: Arthur Elkins
Mark Bialek

Rick Beusse
Lek Kadeli
Kevin Teichman
Jim Jones
Renee Wynn

Attachment

A. EPA's Comments on Context, Key Findings and Conclusions in the Draft OIG Report

A.1 More context is needed regarding the extent of peer review conducted for the underlying scientific assessments, and extent of EPA's peer and public review of its technical support document

As stated in OIG's draft summary "At a Glance" section: "We did not assess the quality of the scientific information and data EPA used to support the endangerment finding." EPA appreciates that the title of the inquiry makes clear that "procedural" matters are the exclusive subject of the OIG review. However, because the OIG report is intended to focus on process matters, it should provide more context regarding the peer-review processes carried out for the underlying scientific assessments utilized by EPA.

The OIG correctly points out that the primary scientific basis for EPA's finding was the assessments conducted by the U.S. Global Change Research Program (USGCRP), IPCC and the National Research Council (NRC) of the National Academy of Sciences. OIG then provides some background on these scientific institutions but provides no details about the peer-review procedures conducted for these assessments. The major focus of the OIG inquiry is the review procedures for the TSD. Nothing in the OIG report reflects on the quality of the peer-reviewed science that supported the endangerment finding.

We therefore request that the final OIG report clearly state the following points which are supported by EPA's record and by the brief information provided below:

1) All of the science used to support the endangerment finding is from peer-reviewed scientific assessments.

OIG Response 12: Our report acknowledges that EPA relied on the major assessments of USGCRP, IPCC, and NRC as the primary scientific basis for its endangerment finding. We added descriptions of the peer review procedures of USGCRP, IPCC, and NRC to the final report. However, EPA used additional information from sources other than scientific assessments to support its finding. For example, the TSD stated the following:

> In some cases, this document [the TSD] references other reports and studies in addition to the core references of IPCC, CCSP/USGCRP, NRC, and, for GHG emissions, EPA. These references are primarily for major reports and studies produced by U.S. federal and state government agencies. This document also references data made available by other government agencies, such as NOAA and National Aeronautics and Space Administration (NASA).
>
> EPA recently completed and published an assessment of the literature on the effect of climate change on air quality (U.S. EPA, 2009a). Therefore, because EPA evaluated the literature in the preparation of that assessment, EPA does cite some individual studies it reviewed in its summary of this topic in Section 8. Also, for Section 16a on the national security implications of climate change, this document cites a number of analyses and publications, from inside and outside the government, because IPCC and CCSP/USGCRP assessments have not traditionally addressed these issues.

Additionally, a senior analyst in OAR's Climate Change Division provided similar information to the OIG, stating in an August 12, 2010, e-mail that:

> [W]e [EPA] have always stated from the beginning of this process and in every version of the TSD that was submitted for expert, interagency and public comment that we were relying "most heavily" or "primarily" on what we have been calling the major assessment reports, such as those from IPCC, USGCRP and NRC. We have never stated that we would only rely 100% exclusively on such assessments because there were particular and limited cases where the assessments did not provide the kind of information that was needed; for example, we used EPA reports to provide the detailed GHG emissions data.

2) EPA documented the peer review procedures of IPCC and the other underlying scientific assessments throughout different stages of the endangerment finding process.

OIG Response 13: We acknowledge in appendix A, question 1, that EPA documented the peer review procedures of IPCC.

3) EPA assessed the peer review procedures of IPCC and the other underlying scientific assessments to show these procedures meet standards of quality, objectivity, transparency and integrity such that they are consistent with EPA and OMB guidelines.

OIG Response 14: The degree to which EPA assessed these procedures, or provided assurances that such procedures met OMB requirements for highly influential scientific assessments, is not clear from our evaluation of supporting documentation. This issue is discussed in further detail in chapter 3 of the report, and in appendix A.

4) The TSD summarized material that had already undergone peer review, and was itself subject to expert, internal EPA, interagency, and public reviews.

OIG Response 15: The review process for the TSD is discussed throughout our report. For example, in chapter 2 of our report (p. 16) we note that EPA obtained reviews of the draft TSDs by federal experts, provided a predissemination review for other federal agencies, and addressed comments received on the TSD from workgroup members, federal experts, OMB, and other agencies. Further discussion of the review process that EPA used for its TSD is also provided in our answers to questions 4, 5, and 6 in appendix A of the report.

The underlying scientific assessments used by EPA went through lengthy and rigorous peer-review procedures, and received a high level of review and vetting from the U.S. Government. Chapter 1 of the TSD provides a brief overview of the "Peer Review, Publication, and Approval Processes for IPCC, CCSP/USGCRP, and NRC Reports" in Box 1.1 on pages 4-5. EPA's proposed endangerment finding stated that, "The IPCC and CCSP assessments base their findings on the large body of many individual, peer reviewed studies in the literature, and then the IPCC and CCSP assessments themselves go through a transparent peer-review process" (74 FR 18894).

In response to the public comment period that followed the proposed endangerment finding, EPA provided detailed information about the peer review procedures of the National Academies, USGCRP and IPCC in over 70 pages publically available at http://epa.gov/climatechange/endangerment.html (see volume 1 of Response to Comments that accompanied the endangerment finding). Within those documented responses to public comments regarding IPCC procedures, EPA discussed at length the specifics of IPCC peer review procedures and concluded:

> The evidence is clear that IPCC's procedures are sufficient and effective for ensuring quality, transparency, and consideration of multiple and diverse perspectives. Because the assessment reports EPA used in developing the TSD represent the best available science, and because supporting studies were conducted in accordance with sound and objective scientific practices, were peer reviewed, and adhered to standards of quality based on objectivity, utility, and integrity, we find that IPCC's information quality process is consistent with EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by the Environmental Protection Agency*. (See Response 1-14 regarding "Specific Comments on EPA's Use of IPCC Reports").

We provide further context about EPA's documentation of IPCC peer review procedures in section B.

OIG Response 16: EPA's response to the OIG draft report emphasizes EPA's reliance on the major scientific assessments of the USGCRP, IPCC, and NRC as the primary scientific and technical basis for the Administrator's endangerment finding. While the conclusions from these assessments may have formed the foundation of the Agency's endangerment finding, it should be noted that the Agency stated in its endangerment finding that it gave "careful consideration to all the scientific and technical information in the record." EPA's TSD referenced multiple sources, including "up-to-date" data from sources other than the "major scientific assessments." In evaluating the scientific information, the Agency "placed limited weight on the much smaller number of individual studies that were not considered or reflected in the major assessments." EPA reviewed such studies "largely to see if they would lead EPA to change or place less weight on the judgments reflected in the assessment report." The Agency stated in the endangerment finding that "the studies did not change the various conclusions or judgments EPA would draw based on the assessment reports."

A.2 EPA does not concur with OIG's opinion that EPA's technical support document (TSD) is a HISA according to the OMB Peer Review Bulletin

OMB is the agency charged with implementing the Data Quality Act. OMB believes (as shown in appendix G of the draft OIG report) that, *EPA reasonably determined that the Endangerment*

TSD itself (as opposed to the underlying peer-reviewed scientific assessments of the NRC, IPCC, USGRCP identified and discussed in the TSD) did not have the impacts or characteristics required to meet the OMB Peer Review Bulletin's definition of a highly influential scientific assessment.

The TSD is "influential scientific information" (ISI) under the OMB Peer Review Bulletin, and OMB agrees. EPA satisfied all peer review requirements for ISIs set out in the OMB Peer Review Bulletin, and OMB agrees in its letter of April 15, 2011. In this regard, the OIG draft states incorrectly in appendix B that the peer review requirements for an ISI were not satisfied.

OIG Response 17: Appendix A lists the OIG's answers to the Senator's specific questions. The Senator's fourth question asks whether the TSD was subjected to peer review as specified in the EPA *Peer Review Handbook* (*not* the OMB peer review bulletin). The answer is that EPA did not conduct a peer review of the TSD that met all *recommended* steps in the *Peer Review Handbook* for peer reviews of influential scientific information or highly influential scientific information, as discussed in appendix A.

To support its opinion that the TSD is a "highly influential scientific assessment" (HISA), the OIG does not give weight to the official, considered, written OMB response, and instead relies on an email from an OMB official regarding a largely hypothetical and general question posed by OIG.[2]

> *An annotated bibliography would generally not be considered a scientific assessment; however, a document summarizing the "state of the science" would be, as it implicitly or explicitly weighs the strength of the available evidence.*

OIG Response 18: The OIG has considered all of the information that was provided or available to us in forming our conclusion. The intent of our August 1, 2010, e-mail to OMB was not to obtain OMB's opinion on whether the endangerment finding TSD was a highly influential scientific assessment, but to obtain clarification on its peer review bulletin, including its definition of a scientific assessment. Therefore, it was appropriate for OMB to speak in hypothetical terms and for us to ask general questions. We used the additional interpretative information provided by OMB, and the definition and explanations provided in the OMB peer review bulletin in conjunction with the information obtained during our assessment, to reach our conclusion.

We also disagree with the statement provided in footnote 2 of EPA's response. The OIG did not make any clarifications to EPA regarding the interpretative response provided by OMB, but only provided a copy of our questions to OMB as an appendix to the draft report. The information provided as background before those questions clearly demonstrates the reasons for our inquiry. However, whether the official responding to our questions was familiar with the TSD is not important. As explained above, our intent was not to obtain OMB's opinion on whether the TSD was a highly influential scientific assessment, but to obtain information to help us reach our own independent conclusion as to the nature of the TSD.

[2] It has since been clarified by the OIG that the writer of this e-mail was not familiar with the TSD and was not provided by the OIG with the TSD or informed that the TSD was the document about which the OIG was ultimately inquiring (see appendix E, p. 44, of the OIG's draft report).

The OIG goes on to conclude that, *Based on the above interpretation, by providing a summary of existing findings and conclusions from the IPCC, USGCRP/CCSP, NRC, and other reports, OAR implicitly and explicitly weighed the strength of the available science by its choices of information, data, studies, and conclusions included and excluded from the TSD. Thus, in our opinion, the TSD is a scientific assessment*.

This is not correct. A "scientific assessment" is defined in the OMB Peer Review Bulletin (2004) as "an evaluation of a body of scientific or technical knowledge, which typically synthesizes multiple factual inputs, data, models, assumptions, and/or applies best professional judgment to bridge uncertainties in the available information." The TSD did not conduct such an evaluation. No *weighing* of information, data and studies occurred in the TSD. That had already occurred in the underlying assessments. That is where the scientific synthesis occurred, that is where the state of the science was assessed.

OIG Response 19: We continue to believe that the TSD is a scientific assessment based on the definition in the OMB peer review bulletin for the reasons outlined in OIG Response 5.

Indeed, some commenters chastised EPA for not performing its own scientific assessment rather than relying on the existing peer reviewed science. See section 1 of volume 1 of the Response to Comments that accompanied the endangerment finding at http://epa.gov/climatechange/endangerment/comments/volume1.html#0.

EPA certainly agrees that the IPCC, USGCRP and NAS/NRC reports summarized in the TSD are "scientific assessments." However, the scientific findings found in the TSD are not the result of the TSD having gone through the scientific literature or assessments to *synthesize multiple factual inputs, data, models, assumptions.* To the contrary, that synthesis occurred during the development of the assessment reports. The TSD did not synthesize or alter the findings of the underlying assessment reports. Nor does the TSD *bridge uncertainties in the available information* or otherwise use "professional judgment" to resolve scientific issues. The TSD simply summarizes in a straightforward manner the underlying assessments of the National Academies, the USGCRP and IPCC.

OIG Response 20: A scientific assessment does not have to involve applying best professional judgment to bridge uncertainties in the available information. We believe the TSD is a scientific assessment because a synthesis occurred during the development of the TSD as EPA went through primarily the three major assessment reports—IPCC, NRC, and USGCRP—to synthesize multiple factual inputs. Also, as noted in OMB's clarification on the definition of a scientific assessment, a document such as the TSD that summarizes the "state of science" (climate change, in this case) would be a scientific assessment because it implicitly or explicitly weighed the strength of the available science. For more details on other information relied upon for the development of the TSD, see OIG Responses 5 and 16.

The initial response from OMB cited in the report is a paraphrase of an example from the Handbook's definition of "scientific assessment" that includes a "state of the science report" as one of several examples. The key predicate to this example in the Handbook is in the sentence preceding it, which refers to evaluating a body of scientific knowledge, typically synthesizing multiple factual inputs, data, models, assumptions, and/or applying best professional judgment to bridge uncertainties in the available information. The reference to a "state of the science document" cannot be seen in isolation, but refers to documents that involve the kind of weighing

of the evidence and exercising scientific judgment that is described in the Handbook. Although the assessment reports involved weighing the data, studies and other information in order to arrive at conclusions on the state of the science, the TSD did not do this.

The OIG concludes that EPA implicitly and explicitly weighed the strength of the available science by its choice of information, data, studies, and conclusions included and excluded from the TSD, but provides no basis for this conclusion. The TSD reported the results of the weighing of the science that had been conducted by the assessment reports, but the TSD did not re-weigh the strength of the available science. The decision to include in the TSD various scientific conclusions and other information from the assessment reports was not based on weighing the strength or otherwise evaluating the science. Inclusion in the TSD was based on relevance to the science issues before the Administrator under section 202(a) of the Clean Air Act, and whether the result was a fair and accurate summary of the conclusions and information from the assessment reports. This is neither an implicit or explicit weighing of the strengths of the available science.

OIG Response 21: We believe the TSD implicitly or explicitly weighed the strength of the available science by relying primarily on three assessment reports—IPCC, NRC, and USGCRP—rather than on other literature. EPA noted in its response to the draft report that it "had to assess which information should and could be used as the scientific basis." For more details on other information relied upon for the development of the TSD, see OIG Responses 5 and 16.

OIG also cites two isolated sentences from the proposed and final endangerment finding as support for the OIG opinion. These statements by themselves are not representative of the fuller record and EPA's long-standing view that the TSD is not itself a new assessment of the science. The first example is from the proposed finding:

> *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.*

Here OIG is apparently emphasizing use of the word "synthesizes"; we recognize "summarizes" is the more appropriate word because the TSD does not break new ground from the major findings of the underlying scientific assessments.

OIG Response 22: Even if the word "summarizes" is used, we still consider the TSD a scientific assessment based on OMB's clarification on the definition of a scientific assessment, which states that a document *summarizing* (emphasis added) the "state of the science" would be a scientific assessment, as it implicitly or explicitly weighs the strength of the available evidence. Another example in the proposed finding suggesting that the TSD is a scientific assessment is the following:

- The first section describes the approach EPA has taken in gathering and synthesizing the best available scientific information to inform the Administrator's judgment . . .

The second example is from the final endangerment finding:

> *In 2007, EPA initiated its assessment of the science and other technical information to use in addressing the endangerment and cause or contribute issues before it under CAA section 202(a). This scientific and technical information was developed in the*

form of a TSD in 2007. An earlier draft of this document was released as part of the ANPR published July 30, 2008 (73 FR 44353).

OIG Response 23: By assessing "which information should and could be used as the scientific basis," EPA weighed the strength of the available science in developing the TSD.

Other examples in the final finding suggesting that the TSD is a scientific assessment are the following:

- Many of the comments received on the ANPR were reflected in the draft TSD released in April 2009 that served as the underlying scientific and technical basis for the Administrator's Proposed Findings, published April 24, 2009 (74 FR 18886). The draft TSD released in April 2009 also reflected the findings of 11 new synthesis and assessment products under the U.S. CCSP that had been published since July 2008.
- In addition, the TSD incorporates up-to-date observational data for a number of key climate variables from the NOAA, and the most up-to-date emissions data from EPA's annual Inventory of U.S. Greenhouse Gas Emissions and Sinks, published in April, 2009.[9] And finally, as discussed in Section I.B of these Findings, EPA received a large number of public comments on the Administrator's Proposed Findings, many of which addressed science issues either generally or specifically as reflected in the draft TSD released with the April 2009 proposal. A number of edits and updates were made to the draft TSD as a result of these comments.
- EPA recognizes the potential importance of new scientific research, and the value of an ongoing process to take more recent science into account. EPA reviewed new literature in preparation of this TSD to evaluate its consistency with recent scientific assessments. We also considered public comments received and studies incorporated by reference. In a number of cases, the TSD was updated based on such information to add context for assessment literature findings, which includes supporting information and/or qualifying statements. In other cases, material that was not incorporated into the TSD is discussed within the Response to Comments document.
- Many comments focus on the scientific and technical data underlying the Proposed Findings, such as climate change science and greenhouse gas emissions data. These comments cover a range of topics and are summarized and responded to in the Response to Public Comments document. The responses note those cases where a technical or scientific comment resulted in an editorial or substantive change to the TSD. The final TSD reflects all changes made as a result of public comments.

[9] *U.S. EPA (2009) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2007. EPA–430–R–*09–004, Washington, DC.

Here OIG is apparently focusing on the word "assessment" in the first sentence. The intended meaning here is simply that, in 2007 when EPA was first requested under Executive Order to begin an endangerment finding process, we had to assess which information should and could be used as the scientific basis. This is the time when EPA decided that it should primarily rely on the scientific assessments of the major bodies of USGCRP (then CCSP), IPCC and NRC. So "assessment" in the first sentence above refers to the process by which EPA determined what kind of information should be brought in and summarized in the TSD. We were very clear what scientific information we were relying on and believe that the OIG report picks two sentences and uses them out of context.

OIG Response 24: The OIG did not pick two sentences out of context. There were more examples as noted above in OIG Response 23.

We ask that the OIG also address and include other information from the record that clearly shows that the TSD was not itself a new assessment of the science, including the introductory

chapter of the TSD and the entire sections of the proposed and final findings in the federal register that are devoted to the "Science Upon Which the Decisions are Based." These provide detailed rationale for the Agency's reliance on the existing assessment reports and our determination to summarize the scientific information rather than develop our own scientific assessment.

OIG Response 25: We believe sufficient details on the information used to support the endangerment finding were provided in the draft report.

The OIG should consider all of the analysis and information provided on this issue, and the final report should reflect a comprehensive evaluation in light of the above discussion. EPA is confident that a comprehensive review of this issue leads to the conclusion that the TSD is not a HISA. However, even if the OIG reaches a different conclusion in its final report, the OIG should clearly indicate that there are substantial and reasonable grounds for EPA's and OMB's views that the TSD is an ISI and not a HISA. The OIG should also make clear throughout their report that their finding is premised on the TSD being a HISA, and that if the TSD is not a HISA then such conclusions, and perhaps attendant recommendations, would not apply. This would help to clarify the conditional nature of OIG's views, and allow readers to draw their own conclusions in light of the very reasonable and, we believe, compelling grounds for determining that the TSD is not a HISA.

OIG Response 26: We recognize that the TSD is a unique document in that it is primarily based upon the results of other scientific assessments. Accordingly, others may reasonably interpret that the TSD does not fit the OMB definition of a highly influential scientific assessment and, therefore, was not subject to peer review requirements for highly influential scientific assessments. However, based on the criteria set forth in the OMB peer review bulletin and OMB's clarification on the definition of a scientific assessment, and our assessment of information obtained during our review, we continue to believe that the TSD is a highly influential scientific assessment. Even if we concluded that the TSD was not a highly influential scientific assessment, our recommendations are still applicable as they pertain to aspects of the action development process that were not followed or areas where guidance should be clarified regardless of whether EPA considered the TSD to be influential scientific information or a highly influential scientific assessment.

OIG has stated in their draft report that, *EPA's peer review did not meet minimum OMB requirements for such documents.* We strongly object to the limited discussion of the peer review actions of EPA and the use of the word *minimum* as it is misleading. It could be interpreted as meaning EPA did little to satisfy the peer review requirements for the TSD. In fact, EPA went far beyond the requirements for peer review of an ISI by conducting multiple expert, interagency and public reviews that were reasonable and appropriate to ensure the credibility of the TSD. All of the reviewer comments were maintained, multiple versions of the draft TSD were archived, all peer reviewers were disclosed, and EPA submitted a memo to the record (see EPA-HQ-OAR-2009-0171-11639) documenting all the changes to the TSD that were made in response to all levels of comments. This detailed process was completed for all three rounds of federal expert review, not just for the ANPR, as stated by the draft OIG report. EPA has maintained documentation for all of the comments received from federal experts and its response to these comments. Furthermore, the public was given two full opportunities to comment on the TSD: once during the ANPR (a 120-day comment period) and again following the proposed endangerment finding (a 60-day comment period including two public hearings).

OIG Response 27: We revised the text to say that EPA's review of its TSD did not meet all OMB's peer review requirements for a highly influential scientific assessment.

The statement in the draft report that "EPA did not maintain a record of its response and disposition of comments for the two TSDs that accompanied the proposed and final rules" is correct. We had asked EPA to provide us copies of its response to the federal climate change expert reviewers' comments on the TSD that accompanied the ANPR, proposed, and final rules. EPA provided us with a table of the reviewer comments, EPA's response, and disposition of the comments for the TSD that accompanied the ANPR. However, EPA did not prepare similar documentation for the TSD that accompanied the proposed and final rules.

The OMB Peer Review Bulletin has eight peer review criteria for a HISA (see table below). In addition, "[e]ven for these highly influential scientific assessments, the Bulletin leaves significant discretion to the agency formulating the peer review plan" (pg Bulletin at p. 2-3). In light of the circumstances of the TSD, the extensive peer review and public review process that was conducted for the TSD, and the discretion afforded under the peer review guidance, EPA believes that it met the OMB peer review requirements for HISAs.

The OIG draft report does not discuss all of the criteria, nor does it clarify how the review EPA conducted for the TSD met the criteria. This results in a significant lack of balance and context for the conclusion in the draft report. The discussion in the draft OIG report indicates that the OIG believes EPA did not fully comply with one of the peer review requirements, involving preparation of a peer review report (number 7 in the table below). If OIG continues with that view, then the final OIG report should indicate that EPA did not consider the TSD to be a HISA, but OIG believes the extensive peer review conducted by EPA satisfied all but one of the OMB peer review requirements for HISAs, and partially satisfied that one requirement.

	OMB Peer Review Criteria for HISA	EPA's Review of TSD
1	Peer reviewers should have appropriate expertise and balance	EPA had the TSD reviewed by 12 highly qualified and credentialed federal government scientists whose expertise covered the range of topic areas. **OIG Response 28:** The OMB peer review bulletin refers to balance as "a diversity of scientific perspectives relevant to the subject." We did not question the appropriateness of the 12 federal reviewers' expertise. We do note that all were federal employees and all had leading roles in developing the assessment reports cited in the TSD.

2	Conflict of interest	OMB Peer Review Bulletin states peer reviewers who are federal employees "are subject to applicable statutory and regulatory standards for federal employees. **OIG Response 29:** Under additional peer review requirements for highly influential scientific assessments, the OMB peer review bulletin states, "The agency - or the entity selecting the peer reviewers - shall (i) ensure that those reviewers serving as Federal employees (including special government employees) comply with applicable Federal ethics requirements . . . ." We asked EPA how it ensured that the reviewers complied with applicable federal ethics requirements. According to a senior analyst in OAR, the Agency had no reason to believe that the federal reviewers would have any conflict of interest issues because they were only reviewing the TSD for accuracy and not re-opening or judging their prior work.
3	Independence from the sponsoring agency	One of the 12 federal expert reviewers was an EPA employee. This person was not one of the original authors of the TSD, and her expertise in the human health impacts of climate change helped fill the balance of expertise needed. **OIG Response 30:** The OMB peer review bulletin states that "scientists employed by the sponsoring agency are not permitted to serve as reviewers for highly influential scientific assessments." Thus, EPA did not fully meet the OMB requirement for independence of reviewers.
4	Repeated use of same peer reviewers for multiple assessments	Group of 12 federal scientists was not used for peer review of other assessments. 12 federal scientists remained the same since 2007 so reviewers could clearly track, in line with their charge, how the TSD was summarizing new assessments that had become available. **OIG Response 31:** While EPA met the requirement to not use the same reviewers on multiple assessments, we note that the EPA *Peer Review Handbook* states that it is preferable to use different people each time the product is being reviewed again to provide a broader perspective. The handbook notes that "if the same peer reviewers are used repeatedly, they may lose their independence (or the appearance of independence) from the work product(s)."
5	Provide reviewers with sufficient background information	12 reviewers had full access to both the TSD and, more importantly for this criterion, full access and knowledge of the underlying assessments (and the underlying individual studies that were synthesized in those assessments) summarized in the TSD.
6	Public participation in peer review	TSD was subject to public review and comment. Furthermore, the assessments of the National Academies, USGCRP and IPCC had already been in the public domain, and for USGCRP and IPCC assessments the public had previous opportunities to comment on those reports.[(a)] **OIG Response 32:** While the public was afforded opportunities to comment on the TSD, public opportunity to comment on a document is not public participation in the peer review. EPA did not make the draft TSD that eventually accompanied the proposed endangerment finding available to the public at the same time it went to the peer reviewers for review. EPA also did not sponsor a public meeting or make the public comments on the draft TSD that accompanied the proposed endangerment finding available to the peer reviewers during their review of the draft final TSD.

7	Preparation of a peer review report	EPA submitted a memorandum to the record (see EPA-HQ-OAR-2009-0171-11639) documenting all changes to the TSD in response to all levels of comments, both from the expert reviewers and from the public. EPA did not produce a separate memorandum describing changes only in response to expert reviewer comments, as this did not seem necessary as we were not operating under HISA procedural assumptions. Expert reviewers were disclosed, and EPA has maintained documentation of all comments received and before-and-after versions of the TSD. **OIG Response 33:** According to the OMB bulletin, an agency managing the peer review shall instruct peer reviewers to prepare a report that describes the nature of their review and their findings and conclusions. 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. Additional requirements apply to peer reviews of highly influential scientific assessment. The agency shall prepare a written response to the peer review report explaining (a) the agency's agreement or disagreement with the views expressed in the report, (b) the actions the agency has undertaken or will undertake in response to the report, and (c) the reasons the agency believes those actions satisfy the key concerns stated in the report (if applicable). The agency shall disseminate its response to the peer review report on the agency's website. For this action, a peer review report was not prepared. A record of the reviewers' comments were maintained but not made available to the public. For the first version of the TSD reviewed by the panel, EPA prepared written responses to the reviewers' comments. However, for the two subsequent reviews of the TSD, EPA did not prepare written responses to the reviewers' comments.
8	Authorization to have a separate entity carry out peer review	EPA reasonably chose to manage the review process itself.

(a) EPA did not conduct expert review and public review simultaneously, and did not make publically available the expert review comments received on the TSD.

EPA is not implying that the level of peer review for the TSD generally would be considered appropriate for a document determined by EPA to be a HISA. The TSD is not a HISA and its review more than satisfies the EPA peer review requirements for influential scientific information. When EPA conducts peer review of a scientific assessment that is a HISA, the peer review often includes the use of independent third party panels such as the Science Advisory Board and National Academies of Science for conducting the peer review, ensuring the balance of the peer review panel, consideration of conflicts of interest, consideration of public participation, and preparation of a peer review record.

OIG Response 34: The federal climate change expert review of the TSD did not follow the recommended procedures outlined in the *Peer Review Handbook* for either influential scientific information or highly influential scientific assessments, or OMB's guidelines for peer review of highly influential scientific assessments. However, we recognize the level of review would be within EPA's discretion if the document was considered influential scientific information, but not if considered a highly influential scientific assessment.

A.3 EPA does not concur with the OIG statements that "the Agency did not conduct any independent evaluations of IPCC's compliance with IPCC procedures, nor did EPA document any specific processes it employed to evaluate the scientific and technical information included in IPCC's Fourth Assessment Report."

First, both in the main body of the OIG report and in the draft response to this question from Senator Inhofe, the OIG fails to fully recognize or provide any documentation regarding EPA's actual involvement, and at times lead role, in the U.S. Government process to review, comment on, and assist in the U.S. Government approval of the IPCC assessment reports. Statements in OIG's draft report give the inaccurate impression that EPA was a passive observer of U.S. Government approval of the IPCC Fourth Assessment Report, stating, for example, that "U.S. government acceptance did not relieve EPA of its responsibility to determine whether the data met EPA's information quality guidelines before disseminating the information." The reality is that EPA devoted significant staff time to review the IPCC assessment reports, provide comments to an interagency process, participate in that interagency process to prioritize U.S. government comments, and to approve the summaries of the IPCC reports in a detailed line-by-line process, which involves detailed checking of how the summary is reflecting the underlying report and therefore how U.S. government comments are being reflected.

OIG Response 35: We added statements to chapter 1, chapter 3, and appendix A of the final report to indicate EPA's involvement in the IPCC process, including its participation in the U.S. delegation approving the Working Group II report for the AR4.

Second, the OIG draft report overlooks the many examples where EPA specifically discussed and documented throughout the endangerment finding record how the IPCC peer review procedures meet EPA and OMB guidelines. We refer to our list of key examples provided under the response to Senator Inhofe's first question.

OIG Response 36: OIG analysis of specific EPA comments regarding its analysis and documentation of IPCC procedures is provided in OIG Responses 46 through 52.

The OIG summarizes EPA's "examination of IPCC's Fourth Assessment Report peer review" in a table, but we do not concur with a number of OIG's conclusions in that table.

Stating that EPA did not address IPCC's conflict of interest procedures is incorrect. EPA documented how IPCC review procedures are designed to avoid conflict of interest among authors and peer reviewers in detail in Section 1 and Appendix A of Volume 1 of the Response to Comments document following the 2009 proposed endangerment finding, and Section 2.2 of the Response to Petitions document. EPA explains here that while IPCC procedures do not explicitly contain "conflict of interest" language, there are sufficient checks and balances built into the IPCC procedures such that there has been no evidence that the quality of IPCC reports suffer from potential conflict of interest issues.

For example, IPCC's report development procedures state that the review should entail, *a wide circulation process, ensuring representation of independent experts (i.e. experts not involved in the preparation of that particular chapter) from developing and developed countries and countries with economies in transition should aim to involve as many experts as possible in the*

IPCC process. Thirdly, the review process should be objective, open and transparent… To help ensure that Reports provide a balanced and complete assessment of current information, each Working Group/Task Force Bureau should normally select two Review Editors per chapter… Review Editors should not be involved in the preparation or review of material for which they are an editor.

OIG Response 37: The example cited by EPA above addresses aspects of reviewer independence, as described in OMB guidance. As noted in table 2 of our report, we believe that EPA examined the issue of IPCC reviewer independence, and this is included in documentation supporting its endangerment finding. OMB guidelines state that the NAS policy for committee selection should be used with respect to evaluating the potential for conflicts. The NAS policy states that "at the time of appointment, each committee member is required to list all professional, consulting, and financial connections, as well as to describe pertinent intellectual positions and public statements by filling out a confidential form, 'Background Information and Confidential Conflict of Interest Disclosure.' The committee appointment is not finalized until the institution completes a review of information regarding potential conflicts of interest and bias." EPA referred us to several documents for details on their review of IPCC's procedures. We were not able to find any statements in the materials referred to us that EPA had examined this aspect of IPCC's procedures.

In response to specific questions raised about conflict of interest issues in EPA's denial of the petitions to reconsider the endangerment finding, EPA stated:

> See Sections 2.2.2 and 2.2.3 in this volume of the RTP document, which address our view that the IPCC's procedures are sufficient to ensure that no one individual—including the IPCC chairman—or group of individuals can exert disproportionate influence in developing any piece of the assessment reports. The IPCC has robust procedures to ensure that the assessment reports are objective, are unbiased, and represent the state of the science regarding climate change.

OIG Response 38: The conclusion presented in chapter 3 of the draft report states that "no contemporaneous documentation was available to show what analyses the Agency conducted *prior* (emphasis added) to dissemination of the information in its advance notice and proposed action." Therefore, for this particular aspect of our evaluation, we did not consider EPA analyses provided in its response to petitions document because such analyses were done after the Agency had already disseminated the information.

Stating that EPA did not document its examination of IPCC's procedures for including a rotation of peer reviewers in its Fourth Assessment Report is incorrect. The IPCC's peer review process included multiple rounds of expert review involving more than 2,500 individuals as well as governmental review by the 189 member countries. These rotation procedures are described in Section 1.1.1 and Appendix A of Volume 1 of the Response to Comments document, which describes the entire peer review process for the IPCC. Since the OMB criterion requires that "Agencies shall avoid repeated use of the same reviewer on multiple assessments," the IPCC rotation procedures require a far greater amount of rotation than the OMB guidance, as thousands of reviewers are employed rather than just a handful.

OIG Response 39: EPA's response does not provide supporting evidence to show that the Agency documented its examination of this issue in the Federal Register notice or its response to comments. EPA does not address the issue of rotation of IPCC reviewers in documentation supporting its endangerment finding.

Stating that EPA did not document its examination of IPCC's procedures to ensure all appropriate information was provided to IPCC reviewers is incorrect. IPCC procedures provide for dissemination of all relevant information to peer reviewers, and EPA documented this fact. See Appendix A of Volume 1 (describing the IPCC information dissemination procedures): "Working Group Co-Chairs should make available to reviewers on request during the review process specific material referenced in the document being reviewed, which is not available in the international published literature." We do not understand how OIG concludes that "information access for peer reviewers" is not adequate or was not documented by EPA with regard to IPCC.

OIG Response 40: We did not conclude that IPCC's information access to peer reviewers was not adequate. Instead, we concluded that EPA did not provide a description of this matter, or an evaluation of this particular aspect of IPCC procedure, in its endangerment finding or its response to comment document. We reviewed EPA's descriptions of the IPCC review process in both its Federal Register notice and its response to comments document. For this particular issue, EPA did not address how the Agency evaluated, or otherwise considered, the IPCC procedures relative to the OMB peer review requirements for highly influential scientific assessments. Instead, the Agency simply attached the IPCC procedures as an appendix to its response to comments document and provided an overall conclusion that such procedures met all applicable information quality requirements.

Stating that EPA only partially documented IPCC's procedures to ensure transparency of the IPCC peer-review process is incorrect. A footnote to OIG's Table 2 states that "transparency was generally addressed but not for all elements." The IPCC's procedures satisfy the OMB criteria for transparency by clearly articulating the procedures for peer review, making the charge to reviewers publically available and publishing peer review reports that document how the authors addressed all comments received. EPA clearly documented IPCC's procedures for peer review transparency in Appendix A of Volume 1 of the Response to Comments document:

> All written expert and government review comments will be made available to reviewers on request during the review process and will be retained in an open archive in a location determined by the IPCC Secretariat on completion of the Report for a period of at least five years.

EPA's evaluation of these procedures is further described in Section 1 of Volume 1 of the Response to Comments document and Section 2.2 of the Response to Petitions document. The OIG states that EPA did not discuss whether "IPCC procedures required a description of the credentials and relevant experience of each peer reviewer." EPA finds that this element is not applicable in this circumstance because the IPCC assessment reports are reviewed by thousands of individuals. The fact that OIG is applying an element for peer-review transparency involving the disclosure of credentials/experiences for thousands of peer reviewers suggests that the OIG does not appreciate the nature and size of the IPCC's peer-review process. To suggest that the credentials and relevant experiences be disclosed for thousands of individuals is inappropriate and not reasonable.

OIG Response 41: As noted in OIG Response 40, we did not make any conclusions regarding whether the IPCC process met OMB peer review requirements. Instead, we state that EPA did not make any explicit statements in its endangerment finding or its response to comment document that evaluated the IPCC procedures for this particular element of the OMB requirements. OMB requires that "the peer review report shall include the charge to the reviewers and a short paragraph on both the credentials and relevant experiences of each peer reviewer." EPA did not address this particular aspect of the OMB "transparency" requirement in its endangerment finding or its response to comment document. If, as EPA stated in its comments to the OIG draft report, "this element of the OMB requirement is not applicable in this circumstance," such a statement, and justification, could have been provided in the endangerment finding itself, or in EPA's response to comment document. As noted in table 2 of the report, EPA did not provide a statement in the Federal Register notice or response to comments that addressed this issue.

A.4 EPA does not concur with the OIG's statement that "OAR did not identify the specific type of information supporting its action or certify compliance with EPA's Peer Review Policy."

The final endangerment finding devotes an entire section to "The Science On Which the Decisions are Based" (Section III. A). There, after discussing in depth why EPA chose to primarily rely on the major scientific assessments of USGCRP, IPCC and NRC as the science informing the Administrator's judgment, EPA states that these assessments "maintain the highest level of adherence to Agency and OMB guidelines for data and scientific integrity and transparency" (74 FR 66511). Furthermore, the full endangerment record, including the endangerment finding as well as the TSD and the Response to Comments, provide extensive discussions regarding the type of information supporting the finding. This information was provided to EPA management in various forms including briefings to two Administrators. Despite the many pages of descriptive text in the public record describing the specific type of information supporting the endangerment action, the OIG appears to focus on searching only for key terms in internal memoranda. EPA has done due diligence ensuring that there was transparency in our reliance on the scientific assessment reports for the finding. Furthermore, the expert review approach used for the TSD was discussed with the EPA Workgroup, EPA senior management and with other government agencies. In all instances, the approach was clear and approved. However, EPA recognizes that the record does not contain a specific discussion of the TSD and its peer review in terms of the peer review requirements for an ISI. EPA agrees that including a clearer discussion of this could have been helpful and avoided confusion on this issue.

OIG Response 42: We revised the title for this section in our final report (see p. 19). We did not find that EPA failed to indentify the sources of information it used to support its endangerment finding. Rather, we found the Agency did not follow OMB and EPA requirements to discuss such information in terms of whether it was influential scientific information or highly influential scientific assessments. Further, EPA did not certify in the administrative record for the endangerment finding that its review of the TSD met applicable OMB peer review requirements. Both OMB requirements and EPA's *Peer Review Handbook* state that the Agency is supposed to identify whether it used influential scientific information or a highly influential scientific assessment to support the Agency's action. Further, OMB requires the Agency to certify compliance with OMB peer review requirements, and the *Peer Review Handbook* recommends that the peer review report for the underlying information be included in the docket for the action. These are information quality procedures that EPA did not follow for this particular action.

The Agency did not describe the TSD in terms of influential scientific information or highly influential scientific assessments in documentation associated with the endangerment finding. When we asked EPA whether it characterized the TSD as either influential scientific information or a highly influential scientific assessment in documentation supporting the endangerment finding, an OAR branch chief told us that EPA did not describe the scientific information in such terms because it was "not the focus of the discussion." Further, the OIG did not simply perform a search "only for key terms in internal memoranda" as EPA's comments suggest. Although the OMB bulletin and EPA requirements call for the Agency to conclusively state whether the information being disseminated is influential scientific information or a highly influential scientific assessment, throughout the majority of the OIG's evaluation, EPA would not identify whether it considered the TSD to be influential scientific information or a highly influential scientific assessment. The Agency did not provide this information even in response to direct questions from the OIG. For example, the OIG sent an e-mail to a senior analyst in OAR (who managed the expert review of EPA's TSD) on October 13, 2010, asking whether EPA characterized its TSD as a scientific assessment. The analyst responded in writing that EPA simply called the TSD a "technical support document" to "acknowledge it was the compilation of science to support the Administrator's endangerment decision." The analyst did not characterize the TSD further, but did state that EPA did not call the TSD an assessment report. When asked in a subsequent e-mail, on October 13, 2010, whether EPA considered the TSD to be influential scientific information, as defined in the Agency's *Peer Review Handbook*, the analyst stated that EPA "didn't formally designate the TSD as 'influential scientific information'." EPA first described the TSD as influential scientific information when it responded to the OIG draft report.

A.5 EPA disagrees with the OIG's statement that "OAR deviated from the Action Development Process in some areas."

Although we appreciate OIG's attempt to provide some context surrounding the 2007 origins of the endangerment findings and the TSD, the final OIG report need to indicate the flexibility and discretion provided by the Agency guidance itself. The OIG does not present a balanced discussion of the actions EPA took to achieve the goals and communicate the major components of an Analytic Blueprint to all program offices and workgroup members. In 2007, EPA's Office of Transportation and Air Quality initiated a rulemaking for Greenhouse Gas Emission Standards for certain motor vehicles. The rulemaking involved determining whether greenhouse gas emissions from sources covered under section 202(a) of the CAA cause or contribute to air pollution that endangers public health or welfare and if so, to set new standards for motor vehicles to control such emissions. As part of this effort, EPA held an early guidance meeting and outlined a "plan for developing the Endangerment Finding" based on the early guidance. Management briefings (provided to OIG) regarding the development plan identified and clearly communicated the topics covered in an analytic blueprint including approach, scope, underlying science and review mechanisms for the TSD and endangerment finding process. In 2009, EPA management separated the elements of the original action into separate actions. Hence, the 2009 action was not a new action that required the workgroup to start at the beginning of the Action Development Process. In 2009, when the actions were separated, EPA management chose to proceed using the same approach for the TSD identified in 2007. This decision was clearly

communicated to and supported by workgroup members. EPA shared with OIG the briefing materials that provided this information. The approach laid out in 2007 remained valid.

OIG Response 43: We believe we have presented a balanced discussion on whether EPA fulfilled the requirement to develop an analytic blueprint for the endangerment finding—a Tier 1 action. We acknowledged in the draft report that even though EPA did not develop a new blueprint or revise the analytic blueprint for the stand-alone endangerment finding action, it prepared nine briefing documents for EPA senior management that provided details on the Agency's plans for preparing and peer reviewing the TSD, including the early guidance briefing.

The OIG appears to assume that the lack of a document in 2009 with the title "Analytic Blueprint" means that the goals and key elements of such a document were not addressed and communicated by EPA to management and other program offices. To the contrary, the content of an Analytic Blueprint was discussed on numerous occasions with all program offices involved. EPA thoroughly discussed at numerous management briefings in both 2007 and 2009 which assessment reports were going to be relied upon and why (i.e., because they have already undergone extensive peer review) as well as the approach for review of the TSD. It is inappropriate for OIG to conclude that a 2009 decision to maintain a 2007 decision -- to continue to rely primarily on and remain consistent with the existing peer-reviewed assessment literature – is a "deviation" from the Action Development Process.

OIG Response 44: The draft report acknowledged that an analytic blueprint was prepared in 2007 for a proposed greenhouse gases transportation rule that would include an endangerment finding. This analytic blueprint, however, did not explain what reviews were needed before accepting the other organizations' data or how the TSD would be peer reviewed. The draft report also acknowledged that although the analytic blueprint for the 2007 action did not describe how the TSD would be peer reviewed, OAR prepared nine briefing documents for EPA senior management that provided details on the Agency's plans for preparing and peer reviewing the TSD. These briefings were conducted from May through September 2007. These briefing documents outlined the Agency's approach but did not explain why it chose not to have a formal external peer review of the TSD. We clarified our discussion in the final report to make it clear that we did not expect the Agency to prepare an entirely new analytic blueprint for 2009.

The OIG notes that OAR "completed many of the processes and steps outlined in its guidance to ensure the quality of the information the Administrator used in making her determination." Yet the report also states that "OAR did not adhere to some of its internal processes established to guide Tier I actions." Here again, we believe that the few examples cited by the OIG are within the flexibility and discretion clearly provided within the agency guidance, are taken out of context, are trivial in substance, and are inappropriately elevated by the OIG as "procedural deviations". For example, the report asserts a "deviation" for "not including all reviewing offices' positions in the options selection meeting materials," whereas the reviewing offices all concurred with the options recommended. Furthermore, official reviewing offices' positions were presented at the Final Agency Review meeting held on November 5, 2009, and formally documented in the memorandum issued by the Office of Policy summarizing the results of the meeting and provided to the OIG.

OIG Response 45: Our draft report acknowledged that the potential impact of these procedural deviations is "debatable." Our draft report further acknowledged the comments of EPA's Office of Policy, Regulatory Management Division Director, that the action development process guidance is supposed to be flexible.

B. EPA Comments on OIG Draft Answers to the Questions Posed by Senator Inhofe

We offer the following responses to the OIG's draft answers to Senator Inhofe, and strongly urge the OIG to ensure consistency between its report and its responses to the Senator (Appendix B).

1. Did EPA conduct an examination of the IPCC procedures, including the IPCC process for handling review comments? How did EPA determine that the IPCC process satisfied EPA's obligations to follow the Data Quality Act (sic) and the Agency's, as well as OMB's, peer review guidelines? How was this determination documented?

In response to Senator Inhofe, the OIG correctly states that "EPA felt confident accepting IPCC's *Fourth Assessment Report* as valid and of high quality." However, the draft OIG response is incomplete and at times misleading regarding its characterization of what EPA conducted and documented in order to be confident that the IPCC assessment reports complied with EPA and OMB standards of quality, objectivity, utility, and integrity.

First, both in the main body of the OIG report and in the draft response to this question from Senator Inhofe, the OIG fails to fully recognize or provide any documentation regarding EPA's actual involvement in the U.S. Government process to review, comment on, and assist in the U.S. Government approval of the IPCC assessment reports. Instead, the OIG makes a number of statements that to most readers will imply that EPA passively took note of the U.S. Government approval of the IPCC assessments, and used this as 'trust-without-verification' rationale for making use of the IPCC *Fourth Assessment Report* in the endangerment finding. The reality is that EPA devoted significant staff time to participate, and at times play leading roles, in the U.S. Government review, comment and approval process for the IPCC *Fourth Assessment Report*. For each of the three major volumes of the IPCC *Fourth Assessment Report*, EPA comments were collated and submitted to the USGCRP office (the focal point for interagency review), which in turn underwent an interagency process, of which EPA participated, to prioritize the comments that would be submitted as U.S. Government comments from the State Department to the IPCC. Furthermore, EPA staff were part of the small U.S. Government teams that attended week-long IPCC meetings in 2007 to approve, in a line-by-line process, the Summary for Policymakers of two of the three major volumes of IPCC's *Fourth Assessment Report*. There is documentation on this process.

OIG Response 46: We agree that EPA's role in the IPCC process should be mentioned in the report. We added statements to chapter 1, chapter 3, and appendix A of the final report to indicate EPA's involvement in the IPCC process, including its participation in the U.S. delegation approving the Working Group II report for the AR4.

Second, the OIG draft report overlooks the many examples where EPA specifically discussed and documented throughout the endangerment finding process how the IPCC peer review procedures meet EPA and OMB guidelines. We list important examples here:

- EPA's first internal briefings on the endangerment finding in 2007 document the conscious effort to include only peer reviewed, well-vetted, consensus-based, and U.S.-approved science for the endangerment finding. This decision lead to relying primarily on the assessments of the USGCRP (previously the CCSP), the IPCC and the NRC.

- The version of the TSD that accompanied the Advanced Notice of Proposed Rulemaking in July 2008 described the general review procedures of IPCC, noting, for example, that:

> Lead authors are nominated by governments and are selected by the respective IPCC Working Groups on the basis of their scientific credentials and with due consideration for broad geographic representation. For Working Group I there were 152 coordinating lead authors, and for Working Group II 48 coordinating lead authors. Drafts prepared by the authors are subject to two rounds of review; the second round includes government review. For the IPCC Working Group I report, over 30,000 written comments were submitted by over 650 individual experts, governments and international organizations. For Working Group II there were 910 expert reviewers. Review Editors for each chapter are responsible for ensuring that all substantive government and expert review comments receive appropriate consideration. IPCC documents how every comment is addressed.

OIG Response 47: Our report specifically states that EPA "provided detailed descriptions of the IPCC principles and procedures in documents associated with its endangerment and cause or contribute findings for greenhouse gases," and specifies that such descriptions were provided in the TSD accompanying the proposed and final findings. The description of IPCC's procedures that is provided in EPA's TSD was considered during the course of our evaluation and was noted in our report.

The proposed endangerment finding in April 2009 stated that, "The IPCC and CCSP assessments base their findings on the large body of many individual, peer reviewed studies in the literature, and then the IPCC and CCSP assessments themselves go through a transparent peer-review process." (74 FR 18894). The proposed finding further stated, when referring to the fact that the TSD relies on the assessments, that:

> The information in the TSD has therefore been developed and prepared in a manner that is consistent with EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by the Environmental Protection Agency.*

OIG Response 48: In its proposed endangerment finding, EPA provides an overall conclusion regarding the information quality of the assessments that EPA relied on in forming its TSD. However, the proposed endangerment finding does not provide any description of specific IPCC procedures, nor does it provide any language about specific evaluation procedures EPA may have employed to reach its overall conclusion that the information in the TSD was developed and prepared in a manner consistent with information quality guidelines.

EPA provided a description of the science used to support the endangerment finding in its final endangerment finding, including specific references to IPCC procedures. Therefore, our report highlighted the final findings, not the proposed findings, as a document in which EPA provided its detailed description of IPCC procedures.

- EPA's Response to Comments document in 2009, particularly Section 1 and Appendix A of Volume 1, addressed IPCC's peer review procedures at length, and specially addressed how they meet EPA and OMB guidelines. There, after considerable description of the IPCC procedures and an examination of adherence to those procedures, EPA concluded:

> The evidence is clear that the IPCC's procedures are sufficient and effective for ensuring quality, transparency, and consideration of multiple and diverse perspectives. [W]e find that IPCC's information quality process is consistent with EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by the Environmental Protection Agency*.

OIG Response 49: We agree that EPA described the IPCC procedures in documents associated with the endangerment finding. However, the documentation EPA referred us to did not show what analyses EPA conducted prior to dissemination of the information.

As another example of EPA's response to a comment that questioned IPCC's reliance on non-peer reviewed studies, EPA first described IPCC's procedures that "Contributions should be supported as far as possible with references from the peer-reviewed and internationally available literature." EPA further responded as follows:

> EPA's *review* [emphasis added] of the studies included in the IPCC assessment reports, which we used in developing the TSD, confirms that the use of non-peer-reviewed literature was predominantly associated with the report of IPCC Working Group III ("Mitigation of Climate Change") and the treatment of adaptation issues in IPCC Working Group II, two areas not assessed by the Administrator in this action.

- The final endangerment finding in December 2009 spoke to the utility of the IPCC and other assessments, stating, *inter alia*, that "these assessments address the scientific issues that the Administrator must examine for the endangerment analysis." (74 FR 66510). The finding further spoke of the high standards of peer review (74 FR 66511):

  > [T]hese assessment reports undergo a rigorous and exacting standard of peer review by the expert community, as well as rigorous levels of U.S. government review and acceptance. Individual studies that appear in scientific journals, even if peer reviewed, do not go through as many review stages, nor are they reviewed and commented on by as many scientists. The review processes of the IPCC, USGCRP, and NRC (explained in fuller detail in the TSD and the Response to Comments document, Volume 1) provide EPA with strong assurance that this material has been well vetted by both the climate change research community and by the U.S. government. For example, with regard to government acceptance and approval of IPCC assessment reports, the USGCRP Web site states that: ''When governments accept the IPCC reports and approve their Summary for Policymakers, they acknowledge the legitimacy of their scientific content.''
  >
  > No other source of information provides such a comprehensive and in-depth analysis across such a large body of scientific studies, adheres to such a high and exacting standard of peer review, and synthesizes the resulting consensus view of a large body of scientific experts across the world.

OIG Response 50: We acknowledge in appendix A of our report that EPA provided detailed descriptions of IPCC procedures in the final endangerment finding. Additionally, some of the relevant points from the two paragraphs cited above were already included in the draft report. For example, appendix A of the report notes the following:

> According to EPA, the assessment reports summarized in the TSD, including IPCC's AR4, "were prepared following rigorous and transparent processes addressing such issues as the nomination and selection of authors, the caliber of literature reflected in the assessment, and the processes for review and revision of reports."
>
> EPA also stated in its TSD that the procedures employed by the IPCC, among others, provided the Agency with assurances that the assessment material was well vetted by both the climate change community and by the U.S. government.

- In EPA's 2010 denial of petitions to reconsider the endangerment finding, EPA concluded the following after considering and reviewing specific critiques raised against IPCC's *Fourth Assessment Report* (75 FR 49558):

  > Petitioners' also point to a limited number of factual mistakes in IPCC AR4, some confirmed, some alleged, to argue that the climate science supporting the Administrator's Endangerment Finding is flawed. EPA's review confirmed two factual mistakes. These two confirmed instances of factual mistakes are tangential and minor and do not change the key IPCC AR4 conclusions that are central to the Administrator's Endangerment Finding. While it is unfortunate that IPCC's review process did not catch these errors, in the context of a report of this size and scope (almost 3,000 pages), it is an inappropriate and unfounded exaggeration to claim that these two confirmed mistakes delegitimize all of the scientific statements and findings contained in IPCC AR4. To the contrary, given the scrutiny to which IPCC AR4 has been subjected, the limited nature of these mistakes demonstrates that the IPCC review procedures have been highly effective and very robust.

- The accompanying Response to Petitions document further details at considerable length EPA's review of and responses to a number of critiques raised about IPCC review procedures, particularly volume 2 "Issues Raised by Petitioners on EPA's Use of IPCC." In that summary, after considerable discussion, EPA concluded:

  - It was proper to not list certain scientists as contributing authors as they did not contribute significantly to the writing and editorial decisions in developing any Fourth Assessment Report chapter, including Chapter 6 of Working Group I's contribution (Jansen et al., 2007), and therefore did not compromise their objectivity during the peer-review process.

  - IPCC authors did not cite their own studies more frequently than what was acceptable and reasonable.

  - IPCC authors were not directed to focus on policy-prescriptive conclusions, but rather implemented IPCC guidelines by presenting policy-relevant and neutral findings.

- IPCC authors did not alter the content of reports to eliminate suggestions of non-consensus.
- Collaborations among IPCC authors and reviewers prior to the development of AR4 did not compromise objectivity or generate conflicts of interest.
- The IPCC's peer-review processes are appropriate and adequate, and were properly implemented.
- IPCC authors did not manipulate deadlines for receipt of new literature.
- The IPCC's very limited use of gray literature does not call into question the quality and objectivity of the assessment reports.

OIG Response 51: EPA's response to petitions document does show an additional degree of review and evaluation that the Agency applied to IPCC procedures. Accordingly, we added a discussion of this review to our response to question 1 in appendix A of the final report.

Despite this documented record, the OIG draft response makes the following two statements that we think are misleading and inaccurate:

> *EPA examined IPCC procedures to the extent that EPA described these procedures in its proposed and final endangerment finding packages.*
>
> *EPA did not conduct any independent review or analysis of the IPCC's compliance with these procedures.*

The first statement is misleading, because it implies that EPA did nothing more than describe IPCC's procedures. As discussed above, EPA has done more than that. EPA has been a significant participant in the review of IPCC assessment reports, and EPA has documented throughout the endangerment process not only the IPCC review procedures themselves, but how IPCC procedures have addressed and adhered to high standards of transparency, objectivity and integrity such that they meet EPA and OMB guidelines. We therefore request that OIG edit this statement to reflect that EPA did more than simply describe IPCC's review procedures.

The second statement is inaccurate because it states that EPA conducted no review of IPCC procedures. This statement overlooks the documentation described above. If there is a particular kind of review that OIG thinks EPA should have conducted (e.g., an audit of all comments submitted to IPCC and IPCC's responses to all of those (thousands of) comments), or if the OIG thinks that EPA's documentation is not sufficiently consolidated into one place, or is not cross-walked explicitly enough with each EPA and OMB data quality criterion, then the OIG should be more explicit about that. We therefore request that OIG edit this second statement, and all similar statements, to reflect the fact that EPA did review and documented its review of both IPCC procedural and data quality issues at multiple stages during the endangerment finding process.

OIG Response 52: To address EPA's concerns with the first statement it quoted from the draft report, above, we added the following statement to the introductory paragraph of question 1 of appendix A:

> After disseminating its endangerment finding, in response to petitions for reconsideration, the Agency took further steps to examine and evaluate IPCC procedures. As part of this process, the Agency evaluated evidence provided by petitioners related to allegations that IPCC peer review and report development procedures are designed inappropriately.

We deleted the second statement quoted from the draft report because the Agency does not have guidance specifying the level of review required for such situations. Chapter 3 discusses the need for EPA to develop guidance in this area.

2. IPCC procedures require that it consider all information and scientific viewpoints. Examine how EPA evaluated and determined that the IPCC examined all viewpoints.

The OIG response to this question provides a reasonable yet limited overview of EPA's approach to evaluating and determining that IPCC examined all view points. In addition to the current response, OIG should also explain that EPA reviewed all studies received during the public comment period following the proposed endangerment finding that were not considered or reflected in the major assessments "to see if they would lead EPA to change or place less weight on the judgments reflected in the assessment report. [T]he overall conclusion EPA drew from its review of studies submitted by commenters was that the studies did not change the various conclusions or judgments EPA would draw based on the assessment reports." (74 FR 66512)

We would also note that contained within the IPCC procedures themselves, under "Review," (see Volume 1, Appendix A of EPA's Response to Comments) it states that:

Three principles governing the review should be borne in mind. First, the best possible scientific and technical advice should be included so that the IPCC Reports represent the latest scientific, technical and socio-economic findings and are as comprehensive as possible. Secondly, a wide circulation process, ensuring representation of independent experts (i.e. experts not involved in the preparation of that particular chapter) from developing and developed countries and countries with economies in transition should aim to involve as many experts as possible in the IPCC process. Thirdly, the review process should be objective, open and transparent.

OIG Response 53: We believe the draft report's response to this question is appropriate. We have not added the additional information suggested by EPA since it is not clear how EPA's review of studies not included in the major assessments pertains to a review of IPCC's procedures for including all viewpoints.

3. Was EPA aware of editing of final IPCC assessment reports after the reviewers submitted their final comments?

EPA wishes to clarify that the question should be whether any IPCC edits occurred after USG *approval* of the reports, not after reviewer comments were received. It would be expected that the IPCC would make changes after receiving reviewer comments. Assuming the OIG intended for the response to indicate that EPA was not aware of editing of the final IPCC report after *approval*, EPA has no concerns with the OIG response.

OIG Response 54: We acknowledge EPA's comments, but are not providing further changes or clarifications to the report. The question is written as provided to the OIG, and as we asked it to EPA personnel during the course of our evaluation.

4. Was the Endangerment Finding's Technical Support Document (TSD) subjected to peer review as specified in the EPA Peer Review Handbook? If not, please provide EPA's explanation for why it was not.

As currently written, this response appears inconsistent with OIG's main report. For example, as pointed out above, the first sentence of the OIG answer states that the peer review process for the TSD would not satisfy requirements for "influential scientific information." This is inaccurate, inconsistent with the OIG report itself, and should be corrected.

We refer OIG to our comments on the main body of the OIG report where we describe in detail that each step undertaken for the expert review of the TSD followed EPA and OMB information quality guidelines for peer review. We would also note that this response should include the context that the assessments of the NRC, the USGCRP and the IPCC are themselves subject to high standards of external peer review. The TSD, as described more fully earlier in EPA's response, is a summary of the findings of these previously peer-reviewed assessment reports.

OIG Response 55: The OIG response to the Senator's question is consistent with other statements in the report. The *Peer Review Handbook*, on pages 2–4, specifically recommends that EPA follow certain procedures for planning (e.g., create peer review record), conducting (e.g., ask reviewers to prepare peer review report), and completing (e.g., prepare Agency response to reviewer comments) peer reviews for both influential scientific information and highly influential scientific assessments. While the Agency has discretion to choose the peer review mechanism for influential scientific information (e.g., letter reviews, ad hoc panels), the handbook recommends that the Agency follow certain procedures for planning, conducting, and completing peer reviews for both influential scientific information and highly influential scientific assessments.

5. EPA has acknowledged sending the Draft TSD to a group of federal climate change experts for review. Apparently this was done for a number of versions of the Draft TSD. Were changes made to the Draft TSD based on these federal reviewers' comments? Did this process follow EPA's, as well as OMB's, peer review guidelines?

The answer to this question is addressed in the main body of the report, and it is not clear that a separate response here is needed if it does not provide a full accounting or context.

We disagree with OIG's statement that:

> *EPA did not maintain documentation showing its responses to and disposition of comments reviewers made to the versions of the TSD that accompanied the proposed and final actions*.

OIG Response 56: This statement is correct. The OIG asked EPA for its responses to the federal climate change reviewers' comments on the versions of the TSD that accompanied the proposed and final actions, which would include statements on whether it agreed or disagreed with the reviewers' comments and how it addressed the comments (e.g., deleted/added a sentence, made edits to a sentence). EPA did not develop responses to reviewers' comments for the last two reviews of the TSD performed by the federal climate change reviewers. The OMB peer review bulletin and EPA *Peer Review Handbook* call for the preparation of responses to reviewer comments.

It is also incorrect to say that:

> *The federal climate change expert review of the TSD did not follow the recommended procedures outlined in the Peer Review Handbook or OMB's guidelines for peer review of influential scientific information or highly influential scientific assessments*.

EPA believes the TSD is an ISI and that the reviews conducted for the TSD went beyond the requirements for what is required for an ISI in the EPA Peer Review Handbook. The draft TSD was reviewed by 12 federal climate change science experts. Each of these individuals has significant scientific credentials and represents the balance of expertise needed to cover the range of topics summarized in the TSD. The OIG report does not describe the credentials of the 12 reviewers, and we view this as a fundamental omission because it is one of the most important criteria for a credible and robust peer review. As discussed above, the review provided for the TSD was comprehensive and fully appropriate for the nature of the document – a summary of existing peer-reviewed scientific assessments. EPA never viewed the TSD as a scientific assessment and did not weigh the science, draw any new conclusions, nor identify or fill gaps in the science. The charge to the federal expert reviewers was: ... *to provide us with any general or detailed comments whether or not the TSD is a fair and accurate reflection of the current state of climate change science, as embodied in the major assessment reports such as IPCC, USGCRP/CCSP and NRC.*

OIG Response 57: The statement has been revised to say "the federal climate change expert review of the TSD did not follow all recommended procedures outlined in the *Peer Review Handbook* or OMB's guidelines for peer review of influential scientific information or highly influential scientific assessments." This statement concerns whether EPA followed procedures for the peer review of influential scientific information and highly influential scientific assessments as outlined in the EPA *Peer Review Handbook* and OMB peer review bulletin. The handbook outlines recommended procedures for planning (e.g., create peer review record), conducting (e.g., ask reviewers to prepare peer review report), and completing (e.g., prepare Agency response to reviewer comments) a peer review for influential scientific information and highly influential scientific assessments. The federal climate change expert review of the TSD did not follow all recommended procedures in the handbook for influential scientific information or highly influential scientific assessments. For example, as noted in the draft report, the following items specified in the handbook were not developed or obtained:

- Formal peer review record
- Peer review report
- EPA's response to the reviewers' comments on the TSD versions that accompanied the proposed and final rules
- Written management approval of EPA's response to the reviewers' comments on the TSD that eventually accompanied the ANPR

Similarly, the bulletin outlines procedures/requirements for the selection of reviewers (e.g., independence from sponsoring agency), providing reviewers with sufficient background information, public participation in peer review, preparation of a peer review report, and authorization to have a separate entity carry out peer review. The federal climate change expert review of the TSD did not follow all procedures/requirements in the bulletin for highly influential scientific assessments. For example, the Agency did not consider asking the public to nominate reviewers nor did it ask the reviewers to prepare a peer review report.

The three rounds of expert review were consistent with the EPA Peer Review handbook, which recommends the inclusion of a clear charge, that no conflicts of interest exist, a timeline for review, and documentation of comments and responses. All of the reviewer comments were maintained, multiple versions of the draft TSD were archived, all peer reviewers were disclosed, and EPA submitted a memo to the record (see EPA-HQ-OAR-2009-0171-11639) documenting

all the changes to the TSD that were made in response to all levels of comments. This detailed process was completed for all three rounds of federal expert review, not just for the ANPR, as stated by the draft OIG report. EPA has maintained documentation for all of the comments received from federal experts and its response to these comments. Furthermore, although EPA did not docket the comments from the federal expert reviewers, the public was given two full opportunities to comment on the TSD: once during the ANPR (a 120-day comment period) and again following the proposed endangerment finding (a 60-day comment period including two public hearings). Although EPA recognizes that a single peer-review report with one table itemizing all of the comments received during the three rounds of federal expert review and how they were responded to would have provided the OIG with a simpler way for the OIG to consider all comments and responses at once, all basic core requirements have been met and the OIG should so state in this question response. If the OIG's conclusion is that, although the requirements are satisfied, the information should have been presented more clearly, it should state so.

OIG Response 58: EPA did not develop responses to reviewers' comments for the last two reviews of the TSD performed by the federal climate change reviewers, as required by the OMB Peer Review Bulletin. EPA maintained documentation showing whether changes were made in response to reviewers' comments, but not showing its assessment of the comments, including reasons for rejecting comments.

6. Assess the Interagency review process used in developing the Endangerment Finding. Were there significant interagency comments on the finding? How were these resolved?

The OIG response contains an ambiguous statement that "In two instances, EPA's actions to address the OMB/interagency comments did not appear to be directly responsive to the comments." EPA is not provided with any information regarding what is being referred to by this statement, and this appears to be the first time here that the OIG is questioning a substantive response to an interagency comment. This seems to be outside the scope of OIG's *procedural* review, and in any case is unfounded, since OMB cleared the document. This clearance meant that OMB was satisfied that all interagency comments had been dealt with satisfactorily.

OIG Response 59: The draft report acknowledged that "OMB approved all EPA actions and responses to OMB/interagency review comments." Our independent review of OMB/interagency comments and EPA's responses to those comments found that two of EPA's responses were not directly responsive to OMB/interagency comments. However, we do not believe these two instances to be significant. Thus, we added further clarification to the final report to state that (1) we did not find these two instances to be significant, and (2) OMB approved all EPA responses.

7. In recent months a number of e-mails from the Climatic Research Unit ("CRU") of the University of East Anglia in the United Kingdom were released. EPA has claimed that these e-mails do not affect the fundamental findings of the IPCC assessment reports. What analyses has EPA conducted to reach this conclusion, in particular its conclusion regarding the HadCRUT temperature dataset and its relation to other data sets used in the endangerment finding from NOAA [National Oceanic and Atmospheric Administration] and NASA [National Aeronautics and Space Administration]?

The OIG correctly notes that EPA evaluated concerns related to the CRU/HadCRUT temperature record as part of a two-step process. The first step of EPA's evaluation was after the public

comment period but prior to finalizing the Endangerment and Cause or Contribute Findings. The second was in response to the Petitions for Reconsideration. The OIG also correctly notes that even absent the CRU temperature dataset, the scientific evidence overwhelmingly points towards a long-term trend of global warming, as communicated by the NOAA/NCDC Director.

The OIG's response to Senator Inhofe's question incorrectly states that "*EPA did not provide OIG with documentation for either step that showed it had independently verified the temperature records for CRU, NOAA, or NASA*." As correctly noted by the OIG in the report, "EPA relied on external peer review and investigations of the datasets, as well as the larger body of scientific evidence, to ensure that data met Federal and Agency information quality guidelines." However, a complete answer should also indicate that EPA evaluated the implications of the CRU E-mails in-depth in EPA's Response to the Petitions to Reconsider the Endangerment Finding. Issues regarding the scientific implications of the emails for the fundamental findings of the IPCC assessment reports were addressed in Volume 1 of the Response to Petitions, including more than 70 pages of analysis based on questions by petitioners regarding the HadCRUT, NOAA, and NASA temperature records.

In order to respond to the petitions, EPA staff read and reviewed *all* the CRU E-mails, evaluated quotes highlighted by petitioners in their full context, and reviewed the underlying literature in order to determine whether the petitioners had raised any issues that would change the conclusions reached in the assessment reports on which the Administrator relied for the Findings. EPA found that for the issues raised by petitioners, the assessment reports were consistent with the underlying literature, and that the assessment reports and the literature recognized and appropriately discussed the uncertainties that were highlighted by petitioners in the CRU E-mails. EPA also reviewed the five recent inquiries and investigations and found that all five investigations reached conclusions consistent with those reached independently by EPA.

With regards to the HadCRUT, NOAA, and NASA temperature records, EPA read the peer-reviewed literature describing the methodologies used by the three research groups for collecting and analyzing temperature data. EPA considered the CRU E-mails, the complete unadjusted and adjusted data from NOAA and NASA as well as the available data from HadCRUT, the publically available code from NASA, the reconstructions of the HadCRUT and NASA results by independent groups, and the observations of a warming system based on other indicators such as satellite data, retreating glaciers, and rising sea levels. Based on this analysis, EPA was able to determine that objections by petitioners that the temperature records were flawed based on "station dropout" and alleged inappropriate data adjustments were unfounded, and that the consistency between different methodologies and indicators was strong confirmation of an unambiguous warming trend over the last 100 years.

We also note that a recent NOAA OIG report examined all 1073 CRU emails in the context of an investigation into whether inappropriate manipulation of temperature datasets occurred and stated that they "did not find any evidence that NOAA inappropriately manipulated data."

OIG Response 60: We added a statement to our response to question 7 in appendix A of the final report that notes EPA's review of CRU e-mails and underlying literature as part of its evaluation and response to petitions. However, we believe that our report provides an appropriate and accurate response to the Senator's question. Our review of EPA's response to petitions document found that EPA did not conduct its own independent verification of the temperature datasets. Instead, it based its conclusions on the factors noted in appendix A.

C. Title of the Draft Report Leaves Room for Misinterpretation

We believe the title should reflect the procedural nature of the evaluation and should not imply that OIG evaluated the inherent quality of the information supporting the Finding. We recommend modifying the title to: *Procedural Review of Greenhouse Gases Endangerment Finding Information Evaluation Processes*. This would help to avoid misinterpretation that the Report examined the quality of the information itself.

OIG Response 61: Our evaluation focused on the data quality procedures EPA used in developing the endangerment finding. These procedures are intended to provide assurances that the data are of sufficient quality for their intended use. We believe the title appropriately describes the focus of our evaluation.

D. Appropriate EPA Office for Draft OIG Recommendation Regarding Document, *A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information*

The Office of Environmental Information should not be named as the recipient of this recommendation as OEI has no responsibility for the *Assessment Factors* document.

OIG Response 62: We removed the Assistant Administrator for Environmental Information and Chief Information Officer as an action official for recommendation 3 of the report. The recommendation was co-addressed to this official because the Office of Environmental Information helped develop and co-signed the subject guidance document.

E. New Science Information

The last item we would request that the OIG consider for context is that the scientific assessments published since the time of the 2009 endangerment finding have reaffirmed the scientific conclusions EPA relied upon in making the endangerment finding. For example, the 2011 NRC report, "Climate Stabilization Targets," states, "Evidence now shows that the increases in these [greenhouse] gases very likely (>90 percent chance) account for most of the Earth's warming over the past 50 years." Another 2011 NRC report, "America's Climate Choices," states that "Climate change is occurring, is very likely caused by human activities, and poses significant risks for a broad range of human and natural systems. Each additional ton of greenhouse gases emitted commits us to further change and greater risks. In the judgment of the Committee on America's Climate Choices, the environmental, economic and humanitarian risks of climate change indicate a pressing need for substantial action to limit the magnitude of climate change and to prepare to adapt to its impacts."

OIG Response 63: These publications are outside of the scope of the OIG's evaluation. As stated in the "Limitations" section of our Scope and Methodology, we did not examine the scientific merit of the information supporting EPA's endangerment finding.

OMB Comments on Draft Report and OIG Evaluation of OMB Comments

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

June 17, 2011

Wade T. Najjum
Assistant Inspector General for Program Evaluation
United States Environmental Protection Agency
Washington, D.C. 20460

Dear Mr. Najjum:

Thank you for the opportunity for the Office of Management and Budget (OMB) to provide comments on your office's draft report entitled "Procedural Review of Greenhouse Gases Endangerment Finding Data Quality Processes," dated May 3, 2011 (Draft Report).

The Draft Report notes that your office was asked to determine, among other questions, whether EPA followed OMB's peer review guidelines in preparing the Technical Support Document (TSD) accompanying EPA's "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act." 74 Fed. Reg. 66496 (2009) (Endangerment Finding). The Draft Report notes (at page 15) that EPA had the TSD reviewed by a panel of climate change scientists, and that the methodology employed for this review was an appropriate exercise of the discretion afforded the agency for peer reviews of "influential scientific information," as defined in OMB's Final Information Quality Bulletin for Peer Review (OMB Bulletin). However, the Draft Report concludes that the TSD met OMB's definition of a "highly influential scientific assessment," and that the TSD did not satisfy all of the peer review procedures that OMB had established in the OMB Bulletin for a "highly influential scientific assessment."

As the author of the OMB Bulletin, and as OMB explained in the comments that OMB provided to your office regarding this TSD on April 15, 2011 (which are contained in Appendix G of the Draft Report), OMB believes that EPA reasonably interpreted the OMB Bulletin in concluding that the particular TSD that EPA prepared in this case did not meet the Bulletin's definition of a "highly influential scientific assessment":

1. Section 1(7) of the OMB Bulletin defines a "scientific assessment" as "an evaluation of a body of scientific or technical knowledge," including "state-of-science reports." In this case, EPA concluded that it was the separate, pre-existing and peer-reviewed assessments by IPCC, USGCRP, and NRC that constituted such evaluations of the state of the science. As EPA explained at the time, these three preexisting peer-reviewed assessments "evaluate[d] the findings of numerous individual peer-reviewed studies in order to draw more general and overarching conclusions about the state of science," and "synthesize[d] literally thousands of individual studies and convey[ed] the consensus conclusions on what the body of scientific literature tells us." 74 Fed. Reg. at 66511.

OIG Response 1: We agree with OMB that the IPCC, USGCRP, and NRC assessments that EPA used to support its endangerment finding did, in fact, meet OMB's definition of a "scientific assessment." However, in synthesizing the findings, conclusions, and other information from these assessment reports (and other sources) in its TSD, EPA was evaluating the state of science and producing an entirely new and separate document that also met OMB's definition of a "scientific assessment."

We note that the Agency stated in its endangerment finding that it gave "careful consideration to all the scientific and technical information in the record" but relied on the assessments of the USGCRP, ICPP, and NCR as the primary scientific and technical basis for the finding. EPA's TSD referenced multiple sources, including "up-to-date" data from sources other than the "major scientific assessments." Specifically, EPA cited 28 core references in its TSD. In evaluating the scientific information, the Agency "placed limited weight on the much smaller number of individual studies that were not considered or reflected in the major assessments." EPA reviewed such studies "largely to see if they would lead EPA to change or place less weight on the judgments reflected in the assessment report." The Agency stated in the endangerment finding that "the studies did not change the various conclusions or judgments EPA would draw based on the assessment reports."

2. The TSD accompanying EPA's decision provided a condensed form of the three underlying peer- reviewed assessments and, with respect to the key conclusions in the Endangerment Finding, the TSD is in many respects simply a word-for-word transcription of the summary conclusions that are contained in those peer-reviewed assessments. Rather than creating a new assessment, we understand that EPA instead relied on the three pre-existing peer-reviewed assessments, and - rather than requiring interested persons to read the entirety of these lengthy assessments - EPA included in the TSD a reader-friendly version of those passages (from those pre-existing peer-reviewed assessments) on which EPA was relying for making its determination.

OIG Response 2: OMB's response to the OIG draft report emphasizes EPA's reliance on "the major scientific assessments of the USGCRP, IPCC, and NRC" as the primary scientific and technical basis for the Administrator's endangerment finding. However, EPA used more than "three pre-existing peer-reviewed assessments," as OMB suggests, as references for its TSD. As explained in OIG Response 1 above, the Agency considered and cited other sources of information in its TSD.

Descriptions in the endangerment finding and TSD show that the Agency placed value judgments on certain sources of information. EPA synthesized conclusions and scientific findings from various assessment reports, and other sources, in a single document that had as a stated purpose "to provide scientific and technical information for an endangerment and cause or contribute analysis regarding greenhouse gas (GHG) emissions." Nowhere in the TSD does it state that the purpose of the document is to "provide a reader friendly version" of the underlying assessments. EPA also evaluated, and weighed, a broader universe of scientific information than simply the major assessments of USGCRP, IPCC, and NRC.

3. We believe EPA reasonably concluded that it was the three pre-existing peer-reviewed assessments that were identified in the TSD, and not the TSD itself, that proved "highly influential" to EPA's determination in its Endangerment Finding.

In this regard, it is important to recognize that the OMB Bulletin does not characterize as "highly influential" every agency document that identifies the evidence upon which an agency relies in making its decision, including in the case of rulemaking decisions. Here, the Endangerment Finding noted that EPA had concluded that these three pre-existing peer-reviewed assessments "represent the best reference materials" on which EPA was prepared to rely, and therefore that EPA had "no reason to believe that putting this significant body of work aside and attempting to develop a new and separate assessment would provide any better basis for making the endangerment decision." Accordingly, EPA determined that EPA would not "perform a new and independent assessment of all of the underlying climate change science." 74 Fed. Reg. at 66511. Thus, this particular TSD served a very different purpose than have other EPA-prepared documents such as Integrated Science Assessments (ISAs) that EPA has developed when it is considering making changes to National Ambient Air Quality Standards (NAAQS). For example, EPA describes the 2008 ISA that EPA developed for sulfur oxides as a "concise review, synthesis, and evaluation of the most policy-relevant science" that "form[edl the scientific foundation for the review of the primary (health-based) NAAQS" for sulfur oxides and was subject to an external peer review process through the Clean Air Scientific Advisory Committee. EPA, Integrated Science Assessment (ISA) for Sulfur Oxides - Health Criteria (Sept. 2008) at 1-1, available at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=198843.

By contrast, the TSD that EPA prepared in connection with the Endangerment Finding did not provide a synthesis of the state of the science, and this TSD did not serve as the scientific foundation for the Endangerment Finding. Rather, in the case of the Endangerment Finding, it was the pre-existing peer-reviewed assessments that provided a "state-of-science" synthesis as well as the scientific foundation for the agency's finding.

OIG Response 3: We agree that the major assessments cited in EPA's TSD are "highly influential." We also believe that the TSD is "highly influential." As noted in OIG Response 2 above, the stated purpose of the TSD was "to provide scientific and technical information for an endangerment and cause or contribute analysis regarding greenhouse gas (GHG) emissions." EPA classified its endangerment and cause or contribute findings for greenhouse gases as a Tier 1, significant regulatory action because it raises novel policy issues. The TSD provided scientific and technical information to support that action. For that reason, and because the TSD synthesizes information from multiple sources (beyond just those of the USGCRP, IPCC, and NRC assessments), the TSD itself should be considered a highly influential scientific assessment, subject to the applicable OMB peer review requirements for that type of information.

4. The Draft Report relies, in support of its contrary application of the OMB Bulletin, on a statement that OMB made to your office last September, which OMB provided in response to questions that your office had posed to OMB last August. (The questions and responses are contained in Appendix F to the Draft Report.) In this regard, we note that OMB made this statement in response to questions posed by your office of a general nature, and not with reference to any particular document. Neither your office's general question, nor OMB's general response, referred to the TSD in this case. When evaluating whether a proposed course of action complies with the Bulletin's requirements, the primary focus should be on the text of the Bulletin, because it is the Bulletin that outlines the formal, public and authoritative direction by

OMB to agencies regarding these peer review requirements.

Moreover, the statement that OMB made last September, in response to your office's general questions, is entirely consistent with EPA's conclusion that the TSD which EPA prepared in connection with the Endangerment Finding was not a "highly influential scientific assessment." In the statement from last September, OMB noted that a document "summarizing the 'state of the science'" would qualify as a "scientific assessment," because such a document "implicitly or explicitly weighs the strength of the available evidence" (see Appendix F of the Draft Report, page 46). In this case, for the reasons stated above, that statement describes the syntheses that are reflected in the pre-existing peer-reviewed IPCC, USGCRP, and NRC assessments, which were "state of the science" assessments. But this statement does not describe the TSD here, and that is because this TSD did not "implicitly or explicitly weigh[] the strength of the available evidence." Rather, it was the three pre-existing peer-reviewed assessments that did so, and - as noted above -EPA decided to make its Endangerment Finding based on those pre-existing peer-reviewed assessments rather than taking the alternative course to "perform a new and independent assessment of all of the underlying climate change science."

OIG Response 4: We continue to believe that the TSD is a scientific assessment based on the definition in the OMB peer review bulletin. EPA evaluated a body of scientific knowledge and synthesized multiple factual inputs in the development of the TSD for the stated purpose of "provid[ing] scientific and technical information for an endangerment and cause or contribute analysis regarding greenhouse gas (GHG) emissions from new motor vehicles and engines under Section 202(a) of the Clean Air Act." Specifically, EPA's TSD lists 28 separate core references, with 24 of them coming from IPCC, USGCRP (CCSP), and NRC. The other four references included information from NOAA and EPA's assessment of the literature on the effect of climate change on air quality. By relying primarily on assessment reports from IPCC, USGCRP (CCSP), and NRC, EPA placed a value judgment on these sources of information. It is clear that EPA pulled from multiple inputs and synthesized them into a single document—the TSD. EPA also made decisions as to which information from these assessments to include in and exclude from its TSD.

OMB's comments to the draft report imply that the OIG was too vague or general in an attempt to clarify OMB guidance. We contacted OMB in July 2010, requesting to speak to the contacts listed in the OMB information quality guidelines guidance and the OMB peer review bulletin. We were subsequently told by OMB personnel to work through the Assistant General Counsel. The Assistant General Counsel asked us to submit written questions, and we submitted questions, along with the Senator's request letter. In an August 11, 2010, e-mail, we requested clarification on OMB's information quality and peer review guidelines as they relate to (1) reviewing another organization's data quality and peer review procedures prior to disseminating information from a scientific assessment published by that organization, and (2) defining a scientific assessment. We were transparent in explaining the assignment we were conducting. Our August 11, 2010, e-mail stated:

> The EPA OIG is currently evaluating EPA's development of its endangerment and cause or contribute findings for greenhouse gases. Our objective is to determine whether EPA followed key federal and Agency regulations and policies in developing and reviewing the technical data used to support and make its endangerment finding. This evaluation was initiated based on a request from Senator James M. Inhofe, Ranking Member, Senate Committee on Environment and Public Works. Attached below are copies of the Senator's request letter and the OIG's notification memo to EPA's Assistant Administrator for Air and Radiation.

The Assistant General Counsel e-mailed the responses to our questions with a cc to the Deputy General Counsel on September 10, 2010. This e-mail exchange was just one component of many sources used in forming our conclusion.

Given EPA's decision to rely directly on those pre-existing peer-reviewed assessments, EPA could have reasonably (and justifiably) concluded that the OMB Bulletin does not require

an agency to perform an entirely new (duplicative) peer review - for statements which are contained in pre-existing peer-reviewed assessments on which the agency is directly relying - simply because the agency has decided to include, in an agency-prepared document for ease of use by the public and stakeholders, summaries of the relevant passages from those peer-reviewed assessments on which the agency is relying. Such a conclusion would be consistent with the OMB Bulletin, which states that the Bulletin's requirements for more intensive peer review "apply only to the more important scientific assessments" disseminated by agencies. OMB Bulletin at 2.

OIG Response 5: We have not called into question EPA's charge to the federal reviewers that reviewed the TSD. Further, it is not our position that EPA should have required a duplicative peer review of the science included in the underlying references cited in EPA's TSD. Instead, it was our conclusion that a peer review of the TSD should have been conducted according to the requirements outlined in OMB guidance, and EPA's *Peer Review Handbook*, for highly influential scientific assessments.

Also, as explained in chapter 2 of the final report, EPA did not characterize the TSD as influential scientific information (or as a highly influential scientific assessment) during the action development process. EPA first characterized the TSD as influential scientific information in response to our draft report.

We hope that these views are helpful in your consideration of how EPA applied the guidelines set forth in the OMB Bulletin to the TSD which EPA prepared in connection with its Endangerment Finding.

Sincerely,

Michael A. Fitzpatrick
Associate Administrator
Office of Information and Regulatory Affairs

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