

FEDERAL LAND MANAGERS'
AIR QUALITY RELATED VALUES
WORKGROUP (FLAG)

RESPONSE TO PUBLIC COMMENTS
ON DRAFT PHASE I REPORT



U.S. FOREST SERVICE – AIR QUALITY PROGRAM
NATIONAL PARK SERVICE – AIR RESOURCES DIVISION
U.S. FISH AND WILDLIFE SERVICE – AIR QUALITY BRANCH

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APPENDIX

SUMMARY OF PUBLIC COMMENTS ON DRAFT FLAG PHASE I REPORT

A. INTRODUCTION

The Federal Land Managers' Air Quality Related Values Work Group (FLAG) was formed to develop a more consistent approach for the Federal Land Managers (FLMs) to evaluate air pollution effects on their resources. Of particular importance is the New Source Review (NSR) program, especially in the review of Prevention of Significant Deterioration (PSD) of air quality permit applications. The goals of FLAG have been to provide consistent policies and processes both for identifying air quality related values (AQRVs) and for evaluating the effects of air pollution on AQRVs, primarily those in Federal Class I air quality areas, but in some instances, in Class II areas. FLAG members include representatives from the three FLMs that administer the nation's Federal Class I areas: the U.S. Department of Agriculture Forest Service (USDA/FS), the U.S. Department of the Interior National Park Service (NPS), and the U.S. Fish and Wildlife Service (FWS).

This *Response to Public Comments on Phase I Report* accompanies the FLAG Phase I report. The FLAG Phase I report describes the work accomplished in Phase I of the FLAG effort. That work includes identifying policies and processes common to the FLMs and developing new policies and processes using readily available information. The Phase I report provides State permitting authorities and potential permit applicants a consistent and predictable process for assessing the impacts of new and existing sources on AQRVs, including a process to identify those AQRVs and potential adverse impacts. The report also discusses non-new source review considerations and managing emissions in Federal areas.

The FLAG Phase I report also focuses on the effects of the air pollutants that could affect the health of resources in Class I areas, primarily pollutants such as ozone, particulate matter, nitrogen dioxide, sulfur dioxide, nitrates, and sulfates. FLAG concentrated on three effects issues: (1) visibility impairment; (2) terrestrial effects of ozone; and (3) aquatic and terrestrial effects of wet and dry pollutant deposition. FLAG formed a subgroup to address each of these issues. The Phase I report consolidates the results of each effects subgroup, as well as the policy subgroup. The chapters prepared by these subgroups contain issue-specific technical and policy analyses, recommendations for evaluating AQRVs, and guidelines for completing and evaluating NSR permit applications. These recommendations and guidelines are intended for use by the FLMs, permitting authorities, NSR permit applicants, and other interested parties. The report also includes background information on the roles and responsibilities of the FLMs under the NSR program.

In Phase I, FLAG findings and technical recommendations underwent scientific peer review, as well as review by agency decisionmakers, such as Class I area Park Superintendents, Refuge Managers, and Forest Supervisors. FLAG products have also undergone public review and comment. A "notice of availability" of the draft FLAG report was published in the *Federal Register*, and the FLMs conducted a public meeting to discuss the draft FLAG report and provided a 90-day public comment period.

During the public comment period, the FLMs received many comments. The FLMs considered all comments received and revised the Phase I report accordingly. This "Response to Public Comments" document discusses the public comments and provides the rationale for accepting or

rejecting the comment. Many of the comments addressed common themes. Therefore, to the extent possible, the FLMs responded to common issues raised, rather than addressing each comment individually. The FLMs' responses to specific Policy, Visibility, Ozone, and Deposition issues follow in subsequent sections of this report. Please note that although the comment/response format for each subgroup is somewhat different, each subgroup did consider all comments. The Appendix includes a list of all public commenters (in no particular order), and a brief summary of issues raised in their comments. Finally, the FLMs appreciate the interest shown in the FLAG process. The FLAG Phase I report benefited from the public review process and is an improved report as a result of public comments received.

B. RESPONSE TO POLICY COMMENTS

This section identifies, and responds to, “recurring themes” found throughout the public comments on the policy sections of the draft FLAG Phase I report. Approximately 40 commenters addressed policy issues within the draft FLAG report. The following 11 repeated comments have been prioritized according to the number of responses per issue. Following the section dealing with FLM responses to the 11 recurring themes is a separate section dealing with 15 individual/specific comments.

Major Recurring Themes and FLM Responses

1. Comment: Several commenters stated that by asking permit applicants to perform AQRV impact analyses, FLAG exceeds the FLM's statutory authority by shifting the burden of proof from the FLM to the permit applicant when the PSD Class I increment is not violated. The commenters assert that when the increment is not violated, it is the FLM's responsibility to perform all AQRV analyses.

Response: The commenters' assertion that a permit applicant is not required to perform an AQRV impact analysis unless the proposed source would cause or contribute to a Class I increment violation is incorrect. The applicant must perform the AQRV analysis as part of a complete application, regardless of the increment status. The legislative history and current EPA regulations and guidance support the FLMs' position that it is the applicant's responsibility to provide the information necessary to allow the FLM to make an informed decision about potential deterioration of air quality in a Class I area and potential adverse impacts on AQRVs. (See EPA's *New Source Review Workshop Manual* (October 1990), *Guideline on Air Quality Models (Revised)* (EPA-450/2-78-02R (Revised 1996)), *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 1 Report: Interim Recommendation for Modeling Long Range Transport and Impacts on Regional Visibility* (EPA-454/R-93-015, April 1993). For example, EPA's *New Source Review Workshop Manual*, which has been widely disseminated to permitting agencies and relied on in permit appeals (See *Inter-Power of New York, Inc.*, 5 E.A.D. 130, March 16, 1994), states on page E.12, “When a proposed major source's or major modification's modeled emissions may affect a Class I area, the **applicant analyzes the source's anticipated impact on visibility and provides the information needed to determine its effect on the area's other AQRVs.**” (emphasis added). Other references throughout Chapter E also refer to the applicant's AQRV analysis (e.g., page E.20 states that EPA recommends that the State not consider a permit application complete “until the FLM certifies that it is “complete” in the sense that it contains adequate information to assess adverse impacts on AQRVs.”)

A September 10, 1991, EPA Memorandum from the Director, Air Quality Management Division, states that a source is required to perform an AQRV analysis even if it has insignificant impacts on Class I increments. In this policy memorandum, EPA makes clear that the increment test is not to be used for determining whether a source would conduct an AQRV analysis or have an adverse impact on a Class I area. Rather, the FLM determines the need for an applicant to perform a full assessment of impacts on AQRVs based on an analysis of the proposed source's (and other cumulative) potential impacts on a value for that particular Class I area. This analysis is independent of the inquiry into whether a proposed source would have a significant impact on any

applicable Class I increment. In addition, the visibility protection provisions require FLM notification of a proposed source that may affect visibility in a Class I area and that notification “must include an analysis of the anticipated impacts on visibility.” (See 40 CFR 51.307(a)(1)).

As stated in the FLAG report, the FLMs believe that those wishing to add pollution to the air should bear the burden of estimating the potential, resulting concentrations of air pollutants that affect AQRVs, both from the individual source and the cumulative impacts. FLMs view this analysis as just one part of the permit application. It is the permit applicant's responsibility to provide BACT and increment/NAAQS modeling analyses to enable the permitting authority to determine whether the proposed source complies with these requirements. Similarly, the permit applicant should provide analyses that project fine particle concentrations and deposition associated with sulfur and nitrogen oxide-related emissions from the proposed source or modification. To assist the permit applicant in performing any necessary AQRV-related analyses, the FLMs will provide all available information about any AQRV for that particular federal Class I area that may be adversely affected by emissions from the proposed source and recommend methods the applicant should use to analyze the potential effects on such AQRV(s).

Several commenters suggested that, because it is the FLM's responsibility to make an adverse impact demonstration, it is also the FLM's responsibility to perform any air quality analyses needed to assess AQRV impacts. The FLMs agree that when the Class I increments are not violated, it is the FLM's responsibility to “demonstrate” to the permitting authority that a proposed source would cause or contribute to adverse impacts on AQRVs. However, this demonstration is to be based on the applicant's analyses of changes in relevant air quality parameters (*e.g.*, visibility extinction, acid deposition), and these analyses are required as part of a complete application. The FLM then considers the results of these analyses and any other relevant information in the adverse impact demonstration. If the FLM determines adverse impacts would occur, the FLM would bear the burden of demonstrating such to the permitting authority. If the permitting authority is “satisfied” with the FLM's demonstration, no permit will be issued without mitigation (*e.g.*, emission offsets). FLAG guidance reflects the respective responsibilities of the FLMs, permit applicants, and permitting authority, and does not shift any burden from one party to another.

Furthermore, Section 165 of the Clean Air Act (CAA) sets forth no statutory “burden” relating to whom should bear the costs for studying the impacts of a proposed facility on Class I areas. Therefore, since there is no statutory burden, the question is not whether the burden is being shifted, but rather whether the public or the PSD applicant should pay for analyses that will be used in private ventures. As the statute is silent on this matter, it is well settled that the agency charged with implementing a statute is given deference by the courts to its interpretation, so long as this interpretation is reasonable and not contrary to Congressional intent.

Therefore, the position of the FLMs is, and remains, that the PSD applicant should bear the costs of analyses which will ascertain the impact of the applicant's proposed project on natural resources under the control and jurisdiction of the FLMs, even when this information is used to satisfy the FLMs' affirmative duty to protect Class I areas. Further, as noted above, this position is consistent with long standing EPA practices in its BACT and other programs, and is grounded in law and common sense.

2. Comment: Several commenters state that Clean Air Act section 165(d), 42 U.S.C. § 7475(d), only requires an analysis of an individual permit applicant's impact, as opposed to an analysis of the cumulative impacts of other operating and proposed sources, on Class I areas.

Response: This alleged limited review requirement calling for only an analysis of an individual permit applicant's impact is not present in Section 165. Additionally, to only analyze the anticipated impacts of one individual source, and then to ignore the cumulative impacts of other sources on these same resources, defies logic and would trivialize Section 165's intent. The most logical and most scientifically sound manner in which to assess the real impacts of a proposed pollution source is to consider it as it relates to, and may add to, already present activities, and those permitted polluting activities that are pending but may not already be in operation. To fulfill the affirmative obligation to protect Class I values in PSD applications, as mandated by section 165(d), the FLM must consider a proposed new source in the context of existing and known impacts. Furthermore, Section 165(d)(2)(C)(i) makes clear the need to consider cumulative impacts in making an adverse impact determination. This section states in part, "...where the Federal official...or the Federal Land Manager ...files a notice alleging that emissions from a proposed major emitting facility **may cause or contribute to a change in the air quality...**" (emphasis added)

3. Comment: The FLM should clarify which "very large" sources located greater than 100 km are subject to FLM review.

Response: The FLMs retained the "very large sources" language as it was in the draft FLAG report because that language is consistent with EPA guidance. However, the FLMs added the following clarifying language to better define which sources are of FLM concern (see bottom of page 9 and top of page 10 of the final FLAG report):

"Given the multitude of possible size/distance combinations, the FLMs can not precisely define in advance what constitutes a "very large source" located more than 100 km away that may impact a particular Class I area. Therefore, the FLM and permitting authority should work together to determine which PSD applications the FLM is to be made aware of in excess of 100 km. The FLM and permitting authority should make this determination on a case-by-case basis, considering such factors as:

- Current conditions of sensitive AQRVs;
- Magnitude of emissions;
- Distance from the Class I area;
- Potential for source growth in an area/region;
- Existing/prevaling meteorological conditions;
- Cumulative effects of several sources to AQRVs.

Additionally, such dialogue facilitates coordination between permitting authorities and the FLMs. The significance of the impact to AQRVs is more important than the distance of the source. Not all PSD permit applications that the FLM is notified of will be analyzed in-depth by the FLM. FLM notification of a PSD permit application for a

project located greater than 100 km does not mean that that application will be reviewed by the FLM in detail. Notification of PSD permit applications in excess of 100 km by the permitting authority allows the FLM to gauge the level of potential cumulative effects. As indicated above, the FLM decides which PSD permit applications to review on a case-by-case basis depending on the potential impacts to AQRVs."

4. Comment: Several commenters contend that FLAG is a legislative rule that must comply with the Administrative Procedures Act and other statutory requirements, including an assessment of economic consequences of FLAG implementation.

Response: Although the FLMs have an "affirmative responsibility" to protect AQRVs, they have no permitting authority under the CAA, and they have no authority under the CAA to establish air quality-related rules or standards. The FLM role consists of considering whether emissions from a new source may have an adverse impact on AQRVs and providing comments to permitting authorities (States or EPA). The FLAG report is a guidance document that explains factors and information the FLMs expect to use when carrying out their consultative role. Therefore, it is not a legislative rule subject to informal rulemaking procedures under the Administrative Procedures Act (APA), or any other statutory requirements. Guidance documents themselves do not create rights and responsibilities under the law, and guidance documents are not legally binding on outside parties or on the agencies. Instead, guidance documents explain how the agency believes the law applies to certain regulated activities. As such, it is not binding on the agency or the public; that is, it represents the agencies' current thinking on the kinds of information permittees should include in permit applications so the FLMs can assess whether the proposed emissions cause or contribute to adverse impacts on AQRVs at Class I areas. For the benefit of the agencies and the public, the FLAG report describes the steps and process that an agency intends to go through in order to perform its statutory duties.

Although FLAG, as a guidance document, cannot legally bind the participating FLMs, each FLM recognizes the value of guidance documents in providing consistency and predictability. Therefore, each FLM will take steps to encourage their employees to conduct their permit reviews consistent with the process in the FLAG report, recognizing that there is flexibility and discretion for case-by-case consideration built into the process. Based on our past experiences, permittees want assurances that the FLMs will act in a certain manner, and that if they (the permittees) follow certain recommended procedures, the FLMs will be satisfied. Moreover, the agencies issue guidance to their staffs so that they will apply the CAA and its regulations in a consistent manner.

Again, the FLAG report is not a rule. Rules are generally defined as agency statements of general applicability and future effect that the agency intends to have the force and effect of law. As discussed above, the FLAG report does not purport to do so.

Finally, even if the FLAG report were something more than a guidance document, the FLMs have complied with the requisite notice and comment procedures required by the APA. The public received notice that the FLMs intended to develop the FLAG report and had the opportunity to comment and to discuss the FLAG report with the FLMs.

5. Comment: Several commenters state that FLAG should not expand FLM review to include Class II lands. They assert that the FLM role regarding AQRV protection under the CAA is limited to Class I areas, not impacts to Class II lands.

Response: The FLMs have significant congressional direction other than the Federal Clean Air Act for protecting lands that they manage. The Property clause of the United States Constitution delegates the power to Congress to make all needful rules respecting property belonging to the United States (U.S. Constitution, Article IV, Section 3, c12). For example, this authority has been delegated to the Secretary of Agriculture and to the Forest Service through the Organic Administration Act of 1897 (16 U.S.C. 551). This Act directs the Secretary of Agriculture to "...make provisions against destruction by fire and depredations upon the public forests and national forests..." The magnitude of air pollution impacts to National Forest System lands can be classified as a depredation. The Organic Administration Act does not specify that certain lands should not be considered for protection from air pollution depredations because of their air quality designation. As such, the Agency should exercise all legal authorities to protect all National Forest Systems lands from air pollution depredations.

The National Park Service's Organic Act (16 U.S.C. 1) directs the National Park Service to:

"...conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations."

This Congressional direction applies to all NPS units, not only those designated as Class I through the Clean Air Act.

The National Wildlife Refuge Administration Act (16 U.S.C. 668dd(a)(4)(B)) directs the Fish and Wildlife Service to manage Refuge System lands to:

"...ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans."

Again, this Congressional direction applies to the management of all Refuge System lands, not only those designated as Class I through the Clean Air Act.

The Wilderness Act of 1964 applies to all wilderness lands administered by the Departments of Interior and Agriculture, not only those lands provided with a certain air quality designation by the Clean Air Act. It is evident in the language of the Wilderness Act that Congress wanted all wildernesses to be protected from human-caused influences.

"Section 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness."

“Section 2. (c) An area...which is protected and managed so as to preserve its natural conditions...”

Air pollution modifies the natural conditions of air quality related values in wilderness.

The Clean Air Act (42 U.S.C. 7401 et. seq.) does not limit federal agencies' responsibilities and authorities in other statutes such as their respective Organic Acts and the Wilderness Act.

“42 U.S.C. 7610 (a) ...this Act shall not be construed as superseding or limiting the authorities and responsibilities, under any other provision of law, of the Administrator or any other Federal officer, department or agency.”

The Clean Air Act provides an opportunity for FLMs and members of the public to make recommendations on major source permitting activities regardless of whether or not the land area under consideration is designated Class I or Class II. Every new source permitted under the Prevention of Significant Deterioration sections of the Clean Air Act must demonstrate that it is installing and operating air pollution control equipment that meets or exceeds a level of control defined as best available control technology (BACT). BACT is determined on a case-by-case basis by the permitting agency which must consider economics, energy costs, and environmental impacts when determining a level of air pollution control to be achieved. FLMs have the opportunity to provide information to the permitting agency on the environmental impacts of the proposed facility. If the FLM can make the case that proposed facility will, by itself or in combination with other sources, cause or contribute to an adverse impact to an air quality related value on Class II or other federal lands, the permitting agency has the authority to require additional control equipment to be installed on the proposed facility to mitigate all or part of the adverse impact.

Given the above direction from Congress on how FLMs should manage and protect federal lands and the opportunities provided by the Prevention of Significant Deterioration sections of the Clean Air Act for protecting all federal lands, it is appropriate for FLMs to extend their review to Class II lands.

In summary, Congress has given FLMs clear direction and authority to protect the lands they administer other than just through the Clean Air Act. Air pollution has the ability to significantly impact lands designated either as Class I or Class II through the Clean Air Act. Congress, in the Clean Air Act, recognized that federal agencies and departments have other statutes to comply with and specifically stated that the Clean Air Act shall not supersede or limit their authorities and responsibilities. It would be inconsistent with other federal law if FLMs did not take advantage of all legal opportunities to prevent air pollution impacts to all the lands they administer including Class II lands. Therefore, it is proper and appropriate for FLMs to exercise their respective authorities in protecting Class II lands from air pollution impacts.

6. Comment: Several commenters stated that FLAG should have included more stakeholder involvement.

Response: As FLAG was being formed, the FLMs considered establishing a multi-stakeholder process under the Federal Advisory Committee Act. However, the FLMs decided that it would be better to first agree on recommended guidance internally, and then seek public input. Nevertheless, information regarding the FLAG effort has been available on the agencies' web sites since December 1997; papers regarding the effort have been presented at professional association meetings (e.g., Air and Waste Management Association); and status has been reported regularly in the trade press (e.g., *Environment Reporter*, *Clean Air Report*). Once the FLMs developed the draft guidance contained in the October 1999 Draft Report, the public received notice that the draft report was available through publication in the *Federal Register*. The *Federal Register* notice also announced an opportunity to comment and to discuss the FLAG report with the agencies at a public meeting. A 90-day public comment period was provided to obtain input from other interested parties. The FLMs considered all comments received, and revised the report where appropriate.

7. Comment: FLAG should not review BACT nor LAER determinations.

- and -

8. Comment: Regarding applicants obtaining emission offsets, States should not require emission offsets if the source would not cause an adverse impact on an AQRV by itself.

Response: The FLMs can review BACT and LAER determinations just like any other interested party can. In addition, the role of the FLM regarding permit conditions is to make recommendations to the permitting authority that will protect or benefit AQRVs. Often the intent of FLM recommendations and comments regarding permit conditions is to mitigate impacts to AQRVs or prevent an adverse impact determination. The FLM does not determine what permit conditions will be required or administer permit conditions; that is the responsibility of the permitting authority. The final FLAG report makes this distinction clear in Appendix D, paragraph 3, regarding BACT, and in the discussion of offsets and LAER under Reducing Pollution in Nonattainment Areas (see page 17, section f, last sentence of first paragraph). Nevertheless, in the final report, the FLMs added the following further clarification to the discussion of air pollution permit conditions that benefit Class I areas:

Pg. 16, "e. Air Pollution Conditions that Benefit Class I Areas"

Added as new opening sentence:

"The FLM does not determine what permit conditions will be required or administer permit conditions; that is the responsibility of the permitting authority."

Reworded original sentence (to become 2nd sentence of paragraph 1, section e.):

"However, the FLMs view the inclusion of certain PSD permit condition by the permitting authority as a means to help protect or enhance the conditions of AQRVs when:"

9. Comment: FLMs need to address/better address fire emissions. Fire emissions can be significant and their impacts should be addressed.

Response: As stated in the FLAG report, the goal of FLAG is to develop a consistent approach on how FLMs evaluate the impacts of air pollution on public land resources with major emphasis on new source review under the Clean Air Act. Fire can have significant short-term impacts on visibility. However, fire and other temporary non-stationary sources are not considered under the new source review requirements of either EPA or States and, accordingly, the fire section in the FLAG report is not extensive.

Nevertheless, there are other venues where FLMs, in concert with EPA and States, are trying to better address fire emissions. For example, EPA's "Interim Air Quality Policy on Wildland and Prescribed Fires, April 23, 1998" considers the impacts of smoke from fire. This policy was the product of deliberations between FLMs, EPA, industry, and other stakeholders..

Also, the emissions from fire and their impacts are currently undergoing review by the Fire Emissions Joint Forum as directed by the Western Regional Air Partnership (WRAP). The WRAP is a group comprised of 12 Western States, and a number of tribal nations, FLMs, and EPA. A major goal of the WRAP is to carry out the recommendations of the Grand Canyon Visibility Transport Commission, which determined that fire could have significant, albeit infrequent, impacts on visibility, but it also acknowledged the need for fire in ecosystem management.

Finally, States are required to consider smoke management in developing their State Implementation Plans for regional haze. It will be during the development of those plans that the specific impacts of fire will be addressed.

10. Comment: More discussion is needed regarding FLAG's relationship to other regulatory programs (*e.g.*, Regional Haze Rule, NEPA, NSR Reform).

Response: The FLMs added the following clarifying language as a new paragraph at the end of section "3. LEGAL RESPONSIBILITES" (see page 5 of the final FLAG report):

It is important to emphasize that the FLAG report is only a guidance document. It is separate from Federal regulatory programs. The scope of the FLAG report is to provide a more consistent approach for the three FLM agencies to evaluate air pollution effects on their resources, and to provide guidance to permitting authorities and permit applicants regarding necessary AQRV analyses. Although FLAG strives to be consistent with regulatory programs and initiatives such as the Regional Haze Rule and New Source Review Reform, no direct ties exist between FLAG and these regulatory requirements.

11. Comment: FLAG is not consistent with Federal authority under the Property Clause of the Federal Constitution because the FLMs are not authorized to regulate non-Federal property.

Response – The FLAG Report is in no way intended to regulate non-Federal property. FLAG is merely a guidance document.

Individual, Non-repeated, Comments and FLM Responses

Note: FLM Reviewers of the public comments attempted to provide responses to all of the repeated themes. Of the remaining comments, the FLMs focused on those that suggested that the FLMs were proposing guidance that was either:

- (1) arbitrary and capricious, or
- (2) beyond the FLM's authority.

1. Comment: "Err on side of protecting AQRVs" quote is not indicative of Congress' true intent.

Response: FLMs disagree with this point; the Legislative history supports the FLMs' position regarding Congressional intent (see page 5 of the FLAG final report).

2. Comment: FLMs' attempt to coerce research funding through the permitting process is not appropriate.

Response: In certain situations, the FLMs may request that the permitting authority require permit applicants to conduct post-construction air quality/AQRV monitoring and/or studies. If the FLMs can convince the permitting authority that such monitoring/studies are needed in order to determine the effect emissions from a proposed source may have on an AQRV, the permitting authority could include such requirement as a permit condition. This is consistent with the post-construction monitoring provisions of the PSD regulations (see 40 CFR 51.166(m)(2)). Examples of such monitoring/studies could include the applicant installing a nephelometer, conducting a stream acidification study, performing a fumigation study to assess ozone exposure/response effects, conducting ambient ozone monitoring, etc.

3. Comment: FLMs should not only focus on PSD sources but should also work with States to develop SIPs targeted at minor and grandfathered source reductions.

Response: This is beyond the scope of FLAG, but the FLMs do work with the States to address the impacts from minor and grandfathered sources.

4. Comment: Supports emissions offsets, but FLAG must clarify how such a program would be administered.

Response: The State/permitting authority would administer any such program.

5. Comment: Definition of AQRVs and the criteria for identifying them need to be sharpened.

Response: The AQRV definition in FLAG is consistent with definitions that appear in other publications and is adequate as written.

6. Comment: A clearer process for identifying "adverse impact" is needed.

Response: FLAG provides more certainty to the adverse impact process and is adequate as written.

7. Comment: Focusing on nonattainment areas and seeking SIP revisions is a waste of the FLMs time --they should focus on their own responsibilities.

Response: FLM responsibilities include the review of SIP revisions, because minimizing the effects of pollutants from nonattainment areas on AQRVs are most effectively addressed through the SIP revision process.

8. Comment: It is troublesome that the FLMs refuse to prioritize AQRVs.

Response: The FLMs consider all AQRVs equally important.

9. Comment: Key information is missing from the FLAG report on which the public cannot comment.

Response: Key information currently available can be found on NPS, FWS, and FS air resource websites. However, all of the information that the FLMs wish to be there is not there at the current time. The websites are “works in progress” and will be fully populated once the information becomes available.

10 Comment: What is the basis for requiring States to revise their SIP to eliminate increment violations even though the FLM certified no adverse impacts for a new source?

Response: A FLM certification of no adverse impacts for a specific source does not relieve the State of the requirement to revise its SIP to correct Class I increment violations (see 40 CFR 51.166(a)(3)).

11. Comment: How would any post-construction monitoring data affect the new source if high levels were monitored?

Response: Post-construction monitoring is a permitting authority decision, not the FLMs. However, the FLMs assume the permitting authority would use any such data to make any necessary revisions to its SIP, which may affect equally the new source as well as existing sources.

12. Comment: FLAG should clarify that the States, not the FLMs, have the statutory authority to make a final determination that a source will have an adverse impact.

Response: The CAA legislation speaks for itself with regard to respective authorities. FLAG does acknowledge that the permitting authority has the ultimate responsibility to issue or deny a permit. However, FLMs have the responsibility to determine that a source will have an adverse impact on our AQRVs, whether the permitting authority agrees or not.

13. Comment: FLAG recommendations would usurp state authority and exceed FLM authority given them in the CAA by establishing standards that are more stringent than NAAQS.

Response: FLAG does not establish any standards.

14. Comment: FLAG should address how and when methodologies and AQRVs will be revised.

Response: The FLMs added the following language as a new section regarding Phase I updates (see page 149 of the FLAG report):

"The FLAG Phase I report is intended to clearly state FLM guidance regarding NSR/PSD as it exists in December 2000. As the FLMs learn more about how to better assess the health and status of AQRVs, and as EPA produces new modeling tools, the FLAG guidance will be revised accordingly. As periodic revisions become necessary, any such revisions will be made to the web-based FLAG report. Any revisions to the report will be clearly stated on the FLAG web site. Additionally, once EPA promulgates the New Source Review Reform regulations, the FLMs may need to revise the FLAG Phase I report to address any inconsistencies that may result."

15. Comment: The requirement for cumulative assessment of visibility and AQRV impacts, and consideration of applying better than BACT controls and obtaining emission offsets, are inconsistent with WY and EPA regulations.

Response: FLAG guidance is consistent with EPA's regulations and guidance. The FLMs assume that Wyoming's regulations are, at a minimum, as stringent as EPA's regulations.

16. Comment: It would be helpful to provide the procedures used to identify the applicable AQRVs for each Class I area and a reference as to where a current AQRV list can be obtained.

Response: Page 6 of the FLAG Report (a. Identifying AQRVs) discusses the procedures used to identify AQRVs. USFS AQRV information is listed on their website for each Class I area. The NPS and FWS websites are under construction. Nevertheless, the FLMs recommend that interested parties contact them directly for current information on AQRVs for specific Class I areas.

17. Comment: FLMs should announce preliminary adverse impact determinations in the *Federal Register* so public can comment.

Response: The permitting procedures included on pages 13 and 14 of the FLAG report provide for separate notice in the *Federal Register*, if time permits and the permitting authority does not provide adequate public notice and participation.

18. Comment: FLAG fails to establish deadlines for FLM action.

Response: The FLMs operate within permitting authority mandated deadlines.

19. Comment: Recommend that FLMs consider incentives to industry, *i.e.*, the FLM could agree to a decreased review time and acceptance of a project if the facility included LAER and agreed-upon offsets in the initial application.

Response: This is a constructive comment that the FLMs will consider doing on a case- by-case basis.

20. Comment: FLMs should publish AQRVs in the *Federal Register* for public comment.

Response: The public has been involved in AQRV identification in the past. There have been appropriate opportunities for public involvement, and the FLMs will continue to provide such opportunities.

C. RESPONSE TO VISIBILITY COMMENTS

This section identifies, and responds to, “recurring themes” found throughout the public comments on the visibility section of the draft FLAG Phase I report.

1. FLAG is Inconsistent with EPA's Regional Haze Rule (RHR)

Basis for Comments: 1) FLAG’s definition of “current conditions” for evaluating possible new source impacts is not defined as the mean of the 20% best days, one of the key metrics used in the EPA regional haze rule.

2) FLAG uses extinction and not deciview as its visibility metric.

3) FLAG should defer to RHR for visibility protection, not PSD.

4) FLAG recommends using 24-hour averages, not annual averages.

General Response: Several commenters raised concerns over perceived conflicts with FLMs' approaches to assessing visibility impacts and the way in which “reasonable progress” is addressed in EPA’s regional haze rule. It is important to distinguish between the visibility protection provisions under PSD and those of the regional haze rule. In general, the FLMs feel there is no conflict between the procedures described in the FLAG report for reviewing the impacts of major new sources on visibility and the provisions of the regional haze rule which apply to States to develop plans to address regional haze conditions. The overall goal of visibility protection, as set forth in 40 CFR Part 51, Subpart P, is to ensure reasonable progress toward the national visibility goal of no man-made impairment in the Class I areas. The provisions of Subpart P include addressing existing sources of “reasonably attributable impairment,” conducting reviews under the Prevention of Significant Deterioration and New Source Review programs for visibility impacts, and implementing the regional haze rule to address existing source impacts on regional haze. The regional haze rule did not change the mechanisms or requirements for FLM participation in and review of major new sources that may affect visibility in Class I areas. As noted in the preamble to the regional haze rule (64 FR 35715) “(t)oday’s final rule established a **comprehensive** visibility protection program for Class I areas.”(emphasis added) The EPA left in place all of the 1980 provisions linking a visibility review of major new sources to State requirements for visibility protection as a means to assure protection of the clearest days as well as the entire distribution of visibility conditions.

Responses to specific issues:

Issue 1: FLAG’s definition of “current conditions” for evaluating possible new source impacts is not defined as the mean of the 20% best days, one of the key metrics used in the EPA regional haze rule.

Response: The goals of new source review for visibility impacts are to assure that new sources, many of which will be operating for decades, do not interfere with the goals of the visibility protection program which is to work toward no man-made impairment. The regional haze rule

tracks the 20 percent clearest days to ensure that programs designed to address the haziest days are not simply set up to “redistribute” effects from the haziest to the clearest days, but in fact improve the entire distribution. The new source review assessment of a single new source should assure that it will have the least effect on the clearest of days so that it does not interfere with the overall long-term goals of the visibility protection program.

The RHR establishes a simple metric for tracking progress towards the national visibility goal of no man-made impairment. The rule selects the mean of the 20% clearest days and the mean of the 20% haziest days, as determined from “reconstructed” extinction based on 24-hour monitored particle concentrations (expressed in deciviews), as the means for tracking this progress.

The FLMs considered using the mean of the clearest 20% days as the FLAG benchmark, but discarded this option because this value often represented severely impaired conditions. It did not seem appropriate that the FLMs not object to an industrial expansion, thereby allowing current conditions to worsen, just because the current conditions were so hazy that the new source's projected contribution might not be evident. Estimated natural background (which is also the long-term goal expressed in the RHR) seemed a more appropriate benchmark.

Issue 2: FLAG uses extinction and not deciview as its visibility metric.

Response: In the case of regional haze, tracking the deciview scale is appropriate for tracking how uniform changes in atmospheric extinction resulting from broad regional changes in emissions affect visibility perception of scenic vistas. However, when reviewing the impacts of a single source, as in the new source permit review procedures, the impacts should be assessed for specific impacts on sight paths and views as well as haze effects caused by that source in a specific Class I area usually less than 300 km away. Changes in extinction coefficients are the better metrics for this type of haze impacts.

The FLMs considered the use of the deciview (dv) metric, but discarded it for new source review applications. The dv is appropriate for the RHR, which addresses visibility impairment across very broad geographic regions due to emissions from sources widely distributed and frequently long distances away. The FLAG prescription is intended for use in new source review applications for sources, at most, 300 km away. The prescription presented in the FLAG report does not address regional haze assessments; consequently, the FLMs recommended the fundamental extinction coefficient as its metric. In any case, the dv and the extinction coefficient are related by a simple mathematical transformation.

Issue 3: FLAG should defer to the regional haze rule for visibility protection, not PSD and NSR.

Response: EPA did not change the PSD and NSR requirements for visibility assessment of major new sources at Class I areas when it revised the overall visibility protection program requirements. The regional haze rule relies on new source review requirements as part of the suite of requirements which work towards the national goal, and in particular, assures that the clearest days, if near natural conditions, remain that clear. In addition, for areas where even the clearest measured days are impaired by man-made emissions, the PSD and NSR review

processes will assure that new sources do not prevent the attainment of the national goal of having those days move towards natural conditions.

Issue 4: FLAG recommends using 24-hour averages, not annual averages like the regional haze rule.

Response: The regional haze rule uses daily monitored data to review the distribution of the clearest and haziest day over a long-term planning horizon. The use of 24-hour data as the basis for assuring that new source impacts are minimal assures the ability to prevent new sources from having a detrimental effect on any part of the distribution of days which are to be improved over time by the regional haze program.

The CAA through the PSD provisions direct the FLMs to exercise affirmative action to protect natural resources for possible injury due to new sources. This responsibility must be carried out in the new source review process and would not be effectively addressed by the long-term RHR provisions. Furthermore, the FLMs are not confident that any averaging time longer than 24-hours would be useful for gauging the contribution of a specific source to visibility impairment in a specific Class I area.

2. Issues Associated with Natural Background Estimates

Basis for Comments: 1) FLAG's assumed natural background estimates are arbitrary.

2) Regional NAPAP estimates are not representative of specific Class I areas and should be improved. The temporal and spatial resolution as well as the overall accuracy of NAPAP natural background estimates are poor.

3) Alternatives are available that are better estimates for certain Class I areas. For example, Grand Canyon Visibility Transport Commission estimates, or clearest conditions based on site-specific monitoring data, may be better for some western Class I areas.

4) The Rayleigh component is set at 10 Mm^{-1} nationwide, yet it can vary with elevation.

5) Contribution of smoke from fires is not included in background estimate.

6) The EPA document, *Workbook for Plume Visual Impact Screening and Analysis (Revised)*, provides values that are different than those proposed in FLAG.

7) The FLMs have no authority to change EPA guidance.

8) The IWAQM Phase 2 report uses different background visibility values.

General Response: The most appropriate visibility goal and benchmark for visibility assessment is one representative of the clearest possible conditions. Therefore, the FLMs have based their recommended new source assessment prescription on natural background reference levels. In addition, EPA guidance on background conditions is flexible and does not preclude the use of different estimates of the background visibility than is described in the various documents.

Responses to specific issues:

Issue 1: FLAG's assumed natural background estimates are arbitrary.

Response: The FLMs recognize the uncertainty associated with estimating natural background for specific Class I areas. The FLMs also understand that the EPA, as part of the RHR implementation, will be providing guidance on how to estimate natural background. Until EPA provides this guidance, the FLMs have chosen to rely on the particulate concentration estimates derived and published by NAPAP (NAPAP, 1990).

Issue 2: Regional NAPAP estimates are not representative of specific Class I areas.

Response: The FLMs recognize that the NAPAP background visibility estimates (including both particle concentrations and estimated humidity effects) are not Class I area specific. The FLMs did refine these estimates to a degree by using interpolated site specific relative humidity data.

Issue 3: Alternatives are available that are better estimates for certain Class I areas.

Response: As stated elsewhere in this response, the FLMs considered using the mean of the clearest 20% days as the FLAG benchmark, but discarded this option because this value often represented severely impaired conditions. The FLMs will reconsider their assumptions for estimated natural condition estimates when EPA provides its technical guidance on the Regional Haze Rule.

Issue 4: The Rayleigh component is set at 10 Mm^{-1} nationwide, yet it can vary with elevation.

Response: The FLMs have adopted a constant Rayleigh contribution to extinction, as practiced by IMPROVE. If the forthcoming EPA guidance recommends an elevationally adjusted Rayleigh term, the FLMs will adopt that recommendation.

Issue 5: Contribution of smoke from fires is not included in background estimate.

Response: The FLMs recognize that smoke has been for the most part omitted from the NAPAP estimates. Only the elemental carbon contribution of smoke from wildland fires was addressed. However, the FLMs are not aware of the availability of better estimates. EPA guidance is also forthcoming on what types of smoke will be considered “natural” and the contribution of this category to natural background.

Issue 6: The EPA document, *Workbook for Plume Visual Impact Screening and Analysis (Revised)*, provides values that are different than those proposed in FLAG.

Response: The *Workbook for Plume Visual Impact Screening and Analysis (Revised)* (EPA-454/R-92-023) includes a map giving “default” values for background visibility. These are based on the median observations from airport data. Those values provide an estimate of the background visibility conditions absent other information. EPA guidance states: “In cases where there is more applicable onsite data, source owners should consult with the Federal Land Manager for the Class I area in question concerning appropriate regional background visual range values for input to VISCREEN or other plume visibility models.” The FLMs consider clean conditions to be the “appropriate regional background visual range” in these analyses and have been using clean conditions in these analyses for many years.

Issue 7: The FLMs have no authority to change EPA guidance.

Response: The FLMs are not changing the guidance. We are following EPA guidance in using more appropriate background visibility values; they are not changing the guidance. Furthermore, the FLMs are charged with making the determinations on a case-by-case basis as to whether emissions constitute an adverse affect on a Class I area, based on frequency, magnitude, and duration of a visibility impairment. The FLAG report is simply delineating some of the criteria the FLMs will use in making that determination.

Issue 8: The IWAQM Phase 2 report uses different background visibility values.

Response: The *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA-454/R-98-019) is primarily directed toward describing long-range transport modeling techniques. The initial thrust of the IWAQM was the application of these modeling techniques to Class I area analyses, especially the impacts on AQRVs. To that extent, the document discusses methods that can be used to evaluate the impacts on AQRVs, including values to use for background visibility conditions. The discussion includes: “The background conditions provided for a Class I visibility analysis will be representative of clean conditions. Changes in visibility are most sensitive under clean conditions. By using clean conditions for all comparisons in a Class I analysis, it ensures that already clean conditions will not be impaired. Additionally, the Clean Air Act states as a national goal that the visibility in Class I areas is to be unimpaired by man-made air pollutants and that any such impairment is to be remedied. To represent clean conditions, the average of the cleanest 20% of the data from IMPROVE, at that site, is generally used. Even the data from the cleanest days usually exhibit some made-made influence. This average of 24-hour values for the 20% cleanest conditions is used as representative of a clean background condition.”

In the course of re-examining what statistic to use to represent clean conditions during the FLAG process, the FLMs examined the 20% cleanest conditions. It became apparent that in many cases, the 20% cleanest measured conditions are still significantly impaired. Furthermore, when even the 5% cleanest conditions were examined, it was evident that these data also included significant impairment, particularly in the Eastern U.S. The FLMs do not find it appropriate to use significantly impaired conditions as a benchmark. Therefore, the FLMs believe that an estimate of natural conditions is the only viable value to use.

Furthermore, the changes between the FLAG report and the IWAQM Phase 2 report were anticipated by IWAQM. The Phase 2 report states:

While drafting this report, the National Park Service, the U.S. Fish and Wildlife Service and the U.S. Forest Service have been holding intensive meetings to promote a greater consistency in the procedures Federal Land Managers use in identifying and evaluating AQRV impacts. We have discussed in this report the assessment of regional visibility impacts using the deciview, which at the time of the drafting of this report was the preferred metric. As time progresses, it is looking more like the change of extinction may become the preferred metric. Hence, although the information provided here is useful, the details and implementation may be somewhat different as a consequence of the ongoing discussions. For the latest information on procedures and metrics, we suggest visiting the web site:

<http://www.nature.nps.gov/ard/flagfree/index.html>.

3. Issues Associated with Threshold Values

Basis of Comments: 1) FLAG's assumed visibility threshold values are arbitrary (no scientific basis).

2) FLAG's assumed visibility threshold values are not perceptible and are too restrictive (*i.e.*, too low) or that they are not restrictive enough.

3) FLAG should use an averaging time for analyses longer than 24-hr in order to avoid undue influence of extreme episodes.

4) FLMs should provide guidance on how it will assess magnitude, frequency, duration, and geographic extent of visibility impairment to make adverse impact determinations. Using 24-hour basis contradicts this concept. Also, the FLMs should define the level of acceptable impairment.

5) FLMs need to provide analyses to show permitting authorities the consequences of these thresholds.

6) The 0.4% threshold for exempting a new source from further review is too low (not perceptible) and should be relaxed. Also, the 0.4% threshold should be used as the trigger for cumulative analyses.

General Response: The underlying principle of the FLAG recommendation is the need to ensure that a new source should not cause visibility impairment, either by itself or in combination with other new sources. Toward this end, the FLMs selected levels of concern that represent values representative of the lower end of human perceptibility and values representative of the higher end of human perceptibility for single sources and multiple sources, respectively. The FLMs also chose to define a *de minimis* level to provide a threshold below which a new source needed

no further visibility impact analyses, and below which the FLM was unlikely to object to the issuance of a permit.

Responses to specific issues:

Issue 1: FLAG's assumed visibility threshold values are arbitrary.

Response: The levels of concern were selected from EPA guidance documents or the published literature (references provided in the Phase I Report).

Issue 2: FLAG's assumed visibility threshold values are not perceptible and are too restrictive (*i.e.*, too low) or that they are not restrictive enough.

Response: The FLMs assert the levels are not “too low,” since they do represent the possible extremes of human perceptibility. However, if new information becomes available, the FLMs will take it into consideration. The selection of the *de minimis* level followed an approach similar to that used by EPA in the proposed new source review reform regulations to define significant impact levels for the PSD increments.

Issue 3: FLAG should use averaging time for analyses longer than 24-hr in order to avoid undue influence of extreme episodes.

Response: In the context of visitation to Class I areas, visibility and human perception of the visibility condition is actually a short-term phenomenon. Therefore, 24-hour averages, if anything, are too long of an averaging time for visibility assessments. FLMs selected this averaging time given the confidence in the model results for far-field applications and because it provided a surrogate for the spatial averaging more appropriate for applying the selected thresholds. For near-field model applications, the FLMs concur with using the 1-hour averaging time as recommended in EPA guidance documents.

Issue 4: The FLMs should provide guidance on how they will assess magnitude, frequency, duration, and geographic extent of visibility impairment to make adverse impact determinations.

Response: The adverse impact determination remains a case-by-case determination. Given the multitude of possible impact combinations (*i.e.*, magnitude/frequency), the FLMs can provide no *a priori* guidance except to say that the determination will be based on the magnitude, frequency, duration, and geographic extent of the predicted effect. The FLMs have provided the guidance on the levels of concern and parameters that would be used to make the determination. For example, the FLM could make a determination based on the number of 24-hour estimates of extinction over the level of concern, the amount over the level of concern, or the duration of multi-day episodes.

Issue 5: FLMs need to provide analyses to show permitting authorities the consequences of these thresholds.

Response: Permitting authorities should already be familiar with applying steady-state models to assess near field impacts, so the FLMs did not feel it was necessary to provide any sample applications. For the less familiar distant/multiple-source applications, very detailed guidance, including one sample application, has been provided in the FLAG report. The consequences of applying the recommended prescription are strongly dependent on meteorology, the number and distribution of sources, distance to Class I areas, and emissions. Therefore, it would not be possible to meaningfully represent the wide range of possible scenarios. Qualitative assessments of the consequences are probably possible because the basic prescription has been in use by the FLMs (and some permitting authorities) for several years.

Issue 6: The 0.4% threshold for exempting a new source from further review is too low (not perceptible) and should be relaxed.

Response: The 0.4% threshold was established in order to exempt sources from further review if they are not a major contributor to a circumstance where visibility impairment due to new source growth exceeds a 10% change in extinction. The FLMs' desired condition would be to see no contribution in this case, but are willing to accept practical considerations in setting this threshold. Hence, the threshold was set purposefully low, but not zero. As the FLMs gain more experience with the application of this threshold, it will be revisited to ascertain whether it is achieving a desired level of protection.

The FLMs rejected the recommendation of using this threshold as the sole basis of determining the need for conducting cumulative analyses.

4. An Annual Reference Level is Inappropriate for the FLAG Visibility Application.

Basis for Comments: 1) Comparison of an annual average estimate of natural conditions with a 24-hour average model concentration is inappropriate.

General Response: Estimates of natural conditions are only available as estimates of the long-term average.

Responses to specific issues:

Issue 1: Comparison of an annual average estimate of natural conditions with a 24-hour average model concentration is inappropriate.

Response: There will obviously be some fluctuation about the mean of the annual average, but how that would vary on any given day is unknown. The average conditions could occur on any given day. The FLMs see no viable alternative to comparison with an annual average number.

5. CALPUFF is not Suited for the Task Described

Basis for comments: 1) CALPUFF is inappropriate for visibility calculations greater than 50 kilometers.
2) CALPUFF can not be used for multiple source impacts.

- 3) The sulfate chemistry in CALPUFF underestimates aqueous phase formation and overall chemical processes are treated too simply.
- 4) The maximum applicable distance of the modeling system needs to be defined.
- 5) CALPUFF is too resource intensive; it requires special computers with gigabytes of memory.
- 6) Requiring 5 years of meteorological analysis is too onerous.
- 7) CALPUFF is not applicable to oil and gas operations.

General Response: There are a number of contentions about the suggested use of CALPUFF as a tool for analyzing visibility impacts for source/receptor pairs at distances beyond 50 kilometers. Commenters dealing with the general applicability of the model should refer to the *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA-454/R-98-019). That document should help make it clear that the modeling system is well suited for the task at hand; that is, calculating concentrations of visibility impairing pollutants, both primary and secondary, from single or multiple sources, at distances within and beyond 50 kilometers. This was the goal of the IWAQM.

The CALPUFF modeling system was proposed as a long-range transport model by the EPA during the seventh modeling conference. (See *Federal Register*, Vol. 65, No. 78, Friday, April 21, 2000, Proposed Rules, pages 21506-21546.) FLAG is essentially using the model as the EPA proposes it for use.

Responses to specific issues:

Issue 1: CALPUFF is inappropriate for visibility calculations greater than 50 kilometers.

Response: The CALPUFF modeling system is being proposed by the EPA as the refined modeling tool for analyzing long-range transport, defined as transport beyond 50 kilometers. Again, please refer to the *Federal Register*, Vol. 65, No. 78, Friday, April 21, 2000, Proposed Rules, pages 21506-21546. The commenters are also referred to the *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA-454/R-98-019).

Issue 2: CALPUFF can not be used for multiple source impacts.

Response: CALPUFF treats multiple sources and multiple source types. The commenters are referred to the references above and to the CALPUFF users guide available at:

<http://www.src.com/calpuff/calpuff1.htm>

The comments about multiple sources are based on a single quote taken out of context pertaining to the screening mode. In context the quote should read:

All of the reviewers expressed concerns regarding the use of the screening technique. They agreed that it was inherently conservative (would provide estimates of impacts greater than likely would result if a more refined analysis was performed), but also recognized that it could not be guaranteed to always yield conservative concentration and deposition flux impacts. They suggested that if the screening technique is recommended, it should be made clear that it may not provide conservative impact estimates, and that the technique is applicable for one or several closely spaced sources of emissions (not for multiple sources that are widely spaced around a Class I area).

The FLMs agree that the constraint on the screening mode is appropriate.

Issue 3: The sulfate chemistry in CALPUFF underestimates aqueous phase formation and overall chemical processes are treated too simply.

Response: Several commenters indicated that the model does not adequately handle aqueous phase conversion of sulfur dioxide to sulfate. This is an area where the model is likely to underestimate impacts of visibility impairing pollutants. The FLMs have long recognized this and have considered it an area that needs improvement. In the interim, however, the FLMs have considered the estimates from the CALPUFF system to be preferable to no estimates at all, and are willing to abide by those results.

There are more sophisticated chemical treatments available in various models than are currently available in CALPUFF. If an applicant wishes to use a more detailed chemical scheme and it is deemed technically appropriate, its use would certainly be entertained. The suggested modeling schemes put forth in FLAG are not meant to be the only alternatives for analyzing visibility effects.

Issue 4: The maximum applicable distance of the modeling system needs to be defined.

Response: The FLAG report did not specify how far beyond 50 kilometers the model should be applied. The formulation of the model allows for receptors to be placed at any distance from a source, from meters to hundreds of kilometers. The model can readily be applied to distances up to 300 kilometers. The latest revision of the model contains horizontal and vertical puff splitting algorithms that help compensate for wind shear when puffs travel great distances. At this time there is no recommended maximum limit, although the maximum distance for most applications will be between 200 to 300 kilometers.

Issue 5: CALPUFF is too resource intensive; it requires special computers with gigabytes of memory.

Response: With respect to the resources required to do a cumulative analysis, the model runs easily on any Pentium class computer, with 128Mb of memory. Disk storage used to be an issue, however, one can obtain disk drives in excess of 30Gb for a few hundred dollars. Most of the resources involved in running the model involve obtaining the appropriate data and putting in the proper formats for input to the modeling system.

Issue 6: Requiring 5 years of meteorological analysis is too onerous.

Response: With respect to the amount of meteorology to be analyzed (5 years), FLAG is simply following the recommendations of the IWAQM and EPA's proposed modeling guidance for using the CALPUFF model. Those documents allow the use of hourly meteorology if Four Dimension Data Assimilation (FDDA) prognostic model output is used.

Issue 7: CALPUFF is not applicable to oil and gas operations.

Response: One concern raised about applying CALPUFF to oil and gas operations was that CALPUFF was not the most appropriate model for treating multiple small sources, such as are found in oil and gas development. The contention was that treating multiple plumes or aggregations of plumes was only appropriate for major sources. The methodology outlined in FLAG tried to identify the visibility calculations from CALPUFF by plume phenomena. In general, a haze is considered to be a relatively uniform distribution of pollution over great distances. The CALPUFF model by its construction treats the emissions from all sources as a series of discrete puffs to represent a plume. Thus, the discussion of discrete plumes or aggregation of plumes was simply intended to distinguish the modeled phenomena from a haze. There is nothing inherent in the model that would restrict its use only to major sources.

The comments regarding oil and gas development specifically mentioned some analyses done with CALPUFF in Wyoming. The FLMs feel that those efforts have been successful and validate the use of CALPUFF for those types of applications. Other modeling techniques, such as a grid model, may be appropriate in some applications. However, the FLMs feel that for the permit and EIS related applications discussed in FLAG that the CALPUFF model is a useful tool. The FLMs do not intend to preclude a more sophisticated modeling approach by an applicant if it is deemed appropriate.

6. There Should Not be Different Contrast and Color Thresholds for Screening and Refined Near-field Analyses

Basis for Comments: 1) The FLAG visibility guidance is inconsistent with EPA Guidance.
2) Using more than one threshold is confusing.

General Response: The thresholds used in visibility analyses are tied to the potential for a plume to be visible to an observer; those thresholds cover a range of values. In a screening analysis, conservative assumptions are used to estimate the pollutant concentrations and optical parameters, therefore, a higher threshold is used, recognizing the conservative nature of the analysis. For more refined analyses, more mid-range values are used, since the techniques are not as conservative.

Responses to Specific Issues:

Issue 1: The FLAG visibility guidance is inconsistent with EPA Guidance.

Response: The FLMs followed the EPA guidance explicitly in setting the threshold levels for the near-field analyses. The EPA guidance is found in several documents. The document most people initially turn to is the *Workbook for Plume Visual Impact Screening and Analysis (Revised)* (EPA-454/R-92-023). This document describes Level 1, Level 2, and Level 3 analyses. Level 1 and Level 2 analyses use the VISCREEN model, and Level 3 analyses suggest using a more refined analysis tool, such as PLUVUE II. The guidance for running the PLUVUE II model is found in the *User's Manual for the Plume Visibility Model, PLUVUE II (REVISED)* (EPA-454/B-92-008) and in *Addendum to the User's Manual for the Plume Visibility Model, PLUVUE II (REVISED)* (EPA-454/B-95-001). The recommended thresholds are also included in these documents.

The *Workbook for Plume Visual Impact Screening and Analysis (Revised)* tries to “characterize our current understanding of perceptibility:”

	Contrast	ΔE
Lower-bound threshold	0.005	0.2
Best-estimate threshold	0.02	0.8
Upper-bound threshold	0.05	2

The document goes on to say, “For Levels 1 and 2 plume visual impact screening, we recommend that the higher set of threshold values (contrast of 0.05; ΔE of 2) be used as the criteria for screening.”

For Level 3 analyses, the PLUVUE II model is suggested. When discussing plume perceptibility the *Addendum to the User's Manual for the Plume Visibility Model, PLUVUE II (REVISED)* states: “Plumes that subtend angles between roughly 0.1 and 1 degree and have contrasts with absolute values greater than 0.02 are generally perceptible. A two percent contrast is used to define visual range.” For the color contrast parameter it states, “Under ideal viewing conditions, when the viewing background is uniform and the plume is sharp-edged, a just perceptible ΔE would be equal to one. For cases of plumes with diffuse edges that subtend angles between roughly 0.1 and 1 degree, a just perceptible ΔE threshold would be greater than one, perhaps two.”

The FLMs have only indicated that they will continue to use the threshold levels suggested by EPA: $|C|=0.05$ and $\Delta E=2$ for Level 1 and 2 analyses and $|C|=0.02$ and $\Delta E=1$ for Level 3 analyses. The FLMs recognize that there are conditions where somewhat higher thresholds may apply and would consider those cases when those conditions occur. There are also cases where much lower thresholds are appropriate. As a first step, the FLMs anticipate that the aforementioned criteria will be used unless other, technically defensible criteria apply.

Issue 2: Using more than one threshold is confusing.

Response: The different levels are used when modeling techniques are changed, going for VISCREEN to PLUVUE II. It should not be difficult to deal with changing thresholds when switching modeling techniques. FLAG does recognize that by using different thresholds one might be in the situation of passing a screen, but ultimately failing the refined analysis. It is

unlikely that an applicant will go on to do a refined analysis if the screening analysis indicates there is not a problem. Since all decisions are on a case-by-case basis, depending on magnitude, frequency and duration, this would be a factor to be considered when the FLMs make their decision.

7. Emission Decreases need to be Considered

Basis for comments: 1) FLAG needs to account for emission decreases to avoid penalizing new sources when significant emission decreases have occurred.

General Response: The basis for the prescription outlined in FLAG for visibility analysis is to ensure that the national visibility goal, “no manmade impairment,” is not hampered by new source growth.

Responses to specific issues:

Issue 1: FLAG needs to account for emission decreases to avoid penalizing new sources when significant emission decreases have occurred.

Response: The issue of accounting for emission decreases in the visibility analyses was raised. As the prescription is currently defined, there is no opportunity to account for emission decreases since the recommended background condition used for comparison is “natural,” which by default has no emissions to decrease. When doing a cumulative analysis it is recommended that all new source growth be considered. Any sources that would have been in that category, but have been decommissioned would not be included in the analysis.

8. Cumulative Analysis is Not Possible Using Near-field Visibility Models and Parameters

Basis for Comments: 1) It is not practical to calculate contrast and ΔE for multiple plumes.

General Response: The FLMs agree that the plume visibility models are not suited for simulating the effects of multiple plumes. FLAG's recommendation suggests that a multiple source model, such as CALPUFF, be used to perform multiple source impact analyses. The FLMs are recommending that extinction be the visibility parameter used for these multiple source analyses, rather than the more traditional contrast and ΔE parameters.

Responses to specific issues:

Issue 1: It is not practical to calculate contrast and ΔE for multiple plumes.

Response: The FLMs have a real concern about multiple source impacts, from both near-field and far-field sources. The proposed methods are reasonable for analyzing this situation. The CALPUFF model, suggested for multi-source applications in the report, is ideally suited for providing the ambient concentrations to calculate visibility impairment for multiple sources. The *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA-454/R-98-019) discusses

local-scale impacts and "...is recommending the use of the CALPUFF modeling system for the characterization of all sources being explicitly modeled. . .A benefit of using one model for all sources is that CALPUFF has the MESOPUFF II chemistry, which provides characterization of pollutant species that are not treated by currently available local-scale models..." The recommendation is primarily contemplating what to do for cases where long-range transport and local sources can impact an area simultaneously, but these techniques are equally applicable to multiple sources in the near-field alone.

Light extinction was chosen as the visibility parameter to analyze because it can be relatively easily calculated from the pollutant components derived from CALPUFF. This parameter may not be the best choice for examining the effects of a near-field analysis. However, multiple source impacts, even from relatively near sources, are going to be somewhat more diffuse than a single source due to different source locations and due to differences in stack height and plume rise between sources. Therefore, using light extinction, rather than contrast and ΔE is reasonable. It must be noted, that the technique as currently outlined, only accounts for ground-level concentrations. Lofted plumes are not considered, thus potentially grossly underestimating the potential impacts of multiple near-field sources. Thus, it may be necessary to conduct both single-source impact analysis with a plume visibility model as well as a multiple source analysis, using CALPUFF.

The near-field, multiple-source analysis techniques have not been widely tested. The visibility thresholds used for long-range transport analyses may not be as applicable for the near-field analysis, but will be applied as an initial screening criteria. Further refinement of this technique needs to be conducted.

8. NO₂ Should be Included in the Distant/Multi-Source Prescription

Basis for comments: 1) Nitrogen dioxide is often present in measurable concentrations in Class I areas located near source areas and should be considered.

General Response: As originally conceived, the Distant/Multi-Source Prescription was only going to be applied for distant sources. For those situations, NO₂ is not usually a significant contributor to overall light extinction. However, when applied to sources locating near Class I areas or for Class I areas located near source areas, the FLMs agree that NO₂ may be a contributor to visibility impairment and should be included in the prescription.

Responses to specific issues:

Issue: Nitrogen dioxide is often present in measurable concentrations in Class I areas located near source areas and should be considered.

Response: The FLMs need to provide an NO₂ extinction value to use in the multi-source, near field analysis. The following relationship should be used for cases where NO₂ is a contributor to light extinction: $b_{NO_2} = 0.17 [NO_2]$ Where b_{NO_2} is in Mm^{-1} and $[NO_2]$ is in $\mu g/m^3$ (Based on *Workbook for Plume Visual Impact Screening and Analysis* (EPA-450/4-88-015)).

10. Issues Regarding Relative Humidity (RH) Factors

Basis for Comments: 1) RH has diurnal, seasonal, and elevational differences which are not represented by annual average regional values.

2) The RH regimes identified in the appendix are too coarse.

3) FLAG should use only daytime RH.

4) Averaging 1-hour values of extinction is preferable to using 24-hour average aerosol concentrations and applying an annual $f(\text{RH})$.

General Response: The draft FLAG recommendations indicated that the preferred relative humidity adjustment factor ($f(\text{RH})$) to use in visibility analyses should be obtained from annual average regional values in the appendix. The option was left open to use the hour-by-hour RH values used in the modeling to calculate hour-by-hour $f(\text{RH})$ and hourly extinction. Based on comments, the FLMs now recommend using the hour-by-hour values as the preferred method, allowing the annual average values in the appendix to be used if the hourly values are not representative. For the distant screening analysis, FLAG still recommends using the annual average values in the appendix.

Responses to specific issues:

Issue 1: RH has diurnal, seasonal, and elevational differences which are not represented by annual average regional values.

Response: The revised recommendation is to use the temporally and spatially varying relative humidity fields from the model. To the extent possible, RH data representative of the Class I area should be included in the input fields for the model. This will help alleviate the concerns raised about the diurnal, seasonal, and elevational differences.

Issue 2: The RH regimes identified in the appendix are too coarse.

Response: The FLMs agree that the broad RH regions presented in the draft recommendations were not appropriate. To correct this deficiency, the revised recommendation is to use the spatially and temporally varying RH data used in the modeling for refined analyses and to use seasonal values of $f(\text{RH})$ based on interpolated observations of RH for screening analyses.

Issue 3: FLAG should use only daytime RH.

Response: Some commenters suggested only using day-time RH values in the analysis. Aerosol growth occurs throughout the night due to increased RH. This can dramatically affect the visibility in the early morning and later in the day as pollutants are transported.

Issue 4: Averaging 1-hour values of extinction is preferable to using 24-hour average aerosol concentrations and applying an annual $f(RH)$.

Response: The FLMs agree that averaging 1-hour average extinction values is the preferred method for calculating light extinction. The suggested modeling system allows for this and is the revised recommendation for refined analyses.

D. RESPONSE TO OZONE COMMENTS

This section provides FLM responses to public comments received on the ozone chapter of the draft FLAG Phase I report. The section is organized by key issues raised by the commenters.

1. Ozone Effects Modeling

Comment: With limitations, models are available for estimating ozone from single sources; the report should recommend dispersion models to use to demonstrate that NO_x emission offsets will benefit the FLM area.

Response: The commenter lists the limitations of available models for estimating ozone, and further suggests that “Absent of model validation and emission inventory efforts, applying these atmospheric models to Class I and other remote areas may not be in the best interests of the science.” FLAG agrees that such model validation and emission inventories are not available. Further, the EPA does not currently recommend a specific source receptor model to use for ozone. FLAG recommends that emission offset discussions take place on a case-by-case basis, and that, in each case, the permitting authority, EPA, and the FLM agree on the appropriate model to use for the analysis. FLAG welcomes the input of EPA on recommended models to use.

Comment: The ozone chapter should be withdrawn until appropriate source/receptor models are available. Recommend deleting the ozone section from the report, primarily because of the absence of a single source model to determine impacts on vegetation. The absence of single source models suggest it is premature to restrict PSD permits based on ozone impacts on vegetation. Until appropriate screening models are developed, FLAG should not deal with ozone impacts on AQRVs and should not pursue additional NO_x emission controls as an ozone reduction strategy.

Response: FLAG agrees that reliable models do not exist for single source ozone impacts. The chapter is useful without the dispersion models to allow the FLMs to identify sensitive AQRVs and critical levels of concern. The FLMs cannot restrict PSD permits, but only recommend remedial action based on ozone impact on AQRVs. FLAG appreciates the commenter's recognition that FLM needs to make timely decisions addressing ozone issues and not wait until a regional modeling center is implemented.

Comment: The draft report says the FLM may recommend the permitting authority conduct regional modeling if there is concern about ozone. Numerous issues would need to be addressed before such modeling could be performed. In addition, regional modeling is resource-intensive and would probably not be undertaken without a regulatory mandate.

Response: FLAG recognizes the difficulties associated with performing a regional modeling analysis. Nevertheless, given that ozone is a regional pollutant, FLAG believes it is valid to include the recommendation for regional modeling as an option to help address ozone impacts.

Comment: The effects of mobile sources of ozone formation need to be evaluated.

Response: Regional assessments do include mobile sources.

2. VOC/NO_x Control Issues

Comment: Focusing on NO_x emissions controls is a broad generalization. FLMs should state that they are depending on VOC controls for ozone at this time. Language should be added to recognize that ozone impacts might result from VOC emissions. Assuming all Class I areas are NO_x limited needs to be justified.

Response: FLAG recognizes that VOC emissions also contribute to ozone formation, and the FLMs will recommend VOC controls where VOC emissions are a concern. The FLMs will also consider any information indicating a specific area is not NO_x limited.

Comment: NO_x controls or offsets will be mandated by the FLMs.

Response: FLMs have no regulatory authority, and can only recommend, not mandate, emissions controls.

Comment: FLAG's view of ozone formation chemistry is overly simplistic, and tries to regulate ozone precursors based on this flawed understanding.

Response: The FLMs agree that FLAG's discussion of ozone chemistry is simplistic. The FLMs attempted to simplify the ozone discussion for the non-technical reader. FLMs do not try to regulate, and can only recommend remedial action.

3. Regulatory Issues

Comment: The report should address the current 1-hr NAAQS.

Response: The FLMs have added a footnote to indicate that the 1-hr NAAQS is still in effect (see page 74 of the final FLAG report).

Comment: Certain state regulations do not allow Lowest Achievable Emission Rate (LAER) or offsets unless a source is in (or will impact) a nonattainment area (suggests that LAER or offsets are imposed by FLM).

Response: FLMs can only recommend, not impose, possible approaches to reduce impacts on AQRVs. However, even if states are prohibited from requiring LAER or offsets in attainment areas, states should be able to offer permit applicants the option of installing better controls or obtaining offsets to avoid denial or permits.

Comment: States cannot comply with a metric unrelated to NAAQS. If the FLMs feel the secondary NAAQS is inadequate, they should participate in the national NAAQS development/revision process.

Response: FLAG presents procedures for FLMs to identify air quality impacts and to recommend remedial action. FLAG is not a regulatory process. Nevertheless, the FLMs have

participated in NAAQS development by providing ozone effects information to EPA and commenting on proposed NAAQS. However, States can adopt a standard that is more stringent than the NAAQS (for example California Air Quality standards are different than the NAAQS), and can also adopt a metric that is more suited to plant response, if the State so chooses.

Comment: The following concerns are raised regarding the perception that FLAG is providing prescriptive regulatory elements for ozone:

1. Establishes threshold values and metrics for determining adverse impacts.
2. Defines visible symptoms below background exposure levels as “damage.”
3. Requires the permitting authority to conduct regional modeling.
4. Establishes experimental ozone exposure protocols for “damage.”
5. Establishes ozone-modeling requirements.

Response:

1. Adverse impact determinations must be based on sound data. Threshold values and metrics for adverse impacts are from data obtained by scientific experimentation and available research.
2. Visible symptoms have been defined as “damage” by scientists since the 1960’s and earlier if they are considered to have negative impacts on aesthetic values. The FLMs find it inappropriate to re-define definitions long accepted by the scientific community. The definitions for injury and damage are independent of, and have no relationship to, ambient concentrations. See references in ozone chapter and literature cited.
3. FLMs cannot require regional modeling. This authority resides with the State regulatory agencies. FLMs only recommend impact assessment techniques.
4. FLMs can recommend scientifically sound experimental procedures to determine vegetation effects.
5. The FLMs suggest ozone modeling be conducted under certain conditions of expected ozone impact on vegetation. The FLMs do not claim expertise in ozone modeling, and do not set requirements for ozone modeling.

Comment: FLAG is “penalizing new or modified sources for existing condition.”

Response: The ozone chapter provides guidelines for identifying impacts of ozone on vegetation in natural ecosystems and recommends remedial action. It does not penalize sources. FLMs can only recommend protective action and have no authority or intent to penalize sources. Only regulatory agencies can mandate mitigation for existing or proposed impacts.

Comment: The FLMs may conservatively assume the proposed source would result in unacceptable impacts, and assume culpability without actual evidence.

Response: The FLMs have a clear mandate to protect AQRVs, and to err on the side of protecting resources when evaluating impacts of source emissions on AQRVs in Class I areas. The FLM will recommend remedial action only when there is evidence of an impact (phytotoxicity present) or concentrations of ozone are at a level that have been shown to cause an impact.

Comment: Any general requirement forcing PSD applicants to conduct ozone studies without showing compelling evidence that such studies are warranted, is overbearing.

Response: FLMs cannot require or force PSD applicants to conduct ozone studies. Permitting authority is with the State agencies and/or EPA. The FLAG Report is clear that FLAG actions are recommendations and that the permitting authority ultimately decides to issue or deny a permit.

Comment: FLAG is setting an ozone standard for the west, with the burden of addressing ozone problems falling on new sources.

Response: FLAG provides guidance and does not establish any standards.

Comment: FLMs assume that recommending LAER will reduce or eliminate phytotoxic effects. FLAG should not assume visible symptoms result from ozone emissions.

Response: There is no text in the FLAG report that says LAER will reduce or eliminate phytotoxic effects. FLMs do not make these assumptions. FLAG only assumes that additional ozone from precursors from point sources might cause additional phytotoxic effects. Further, the FLMs have added text to indicate the lack of a close cause/effect relationship between precursor emissions and ambient ozone.

Comment: FLAG substitutes their alternative procedure for assessing impact, rather than using source receptor modeling. FLMs are not free to substitute their own judgment.

Response: FLMs can use their scientifically based judgment to assess ozone impacts on vegetation, and can recommend remedies based on that assessment.

Comment: FLMs do not have the authority to base their assessment of ozone impacts from a new source on existing conditions at the Class I area.

Response: The Clean Air Act directs FLMs to assess whether a new source will **cause or contribute to** adverse impacts at a Class I area. While it would be preferable to model a source's contribution to ozone concentrations in a Class I area, as discussed in the FLAG report, single-source modeling is not an option at this time. Therefore, FLMs will evaluate existing conditions and determine if it is likely that the new source's emissions would reach the Class I area. If so, and if phytotoxic ozone concentrations and/or vegetation damage have been documented, then it is reasonable to assume that the new source will exacerbate existing conditions.

Comment: The FLAG report is a direct attack on the scientific validity of EPA's secondary ozone standard. The EPA secondary standard is protective of plant life. FLMs propose to use a different standard.

Response: FLAG recognizes that an EPA secondary standard exists and that the new 8-hr standard is more protective of plant life than the 1-hr standard. The FLMs have added text to that

effect in the report. The FLAG statement quote that “biologically relevant ozone metrics for plants cannot be directly related to, nor can they be calculated from, the 8-hour NAAQS for ozone” is well supported by scientific data. See U.S. EPA (1996) literature citation. Furthermore, under Section 160 of the Clean Air Act, one of the primary purposes of the PSD program is to protect public health and welfare from any adverse air pollution effects below the NAAQS.

Comment: The fact that the FLMs propose to use a different standard than the existing NAAQS could lead to an FLM recommending against a project that meets the ozone NAAQS but which in the FLM’s view nevertheless damages plants. FLMs have neither the statutory authority nor the expertise to set themselves up as alternative air quality regulators.

Response: FLAG cannot and does not propose to use a different NAAQS, nor does it propose to regulate air quality. FLMs do have the statutory requirement to evaluate air quality impacts on AQRVs and may recommend remedial action when effects are documented. There is no statutory requirement to use the NAAQS to evaluate ozone effects on AQRVs.

Comment: FLMs should only consider ozone in a permit review if 1) elevated ozone occurs in the project area, and 2) the proposed source would add “the missing parameter” for ozone formation.

Response: FLAG agrees that the FLMs will be concerned if: 1) there are elevated ozone levels in an area, and 2) the source adds precursors for ozone formation.

4. Use of Passive Ozone Sampling Data

Comment: Passive monitors should be used in remote locations for determining year-to-year changes in total ozone and for indicating where continuous monitors should be located.

Response: The FLMs agree. On page 82 of the FLAG report regarding passive monitoring data, it states, “The data are useful for indicating year-to-year changes in total ozone exposure at an individual site, and for indicating where continuous monitors should be installed.”

Comment: Because passive samplers provide only limited information on ozone exposure, continuous monitors should be used to calculate W126 and N100 parameters. Only data from continuous monitors should be used for calculating W126 and N100 metrics.

Response: The FLMs agree. Page 82 of the report also states, “Continuous monitoring is also necessary to determine the temporal dynamics of ozone exposure to vegetation, and is necessary to calculate the W126 and N100 parameters.”

Comment: Passive monitors should not be used for assessing vegetation effects. Passive ambient data have no value in assessing adverse impacts or validating a model.

Response: The FLMs agree. The FLAG report recommends passive monitors to “... give total exposure loading values for a specified period of time. The data are useful for indicating year-to

year changes in total ozone exposure at an individual site and for indicating where continuous monitors should be installed. However, FLMs recognize the limitation of passive samplers in relating ozone exposure to plant response” (see page 82 of the FLAG report). FLAG does not recommend assessing adverse impacts using passive samplers. In fact, FLAG specifically cautions against it.

5. Experimental Fumigations

Comment: FLAG should not recommend unrealistic experimental exposures such as 1.5 and 2.0 times ambient. NCLAN protocol exposures of 1.5 and 2.0 times ambient are unrealistic and should not be used for experimental exposures. FLAG should use realistic exposures to develop quantitative relationships between growth loss and ozone exposure.

Response: The FLMs has revised the FLAG report to indicate plants should be exposed to concentrations simulating increased levels of ambient ozone that might occur above current ambient levels in the future.

Comment: Agencies should join forces to construct and operate experimental facilities, and eastern facilities might not be appropriate for western species and vice versa.

Response: The FLMs agree. The final FLAG report retains the draft report language that stated, “...it would be appropriate for agencies to join resources and develop regional fumigation facilities” and “...ambient conditions at an eastern facility might not be appropriate for western species and vice versa.” (see page 81 of the final report).

Comment: Experimental fumigations should focus on growth loss measurements.

Response: The FLMs agree that growth loss is important; but injury symptoms can also be monitored and should not be ignored if they occur in these experiments. Many FLMs are as concerned with injury as a negative aesthetic impact as they are with growth loss. FLAG recommends experimental fumigations to “verify ozone-induced foliar injury symptoms (observed) in the field” (see page 81 of the FLAG report).

Comment: Growth response data were from experiments grown under optimum conditions, and may not represent the real world.

Response: The FLMs agree. Further, FLAG points out that conditions for production of defenses against ozone impact are also optimum under these conditions.

Comment: Experimental chamber work should not be used for determining sensitivity classifications.

Response: The FLAG report does not suggest that chamber fumigations be used for determining sensitivity classification. FLAG recommends chamber fumigations “to verify ozone-induced foliar injury symptoms (observed) in the field...” (see page 81).

6. Uncertainty Factor

Comment: FLMs should include uncertainty factors with the growth loss predictions and in growth response data.

Response: Uncertainty data are unavailable to the FLM at this time. The FLMs agree these data should be included where available.

7. Background Ozone Levels

Comment: The FLAG report does not address background ozone levels. The report does not address the effect of natural background levels of ozone on AQRV impact assessment.

Response. The FLMs have added text discussing background ozone. The FLMs are concerned about impact of additional ozone on vegetation independent of background ozone concentrations.

Comment: Delete Appendix 3.B, because oxidant stipple injury can occur at ambient concentrations that are background. The information cannot be used for assessing damage and relating the information to a mathematical ozone exposure relationship.

Response: FLAG recognizes that oxidant stipple injury can occur at background ambient concentrations. Injury from natural sources does not negate FLM concerns about additional ozone impacts on vegetation from anthropogenic sources. Even though background ozone might cause injury, FLMs are concerned about impact of additional ozone on sensitive species. Text has been added to the report to indicate the recognition of the weak mathematical relationship between ozone exposure and plant response.

Comment: FLAG should not use phytotoxic effects shown to occur at background ozone concentrations as an indicator of damage. Science does not support the assumption that oxidant stipple injury can be damage. FLAG should not assume visible symptoms constitute damage since EPA recognized that many ozone effects on vegetation are not attributable to anthropogenic sources, but rather arise from natural processes.

Response: Damage has been specifically defined in the scientific literature for more than 40 years to include a negative impact on aesthetic value. Most FLMs have determined that foliar injury is a negative aesthetic value. Thus, considering visible symptoms to be damage does not conflict with the classic definitions of injury and damage. See the definitions of injury and damage in the text and their citations.

8. W126/N100 Concerns

Comment: The basis and relevancy of the W126 metric needs to be provided.

Response: Section D.3.c. of the FLAG report (pages 76-78) provides a detailed discussion as to why the W126 was selected.

Comment: The N100 has no averaging time.

Response: The N100 is the number of hours of ozone concentration above 100 ppb. It is a cumulative parameter and cannot be averaged. The definition of N100 in the text has been clarified.

Comment: Data tables for growth and injury losses are not available for many species, preventing assessment of adverse impacts.

Response: The FLMs recognize that data are unavailable for many species, but this does not negate the use of the table for those species for which information is available.

Comment: FLAG should use both the W126 and the N100 together for growth response. The W126 must be tightly coupled with the N100 for estimates of growth loss. Coupling the W126 and N100 values in both experimental and ambient exposures is necessary if experimental results are used to predict growth losses under ambient conditions.

Response: The FLAG report does not recommend using either the W126 or the N100 alone for growth response, but included both in the Table of response.

Comment: The W126 and N100 are not threshold values; Table O-1 should be eliminated from the report.

Response: The FLMs agree that these values are not thresholds, and did not call them threshold values in the table. The FLMs have chosen to retain the table in the FLAG report. However, to avoid confusion, text has been added to specifically state that injury may occur at exposure levels lower than those listed in the table.

Comment: Additional effort should be expended to develop exposure response relationships for the W126 and N100 for predicting growth loss.

Response: The FLMs agrees additional effort should be expended and additional data are needed.

Comment: FLAG shouldn't use the N100 metric because vegetation effects occur well below this level.

Response: The FLMs have revised the FLAG report to acknowledge that foliar injury occurs well below N100. However, the N100 was closely coupled with the W126 for experimental fumigations that determined growth loss, and is thus included in the exposure/response relationship. FLAG does not recommend that the N100 be used alone to indicate plant response.

Comment: Using the N100 is not justified. Tables O-1 and O-2 are misleading because they imply causality when only an association has been demonstrated. There are no caveats to the data regarding experimental condition. In order to establish critical levels there should be additional studies performed across environments.

Response: Using the N100 is closely associated with the W126. The Tables simply show experimental exposures where injury or growth effects occurred. The data in the tables are valid. The FLMs have added a caveat to the text that results may differ under different experimental conditions.

9. 24-hr Time Period

Comment: Using the 24-hr time period is unjustified. The supporting reference is trivial with little real substance, and should not be used in the chapter. FLAG needs a connection between species found in FLM areas and those showing nighttime conductance identified in the Musselman and Minnick paper before a 24-hr time period for the W126 metric can be used.

Response: The peer reviewed Musselman and Minnick paper provides numerous citations documenting nocturnal stomatal conductance of plant species, and indicates that most species do not completely close their stomata at night. Further, it documents decreased plant defenses against ozone injury at night. Thus, the FLMs believe that using the 24-hr time period for the W126 is justified. One commenter suggests that citations indicating open stomata are not as valuable as those showing stomatal conductance. The FLMs agree that “open stomata” is not the same as “conductance.” The commenter is reminded that neither open stomata nor stomatal conductance prove ozone uptake. But since science generally recognizes that ozone concentration is zero or near zero inside leaf tissue, an open pathway and an ozone gradient between ambient air and leaf tissue strongly suggest ozone uptake.

10. Miscellaneous Comments

Comment: Suggest FLAG change “sensitive species” to “sensitive genotypes.”

Response: The FLMs agree, but removing sensitive genotypes could well eliminate certain sensitive species.

Comment: FLAG should state that field staff must be experienced and tested in data collection for field assessment of injury.

Response: The FLMs agrees and have added a statement to that effect in the FLAG report.

Comment: Information in Appendix 3.A is not documented in the literature.

Response: The FLMs have added a statement in the Appendix that this information was determined by scientists each having more that 20 years of experience identifying oxidant stipple injury in the field.

Comment: Why the concern about foliar injury of invasive species such as tree-of-heaven?

Response: These species can be used as bioindicators for injury. They may occur in FLM managed areas.

Comment: There are inconsistencies in Appendix 3.B. For example, Eastern red bud is listed for Okefenokee, but not in other Class I areas where it is currently found. Red spruce listed as sensitive in Dolly Sods, but it is not sensitive.

Response: The FLMs have indicated that the species listing for each Class I area is not complete, but a work in progress. Text in the FLAG states, “Unfortunately, AQRV identification is limited by incomplete species inventories...” (see page 78). The FLMs welcome information on the occurrence of species for specific areas. The FLMs agree on red spruce and have removed it from the list for Dolly Sods.

Comment: FLAG should solicit input from the applicant regarding likely impacts. FLAG needs to involve stakeholders and quantify economic impacts.

Response: The FLMs will continue to work with applicants in any NSR permit analysis. Economic analyses are not required for FLM evaluation of ozone impacts on vegetation and recommended remedies.

Comment: FLMs need to pay more attention to human health.

Response: The FLAG report indicates that plants are more sensitive to ozone than humans (page 74), and has chosen to focus on the most sensitive receptor, plants. It is EPA's responsibility to set HAAQS to protect human health.

Comment: Regarding the flow chart, "If vegetation effects are unknown the FLM is unlikely to object to a permit. There is concern for inaction where an impact is unknown.

Response: It is difficult for the FLMs to recommend a remedial action without specific data to support a negative impact.

Comment: It is not clear why the SUM06 metric wasn't used.

Response: Reasons for selecting the W126 were detailed in the ozone chapter in section D.3.c, pages 76-78. The EPA dropped their support for the use of a secondary standard based on SUM06. It should be noted that the SUM06 considers ozone values less than 60 ppb as not important in plant response, where the W126 includes values below 60 ppb.

Comment: Substitute “exposure” for “concentration” in the second paragraph of the Introduction. The last sentence is misleading in implying that the EPA has not taken any action to provide increased protection for vegetation.

Response: The FLMs have made changes in the final report to address these issues.

Comment: Encourages FLM effort to gather information on AQRVs.

Response: The FLMs agree, but have limited resources to gather such information.

Comment: The decision chart proposed for potential ozone effects bears no correlation to any effects from a proposed new source. Recommend that the ozone section be removed because of the difficulty of measuring ozone impacts and that sources causing such impacts would also present visibility and deposition concerns.

Response: The decision chart is a guideline for FLMs to determine current impact of ozone on vegetation and to recommend FLM response based on current impacts. The FLMs consider the procedures described in the decision chart to be an appropriate method for identifying ozone impacts and recommending remedial action for protection from proposed new sources, and the ozone chapter should not be removed. The FLMs recognize that visibility and deposition effects may be easier to identify and quantify, but the FLMs place equal value on protecting all AQRVs from ozone, deposition, and visibility impacts.

E. RESPONSE TO DEPOSITION COMMENTS

This section provides FLM responses to public comments received on the deposition chapter of the draft FLAG Phase I report.

1. Comment: Deposition critical loads are not available in the report and should be included in an appendix.

Response: As described in the Introduction of the Deposition Chapter (page 117 of the FLAG report), the FLMs have agreed that site-specific air quality related values (AQRV) and critical load information would be maintained on FLM web sites, rather than included in the FLAG report. In this way, information can be updated and the most recent versions made quickly available to the public. Some of this information is already available on web sites referenced in the report, and the FLMs are committed to entering remaining available information as soon as possible.

2. Comment: The report refers to web sites where deposition critical loads should be available. However, the information is not always available on the web sites. Web sites are incomplete.

Response: As noted above, some critical load information is now available on FLM web sites, as referenced in the FLAG report. However, as discussed in the report, establishing critical loads is a complex process, requiring information that is not currently available for many FLM areas. As discussed in the Introduction of the Deposition Chapter, the Deposition subgroup recognizes that developing and refining site-specific critical load values for all FLM areas are crucial for AQRV protection. However, because of the complexity of this undertaking, and the lack of information for many areas, it was deferred to Phase II of FLAG. PSD permit applicants are advised throughout the FLAG report to consult with the FLM on AQRV analyses to ensure that the applicant obtains the most recent information on AQRVs and critical loads.

3. Comment: Deposition monitoring data are not given in the report. It should be provided in summary form.

Response: The “Available Deposition Monitoring Data” section of the chapter (page 134) notes that the FLMs have agreed that it is preferable to obtain wet and dry deposition data from the National Atmospheric Deposition Program (NADP) and Clean Air Status and Trends Network (CASTNet) web sites, rather than summarizing deposition data in the FLAG report. In this way, the entire data record for a site, including the most recent data, can be easily accessed by FLMs and the public. This is useful for estimating current deposition rates. For example, in the section “Estimation of Current and Future Deposition Rates” (page 139), the applicant is advised to estimate deposition rates using all years with complete data records. Summary values developed for the FLAG report would be gradually outdated, as new data become available both from existing monitors and newly established monitors.

4. Comment: Critical loads should be established through a public review process rather than *ad hoc* collaborative processes. Public input is needed to establish critical loads.

Response: The FLMs appreciate the participation of the public in the AQRV identification process and the establishment of critical loads. Section C.1 on page eight of the FLAG report states, “Public involvement in this process is necessary and will be accomplished through participation in the land management planning process or reply to an announcement in the *Federal Register*.”

However, FLMs agree that they have the primary responsibility to identify AQRVs and set critical loads. Congress charged the FLM and the Federal officials with direct responsibility for management of Class I lands (*e.g.*, Park Superintendent, Refuge Manager, or Forest Supervisor) with an affirmative responsibility under Section 165 of the Clean Air Act to protect and enhance the AQRVs of Class I areas from the adverse effects of air pollution. Further, Congress directed the FLM to “assume an aggressive role in protecting the air quality related values of land areas under their jurisdiction. In cases of doubt the land manager should err on the side of protecting the air quality-related values for future generations.” (Senate Report No. 95-127, 95th Congress, 1st Session, 1977)

The FLMs interpret this assignment as a responsibility to identify AQRVs and establish critical loads, when appropriate, to protect those AQRVs, and to take a conservative approach when doing this.

Identifying AQRVs and establishing critical loads have been based on information from the peer-reviewed scientific literature. In cases where site-specific peer-reviewed literature is not available, the FLM may rely on best available information and expert judgement, guided by Congress’ direction to “err on the side of protecting air quality-related values for future generations.”

5. Comment: FLAG should recognize the complexity of deposition analyses. FLAG does not provide clear guidance for deposition modeling.

Response: The Deposition subgroup recognizes that deposition analyses are very complex. Many physical, chemical, meteorological, and biological processes interact to determine deposition rates of pollutants onto vegetation, soils, water, and other surfaces. Deposition models attempt to characterize these complex processes in order to estimate deposition rates. The FLAG report advises using guidance for deposition modeling developed by the Interagency Workgroup for Air Quality Modeling (IWAQM). A permit applicant can be reasonably expected to run the recommended model and derive deposition estimates without undue hardship, while providing the FLM with the information necessary for evaluating potential impacts to AQRVs. For their part, the FLMs are often required to review and respond to permit applications and modeling analyses for new or modified sources within a short time frame and the standardized IWAQM guidance facilitates this process.

6. Comment: FLAG should recognize the unavailability of adequate monitoring methods. More deposition monitoring is needed.

Response: The Final FLAG Deposition Chapter has expanded its discussion (in Section 4.f) on the limitations of deposition monitoring methods, particularly for dry deposition and deposition

from clouds, fog, and snow. The report states that even wet deposition may not be well characterized at an area with large elevation differences because deposition can increase with elevation at many areas. Data from a deposition sampler at a low elevation may be very different from data at higher elevations. Modeling may be used to estimate deposition in these situations.

As discussed in the chapter, the FLM recognizes that for areas with significant cloud, fog, or snow deposition, deposition monitoring is difficult and data for very few areas are available. In some areas, deposition from cloud water and fog may equal or exceed deposition from rainwater. Applicants are advised to consult with the FLM to determine how to characterize deposition for these areas.

The chapter also recognizes that dry deposition measurements are difficult to make. Extensive site-specific information is needed in order to model deposition rates from dry gas and particle concentrations. Various dry deposition measurement methods are described in the chapter and their suitability for certain locations discussed.

Regardless of the limitations of available deposition monitoring methods, the FLM must obtain estimates of deposition in order to evaluate potential effects to resources. Therefore, the FLAG report provides guidance to applicants for estimating deposition based on readily accessible monitoring data, recognizing that these data have their limitations. As noted above, applicants are always advised to consult with the FLM so that the most current and appropriate data may be used.

7. Comment: Deposition limits (*i.e.*, critical loads) are extremely difficult to establish. Critical load information should be based on direct studies in Class I areas.

Response: The FLAG report recognizes that critical loads are difficult to establish. The Deposition Chapter states that “FLMs agree that a critical load should protect the most sensitive AQRVs within each FLM area and should be based on the best science available.” It is a challenge to identify these most sensitive AQRVs and establish critical loads for their protection. FLMs are guided by Congress, who gave the FLM an affirmative responsibility to protect AQRVs and, when in doubt, to err on the side of protecting the resource. Therefore, the FLM must establish critical loads to protect AQRVs even when information is incomplete, using the best available science.

Establishing critical loads depends on the large body of scientific literature on AQRVs. In addition, considerable site-specific AQRV information is needed for this task, requiring direct studies in the FLM area. Because of temporal differences in AQRV sensitivities (as well as spatial differences), AQRVs must be monitored over the long-term to discern these differences.

8. Comment: FLAG fails to clarify the rationale for establishing critical loads and does not make supporting documents available.

Response: The Introduction to the Deposition Chapter notes that Phase I tasks would include the summarization of information currently available about deposition and its effects on FLM areas. Critical load values, where available from previous FLM guidance documents, would be

referenced. FLMs agreed that site-specific AQRV and critical load information would be maintained on FLM web sites, rather than included in the Phase I report.

In the section, “Critical Loads in FLM Areas,” the chapter describes the efforts of the National Park Service and the Forest Service to establish critical loads through regional reviews and regional and national workshops. The section references the Regional Review documents and Proceedings Documents from the regional and national workshops. These documents provide the rationale for establishing critical loads and are listed in Appendix H of the report. Because of their length, these documents were not directly included in the FLAG report. They are available through the appropriate FLM.

9. Comment: The public needs access to AQUIMS to evaluate the merits of this database.

Response: The Deposition Chapter has been revised to note that AQUIMS (Air Quality Information Management System), developed by the FWS and NPS, is now known as Synthesis. During the course of the development of AQUIMS, resource managers recognized that it was a valuable tool for managing resources other than air. As its use broadened, the name was changed to Synthesis. Geological and water quality data, as well as air quality data, now resides in Synthesis. Synthesis is still under development and will be available through the NPS web site at:

<http://www.nature.nps.gov/ard>

10. Comment: Deposition impacts are likely to be understated because cloud water impaction is not addressed.

Response: FLMs recognize that, in some areas, deposition from cloudwater and fog may be very significant. The “Wet Deposition” section of the chapter discusses the importance of cloudwater and fog deposition. Cloud water is generally more acidic than rain water and deposition from clouds may equal or exceed deposition from rain water. Deposition estimates that do not include the contribution from clouds and fog may result in underestimates of wet deposition. The section describes monitoring and modeling efforts to quantify cloud water and fog deposition.

While recognizing the importance of including cloud water and fog contributions to deposition, the FLM is often faced with a lack of information regarding such contributions. In the section, “Estimation of Current and Future Deposition Rates,” applicants are advised to consult with the FLM when addressing impacts in high-elevation sites to determine if deposition from cloudwater, fog, dew, or snow should be considered.

11. Comment: FLAG fails to address impacts of fires and mobile sources.

Response: The Deposition Chapter provides guidance to permit applicants wishing to construct or modify sources of air pollution near FLM areas. This guidance may also be applied to NEPA analysis, for example, for a proposed fire management plan or a proposed highway. The influence of existing fire activity and mobile sources is reflected in background deposition measurements.

12. Comment: FLAG sets different and more stringent standards than those developed by EPA.

Response: FLAG does not set standards. Rather, FLAG has provided guidance, at the request of EPA, States, and industry, for protecting AQRVs. EPA, while having the regulatory authority to set standards, has not done so for deposition.

FLMs have established critical load guidelines for certain FLM areas in response to Congress' mandate to the FLM to protect AQRVs and to err on the side of protecting the resource. However, these are guidelines, not standards.

13. Comment: It is recommended that FLAG build on Europe's advances on establishing critical loads.

Response: The FLAG report discusses the work done in Europe and Canada on establishing critical loads in the section "Determining Critical Loads." The FLMs have considered the scientific literature from Europe in establishing critical loads in FLM areas. This literature is referenced in the FLM Regional Reviews and Proceedings Documents from regional and national workshops on AQRVs (Appendix H).

14. Comment: Critical loads should be updated based on 5-yr reviews.

Response: In the chapter Introduction, the report notes that critical loads previously established should be reviewed and revised, as necessary. The FLM recognizes that the best available information should be used to refine critical loads.

15. Comment: Assumption that dry equals wet deposition may be inappropriate in many areas.

Response: The section "Dry Deposition" discusses the limitations of making the assumption that dry equals wet deposition. This assumption may result in over- or under-estimates of total deposition. However, for some areas it may be the best available estimate. The discussion on dry deposition includes various methods for dry deposition measurements, as well as modeling estimates.

16. Comment: FLM needs to be more proactive in areas where impacts are unknown, *e.g.*, by requesting applicant perform pre-construction and post-construction monitoring.

Response: Figure D-1 in the Deposition Chapter notes that for areas where effects are unknown, or if the proposed source may cause or contribute to an adverse effect, the FLM may recommend deposition and deposition effects monitoring and/or research.

SUMMARY OF PUBLIC COMMENTS ON DRAFT FLAG PHASE I REPORT

No.	ORG.	POLICY	VISIBILITY	DEPOSITION	OZONE
1	Colorado Assoc. of Commerce and Industry (Dennis Arfmann)	Clarify that FLAG is only guidance and not binding on any permitting authority; "err on side of protecting AQRVs" quote is not indicative of Congress' true intent; should clearly delineate which portions relate to PSD permits for Class I areas vs. Class II or "beyond NSR" situations; guidance exceeds statutory authority---no basis to require cumulative impacts on AQRVs, cites proposed facility "will have" language in Sec. 165; no basis for LAER, offsets, or enhance technology in PSD context; FLMs attempt to coerce research funding through the permitting process is not appropriate; the stringent analysis and onerous recommendations are arbitrary in light of impacts from FLM activities-- <i>e.g.</i> , fire and mobile emissions.	Using very low visibility thresholds and comparing to arbitrarily set background levels is unsupported and arbitrary; cumulative impact analysis described in the report contains many technical flaws, <i>e.g.</i> , inconsistencies with IWAQM guidance, emission decreases should also be included; visibility modeling, depending on whether the source is < or > 50 km is inconsistent (24-hr vs. hourly averages, inconsistencies w.r.t. Regional Haze Rule).	Deposition section is nearly impossible to analyze when websites for deposition monitoring data and critical loads are unavailable; until such data are available, FLMs should withdraw the deposition sections of the report; no basis for assuming dry = wet deposition; fails to address deposition effects of FLM activities, <i>i.e.</i> , fire and mobile sources are significant contributors to sulfate and nitrate deposition and must be addressed.	The decision chart proposed for potential ozone effects bears no correlation to any effects from a proposed new or modified source; given problems with assessing individual source impacts, recommend that FLAG rely on deposition and/or visibility concerns and remove the ozone section from the report until better individual source assessment methods are available.
2	Steel Manufact. Assoc. (Thomas Danjezek)	Supports the efforts of FLAG; agrees with FLAG that there needs to be a consistent, predictable, and objective	FLMs should defer to EPA's regional haze regulations as a means of fulfilling their visibility		

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		<p>approach to identify and assess impacts on AQRVs; FLMs should not only focus on PSD sources but should also work with States to develop SIPs targeted at minor and grandfathered source reductions; the final report should make clear that the permitting authority has the ultimate responsibility to make the BACT determination; supports emissions offsets, but FLAG must clarify how such a program would be administered.</p>	<p>protection obligations.</p>		
3	Arizona DEQ (Nancy Wrona)	<p>Commends FLMs on FLAG effort; What is schedule for Phase II? What support exists for continuation of the project? Suggests FLAG consider coordinating with universities to promote necessary research (<i>e.g.</i>, Northern Arizona Univ. is equipped to perform ozone-injury research); in addition to "sound smoke management practices", FLMs must conduct very careful prescribed fires in consultation with State air</p>	<p>Do FLMs anticipate moving to Class I-area specific definitions of natural conditions? FLMs should support monitoring and using NO2 data in visibility analyses; the light extinction for NO2 should be included in the formulas and calculations; combining 1-hr RH values into a 24-hr average is problematic--it is not representative of atmospheric conditions, given the diurnal range of</p>	<p>Unlike visibility, there are no deposition screening values to allow for a quick evaluation of potential impacts; ADEQ was unable to review the referenced websites and recommends that this information be included in the FLAG report as an appendix.</p>	<p>There actually are several atmospheric models that have the capability of estimating changes in O3 concentrations from a single source (<i>e.g.</i>, UAM, Models3, SAQM-AERO), but model validation and adequate emission inventories would be needed before applying these models to rural Class I areas.</p>

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		regulators.	RH across AZ; perhaps it would be better to process RH data in the model as 1-hr averages to calculate sulfate and nitrate formation and then calculate the 24-hr average extinction; given the diurnal variation of RH, classification schemes should include elevation and meteorological season as a minimum; given the elevation range of 2,000 to 11,000 for AZ Class I areas, the Reference Level Values can not be the same--they should be specific to the area in question.		
4	National Environmental Development Assoc./Clean Air Reg. Proj. (Leslie Ritts/Ellen Siegler)	Would welcome opportunity to meet w/FLMs to discuss Class I issues; definition of AQRVs and the criteria for identifying them need to be sharpened; a clearer process for identifying "adverse impact" is needed--better technical support for listed benchmarks and additional public comment; report must be made more consistent with the CAA's provisions regarding relative	Essential to accurately estimate natural conditions--effects from fire should not be expected to be mitigated by PSD sources; questions the basis for chosen thresholds--further analysis is needed; don't rely on PSD program to mitigate problems caused by existing sources.	Deposition sections are weak and should be withdrawn and deferred to the Phase II report, once data and methodological issues have been resolved; FLMs should establish <i>de minimis</i> values for all effects not just visibility; can't penalize new sources if existing sources are causing critical loads to be exceeded; websites and AQRV lists are incomplete;	Ozone sections are weak and should be withdrawn and deferred to the Phase II report, once data and methodological issues have been resolved; FLMs should establish <i>de minimis</i> values for all effects not just visibility; passive monitoring data is of no value in assessing potential impacts from

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		<p>responsibilities of the FLMs, permitting authorities, and permittees (<i>i.e.</i>, burden shifting from FLM to the applicant when no increment is violated); focusing on nonattainment areas and seeking SIP revisions is a waste of the FLMs time--they should focus on their own responsibilities; FLMs should defer to permitting authority regarding data and modeling and BACT issues; it is troublesome that the FLMs refuse to prioritize AQRVs; "current" and "existing" conditions should not be addressed in the context of PSD permitting.</p>		<p>critical loads should be established through a public review process rather than <i>ad hoc</i> "collaborative" processes.</p>	<p>a new source.</p>
5	Department of Energy (Bill Hochheiser)		<p>The analysis required doesn't seem to take into account the kind of operations represented by oil and gas development--many distributed small sources whereas CALPUFF/CALMET model is designed to address a small number of large sources; using broad temporal and geographic averages for both natural</p>		

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			<p>conditions, RH, and impact modeling fails to account for wide variations in conditions; the recommended methodology should include comparison of modeling results with monitoring data; the visibility discussion should be broadened to include other scientists with various expertise.</p>		
6	Oregon DEQ (Pat Hanrahan)	<p>Current "very large sources" >100 km language appears to only consider sources with emissions of tens of thousands of TPY-- recommend FLAG expand the distance criteria from 100 km to 200 km.</p>	<p>The same decision thresholds should be used for both screening and refined modeling; drop the 0.4% criteria until the consequences of this level are evaluated further; provide examples of how "magnitude, frequency, duration, and other factors" could be considered; need to clarify that "Estimates of Natural Conditions" does not consider smoke for wildfires and/or prescribed burning; having seasonal average background data would improve modeling applications.</p>	<p>This section is very weak and needs to be more definitive--should list critical loads for Class I areas, identify areas that exceed critical loads, and include significant impact criteria for single source impacts on those areas; recommend that FLAG summarize the available deposition data in report tables.</p>	<p>Although the focus is on NOx reductions in NOx limited areas, recommend that language be added to recognize that ozone impacts also result from VOC emissions.</p>
7	WESTAR (Dan Johnson)		<p>Very similar to Oregon DEQ above.</p>	<p>See Oregon DEQ above.</p>	<p>See Oregon DEQ above.</p>

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8	Alabama DEM (Ronald Gore)	The information provided is largely procedural with little technical justification for the action levels or critical values recommended.	FLAG efforts seem duplicative with efforts of the Regional Haze Rule to attain the same goals; what is the regulatory or scientific basis for suggested levels of concern and analysis/decision thresholds? These levels seem to be arbitrarily selected; consider seasonal averages or longer, rather than 24-hr averages to account for wind/weather patterns.		The absence of single source model for ozone impacts suggests it is premature to restrict PSD permits on the basis of ozone impacts on vegetation; States cannot comply with other metrics unrelated to the NAAQS; if the FLMs feel the secondary ozone NAAQS is inadequate to protect public welfare, they should participate in the national NAAQS development/revision process; ADEM regulations to not allow LAER or offsets unless a source is in (or will impact) a nonattainment area.
9	Colorado Utilities Coalition for Clean Air (Christine Kadlub)	The FLAG document proposes a framework for NSR that is inconsistent with Section 165 of the CAA-- shifts burden of proof to applicant when increment not violated, can't require new source to assess cumulative impacts or Class II impacts;	Fire emissions on federal lands are not adequately addressed in visibility discussion.		Fire emissions on federal lands are not adequately addressed in the ozone discussion.

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		<p>FLAG report is a legislative rule that must comply with the procedural safeguards of the Administrative Procedure Act; FLAG is not consistent with federal authority under the Property Clause of the federal Constitution because the FLMs are not authorized to regulate non-federal property; FLMs must assess potential economic consequences associated with implementing FLAG recommendations; Key information is missing from the FLAG report on which the public cannot comment; the FLAG process places a disproportionate burden on new or modified sources in the western U.S.</p>			
10	North Dakota Dept. of Health (Jeffrey Burgess)	<p>Recommend removing the ambiguities of "large sources beyond 100 km" by requiring notification of all new/modified sources within 300 km; what is the basis for requiring States to revise their SIP to eliminate increment violations even though the FLM certified no adverse impacts for a new source?</p>	<p>Suggested editorial changes on pages 6 and 32; "cumulative analysis" in ozone and deposition sections appears to imply total impact, including baseline sources, whereas in visibility section it seems to exclude baseline sources- the omission of the impact of baseline sources in the FLAG visibility guidance</p>	<p>Recommend that this section include specific critical load and existing levels of wet and dry deposition, rather than referring to websites.</p>	

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			does not make sense, especially if a baseline source is already creating considerable visibility degradation.		
11	Alaska DEC (Tom Chapple)	Periodic increment consumption SIP revisions should not be required, but if they are it should be every 10 years, not every 5 years.	FLMs should carefully manage prescribed fires to minimize visibility and air quality impacts; question the use of PLUVUE II, especially at Alaska altitude (cites Healy analysis and associated problems).	References lack of data discussed in WESTAR comments; mentions "anomalous behavior" in ISCST3's deposition algorithm; recognizes that CALPUFF deposition algorithm works but CALPUFF is currently a non-guideline model.	Alaska is not aware of any ozone problems in their State; they object to any general requirement for PSD applicants to conduct ozone studies without showing compelling evidence that such studies are warranted.
12	Utah Governor's Office of Planning and Budget (Brad Barber)	Since the FLAG recommendations could affect States much the same as new NAAQS, FLAG should undergo a similar scientific review and public comment process; how would any post-construction monitoring data affect the new source if high levels were monitored?	Use Delta E = 2 for both refined and screening plume analyses; can they assume no plume analysis required for sources >50 km from a Class I area? They do not agree that use of CALPUFF in the most appropriate approach to address far-field haze impacts because of the high cost and limited technical expertise to run the models- -recommend a regional scale CALPUFF modeling system be developed and administered by the FLMs; 0.4% level is too restrictive;		The FLAG report is essentially setting an O3 standard for the west, with the burden of addressing O3 problems falling on the new sources; the report should address background and "natural" ozone levels;

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			what is the FLMs intent regarding Integral Vistas?		
13	Oglethorpe Power Corp. (Graham Holden)	FLAG should clarify that the States, not the FLMs, have the statutory authority to make a final determination that a source will have an adverse impact; the CAA does not require cumulative "adverse impact" analyses (cites source "will have an adverse impact" (not "cause or contribute to") language in Section 165); FLAG shifts the burden of demonstrating AQRV impacts from the FLM to the applicant when no increment is violated; FLAG report does not add needed certainty to new source permitting; FLAG report establishes legal standards for a successful permit and as such is a formal rule subject to the Administrative Procedures Act; FLMs must assess potential economic consequences associated with FLAG implementation.	FLAG does not justify its threshold levels		
14	Western Regional Council (Bob Wood)	FLAG recommendations would usurp state authority and exceed FLM authority given them in the CAA by	Visibility thresholds are arbitrary and can neither be detected or measured; the determination of "natural		

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		<p>establishing standards that are more stringent than NAAQS; the new FLAG standards would eliminate nearly all manmade activities near Class I areas; FLAG shifts burden of proof from FLM to applicant when increment not exceeded; no basis to require cumulative impact analyses (source "will have" language in CAA); FLAG does not adequately assess impacts of fire and mobile emissions; AQRV is not clearly defined and appears to be a moving target; FLAG should not expand their review to include Class II areas or BART reviews for existing sources; FLAG report is a substantive rule that should meet Administrative Procedure Act requirements and include an economic impact analysis; key FLAG information has not been made available to the public; FLAG report was done by the FLMs behind closed doors and did not have stakeholder involvement.</p>	<p>conditions" is extremely subjective and arbitrary, does not include fire, and is not based upon sound science.</p>		
15	ASARCO (Krishna)	FLAG report is a substantive rule that should meet	FLAG prescribes using modeling techniques that	FLAG should recognize the complexity of deposition	FLAG's view of ozone formation chemistry is

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	Parameswaran)	Administrative Procedure Act requirements and include an economic impact analysis; FLMs should broaden the FLAG process to be a more participatory stakeholder process; FLAG attempts to expand FLM authority from evaluating new sources impacts on Class I areas (shifts burden of proof to applicant when increment not violated, requires cumulative analyses when CAA requires only analysis of the impacts that an individual source "will have" on AQRVs, looks at Class II areas); FLAG process would interfere with federal-state relationships established by the CAA; FLAG diminishes predictability for certain permitting analyses.	are inappropriate or that yield unreliable results; FLAG establishes arbitrary visibility thresholds; FLAG provides inadequate guidance for assessing cumulative visibility impacts; FLAG inappropriately bases determination of potential impacts on changes to natural conditions; thresholds for refined and screening plume analyses should be the same.	analyses and the unavailability of adequate monitoring methods; deposition limits (<i>i.e.</i> , critical loads) are extremely difficult to establish; FLAG should more thoroughly develop its discussion of baseline deposition data; FLAG does not provide clear guidance for deposition modeling; ASARCO agrees with WEST Associates recommendations.	overly simplistic; FLAG should not use phytotoxic effects known to occur at exposure concentrations within the range of background O3 concentrations as an indicator of vegetation damage; both the W126 and N100 values must be used together to estimate vegetation growth loss; FLMs should collect ambient O3 monitoring data; FLAG should revise its criteria for assessing damage to vegetation resulting from O3 exposure.
16	Arizona Chamber of Commerce (Amy Porter)	FLAG report is a substantive rule that should meet Administrative Procedure Act requirements and include an economic impact analysis; FLAG must include stakeholder involvement and peer review of technical material; FLAG attempts to expand FLM authority under	Cumulative analysis should take into account emission decreases as well as increases; visibility thresholds are overly strict; visibility approach is inconsistent with the Regional Haze Rule.	FLAG fails to clarify the rationale for establishing critical loads and does not make supporting documents available; a LAC of 0% is unrealistic; more information is needed regarding deposition models; FLAG should provide more substantial	FLAG should not assume that visible symptoms (<i>e.g.</i> , oxidant stipple) constitute O3 "damage"; both the W126 and N100 values must be used together to estimate vegetation growth loss; FLAG's

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		<p>the CAA (shifts burden of proof to applicant when increment not violated, requires cumulative analyses when CAA requires only analysis of the impacts that an individual source "will have" on AQRVs, looks at Class II areas); PSD regulations do not require that permits be denied based solely on the FLM's visibility analysis--permitting authority has discretion to balance several factors; uncertainty does not represent an adverse impact finding.</p>		<p>methodology for estimating baseline deposition levels.</p>	<p>recommended exposure protocol is inappropriate because it result in higher hourly average concentrations.</p>
17	<p>NESCAUM (Jason Grumet)</p>	<p>Encourages State participation in the FLAG process; supports cumulative modeling, but requests guidance on which sources to include in such an analysis; clarify what "very large sources" >100 km would require FLM notification.</p>	<p>Supports goal of achieving natural background conditions, but the FLAG background visual range recommendation is inconsistent with EPA guidance; the f(RH) values are too conservative for the Northeast areas and do not adequately reflect the lower humidity during daylight hours; recommends that f(RH) values be consistent with the Regional haze Rule (<i>i.e.</i>, 5 years and based on 20% best/worst days).</p>	<p>Dry = wet deposition is a reasonable default assumption, but refinements are needed for site-specific areas; suggests that 10 kg/ha/yr nitrate deposition represents adverse impact level.</p>	

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18	TVA (John Shipp)	FLM role regarding AQRV protection under the CAA is limited to Class I areas; the referenced databases need to be more available to the public; recommends as AQRV-impact audit process to check for FLM consistency; rather than stating "very large sources" >100km are of concern, develop some specific size/distance criteria; guidance should reflect that a cumulative increment analysis is only required if the source exceeds significant impact levels; FLM should specify time limits for when they will provide necessary data to applicants.	Better distinction is needed for the various thresholds provided; visibility prescription discussed on pages 31-33 is inconsistent with that in Figure V-1 on p.33; the RH region for the eastern U.S. needs to be subdivided to reflect the more humid conditions in the southeast; TVA request FLAG also include a plume impact example calculation.	More specifics are needed for nitrogen deposition indicators; public needs assess to AQUIMS to evaluate the merits of this database; the deposition effects procedure needs to be better defined and clarified.	This section overstates ozone research findings; using a 24-hr time period for W126 is unjustified; add a column to Tables O-1 and O-2 and provide a published reference for each species; recommend a certification process for FLM personnel who conduct O3 injury assessments; why is the FLM concerned about foliar injury on invasive exotics? Appendix 3B contains many inconsistencies and should be revised.
19	Gas Research Institute (Jeffrey Panek)	Would like a meeting to discuss the comments; more stakeholder involvement should have been provided; the FLAG report contains insufficient documentation on many fundamental technical assumptions; FLAG should address how and when methodologies and AQRVs will be revised; FLAG should provide a discussion of consistent Class I significant	FLAG metric is inconsistent with the Regional Haze Rule (B_{ext} vs deciview); clarification is needed regarding natural background visual range calculations; FLAG should provide the basis and support for the various visibility thresholds; FLAG should define the nature of a cumulative analysis and how it should be	Recommended method to quantify cumulative impacts should be revised; methods used to quantify impacts to sensitive receptors from ambient pollutant concentrations is not provided; deposition impacts are likely to be understated because cloud water impaction is not addressed.	Until appropriate screening models are developed, FLAG should not deal with O3 impacts on AQRVs and should not pursue additional NOx emission controls as an O3 reduction strategy; not all areas are NOx limited and further justification of this assumption is needed;

No.	ORG.	POLICY	VISIBILITY	DEPOSITION	OZONE
		<p>impact levels and define criteria required to demonstrate insignificant impacts; FLAG should address the relationship between NSR, NEPA , and the Regional Haze Rule; FLAG should develop guidelines regarding use of emission offsets to mitigate adverse impacts; fire and mobile emissions can be significant and their impacts should be addressed.</p>	<p>conducted; cumulative impacts from NEPA and PSD analyses are not interchangeable; basis for RH and f(RH) assumptions need to be provided; applicants should provided flexibility regarding which CALPUFF modeling assumptions to make.</p>		<p>the averaging time of the N100 metric is not defined; the basis and relevancy of the W126 metric needs to be provided; effects of mobile sources on ozone formation needs to be evaluated as part of any ozone study.</p>
20	Lignite Energy Council (John Dwyer)	<p>FLAG report is a substantive rule that should meet Administrative Procedure Act requirements and include an economic impact analysis; FLAG should make clear that the FLM bears the responsibility for analysis and must provide the input to the State (don't shift this burden to the applicant); FLMs should reconsider the requirement that applicants provide cumulative impact analyses and establishing conditions when uncertainty exists regarding potential adverse impacts; FLAG should not be used to</p>			

No.	ORG.	POLICY	VISIBILITY	DEPOSITION	OZONE
		circumvent legislation or judicial decisions. FLAG should define "very large sources" > 100km (coal-fired sources 500 MW or less at a distance greater than 100 km from a Class I area should be exempt from FLM notification).			
21	Wyoming DEQ (Dan Olson)	The requirement for cumulative assessment of visibility and AQRV impacts, and consideration of applying better than BACT controls and obtaining emission offsets are inconsistent with WY and EPA regulations; revise p.152 to reflect Clif Benoit's recent retirement.	Some of the natural conditions presented in Table 2.B-1 are dirtier than that of the mean of the cleanest 20% days monitored in some Class I areas--the cleaner values should be used; please cite the basis for the 95% relative humidity cutoff-- EPA guidance cites only a 90% and 98% RH cutoff; please print the f(RH) value next to each RH region on p.39.		
22	Colorado Mining Assoc. (Dianna Orf)	FLMs have seized upon a single charge set forth in Section of 165 of the CAA and have constructed an entire program of environmental protection under the guise of "guidance"; FLAG usurps the authority of EPA and State permitting authorities; FLAG			

No.	ORG.	POLICY	VISIBILITY	DEPOSITION	OZONE
		<p>establishes de facto standards and circumvents the Administrative Procedures Act and ignores balancing of economic interests; FLAG improperly expands the definition of AQRVs; FLAG expands FLM authority beyond role set by Congress; FLAG improperly shifts the legal and financial burdens of demonstrating impacts; "Adverse Impact" is vague and subject to arbitrary interpretation.</p>			
23	Vermont DEC (Paul Wishinski)	<p>Recognizes adverse visibility and deposition (S and N) exist at Lye Brook WA; supports FLAG process 100%; encourages NESCAUM coordination in Phase II; guidance on what constitutes a "very large source" beyond 100 km should be developed, recognizing that utilities as much as 1000 km have transport potential.</p>	<p>Clarification is needed as to how current baseline conditions mesh with the requested cumulative impact modeling; FLAG's recommendation regarding use of natural background and f(RH) values are appropriate.</p>	<p>Provided copy of report entitled, "Is Nitrogen Deposition a Serious Issue?", and requested that FLAG reference it in the final report; dry = wet deposition is a reasonable default assumption, but refinements are needed for site-specific areas; suggests that 10 kg/ha/yr nitrate deposition represents adverse impact level.</p>	
24	American Public Power Association (Bill Wemhoff)	<p>Supports comments provided by WEST Associates and UARG; FLAG should not be used to push states to a different program by</p>	<p>Supports comments provided by WEST Associates and UARG.</p>	<p>Supports comments provided by WEST Associates and UARG.</p>	<p>Supports comments provided by WEST Associates and UARG.</p>

No.	ORG.	POLICY	VISIBILITY	DEPOSITION	OZONE
		<p>establishing new standards; FLAG should be integrated with other programs (Regional Haze Rule, NSR Reform, NAAQS, MACT, etc.); FLMs should assess economic impacts of FLAG implementation; request for greater public participation.</p>			
25	Phelps Dodge (Shawn Kendall)		<p>Provided extensive comments and analysis of visibility section, including the following key points: cumulative analyses must consider emission reductions as well as increases; CALPUFF limited for multi-source applications; technical and operational resource requirements of the modeling analysis are severe and far exceed PSD requirements (small businesses can't afford associated consulting expenses); visibility thresholds are unworkable, arbitrary, and can't be detected or measured; PSD regulations provide States discretion to balance several factors, including</p>		

No.	ORG.	POLICY	VISIBILITY	DEPOSITION	OZONE
			potential visibility impacts; visibility techniques are inconsistent with the Regional Haze Rule.		
26	American Forest & Paper Assoc.; API; Assoc. of Imported Auto manufactures; National Mining Assoc. (Ellen Siegler)	FLAG shifts burden of proof when increment not violated; definitions of AQRV and adverse impact are imprecise and subjective; no basis to require cumulative impacts-- should look at new source only; no basis for LAER control---FLMs shouldn't waste valuable time doing BACT reviews; FLAG will result in significant burdens and delays without achieving environmental benefits.	Reliance on CALPUFF/CALMET is misplaced; no basis for established visibility thresholds.	Recommend FLMs withdraw this section until better data and models to assess impacts are available; public input needed in establishing critical loads.	Premature to address O3 impacts since no models available-- recommend FLMs delete this section and defer it to Phase II; W126 alone will not provide an accurate estimate of vegetation growth loss; too broad of a generalization to assume all areas are NOx limited.
27	WEST Associates (Nader Mansour)	WEST Associates commissioned Paul Seby to review the policy section. Mr. Seby provided detailed comments and recommendations including: FLAG is inconsistent with CAA requirements of Section 165---shifts burden of proof to applicant when increment not violated, can't require new source to assess cumulative impacts or Class II impacts; FLAG report is a legislative rule that must comply with the	WEST Associates commissioned Dr. Ivar Tomback to review the visibility section. Dr. Tomback provided detailed comments and recommendations including: FLAG approach is inconsistent with EPA "Plume Visibility Workbook" and IWAQM guidance (<i>e.g.</i> , use of natural background, different thresholds for "refined" plume analysis);	WEST Associates commissioned Dr. George Hidy to review the deposition section. Dr. Hidy provided detailed comments and recommendations including: critical load information should be based on direct studies in Class I areas; FLAG fails to address impacts of fire and mobile sources.	WEST Associates commissioned Dr. Allen Lefohn to review the ozone section. Dr. Lefohn provided detailed comments and recommendations including: much information presented is inconsistent with the realities of current knowledge and should be eliminated; both W126 and N100 values must be used together

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		<p>procedural safeguards of the Administrative Procedure Act; FLAG is not consistent with federal authority under the Property Clause of the federal Constitution because the FLMs are not authorized to regulate non-federal property; FLMs must assess potential economic consequences associated with implementing FLAG recommendations; key information is missing from the FLAG report on which the public cannot comment; the FLAG process places a disproportionate burden on new or modified sources in the western U.S.</p>	<p>f(RH) definition for different areas of the country is unsound; CALPUFF is unable to compute credible sulfate impacts in the presence of clouds; FLAG fails to account for fire emissions in estimating natural conditions.</p>		<p>to establish vegetation growth loss; should only rely on continuous O3 monitoring data to calculate W126 and N100 metrics---passive samplers provide only limited data relating O3 exposure to plant response; FLAG should not rely on unrealistic experimental exposure protocols (<i>i.e.</i>, 1.5 and 2.0 time ambient); FLAG must develop regional fumigation facilities to produce exposure-response information that takes into account east-west differences.</p>
28	EPA-Region 4 (Doug Neeley)	<p>Suggests that the report be limited to Class I areas; if Class II areas included, they should be explicitly identified with corresponding AQRV identification and evaluation techniques; to the extent possible, FLAG should discuss effects of other pollutants (<i>e.g.</i>, heavy metals); although cultural resources are included in the</p>			<p>Report should also address the current 1-hr O3 NAAQS; include reference on models used to show NOx offsets would result in O3 benefit; numerous issues would need to be addressed before EPA could institute regional ozone permit modeling.</p>

No.	ORG.	POLICY	VISIBILITY	DEPOSITION	OZONE
		<p>definition of AQRV, it appears that cultural effects are not addressed in the report; the basis and definition should be provided for each <i>de minimis</i> level used; it would be helpful to provide the procedures used to identify the applicable AQRVs for each Class I area and a reference as to where a current AQRV list can be obtained; more definitive guidance should be provided regarding "very large sources" > 100km; provides some suggestions to clarify individual FLM, applicant, and permitting authority responsibilities; replace "polluter" with "applicant"; recommend that all appendices be placed at the end of the report instead of at the end of each section; SIPs do not provide a mechanism to address AQRV impacts in nonattainment areas</p>			
29	Maine DEP (Tom Downs)	<p>Report was well organized, researched and written; FLAG should define "screening" criteria for determining what constitutes "very large</p>	<p>Visibility thresholds should be consistent for Class I areas on a regional basis; using natural background visual ranges in the plume</p>	<p>Table D2---Roosevelt-Campobello was omitted from these tables.</p>	

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		sources" >100 km; discussions regarding the revised PM and O3 NAAQS should reflect recent Court of Appeals decisions.	impact modeling is too conservative causing an unnecessary burden on the applicant; because the cumulative visibility analysis would be resource intensive, recommend a regional modeling approach be undertaken as suggested in IWAQM; FLAG's recommended cumulative visibility analysis approach is inconsistent with the Regional Haze Rule; recommend that f(RH) factors be calculated and used for daylight hours; to be consistent with the Regional Haze Rule, the f(RH) values should be based on 5-yrs of relevant data using the 20% least impaired days.		
30	Appalachian Mountain Club (Bruce Hill)	Support FLAG and recommends that it move forward, including Phase II; FLAG should play a stronger role in mitigating existing source impacts; recommends that FLAG include statistics regarding past permits near Class I areas (<i>i.e.</i> , #, year, location, etc.) and a map	Recommends tighter visibility thresholds and ratcheting down over time.	Recommend FLMs continue efforts to establish critical loads; recommend more deposition monitoring, perhaps cooperative ventures with applicants.	FLMs need to pay more attention to human health as an AQRV; don't concur with using N100 metric because vegetation effect occur well below this level; not clear why SUM06 metric wasn't used.

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		<p>showing areas currently adversely impacted; encourages formation of research partnerships; strongly supports FLAG's approach to assess cumulative impact--can't just look at proposed source alone; to protect downwind areas, recommend adoption of a 500-1000 km FLM notification threshold for "very large sources"; FLMs should announce preliminary adverse impact det. in the <i>Federal Register</i> so public can comment.</p>			
31	Minnesota Power (Brandon Krogh)	<p>Need to better clarify roles of the FLM and permit applicant---believe the AQRV analysis should be conducted by the FLM, not the applicant; "very large sources" > 100 km leads to unnecessary confusion---recommend providing specific numbers and limiting review to sources within 100 km.</p>			
32	Illinois Power (Aric Diericx)	<p>The FLM, not the applicant, should assess potential impacts on AQRVs; no basis to require cumulative impact modeling or for a State to require emission offsets if the</p>	<p>FLAG should acknowledge the modeling limitations for assessing impacts >50 km.</p>		

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		source would not cause an adverse impact on an AQRV by itself; "very large sources" > 100 km leads to unnecessary confusion.			
33	Independent Petroleum Assoc. of Mountain States (Marc Smith)	FLAG report is a substantive rule that should meet Administrative Procedure Act requirements and include an economic impact analysis; Congress established the Class I increments to protect AQRVs while FLAG attempts to establish new standards that obviates the existing Class I standards; FLAG process would disrupt the federal-State relationship established by the CAA; FLAG's definition of AQRV is more expansive than that defined by Congress and extends the definition to encompass ecosystem management; no basis for cumulative impact studies when the statute only allows evaluation of the impact of the proposed source; no basis to require LAER or offsets; determining sensitive AQRVs is the FLM's responsibility, research money should be	Definition of natural conditions does not include considerations of fire in assessing AQRV impacts; FLAG does not recognize the existing limitations of air quality models; visibility thresholds are extremely low; listed backgrounds are not consistent with backgrounds given during permit modeling efforts; CALPUFF in screen mode can only handle single sources, full mode option is very costly and not listed in the IWAQM protocol; FLMs without adequate background in air modeling are allowed to choose parameters for modeling; flawed assumptions regarding humidity regions.	Deposition websites used for reference in the report do not have populated data fields.	

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		sought through Congressional appropriation, not applicant extortion; in many areas, the FLAG report lacks supporting or credible data.			
34	U.S. Steel (William Kubiak)		Clarify assessment method when closest point is w/in 50 km and farthest point is >50 km; plume analysis using natural background is inconsistent with EPA guidance; there is no basis for separate screening and refined impairment for plume analysis; FLAG haze assumptions are overly conservative.	Facility should be given the opportunity to show what the deposition impacts of the new sources would be.	FLAG should solicit input from the applicant regarding likely impacts.
35	Utility Air Regulatory Group (Mike Teague)	States have primacy role in NSR; CAA does not require cumulative AQRV impact analyses (facility "will have", not cause or contribute to" language); FLAG expands FLM statutory authority by shifting AQRV analysis requirements from the FLM to the applicant; FLAG raises more questions that it answers; requests more stakeholder involvement.	FLAG doesn't justify its threshold levels.		
36	Center for Energy and Economic Development and	Recommends FLMs withdraw the report and seek stakeholder input w.r.t. "next	FLAG's proposal to establish new standards and new analytical methods is	FLAG sets different and more stringent standards than those developed by	FLAG is a direct attack on the scientific validity of EPA

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	Western Fuels Assoc. (Fred Palmer/Terry Ross)	steps"; key flaw is that FLMs don't have CAA authority to define AQRVs and unacceptable AQRV impacts--these responsibilities clearly rest with the States; FLAG exceeds FLM's statutory authority--shifts burden of proof; no basis for cumulative analysis (must show source "will have" adverse impact, not "cause or contribute to"); FLAG fails to establish deadlines for FLM action.	duplicative, wasteful, unnecessary, and destructive of the CAA visibility program; 0.4% <i>de minimis</i> threshold is too stringent and far below the range of human perceptibility.	EPA.	secondary O3 NAAQS.
37	Hoosier Energy (Paul Reynolds)	Recommends broader stakeholder input; FLAG report is a substantive rule that should meet Administrative Procedure Act requirements and include an economic impact analysis; FLAG exceeds FLM's statutory role by shifting the burden of proof when the increment is not violated; no basis to require cumulative analysis (source "will have" language).	Using natural background is inconsistent with EPA and IWAQM guidance and is problematic because natural conditions are not well defined; CALPUFF doesn't adequately address how clouds or fog affect sulfate formation.	FLAG falls short in providing a rational basis for evaluating deposition impacts; FLMs must establish realistic LACs.	FLAG doesn't adequately address the effect of natural O3 background; must use both W126 and N100 metrics to establish vegetation growth loss; must rely on continuous O3 monitoring data, not passive data.
38	Petroleum Assoc. of WY (Tom Clayson)	Concerned about potential for significant impacts to the oil and gas industry; recommends further stakeholder involvement; supports	Supports comments filed by Research Gas Institute.	Supports comments filed by Research Gas Institute.	Supports comments filed by Research Gas Institute.

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		comments filed by Research Gas Institute.			
39	South Carolina DHEC (Pat Walker)	<p>What is the definition of "very large sources" > 100 km?; any available screening out criteria?; a common concern voiced by states and industry is the FLM making changes concerning Class I analyses during the permit review process--are there plans to hold Class I analysis requirement stable provided the application is moving forward at an acceptable pace?; is there a list of Class I areas that certified existing adverse impacts?; what process must the FLM go through to certify existing adverse impacts?; it's the permitting authority's responsibility, not the FLM's, to make a final determination on the impact status; clarify when economics would be of lesser importance in BACT analysis; SC can not require LAER in attainment areas for pollutants other than VOC; SC recommends FLMs consider incentives to industry, <i>i.e.</i>, the FLM could</p>	<p>State may not have authority to consider cumulative effects of visibility in the review of a specific project's visibility impact; FLAG needs to more adequately define what minimal impact can be considered "acceptable."</p>		

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		agree to a decreased review time and acceptance of a project if the facility included LAER and agreed-upon offsets in the initial application.			
40	State of Montana (Bob Habeck)	Explain what happens when the State does not agree with the FLM regarding source impact on visibility---what legal recourse is available to the FLMs?; don't exclude permitting authorities when determining adverse impact levels; activity fuel burning for hazard reduction and silvicultural treatment also represent a large amount of emissions that should be addressed.			
41	Nucor Corp. (Steve Rowlan)	FLMs should publish AQRVs in the <i>Federal Register</i> for public comment; clarify "very large sources" > 100km; FLMs should not routinely review BACT; replace "polluter" with "permit applicant"; FLAG shifts the burden of proof from FLM to applicant when increment not violated; need to clarify basis and intent of cumulative analyses; no basis to expand	Clarify use of CALPUFF-screen vs. CALPUFF-refined mode; recognize monitoring option (<i>i.e.</i> , IMPROVE data) for assessing cumulative visibility impacts.		

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		AQRV review to Class II areas; address historical degradation through SIP process not NSR; need to define "adequate mitigation".			
42	Environmental Defense (Vickie Patton/Elissa Gutt)	Must examine new sources in the context of actual & known environmental concerns (<i>i.e.</i> , cumulative impact analyses); applicant has responsibility to assess impacts and provide necessary information to FLMs; FLMs must remedy existing source impacts; use the power of the internet to inform the public.		Recommend FLMs build on Europe's advances on establishing critical loads; FLMs should update critical load information based on 5-yr reviews; dry=wet assumption may be inappropriate in many areas; need to clarify specific terms and definitions; concerned about inaction when impacts unknown--need to be more proactive (preconstruction vs. post-constructing monitoring).	Concerned about inaction when impacts unknown--need to be more proactive (preconstruction vs. post-constructing monitoring).
43	Colorado Petroleum Assoc. (Stan Dempsey)	Supports comments submitted by GRI and CACI; lack of stakeholder involvement in the FLAG process is troubling; more discussion is needed regarding FLAG's relationship to other regulatory programs (<i>e.g.</i> , Regional Haze Rule, NEPA, NSR Reform);			
44	Idaho DEQ (Diane Riley)	Document is trying to reach too large of an audience, as a			

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		result the report is lengthy and difficult to wade through; classifying visibility impairment caused by naturally ignited fires as natural is still being hotly debated; clarify when land management plans are grandfathered from conformity determinations.			
45	Golder Associates (Steve Marks)		Applicants should be allowed to propose more realistic ammonia and O3 background values in full CALPUFF modeling.		