NOTE: Comments of Leon Sedefian, NYSDEC, in *bold italics* throughout specific recommendations

Comments of Alan Dresser, NJDEP and Kevin Ostrowski, Maine DEP in *bold italics* at the end of specific recommendations

January 11, 2005

~ Preliminary Draft ~

WESTARPSD WORKGROUP

Recommendations to Reform the PSD Program Consistent with the Clean Air Act

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Recommendation 1: THE PSD WORKGROUP recommends that applicants of proposed PSD major sources and major modifications with ambient impacts greater than significant impact levels should be required to perform cumulative increment consumption analyses and should follow procedures consistent with other current recommendations included in this document. To facilitate this recommendation, THE PSD WORKGROUP recommends that EPA promulgate the significant impact levels for Class I, II, and III areas that are contained in EPA's 1996 proposed PSD rule. *(Whitepaper 1)*

Recommendation 2: THE PSD WORKGROUP recommends that permitting authorities conduct Periodic Review of increment consumption, and that Periodic Reviews be implemented using a "tiered" approach with the rigor and cycle of analysis tied to increment consumption conditions in the air quality planning area. *(Whitepaper 1)*

Recommendation 3: THE PSD WORKGROUP recommends that cumulative increment analyses should be consistent within and across states with regard to the geographic scope and type of sources that are included in the PSD baseline and current emissions inventories. THE PSD WORKGROUP recommends that EPA, with input from the THE PSD WORKGROUP and the S/A PSD WORKGROUP, prepare guidelines that delineate the categories of sources that should be included in emissions inventories, and how they should be included, for use in PSD program implementation. *(Whitepaper 1)*

Recommendation 4: THE PSD WORKGROUP recommends that EPA work with states and FLMs to develop a menu of acceptable emissions calculation approaches and guiding principles for use when preparing emissions inventories for cumulative PSD increment analyses. *(Whitepaper 1)*

Recommendation 5: THE PSD WORKGROUP recommends EPA take immediate steps to address the substantial ambiguity that exists regarding the basis for and conduct of Air Quality Related Values cumulative analyses. Such steps can eliminate the current, substantial constraints that undermine the desirability and feasibility of conducting such analyses. *(Whitepaper 2)*

Recommendation 6: The PSD WORKGROUP recognizes the FLAG guidance as a useful tool supporting AQRV impact analyses provided that expectations around the use of threshold values are clarified acceptably. *(Whitepaper 2)*

Recommendation 7: THE PSD WORKGROUP recommends that an explicit consultation relationship be established between States and FLMs to develop policy approaches for the use of "critical loads" information for pollutants in Class I areas. *(Whitepaper 2)*

Recommendation 8: THE PSD WORKGROUP recommends that modeled indications of increment violations associated with PSD Major Source permit actions should be addressed in a manner that provides time to refine models to ensure accurate results, but would ultimately result in denial of the permit application in the absence of mitigation measures by the permit applicant adequate to address problems. *(Whitepaper 1)*

Recommendation 9: THE PSD WORKGROUP recommends that EPA adopt a tiered response process to provide permitting authorities flexibility to address findings of increment violations identified during Periodic Review or a permitting action. *(Whitepaper 1)*

Recommendation 10: THE PSD WORKGROUP recommends that a tiered response system should be developed to provide permitting authorities flexibility to address adverse AQRV impacts identified during cumulative AQRV impact analyses. *(Whitepaper 2)*

Recommendation 11: THE PSD WORKGROUP recommends that proven, new technical tools and emissions data should be used when they become available for future analysis involving evaluating and planning air quality management. However, fair and equitable approaches must be sought when addressing increment exceedances associated with revised assumptions and/or techniques. *(Discussed in the context of Whitepaper 1)*

Recommendation 12: THE PSD WORKGROUP recommends that EPA explicitly acknowledge the roles that ambient monitoring information can play in PSD program implementation.

Recommendation 13: THE PSD WORKGROUP recommends that EPA clarify the rules and policies related to baseline area redesignations by defining the information a permitting authority should provide with baseline area redesignation proposals and articulating the critical factors EPA Regional Offices will consider when reviewing the proposal.

Recommendation 14: THE PSD WORKGROUP recommends that States and FLMs should recognize the importance of, and work to improve where necessary, communication, coordination, and public notification expectations and procedures associated with PSD permitting activities. Such expectations and procedures are crucial to an effective working relationship between the FLMs and each unique state.

Recommendation 15: In the context of single source permit and Periodic Review inter-jurisdictional emissions impacts, the PSD WORKGROUP encourages states to consult early and often and agree in advance on modeling protocols to enable consistency in and ensure the equity of the analysis. WESTAR further recommends EPA take steps to ensure EPA Regions, in partnership with states, operate consistently among themselves in inter-jurisdictional contexts and develop data and methods that will better enable inter-jurisdictional analysis.

Draft WESTAR PSD WORKGROUP Recommendations – Background and Detail

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Recommendation 1: THE PSD WORKGROUP recommends that applicants of proposed PSD major sources and major modifications with ambient impacts greater than significant impact levels should be required to perform cumulative increment consumption analyses and should follow procedures consistent with other recommendations included in this document. To facilitate this recommendation, the PSD WORKGROUP recommends that EPA promulgate the significant impact levels for Class I, II, and III areas that are contained in EPA's 1996 proposed PSD rule.
Comment: ***On face value, this recommendation only affirms the historically consistent use of significance levels for determining the need to perform additional assessments, including a cumulative analysis, for both standards and increments (see page c.30 of the EPA NSR Workshop Manual). These levels were in use even before EPA's proposed 1995 PSD rule revisions and many states (including NESCAUM states) strongly recommended to EPA during the comment period for the 1996 proposal that the significant levels be adopted in regulation to facilitate their use. However, it should be clarified that for Class I areas, the significant levels have not been consistently used since in the 1996 proposal EPA requested comments on two sets of levels: one set proposed by EPA at 4% of the increments and another set proposed by the FLMs at lower levels. The NECAUM states have consistently used the EPA proposed levels in both permit application reviews as well as for the basis of the Class I subcommittee work. Thus, this recommendation seems to boil down to a need by certain agencies to have a "regulatory" basis for the use of the significance levels.***

The discussions below incorporate other aspects of the recommendation which need some additional comments.

Description: Permit applicants of proposed PSD major sources and major modifications with ambient impacts greater than significant impact levels should be required to perform cumulative increment consumption analyses to assess whether the proposed permitting action would comply with applicable PSD increments. This cumulative increment analysis, per Recommendation 3, should consider emissions from major and minor stationary sources, area sources, and mobile sources that affect increment consumption (or expansion) within the proposed source's significant impact area. Permit applicants should coordinate with their permitting authority to determine how best to incorporate area and mobile source emissions into the cumulative increment analysis. The PSD WORKGROUP believes that states should have flexibility with respect to the approach that they require permit applicants to use when addressing area and mobile sources in their analyses.[1]

Comment: As recommended here and as noted in the footnote, there is a definite need for flexibility by the specific regulatory agency in determining which sources need to be included in a source specific cumulative analysis. This recommendation should be reconciled with Recommendations 2 and 3 wherein Periodic Review and intra- and inter-state consistence is sought in the guidance asked of EPA about the types of sources to be included in a cumulative analysis and the level of such an analysis. The recommendation should recognize that direct emissions from most mobile sources are excluded from both PSD applicability determinations and the definition of secondary emissions as well as the fact that these emissions are usually included in a source specific analysis to the extent that they are quantifiable and are associated with the source under review. That is, presumably, the main reason and purpose for recommending the Periodic Review, which would consider the impact of these "other" sources to the increment. States, at times and to a limited extent, have relied on some of the source specific permit activities to address the issue by incorporating minor sources in the analysis, but it should not be the purpose of these source specific assessments to perform the state's "obligation". The "inventory" of such sources still has to be developed or at a minimum "confirmed" by the states in the review process and lends itself to an extensive analysis which might go well beyond the source specific requirement.

THE PSD WORKGROUP believes that PSD permit applicants should be allowed to utilize a "screening approach" to cumulative analyses that matches the level of analysis detail to air quality circumstances in the area. The concept of a screening approach is

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[1] **States rely on a variety of approaches for incorporating area and mobile source emissions into cumulative increment consumption analyses. For example, some states provide permit applicants with area and mobile source emissions inventories to include in the applicants' analyses. Other states prefer to conduct their own review of area and mobile source emissions impacts, requiring permit applicants to focus their cumulative increment analyses on major and minor stationary sources.**

designed to eliminate the need for a more resource-intensive, detailed modeling approach to cumulative increment consumption analysis in situations where a simpler analysis, relying on more conservative emissions growth assumptions, is sufficient to demonstrate that increment would not be fully consumed with the addition of the proposed source. For example, a screening approach could utilize allowable or permitted emissions, instead of actual emissions, for sources in the emissions inventory. It should be noted that cumulative analyses of increment consumption should be consistent with regard to the type of emissions sources that are considered in the analyses as well as methods, regardless of whether the applicant is conducting a "screening approach" or a detailed modeling analysis (see Recommendation 3 for information on the scope of sources to include in PSD emissions inventories).

THE PSD WORKGROUP affirms that permitting authorities have the responsibility and authority to require a level of analysis that they believe is sufficient to support their decision-making regarding the proposed source. As such, The PSD WORKGROUP encourages PSD permit applicants to consult with permitting authorities to discuss their proposed approach to performing cumulative analyses of increment consumption.

Rationale: Workgroup participants agreed that failure to consider emissions growth information from sources other than the permit applicant's source – including emissions changes associated with other major sources, as well as minor, area, and mobile sources since the applicable PSD baseline date – could often result in significant underestimates of increment consumption. Workgroup participants indicated that the consistent consideration of emissions growth information in cumulative increment consumption analyses will provide more accurate assessments of available increment, enabling permitting authorities to better protect air quality.

Many states are using the significant impact levels EPA included in its 1996 proposed PSD rule; however, EPA has not finalized these levels. Workgroup participants indicated that promulgating significant impact levels in regulations would provide greater certainty to permit applicants, permitting authorities, and other stakeholders, and could improve the consistency of the PSD permitting process. Proposed sources having a maximum impact on ambient concentration less than the significant impact level would not be subject to requirements to perform a cumulative increment analysis.

Comments of Maine DEP:

1) Are these significant impact levels intended to be absolute values (i.e., any PSD major sources and major modifications that even slightly exceed the significance levels will be required to perform a cumulative analysis)? Given that many of the currently available guidance documents use open-ended language (which allows interpretation on a case-by-case basis), will the outcome of a source, whose emissions slightly exceed the significance levels, be left up to the discretion of a the permitting authority? For instance, the FLMs use their discretion for sources that exceed a 5% change in extinction to trigger a cumulative analysis by looking at the duration, frequency,

magnitude of an "exceedence", and then apply some common sense. Is the SIL intended to be a definitive threshold, which even if slightly exceeded, would trigger a cumulative analysis?

2) Including the mobile source increment contribution into the same modeling runs as the point and area increment sources may prove to be very difficult, as different models will be required to evaluate each of these components. If this is required, there should be some detailed guidance as to how this can be reasonably achieved.

3) Although Maine (and the NESCAUM states) has consistently used the SIL values for many years, we encourage these values to be formally promulgated by EPA.

Recommendation 2: THE PSD WORKGROUP recommends that permitting authorities conduct Periodic Review of increment consumption, and that Periodic Reviews be implemented using a "tiered" approach with the rigor and cycle of analysis tied to increment consumption conditions in the air quality planning area.

Comment: The main purpose of Periodic Review appears to be the incorporation of the consequences of minor source growth, including mobile and area sources, on the increment status of an area. The same concern was expressed in the early 1980s when EPA presented the PSD program to states and recommended that such a periodic review take place every 5 years. Some states hired consultants to assist in setting up such a system, but it became obvious rather quickly that there were technical and logistical difficulties in carrying out such programs. One of the main concerns was the development of a proper emission inventory of sources which generally are not permitted nor quantified properly, i.e. mobile and area sources and, to some extent, minor stationary sources. This is especially true given the nature of the inventories necessary to properly quantify short term increment consumption, whether they be potential (allowable) or actual maximum emissions (the use of actual average emissions is not appropriate for determining short term increment consumption).

Another related Periodic Review concern is the situation wherein sources under review have demonstrated insignificant impacts and no further analysis is undertaken in the area to check on the status of the increment. However, this issue has been explored in the comments on Recommendation 1 as far as permitting activities are concerned.

Over the years, periodic review has not been the main focus of the PSD programs and the various approaches taken by the states have been deemed satisfactory by EPA regional offices. These approaches have ranged from a limited source specific demonstration in a given area to the observation that mobile and area source emissions have consistently been forced to reduce over the years by CAA (MACT &NSPS) and Title II mobile source regulation which, it is presumed, has offset any growth due to these source types. An example of the latter is the reduction in the fuel sulfur limit beginning in 2007 which would reduce the emissions of both SO2 and particulates. In

New York, the approach taken in addressing the potential effects of minor sources on increments is to look at two conditions: 1) when a minor source is permitted, it has to project impacts under the PSD increments and 2) when a major source performs a cumulative analysis, all PSD affecting emissions, including emission increases in the nearby source inventory, including minor sources modifications/additions since the baseline date are included in the assessment of increments. Other states likely have similar approaches and the main emphasis here should be case by case determinations by the State as to the need for such periodic reviews. Lastly, the final version of the recommendation notes that it should not be required that these Periodic Reviews be submitted to EPA. This, in itself, is enough to negate any advantages of conducting such resource intensive exercises.

Description: THE PSD WORKGROUP recognizes that Periodic Review of increment consumption can be an important tool for managing air quality. Through this recommendation and others in this package, THE PSD WORKGROUP proposes an approach to Periodic Review that addresses the factors currently constraining the desirability and feasibility of permitting authorities conducting Periodic Review of increment consumption.[2] The proposed approach must support a wise use of resources that enables permitting authorities to focus resources on priority problem areas. The PSD WORKGROUP proposes a "tiered, screening approach" to accomplish this, while recognizing that any effort to pursue Periodic Review of increment consumption will entail greater resource demands.

The "tiered approach" should include acceptable, consistently applied procedures for conducting cumulative increment analysis that accommodates the potential for screening using data with conservative assumptions. For example, the "tiered approach" would allow for the use of allowable source emissions data in current emissions inventories.[3] Furthermore, consistent with Recommendation 12, THE PSD WORKGROUP believes ambient monitoring data should play a role in, and influence the nature of, the Periodic Review analysis when representative data are available.

The rigor of the Periodic Review analysis should be adequate to demonstrate whether or not the increment has been violated or whether it is close to being violated. This screening approach would eliminate the need to conduct extensive, refined increment

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[2] The PSD WORKGROUP believes that the proposed approach must address the implications and process associated with responding to increment violations found during Periodic Review to provide for a realistic and effective framework in which to address the violation. In Recommendation 9, the PSD WORKGROUP proposes a "tiered approach" for responding to increment violations to better match responses to the nature of the specific problem, in a realistic time frame for both developing and implementing the enforceable plan.

[3] It should be noted that the PSD WORKGROUP believes that allowable emissions data should only be used in baseline emissions inventories in situations where actual emissions data are unavailable.

modeling analyses during Periodic Review for planning areas where little or no emissions growth has occurred since the baseline date or the last cumulative increment consumption analysis. In the event that initial modeling runs indicate that the available increment is close to being consumed or show an increment violation, the tiered approach procedures, mirroring the approach provided for in Recommendation 8, will provide clear steps that guide the permitting authority in refining the accuracy of the emissions inventory and modeling to determine whether or not there is an actual finding of increment violation.

The objective of this tiered approach and procedure for screening analyses and analytical refinement is to facilitate a wise use of resources. This is accomplished by avoiding the need to invest resources to seek highly accurate inventories and models in situations where less resource intensive, conservative emissions inventory or modeling assumptions are sufficient to demonstrate that increment remains available. THE PSD WORKGROUP recommends that FLM consultation should be included as part of the screening approach for Class I areas.

THE PSD WORKGROUP believes the "benchmark" cycle time for determining whether to conduct a Periodic Review of increment consumption in an area should be five years. Every five years, permitting authorities will determine the level of analysis needed, if any, to assess increment consumption for a given area. If there has been limited or no emissions growth in an area over the five-year period, no additional analysis of cumulative increment consumption would be needed for that area. For example, a rural county that has experienced decreases in overall emissions due to negative economic and population growth would not be subject to Periodic Review analysis.

Moreover, if a cumulative increment analysis of an area was conducted recently in conjunction with a PSD major source permitting action, that analysis could serve the function of a Periodic Review for that particular five-year period. Permitting authorities, however, will have the option to increase the frequency for conducting Periodic Review to meet specific air quality management needs in the planning area, such as the presence of rapid emissions growth due to economic development or mobile source growth.

This five-year frequency for Periodic Review of PSD increment consumption coincides with the frequency for the Regional Haze program review process. Workgroup participants indicated that in some cases it may be desirable for PSD Periodic Review efforts to leverage use of the emissions inventories developed for the Regional Haze program. This could be done by lagging the PSD Periodic Review cycle one year behind the Regional Haze program review cycle. Workgroup participants indicated that while this type of programmatic coordination may be useful, any efforts to formally link PSD Periodic Review and the Regional Haze program review process would not be acceptable due to their differing levels of analysis as well as agency workload implications.

THE PSD WORKGROUP conditions its support for the conduct of Periodic Review on the assumption that future implementation activities will create an acceptable administrative process that guides how the results of Periodic Reviews conducted by

permitting authorities will be communicated externally. This administrative process must articulate what role EPA or others may have for reviewing and responding to these results. THE PSD WORKGROUP believes that "starting the clock" for the commencement of an initial cycle of Periodic Review is not feasible prior to the completion of an implementation framework that addresses the Periodic Review elements discussed in this package of THE PSD WORKGROUP recommendations.

Rationale: Workgroup participants affirmed the importance of periodically asking the question of whether a cumulative analysis of PSD increment consumption is needed for an area. The group agreed that Periodic Review of increment consumption can be an important tool for managing air quality and preventing significant deterioration, particularly in areas where there has not been recent permitting activity that has resulted in a cumulative analysis of increment consumption, yet where significant minor, area, or mobile source emissions growth may have occurred.

The Workgroup believes it is important, however, to design the Periodic Review process in a manner that achieves a wise use of agency resources. It is important that the analyses in areas that are well below the increment threshold do not distract permitting authorities from focusing staff time and resources on "problem areas." State representatives expressed a need for an acceptable procedure for conducting screening analyses that addresses perceptions that permitting authorities may be attempting to "model away problems or potential findings of increment violation." In addition, State representatives indicated that the implementation of a tiered approach to responding to increment violations found during Periodic Review (see Recommendation 9) is essential to enabling permitting authorities to conduct Periodic Reviews.

While all participants acknowledged the importance of addressing the State needs discussed above, some EPA and FLM representatives indicated that it is important to bound the flexibility around conducting Periodic Review of increment consumption in a manner that ensures that potential "problem areas" are periodically reviewed. It was suggested that the flexibility around the tiered approach and frequency for conducting Periodic Review can be bounded by laying out the conditions under which approach and timing of the reviews can vary. Several of these proposed conditions are discussed under the above recommendation.

While participants indicated that there may be some advantages to timing the PSD Periodic Review process to leverage use of the emissions inventories developed for the Regional Haze program, most Workgroup members stated that further integration of these two programs would not yield significant benefits. Participants indicated that the level of analysis required in the Regional Haze reasonable progress model is more general (e.g., annual, county level) than the more refined analysis that may be needed for some PSD increment analysis. Participants also expressed concerns over staff workload implications of conducting Regional Haze and PSD Periodic Reviews concurrently or in conjunction with each other.

Comments of NJDEP:

States should be given an alternative to demonstrating state-wide increment compliance using a modeling analysis and an inventory of all emission changes since the baseline date. An alternative demonstration would be especially useful in urban areas with numerous sources and a historic period of monitoring data back to the baseline dates. An alternate compliance demonstration would be based on a combination of the following (similar to a weight-of-evidence SIP demonstration):

1. ***Monitoring data – Compare the ambient measurements taken during the year the baseline date was set and one year prior to the baseline year to those of the two most recent years available. The comparisons should be made for the averaging times of the PSD increments (3, 24-hour, and annual sulfur dioxide; annual nitrogen dioxide; and 24-hour and annual PM-10). Those monitors sited to provide regional air quality and those that have been collecting data at the same location since the baseline data should be given added importance.***

2. ***Emissions inventory data - compare sulfur dioxide, nitrogen oxides, and PM-10 inventories representative of the baseline year to those generated for a recent year. Only anthropogenic sources should be included. Countywide inventories would probably be preferably.***

3. ***State requirements that minor sources also be required to demonstrate compliance with the PSD increments.***

Monitoring and emissions inventory data can be used to demonstrate regional compliance with the PSD increments. Continual review of major and minor sources for increment consumption will ensure there are no local or hotspot violations in the state.

Recommendation 3: THE PSD WORKGROUP recommends that cumulative increment analyses should be consistent within and across states with regard to the geographic scope and type of sources that are included in the PSD baseline and current emissions inventories. The PSD WORKGROUP recommends that EPA, with input from the PSD WORKGROUP, prepare guidelines that delineate the categories of sources that should be included in emissions inventories, and how they should be included, for use in PSD program implementation.

Comment: There is currently guidance on what a cumulative analysis should contain and there might be room for some more detail, but the emphasis of the recommendation should be more on the WESTAR and other consortiums' ability to assure such consistency.

Description: The PSD WORKGROUP provides recommendations below of source types that are appropriate for consideration in PSD analyses and those that are not. In identifying these source types, the PSD WORKGROUP has sought to balance the need to include comprehensive emissions information with the need for practical approaches that support a wise use of resources. In addition, the PSD WORKGROUP believes that there is a need to design the program in a manner that fosters sufficient stability to facilitate on-going, proactive management of air quality. For example, the inclusion of emissions sources that fluctuate significantly over time can have a destabilizing effect on air quality management programs, potentially causing an area to swing in and out of increment violation status. This volatility undermines the ability of public environmental agencies to establish viable long-term air quality management plans, particularly in situations where the agency has little or no control over certain types of emissions sources. For those source types discussed below as inappropriate to include in PSD increment consumption analyses, the PSD WORKGROUP also believes that they should not be allowed to count towards a reduction in emissions or increment expansion for PSD program purposes.

The PSD WORKGROUP believes that major and minor point sources, area sources, and mobile source emissions should be included in emissions inventories for PSD program analyses. Fugitive emissions associated with major and minor point sources and which are "defined and attributable" to a source should also be included as part of major and minor point source emissions, where reasonable estimation methods exist (i.e., AP-42, mass balance, etc.). Additionally, quantifiable fugitive emissions associated with anthropogenic activities should also be included. For example, fugitive emissions form stockpiles should be included.

THE PSD WORKGROUP views portable, temporary, and intermittent sources as inappropriate to include in PSD emission inventories; however, EPA needs to develop a clear, consistent definition of these sources to enable better consistency. Natural emissions and emissions associated with the prevention of natural emissions, defined as wildfires, prescribed fires, bogs, volcanoes, and windblown dust not associated with mining or other industrial processes, should not be included in emissions inventories for increment analysis.

The PSD WORKGROUP believes that agricultural emissions (e.g., confined animal feeding operations, tilling operations, and field burning activity), although desirable for inclusion in emissions inventories, are not feasible to include given the current state of data availability and, therefore, they should not be included in PSD emissions inventories at this time. EPA is currently analyzing agricultural emission rates and determining appropriate methods of quantifying emissions from agricultural sources. The PSD WORKGROUP recognizes the desirability of including selected agricultural sources in the future when the quality of data makes it feasible to include them and EPA articulates the basis and expectations for their inclusion in the PSD program.

The PSD WORKGROUP also recommends that criteria within existing guidelines should be clarified and consolidated for determining the geographic scope of sources to include in cumulative increment analyses for Class I areas.[4] Per EPA's guidance, source emissions that consume (or expand) increment at a Class I area should be determined by the baseline dates of the baseline area that contains the Class I area. Thus, emissions increases or decreases from sources outside the baseline area that may improve or degrade air quality at the Class I area should be evaluated by considering the minor source baseline date of the Class I baseline area, not the minor source baseline date of those source's baseline area.[5] A quantitative evaluation may not always be warranted for all source categories; in some cases, a qualitative evaluation may satisfactorily demonstrate that a source or category can be omitted from the inventory without significant impact to the determination that PSD increment is met.

Rationale: Workgroup participants indicated that consistency with regard to the scope and type of emissions sources to include in emissions inventories is important for ensuring completeness and equity in PSD increment program implementation. In developing this recommendation, Workgroup participants recognized the importance of not excessively burdening emissions inventories and PSD emissions analyses with the need to include emissions from source types that would be highly resource-intensive to include, that would introduce significant uncertainty into the analyses, that would have an estimated insignificant contribution to increment consumption, and for which emissions data are unavailable on a practical basis. Workgroup members acknowledged, however, that information availability may change over time, supporting the desire to periodically consider the addition of certain source types to the established guidelines. For example, as emissions calculation procedures and better emissions inventories become available in the future for certain source types (e.g., confined animal feeding operations); it will be desirable to add these sources to emissions inventories for PSD program implementation.

Natural emissions sources, including wildfires, bogs, volcanoes, and windblown dust, are essentially non-anthropogenic and should not be included in increment analyses because these sources are part of the background emissions that occur in an area and could be assumed to be part of the PSD baseline concentrations. Some non-anthropogenic emissions, such as wildfire and volcanoes, occur at irregular and unpredictable intervals. Others, such as bogs and windblown dust, are more predictable in emissions, but unlikely to change over time. In general, there are no appropriate control technologies for natural emissions. Including these sources in an increment analysis would be too complex and create too many uncertainties. Additionally, the analysis of sources that cannot be controlled in any reasonable manner is not a prudent use of available resources.

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[4] Guidelines for the geographic extent of source inventories required for modeling are included in EPA's draft 1990 NSR Workshop Manual, and additional guidelines are available for Class I areas.
[5] See Memorandum "Request to Clarify Prevention of Significant Deterioration (PSD) Baseline Area and Corresponding Baseline Date for Breton National Wildlife Refuge and Wilderness Area," from Bill Harnett to Robert Hannesschlager and Winston Smith, April 5, 1999.

Emissions associated with the prevention of natural emissions, such as prescribed burning, should not be included in increment analyses because these emissions fluctuate significantly in quantity, location, and time, and would have a destabilizing effect on a PSD increment analysis. It should also be recognized that AQRV impacts from sources such as prescribed burning are being addressed through other programs, such as state smoke management and visibility protection programs and the Regional Haze Program.

Recommendation 4: The PSD WORKGROUP recommends that EPA work with states and FLMs to develop a menu of acceptable emissions calculation approaches and guiding principles for use when preparing emissions inventories for cumulative PSD increment analyses.

Comments: To the extent that this recommendation has general applicability in determining cumulative PSD increment consumption, there are a number of troubling implications in the discussions and rationale presented in support of the specific recommendations. These discussions and the recommendation fail to recognize the sound basis and historically acceptable approach of using the maximum allowable or permitted emission rates as the preferred approach in modeling both NAAQS compliance and PSD increments not only for the source seeking a PSD permit, but also for the set of nearby sources which need to be explicitly modeled in a cumulative analysis. The issue is specifically critical for the short term averaging periods for SO2 and PM10 increments. In many instances the determination of these limits, in addition to BACT requirements, are driven by modeling results and these form the basis of short term enforceable permit limits for PSD sources. These same limits should be the basis for any future modeling for these sources to demonstrate both NAAQS compliance and PSD increment consumptions, with the exception that in those cases where "actual" maximum emissions are demonstrated to be below these limits and are consistent with the sources long term operations, these latter actual emissions can be used. The use of actual maximum emissions is in fact consistent with the current EPA recommendations on increment modeling. Thus, any recommendation which deviates from current practice needs to be fully supported and demonstrated to be technically defensible. Unfortunately, this recommendation falls short of that requirement.

Presumably, there is implicit agreement that the source seeking a permit must be modeled using its maximum allowable emission rate. For the set of nearby sources to be explicitly modeled, the current guidance on the appropriate emission rates to be used for short term NAAQS and PSD increment calculations are found in the Guidelines on Air Quality Models (Table 9-2 of Appendix W of 40 CFR Part 51) and the New Source Workshop Manual (Section C), respectively. These guidelines have been reconfirmed on numerous occasions in EPA determinations and state permit actions as the technically acceptable approach in calculating cumulative impacts. The guidance calls for the use of maximum allowable, permit limiting, or maximum actual emissions (under certain conditions) in the cumulative analysis and any deviations, including those discussed in this recommendation, have to be explicitly shown to be as

technically defensible as the use of the maximum allowables in calculating short term impacts.

For NAAQS compliance demonstrations, the use of the maximum allowable or permit limited emissions is not being questioned since these are codified in the Modeling Guidelines and determination of short term impacts using the maximum short term emissions from nearby sources is standard practice. There is a very good technical basis for the recommendation to use maximum emissions. Any modeler understands that in order to predict the likelihood of a maximum or HSH impact over a threshold with a short term averaging time, the emissions must be representative of these same averaging periods and have to also be "represented" during the potential meteorological conditions causing these high impacts. This conjunction of emissions and meteorology allows the proper identification of the combination of the "worst case" set of meteorological conditions (over a 5 year period) and the various source parameters. That approach holds whether one calculates the impact of the source seeking a permit or in combination with other sources. The same technical rationale holds not only for short term NAAQS compliance demonstration, but also for PSD increments. The recommendation recognizes that the NSR Workshop Manual references the maximum actual emissions (in lieu of maximum allowable or permit limits) for use in determining the short term emissions from existing PSD increment affecting sources, but then goes on to recommend methods of emission inventory calculations which clearly would result in underestimation of the PSD increment consumption. For example, the argument provided in the recommendations to use average rates rests with certain wording in the PSD regulations which calls for the use of actual emissions which in this instance is equated to "average" emissions.

However, these arguments are misplaced. The reference to the "definition" of actual emissions at 40 CFR 52.21(b)(21)(ii) as equating to average rate should also recognize that in other sections of the definition of "actual emissions" reference is made to allowable emissions (e.g. at 40 CFR 52.21(b)(21)(iii) and (iv)): "the Administrator may presume that source specific allowable emissions for the unit are equivalent to the actual emissions of the unit." The use of average emissions in applicability and netting determinations are commonplace, but these do not establish the use of that specific definition for other aspects of the PSD program. More germane to modeling is that allowable emissions are specifically referenced in the section dealing with source impact analysis at 40 CFR 52.21(k) where the proposed source and "all other applicable emission increases and decreases" are to be assessed. If the intent of the PSD regulations was to allow for the use of average emissions in all PSD increment calculations, then there would not have been a need to establish short term increments beyond the annual ones since these latter increments would be controlling.

Another general comment of the recommendations is that a menu system of acceptable emission calculation approaches will work only insofar as all of the choices are able to serve the end purpose of demonstrating technically defensible calculations, which clearly establish that PSD increments will not be exceeded. This assurance, for

example, is used in the Modeling Guidelines in recommending a set of modeling approaches in certain settings wherein all of the approaches have been deemed to provide for acceptable projections, with various degrees of conservatism. However, the methods describe in this recommendation could easily lead to underestimations of PSD short term increment calculations and will not result in the prerequisite showing that a source will not cause or contribute to an increment exceedence. Short of this, the set of methods need to have a hierarchy, starting with the technically viable approach of using the allowable, permit limiting, or maximum short term emissions. Instances where a refinement of these emissions is technically defensible can be considered on a case-by-case basis by the regulatory agency, but these should be made the exception, not the rule.

More specific comments on some other aspects of the various sections of the recommendation are presented below, following the section.

Description: The PSD WORKGROUP recognizes that there will be situations where PSD screening analyses of increment consumption indicate that more refined analyses are necessary to determine whether the increment may be exceeded. The PSD WORKGROUP believes that it is desirable to encourage consistency, predictability, and regulatory certainty with regard to acceptable approaches for preparing emissions inventories for refined PSD analyses, while recognizing that it is also important to afford permitting authorities some flexibility to ensure that analyses accommodate considerations such as data availability and accuracy with regard to actual air quality status. The PSD WORKGROUP believes that the overall goal of refined analysis should be to understand what is actually occurring with regard to the status of air quality in a defined area, or potential status of air quality in the case of permitting activities. The PSD WORKGROUP further believes that this goal is consistent with EPA's stated preference for the use of actual emissions when conducting PSD analyses.

To support these goals, the PSD WORKGROUP recommends that a menu of acceptable emissions calculation approaches be developed and approved by EPA, EPA Regional Offices, other permitting authorities, and Federal Land Managers (FLMs). The PSD WORKGROUP further recommends that permitting authorities be allowed to select what they believe to be the most appropriate emissions calculation option from the approved menu based on their consideration of the principles articulated below. The PSD WORKGROUP believes, however, that any given option in the menu may not be appropriate in certain circumstances to be determined by the permitting authority on a case-by-case basis by applying the principles. Selection of emissions calculation methods should seek to:

1. conform to the Clean Air Act, federal PSD rule, and other applicable laws and rules;
2. maximize the accuracy of the method(s) in reflecting the actual status of air quality;

3. ensure consistency between emissions calculations methods used for sources in the baseline emissions inventory and the current emissions inventory;

4. ensure that selected methods are practical given the availability of, and permitting authority access to emissions data; ***-- Practicality does not mean capitulation to technically unsupportable methods. There are means to establish the maximum actual or permitted emission rates from the vast majority of sources which consume PSD increment. The NSR Workshop Manual recognized that the development of an emission inventory for a cumulative analysis is the responsibility of the source applicant. Thus, in New York, the applicants are required to develop source specific emission parameters using proper source characteristics (Air Guide 36: "Emission Inventory Development For Cumulative Air Quality Impact Analysis"). This includes visiting sources (with DEC staff oversight) to check on the maximum rated capacity of the boiler, etc***.
5. support fairness and consistency in how emissions are calculated for various source types across and within states; and
6. support key air quality management objectives that states and EPA are seeking to achieve, such as encouraging sources' use of continuous emissions monitoring systems (CEMS) and discouraging sources from seeking more permitted air quality increment than they may need ***-- not sure what the second part means, but most source are not concerned with how much increment they consume as long as it is within the regulations. It is the state/EPA's responsibility to manage the increments***.

The PSD WORKGROUP believes that ambient monitoring can enable permitting authorities to assess the most accurate emissions calculation approach (see the second principle above) from the approved menu in situations where monitoring data are available.

Comment: There is currently a sound, simple and uniformly applicable approach which has been the basis of supporting modeling analysis for PSD permit applications and which provides the desired consistency and regulatory certainty in refined cumulative analysis. Inventory emission calculation methods are limited in how well they represent "what is actually occurring" with the air quality of an area since air quality monitoring data, even if collected properly, is a very poor indication of PSD increment status (either consumption or expansion: see comments to Recommendation 12). Monitoring data cannot even establish the PSD increment status so it's not clear how it would start to establish the "most accurate" emission rates. Allowing for consistency and at the same time allowing for flexibility in the choice of the emission calculation methods is not feasible when these methods contain technically indefensible approaches.

The PSD WORKGROUP believes that the following approaches should be included in the menu of acceptable methods for calculating major and minor point source actual emissions for inclusion in emissions inventories used in PSD modeling analyses.

In situations where continuous emissions monitoring (CEM) data are available[6] (with no implications of a hierarchy:

1. use short-term maximum emissions for the entire plant over a 2-year period
2. determine maximum short-term emissions from each source at the plant;
3. determine short-term emission rates and sort them, then determine representative rates, such as an upper percentile, as the single short-term emission rate for modeling;
4. use CEM data to determine actual emissions as defined by rule and explained by EPA in the preamble to 1980 PSD rule revisions, or
5. use hour-by-hour CEM data in the model.

Comment: If the source has short term limits, these should be used, unless it can be demonstrated that the maximum emissions calculated by the above methods are the consistent "normal" source operations. CEM data is available only for SO2 and NO2 in a minority of sources and not at all for PM10. In N.Y., about 5% of state facilities and 20% of Title V facilities have CEM data and the percentages for PSD affected sources are likely only a little higher. The use of CEM data needs a hierarchy since method 2, where the maximum per source is determined, is preferred over method 1 since a facility-wide short term rate can results in underestimation of emissions from certain individual sources which could be the sources of importance in the needed modeling demonstration. In addition, methods 3and 4 could be acceptable under certain limitations (i.e. in instances where the hourly variations in emissions are clearly and consistently part of the operations of the source and have been demonstrated to be consistent at these levels over few years of operations). Method 4 is not clear or doesn't seem supportable.

In situations where no CEM data are available, but where there are data that can be used to calculate actual emissions (with no implications of a hierarchy):

Comment: in most instances CEM data will not be available and for PM10 there is no such data. Thus, these optional methods should be viewed in relationship to method 4 below, which is currently the only technically defensible one for short term impacts. Annual or average emissions, especially over a limited two year period, cannot establish proper short term increment consumption and is contrary to EPA's and States' approach used over the last two decades. Thus, methods 1 to 3 are problematic.

1. average two years actual annual emissions representing normal operations surrounding the baseline date and date of analysis for current emissions, and divide by annual operating hours
2. calculate emissions from production data from the two years prior to the baseline date or date of analysis for current emissions (emissions calculated using valid emissions factors and methods);

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[6] CEM data can be used to calibrate AP-42 estimates to calculate baseline emissions; however, AP-42 may underestimate baseline emissions. Acid Rain Program CEM data may be conservative as it cannot be adjusted downward to match the test reference method results.

3. use two years of emissions data, which may be before or after the baseline dates, which have similar facility configuration that would be representative of baseline emissions; or
4. use of allowable emission rates, including use of regulatory limits, where appropriate

Permitting authorities should also have the ability to use emissions calculations methods that are not included in the proposed menu provided that they are able to demonstrate to EPA that the approach is consistent with the law and rules as well as with the principles articulated above.

For area and mobile sources, the following sources of information are acceptable options to use for calculating emissions for inclusion in PSD emissions inventories:

1. AP-42 emission factors, mass balance calculations, site-specific emission factors, industry emission factor, emission models; and/or
2. use of population surrogates for estimate of mobile and area sources.[7]
3. The PSD WORKGROUP recognizes that permitted (or allowable) emissions may be appropriate to use in situations where no other information about actual emissions is available.

Rationale: Several states expressed concern regarding the current lack of clarity and sometimes narrow interpretations of the definition of actual emissions used for purposes of calculating point source emissions for inclusion in emissions inventories for PSD analyses. All Workgroup representatives agreed that it is desirable to bring greater clarity and consistency to acceptable approaches for conducting refined analyses, particularly related to acceptable approaches for calculating point source emissions. Participants indicated that agreement between EPA, EPA Regional Offices, FLMs, and permitting authorities on acceptable emissions calculation approaches could be highly useful in minimizing the occurrence of protracted, case-by-case negotiations as more jurisdictions find the need to conduct refined PSD analyses.

Several state Workgroup representatives indicated that there are a range of interpretations that can be drawn from EPA regulations and guidance regarding appropriate approaches for calculating actual point source emissions in the context of PSD program implementation. Current PSD regulations state that, in general, actual emissions are to be used for determining baseline concentrations. Actual emissions are defined in 40 CFR 52.21(b)(21)(ii) as "the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and is representative of normal source operation." This definition goes on to state, "Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period." However, the draft 1990 NSR Workshop Manual ("Puzzle Book") states, on page C.49,

[7] See USEPA Guidance document from 1993 on estimating increases in NO2 for PSD increment analyses.

that baseline emission rates are the maximum actual emissions rates (highest occurrence) for that averaging period during the previous two years of operation.

In determining baseline emission rates, the 1980 preamble {45FR at 52718, col. 3} states that, "EPA believes it is generally appropriate to presume the source will operate and emit at the allowed levels" and that, "When EPA or a state devotes the resources necessary to develop source-specific emissions limitations, EPA believes it is reasonable to presume those limitations closely reflect actual source operation. EPA, states, and sources should then be able to rely on those emissions limitations when modeling increment consumption." In this discussion, EPA also cautions that "The presumption that federally enforceable source-specific requirements correctly reflect actual operating conditions should be rejected by EPA or a state, if reliable evidence is available which shows that actual emissions differ from the level established in the permit." Several states noted that many point sources typically operate well below permitted levels.

Comment: It's not clear what point is being made. Source applicants accept permit limits derived by BACT and/or modeling, but always want to make sure there is a "safety factor" in their permit limits and, therefore, overstate the actual values to be realized. In most instances applicants do not even want any annual caps on operations, unless they can avoid certain applicable requirements. Thus, it should not come as a surprise that sources operate below their permitted limits. If an agency thinks that the source can operate well below the proposed limit or is in fact operating well below their permitted limit, it's then the agency's responsibility to fix the permit limit to better reflect these "actuals". The claim that somehow using actual emissions will encourage better air quality management and would discourage the side effect of a source seeking more increment than necessary (last listed item in the recommendation) is a red herring. In the last two decades of PSD regulation implementation, no source in New York has voluntarily come in and asked for less increment consumption by proposing an emission limit below the BACT requirements or maximum increment consumption if that was the result of their proposed limit. That is why, for many years NY State had a 75%/25% of short term/annual remaining increment consumption cap on individual sources. The second statement quoted above only indicates that EPA and the States have an obligation to reject a permit limit if actual emissions do not substantiate it. Thus, the use of certain emissions, such as average emissions will not encourage anything, but the underestimation of the short term increment consumption.

The range of possible current interpretations of acceptable approaches led several Workgroup participants to propose the development of a menu of acceptable approaches for calculating actual source emissions. The proposed menu approach also recognizes that various factors can affect the extent to which a particular actual emissions calculation method would be appropriate to use. Rather than articulating a single acceptable approach or a hierarchy of acceptable options, several Workgroup representatives indicated that they believe that it would be more useful to develop an approved menu of equally-acceptable emissions calculation methods, along with a set of

principles that should govern selection among them given the circumstances. Background discussion related to the principles is summarized below.

Some Workgroup participants expressed concern that the "menu of options" approach to selecting appropriate emissions calculations methods could open some states to challenges to or second-guessing of a permitting authority's decision by EPA or a court. In states where permitting authorities are not allowed to be more stringent than federal law or rule requires, a menu of "equally-acceptable" options could limit states' latitude in selecting what they deem to be the most appropriate option, particularly in the event that their selected option would result in more stringent emissions control requirements than would an alternate approach on the menu. For this reason, to make the menu of options approach work, it will be necessary for states and EPA to develop an acceptable framework that grants states the flexibility to select from the menu of options without creating a situation where selected approaches are frequently subject to EPA or court challenge. One strategy would be to clarify that any given option may not be appropriate in certain circumstances to be determined by the permitting authority on a case-by-case basis by applying the principles. In addition, states could work with EPA to clarify in a rule some of the conditions and circumstances that might influence the appropriateness or inappropriateness of a particular menu option.

The second principle directly addresses the Workgroup's belief that the goal of PSD analyses should be to understand, as accurately as possible, actual changes in the status of air quality. Several state representatives indicated that various factors can affect the extent to which a particular actual emissions calculation method is appropriate to use. For example, source type, and the extent to which there are significant seasonal or temporal fluctuations in actual emissions, can influence decisions about which emissions calculation approach would be most appropriate for a particular source. Availability and quality of emissions data and assumptions that must be made where not historical data are available will also affect the chosen emissions methodology. Some states have found that ambient monitoring data, where representative data are available, can be useful in helping to determine which emissions calculation method would best reflect actual changes in air quality status.

Comment: The goal of a PSD analysis is to assure compliance with PSD increments. An accurate representation of changes in air quality for PSD purposes has not and cannot be realized by monitoring data. That is why it has been rejected a number of times by EPA. Such an approach does not fully take into account the reason why dispersion modeling has been used so extensively in PSD increment calculations.

The third principle, addressing the need for consistency between emissions calculation methods used for baseline and current year emissions, seeks to minimize the impact of modeled emissions changes that are purely an artifact of using different calculation methods for the baseline date inventory and current date inventory. Furthermore, the 1980 preamble {45FR at 52718, col. 1} states, "Increment consumption or expansion is directly related to baseline concentration. Any emissions not included in the baseline are

counted against the increment. The complementary relationship between the concepts supports using the same approach for calculating emissions contributions to each." In other words, participants agreed that there should be an apples-to-apples comparison.

The fourth principle recognizes that there are limitations in the feasibility of pursuing particular emissions calculations approaches in certain situations. For example, many major and minor sources do not have CEM data or short-term emissions information. In these cases, there must be flexibility to use an emissions calculation approach that is appropriate and reasonable for the resources available. The availability of short-term actual emissions data for minor and area sources that are not required to report these emissions annually may be sparse. In these cases, the states may have to develop unique methodologies to estimate short-term emissions rates that are specific to various source categories. For these minor and area sources, there is no universally acceptable and appropriate methodology, so states must have flexibility in emissions inventory development.

The fifth principle addresses some Workgroup participants' stated desire to ensure that sources are addressed in an equitable manner with regard to how their emissions are calculated for inclusion in PSD emissions inventories. For example, Workgroup participants indicated that significant differences can occur when emissions from one source are based on CEM data and the emissions from another source are based on allowable emissions. While the Workgroup recognized that data availability will be a primary driver of the type of emissions calculation approach used for a given emissions source, Workgroup members expressed a general desire to calculate emissions similarly for comparable emissions sources within emissions inventories. Workgroup representatives indicated that such consistency is particularly important in the context of emissions inventories for PSD analyses that involve multiple jurisdictions.

The sixth principle is designed to prevent adverse side effects that could be associated with the use of a particular emissions calculation approach. Workgroup participants identified the following side effects that would be desirable to avoid through their selection of an appropriate emissions calculation approach:

- undermining efforts to ensure consistency in emissions calculation approach across source types, particularly in the context of multi-jurisdictional PSD analyses;
- undermining efforts to achieve equity and consistency with regard to how source emissions are calculated for inclusion in emissions inventories;
- discouraging sources from adopting CEM systems or performing facility-specific emissions testing;
- discouraging sources from maintaining emissions records not explicitly required by permit; and
- encouraging sources to seek more permitted increment-consuming emissions than they are likely to need

Comment by NJDEP:

We agree with NYDEC's (Leon Sedefian) recommendation against the WESTAR proposal that a menu of equally acceptable emission rates be available for use when modeling short term SO2 and PM10 increments.

WESTAR has proposed that menu of equally acceptable emissions calculation methods be used when developing a PSD inventory rather than a hierarchy of acceptable options. However, this proposal contradicts guidance given in the preamble of the 1980 PSD rules. The preamble guidance is summarized in this recommendation's rationale.

In determining baseline emission rates, the 1980 preamble {45FR at 52718, col. 3} states that, "EPA believes it is generally appropriate to presume the source will operate and emit at the allowed levels" and that, "When EPA or a state devotes the resources necessary to develop source-specific emissions limitations, EPA believes it is reasonable to presume those limitations closely reflect actual source operation. EPA, states, and sources should then be able to rely on those emissions limitations when modeling increment consumption." In this discussion, EPA also cautions that "The presumption that federally enforceable source-specific requirements correctly reflect actual operating conditions should be rejected by EPA or a state, if reliable evidence is available which shows that actual emissions differ from the level established in the permit."

This preamble clearly indicates a hierarchy must be used when developing a PSD inventory. Unless there is reliable data to show actual emissions differ from allowable, the allowable emissions must be used in the PSD increment. Therefore, allowable emissions must rank first in the hierarchy.

The reliable data needed for calculating representative annual average actual emission rates is usually readily available for point sources (annual fuel use, annual production, CEM, etc). Because it is used for an applicability test based on tons per year, use of the PSD regulation definition of actual emissions in 40 CFR 52.21(b)(21)(ii) would seem appropriate for calculating annual average actual emission from a source. [8]

Reliable data needed to establish short-term emission rates (24-hour SO_2 and PM-10, 3-hour SO_2) for a PSD inventory may not be available. Fuel use or production rates on a daily or hourly basis would be needed calculating PM-10 emissions. If there were no CEMs, the same information would be needed for calculating SO_2 emissions. In most cases use of weekly, monthly, or annual fuel use or production data would not constitute reliable evidence that actual emissions differed from allowable emissions on a 3 or 24-hour basis.

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[8] "the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and is representative of normal source operation."

If the necessary data is available to accurately calculate short-term SO_2 and PM-10 actual emissions, there is still the question on what emission rate should be used to determine future compliance with the PSD increments. I agree with Leon's arguments that the proposed menu of options for calculating future short-term increment consuming emissions from nearby sources is unacceptable. In the rationale of this recommendation the statement is made "there are a range of interpretations that can be drawn from EPA regulations and guidance regarding appropriate approaches for calculating actual point source emissions in the context of PSD program implementation." In a quick review of the guidance available there doesn't appear to be a range of interpretations from EPA, only the general recommendation that the highest percentile actual short-term emission rates be used in short-term PSD increment consumption. This recommendation has been made in the following documents:

Draft 1990 NSR Workshop Manual - page C.49. For short-term averaging periods (24-hours or less), the maximum actual emissions rate is the highest occurrence for that averaging period during the previous two years of operation.

May 3, 1985 memo from Gary McCutchen to Mike Trutna (NSR Section Chief) entitled "NSR Advisory Memorandum #1: TSP PSD Increment Consumption in North Carolina" – Use the maximum 24-hour emission rate over a two year time span that represented normal operations. To avoid abnormal operations, the maximum emission rate must have occurred at least 5 percent of the total 24-hour operating time periods.

July 31, 1981 memo from Thomas Devine (Director, AHMD) to State/Local Directors entitled "PSD Policy Determinations by Region IV" #4 - use the maximum 24-hour emission rate over a two year time span for short-term increment consumption.

May 2003 EPA Region 8 report "Dispersion Modeling Analysis of PSD Class I Increment Consumption in North Dakota and Eastern Montana" pages 19-20 – use the highest 90th percentile actual emission rate for short-term increment consumption.

A hierarchy of acceptable options for calculating short-term PSD increment consumption could be developed from this guidance.

As with most agencies, when a source submits a multisource PSD increment analysis there is only one inventory, not two. The inventory attempts to document all emission changes since the baseline date. All new emission sources will be represented as positive emissions, emission reductions such as source shutdowns are represented as negative emissions. To avoid overestimating the affect of the shutdown, actual emissions data (not allowable) should be used when modeling an existing source that has shutdown since the baseline date. The one instance where use of an annual

average emission rate may be appropriate for modeling short-term PSD increment is when there is a source shutdown. If there is no reliable data available to calculate short-term emissions when the baseline data was set, a short-term emission rate based on monthly or annual average emission rate may need to be used.

Recommendation 5: The PSD WORKGROUP recommends EPA take immediate steps to address the substantial ambiguity that exists regarding the basis for and conduct of Air Quality Related Values cumulative analyses. Such steps can eliminate the current, substantial constraints that undermine the desirability and feasibility of conducting such analyses.

Comment: The main emphasis here seems to be the need to put into regulation that which the FLMs are currently asking for in terms of cumulative AQRV analysis. For example, in NPS's "Permit Application Guidance for New Air Pollution Sources", March, 1993, it is stated that an AQRV analysis must consider the total, or cumulative impacts on the AQRV. In addition, the Forest Service, in "Screening Procedures to Evaluate Effects of Air Pollution on Eastern Region Wildernesses Cited as Class I Air Quality Areas (September, 1991), also reference the use of total cumulative loading on AQRV in assessing impacts. However, in this instance the determination of total impact is not directly related to a cumulative modeling analysis.

Description: The PSD WORKGROUP states believe natural resources and Air Quality Related Values (AQRVs) associated with Class I Areas need to be protected and such protection can, at times, require examining emissions impacts beyond those produced by a single, major air emissions source. While all the PSD WORKGROUP states acknowledge the Clean Air Act (CAA) fails to expressly identify "cumulative analysis" related to AQRVs, some PSD WORKGROUP states believe Section 110(j) and Section 165(a)(3) and (a)(5) and (d) provide a complete defense to legal challenge, while other PSD WORKGROUP states believe the statutes' silence creates an inadequate basis for requiring such analyses. In this context, the PSD WORKGROUP requests EPA alleviate this disagreement by clarifying whether the Clean Air Act supports cumulative AQRV analysis.

Irrespective of this interpretive disagreement, all PSD WORKGROUP states believe the lack of promulgated regulations required by CAA Section 165(e) concerning AQRV analysis, lack of designated air quality models (*how about CALPUFF?)*, and lack of promulgated regulations required by CAA Section 161 addressing "such other measures as may be necessary…to prevent significant deterioration of air quality" force State and Local air pollution control programs and the Federal Land Managers to shoot in the dark when contemplating either permit-by-permit or cumulative AQRV analysis. EPA needs to define at what levels State and Local air pollution control agencies need to conduct the cumulative analysis and the requirements, such as modeling, ambient monitoring, and/or combination of modeling and ambient monitoring for conducting the analyses.

On this basis, the PSD WORKGROUP urges the EPA Administrator to promulgate the rules required by CAA Section 165(e) to clarify what constitutes an AQRV analysis and what air quality models air pollution control agencies should use for that purpose. The PSD WORKGROUP believes there is a need for additional federal rulemaking pursuant to CAA Section 161 in Title 40 CFR 51.166(p) to enable or require State and Local regulatory agencies to conduct Periodic Review of AQRVs to determine whether deterioration of air quality has occurred despite permit-by-permit requirements.

This effort would clearly articulate the acceptable approaches for conducting cumulative AQRV analyses, including the use of ambient monitoring to ensure more accurate and reliable results. These rulemakings should further authorize regulatory agencies to take action to address adverse AQRV impacts identified during Periodic Review through "other measures as may be necessary, as determined under regulations promulgated under this part, to prevent significant deterioration of air quality in each region." EPA should describe example measures in the rulemaking - such as compliance plans and compliance schedules - preceded by the phrase "*including but not limited to…*"

Also critical to overcoming current constraints on the desirability and feasibility of conducting AQRV analyses beyond single source impacts and consistent with Recommendation 10, states will need to have a flexible, tiered response option for addressing adverse impact findings that does not require all permitting activities to cease provided a federally enforceable plan is under development to address the findings. Moreover, significant resources will need to be found to enable many states to support the additional work required to conduct and review such analyses.

The PSD WORKGROUP believes an important way to reduce resources related to cumulative analyses during single source review permitting is to not require an analysis unless the permit applicant triggers the significant impact threshold for at least one AQRV. In this situation, the responsibility for conducting a cumulative AQRV impact analysis will reside with the permit applicant, although early consultation with the permitting authority and relevant FLMs is strongly encouraged. To support this approach, EPA should promulgate the significant impact thresholds consistent with the request made in Recommendation 1. In addition, as detailed in Recommendation 7, the PSD WORKGROUP believes the development of critical loads will be beneficial.

Comment: The significance levels in Recommendation 1 are not to be used for determining if an AQRV analysis is required (both EPA and NPS policy). AQRV specific significance "levels" are needed, such as the visibility deci-view level used by NPS.

With respect to cumulative AQRV analyses during Periodic Review, once EPA has clarified their basis, the PSD WORKGROUP recommends permitting authorities ask the question of whether an analysis is needed for a given area at least once every five years.

The PSD WORKGROUP further recommends that states consult with FLMs when conducting the Periodic Review.

Recommendation 6: The PSD WORKGROUP recognizes the FLAG guidance as a useful tool supporting AQRV impact analyses provided that expectations around the use of threshold values are clarified acceptably.

Comment: in addition to FLAG, other guidance documents should be recognized as useful tools in addressing AQRVs (For example, the two references noted above). In addition, FLAG should be asked to expand its membership to include state representatives in a manner similar to the EPA Modelers' workgroup in order to foster better communication and guidance.

Description: The PSD WORKGROUP believes that the FLM's Air Quality Related Values Workgroup (FLAG) guidance is a useful tool for bringing focus to the scope and process of AQRV impact determination. The FLAG guidance contains procedures, techniques, and threshold values that the PSD WORKGROUP believes can be useful for conducting AQRV impact analyses in a consistent and resource-efficient manner.

At the same time, States have expressed concerns about how, in some instances, Federal Land Managers (FLMs) apply FLAG guidance thresholds. In particular, State participants stressed that it is important to not use threshold values as a "bright line," or the sole basis, for performing a more in-depth AQRV analysis or stating the project will have an adverse impact. Instead, participants agreed that threshold values in the FLAG guidance should be viewed as benchmark values that trigger a need to take a closer, case-by-case look at the potential AQRV impacts associated with a specific permitting action.

The PSD WORKGROUP offers to work with FLMs to clarify expectations around acceptable uses of threshold values in the FLAG and other related guidance, and to articulate the role of FLM's and EPA in resolving disagreements with states over the application of FLAG thresholds. In particular, the PSD WORKGROUP believes that FLM communications to a permitting authority indicating that a particular pollutant threshold value may be exceeded should include a rationale and description of the finding. Timely provision of this information will help to enable the permitting authority to effectively consider the AQRV-related information in its decision-making process. For example, the PSD WORKGROUP believes it is important to clarify that an exceedance of Deposition Analysis Thresholds would not necessarily result in a requirement to perform a more in-depth AQRV analysis.[9] Instead, the threshold exceedance would trigger the need for follow-up discussions between the FLM, permitting authority, and permit applicant on the potential adverse AQRV impact(s), as well as the need to conduct a more in-depth AQRV impact analysis to better understand

[9] The Deposition Analysis Thresholds were developed by the National Park Service and the U.S. Fish and Wildlife Service in conjunction with the FLAG process for both SO2 and NOx. The thresholds are .01 kilogram per hectare per year for SO2 and NOx in Eastern States and .005 kilograms per hectare per year in Western States.

the potential impacts. Similarly, the PSD WORKGROUP believes it is important to clarify that exceedances of visibility threshold values contained in the FLAG document should serve as an indicator of the need for follow-on discussions and cumulative AQRV analysis, as opposed to a *de facto* requirement to conduct a more in-depth AQRV impact analysis.[10]

Rationale: All participants indicated that they have found the FLAG guidance to be a useful tool to be considered when conducting or reviewing AQRV impact analyses. In particular, participants recognized the benefits of the FLAG guidance's role in improving the consistency with which AQRV impact analyses are conducted. Many State representatives indicated that they do not necessarily want to encourage different (substitute) techniques due to concerns about staff resources that would be necessary to evaluate them. Use of the FLAG can provide a consistent platform for discussions and analyses, when the benefits and limitations of the FLAG procedures and techniques are known.

Both States and FLM agencies, however, identified a broad range of ways that the FLAG guidance is used in practice. Some States and FLM agencies report using the FLAG as the primary tool for guiding AQRV analysis and determining adverse impacts and others using the FLAG guidance as one of a collection of relevant guidance documents that influences their AQRV analyses and review activities but does not result in a strict adherence to the techniques or threshold criteria included in the FLAG guidance.

With regard to the threshold values contained in the FLAG and related FLM documents, Workgroup participants indicated that they find their existence to be useful as they provide a clear message to permit applicants regarding air quality impacts to watch for in their analyses. In addition, participants indicated that the threshold values can proactively influence source emissions control strategies. As discussed above, State participant concerns centered over the perceived "bright line" use of threshold values by FLMs in some situations. For example, Workgroup participants pointed out that reliance on an exceedance of the 10% visibility change threshold alone as the rationale for an adverse visibility impact finding is not acceptable. This interpretation is based on the requirement that determinations of adverse impacts on visibility "must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency, and time of visibility impairment, and how these factors correlate with: (1) times of visitor use of the Federal class I area, and (2) the frequency and timing of natural conditions that reduce visibility."[11]

Comment by NJDEP:

Some of the questions raised in these recommendations (use of threshold values, critical load information) could be answered in a FLAG Phase 2 document. FLAG

[10] The FLAG establishes threshold values of 5% and 10% for visibility impairment.
[11] See FLAG guidance (pp. 15-16) and 40 CFR §51.300, et seq., §52.27.

Phase I report states that the FLM's will address complex issues, concerns and information gaps in a Phase 2 report. Included in these recommendations would be a request that EPA encourage the FLM's to complete the FLAG Phase 2 report.

Comment by Maine DEP:

Given that very few regulatory documents exist to guide the applicant through the AQRV analysis, there seems to be some variance as to how these various documents (FLAG, IWAQM, etc.) are applied. It might be of interest to combine these various documents into a stand-alone document to eliminate "creative" interpretations of the intended guidance and to provide information on what we have learned (as to what works/fails) from previous efforts. Given the very numerous ways in which the guidance is applied, the document would have to be dynamic, in that its ability to be updated would not occur on a prohibitively long timescale.

Recommendation 7: The PSD WORKGROUP recommends that an explicit consultation relationship be established between States and FLMs to develop policy approaches for the use of "critical loads" information for pollutants in Class I areas.

Description: The PSD WORKGROUP encourages FLMs to complete on-going efforts to develop "critical loads" of pollutants for specific Class I areas and regions. The PSD WORKGROUP believes that this information will be highly useful in supporting the decision-making process associated with AQRV impact determinations. At the same time, the PSD WORKGROUP recommends that FLMs, as part of efforts to develop critical load information, create an explicit collaborative process to work with States to facilitate understanding of the data and assumptions used to develop critical loads as well as to develop recommendations for how to use critical load information in making adverse AQRV impact determinations. The PSD WORKGROUP believes that it will be important to establish a peer review process for critical load information developed by FLMs to ensure that the information is understood and accepted by key constituents.

Rationale: Critical load is defined by FLMs as "the concentration of air pollution above which a specific deleterious effect may occur."[12] As such, critical loads vary from region to region based on local circumstances and characteristics. Workgroup participants indicated that critical load information for specific Class I areas would likely be useful to supplement more "generic" threshold values (which do not vary according to local circumstances) in the context of the AQRV impact determination process.

Several Workgroup participants indicated that an important opportunity exists with the development of critical load information to learn from the frustration and disagreements that have previously surfaced over the use of the FLAG guidance. Workgroup participants recognized that a collaborative process to address the policy implications and the use of critical load information would be beneficial for several reasons. First, such an

[12] **See FLAG guidance (p. 129).**

effort would enhance understanding among all parties of the approaches used to derive critical load values, including the establishment and communication of a peer review process for enhancing the acceptability of resulting critical load information. Second, the process would likely increase acceptance of a consistent approach for using critical load information to protect AQRVs in the context of PSD permitting and Periodic Review. Workgroup participants also recognized that efforts to develop and use critical load information in the European Union could provide a model, or at least examples, of ways to use critical load information.

Recommendation 8: The PSD WORKGROUP recommends that modeled indications of increment violations associated with PSD Major Source permit actions should be addressed in a manner that provides time to refine models to ensure accurate results, but would ultimately result in denial of the permit application in the absence of mitigation measures by the permit applicant adequate to address problems.

Comment: This must be of concern in the WESTAR states since in our practice with such applications, the need to refine an analysis and allow for adequate time for mitigation measures has always occurred.

Description: States, tribes, and EPA (when serving as a permitting authority) should be given adequate time to review, verify, and potentially refine data and emissions models when initial model runs indicate an increment violation associated with a PSD permitting action. During this refinement period, a modeled result would be treated as an "indication of violation" not a "finding of violation" and thus not triggering statutory response timeframes. At the same time, permitting authorities will remain committed to meet state and local permit review timeframe requirements. Sufficient review time is important to ensure that an increment exceedance does not result from emissions inventory data errors, post processor problems, or overly conservative modeling assumptions. In the event that the final state-approved permitting action would cause or contribute to an increment violation, the source would be required to mitigate this modeled increment violation with emissions reductions or offsets, or the permit would be denied.[13] Furthermore, modeled areas showing increment consumption close to the limit would be evaluated for increment consumption more frequently using a more refined analysis technique.

Rationale: Participants indicated that the content of this recommendation largely articulates current practice. The provision to allow for time to refine models to ensure accurate results speaks to States' expressed need to establish acceptable procedures for

[13] EPA's promulgation of significant impact levels (see Recommendation 1) will help to clarify the definition of "cause and contribute." In addition, a source causing or contributing to a Class I increment violation can still obtain a PSD permit if the FLM certifies that the source would not have any adverse impacts on air quality related values at the Class I area, and if other conditions are also met. Regardless of an FLM certifying no adverse impacts, the State would be still be required to correct any Class I increment violation.

reviewing and refining emissions inventories and modeling of increment consumption so as to dispel potential concerns that such refinement is designed to "model away" potential determinations of increment violation.

Recommendation 9: The PSD WORKGROUP recommends that EPA adopt a tiered response process to provide permitting authorities flexibility to address findings of increment violations identified during Periodic Review or a permitting action.

Description: The PSD WORKGROUP believes that states should have available a range of practical options for addressing findings of increment violation in Class I and Class II areas, which includes a "tiered response process" for correcting the violation. Unless the potential violation is addressed prior to the official finding of violation, the tiered response process would be addressed through a federally enforceable commitment or plan to correct the violation. In making this recommendation, the PSD WORKGROUP recognizes that variations in the cause and magnitude of increment violations have important implications for the type and time frame of responses that are practical to resolve the violations. For example, violations caused primarily by mobile source emissions growth would typically require a different response strategy on a different time horizon than would a violation caused primarily by point source emissions growth. The PSD WORKGROUP believes the response plan should consider the following factors that can affect response strategies and timelines:

1. the severity of the violation;
2. the complexity of reducing emissions from the primary contributing sources;
3. the geographic scope and size of the affected area;
4. the extent to which the potential impacts of the increment violation would create irreversible or long-lasting degradation to human health or ecosystems; and
5. the extent to which the violation affects Class I, Class II, or Class III areas.

The PSD WORKGROUP believes that it will be beneficial to develop a tiered response process that can be used to guide the scope and timing of needed response, recognizing that some flexibility will likely be needed to adapt the response strategy and timeline to the specific circumstances and context of the violation. This tiered response approach to findings of violations from Periodic Review would also apply to situations where a PSD permit application results in a finding of increment violation that is caused by sources other than the permit applicant.

The PSD WORKGROUP affirms that increment violations should be addressed through an enforceable agreement or plan. Prior to finalizing the analyses that establish an increment violation, however, States should be allowed and encouraged to work with stationary sources that may be causing or contributing to potential increment violations to seek emissions reductions that could address the potential exceedances. In the event that analyses demonstrate violations that cannot be addressed prior to finalizing the analysis, the PSD WORKGROUP believes the state should have the option of addressing the

violation through either a memorandum of understanding (MOU)-type process or through a SIP call. For increment violations affecting Class I areas, MOUs development would include consultation with FLMs. The PSD WORKGROUP believes that these options are consistent with flexibility clearly granted under the Clean Air Act, and commits to working with EPA to devise an acceptable and realistic time frame for response plan preparation and submission.

The PSD WORKGROUP believes that the MOU-type option should be similar in concept to the Early Action Compacts approved by EPA for ozone and should include a similar level of public notice. The MOU must result in earlier resolution of the violation than the SIP call would, while at the same time providing some incentives that would make this approach of benefit to the state or affected sources. The MOU could be particularly useful in cases where there is general agreement that the modeling is adequate, where the sources that are causing or contributing to the violation have been identified correctly, and where the affected parties agree with the approach to be taken to address the violation. This MOU-type approach should provide significant incentives to address modeled violations as quickly as possible.

The PSD WORKGROUP also believes that it is important to clarify how PSD permitting actions should be addressed during refined analysis (prior to the determination of an "official" finding of increment violation), while a response plan is being developed, and while a response plan is being implemented but the violation has not been fully corrected. For example, the PSD WORKGROUP believes that it should be possible to issue a PSD permit in situations where there is agreement between the permitting authority and EPA, and the FLM if appropriate, that a model is over-predicting area and mobile source emissions sufficiently to result in a modeled violation.

The PSD WORKGROUP believes that permitting activity should be allowed to continue if such actions are approved in conjunction with the development of an overall, enforceable plan to address the violation. First, the PSD WORKGROUP recommends that permitting should be allowed to continue for sources whose impacts fall below established significant impact levels (see Recommendation 1). Second, the PSD WORKGROUP recommends that permitting should be allowed to proceed if the proposed source is able to fully offset their impact on the receptor(s) where the violation(s) have been recorded.

Rationale: State representatives indicated that current requirements and uncertainty over the implications of finding increment violations creates significant disincentives for permitting authorities to take steps that might result in a finding of increment violation. In the extreme case, potential fears of an increment violation resulting in a *de facto* moratorium on economic growth reinforce the perception of a "cliff" with severe consequences and limited flexibility for response. State representatives further indicated that a proactive air quality management program designed to prevent significant deterioration of "clean" airsheds (i.e., air planning areas in compliance with NAAQS) should include the flexibility for States and permitting authorities to match their response

to the nature of the specific problem, in a realistic time frame for both developing and implementing the enforceable plan. For example, increment violations caused primarily by mobile source growth may be difficult to address in a short time period. There is a desire to seek enough flexibility in the required response to enable permitting authorities to focus their efforts on air quality management and to minimize the likelihood of becoming unnecessarily embroiled in contentious local political conflicts over land use and economic development.

Other Workgroup participants generally recognized these concerns expressed by state representatives, although they indicated that it remains important that practical, enforceable response plans be developed and implemented in a timely manner to address the air quality problems indicated by the violation. FLMs expressed concerns over the potential for increased flexibility in States' response to increment violations resulting in greater deterioration in air quality in Class I areas. The Workgroup identified the need for follow-up discussions to clarify the extent to which flexible responses are appropriate in Class I areas.

Furthermore, Workgroup review of the Clean Air Act indicates that the Act clearly provides for flexibility in both the process and time frame for developing a response plan, as negotiated between a state and EPA. There was general agreement among participants that a 60 day time frame for revising a State Implementation Plan (SIP) to fix an increment violation is unrealistic.

Comment by NJDEP:

Five factors are listed that can affect the response strategies and timelines when there is an increment violation. The first factor "severity of the violation" should include both the magnitude of the violation and frequency of the violation.

Footnote 12: The states are not obliged to correct a Class I increment violation if the FLM certifies there is no adverse impact on an AQRV and the state agrees. They would only have to take action if there was a violation of a Class II increment.

Recommendation 10: The PSD WORKGROUP recommends that a tiered response system should be developed to provide permitting authorities flexibility to address adverse AQRV impacts identified during cumulative AQRV impact analyses.

Description: The PSD WORKGROUP believes that states should have available a range of practical options which afford flexibility in a state's response to a finding of an adverse AQRV impact, provided that the end result is a federally enforceable commitment or plan to mitigate the adverse impact. The PSD WORKGROUP believes that to be successful, the implementation of this recommendation must be part of an implementation package that also addresses the conditions that are necessary to enable

permitting authorities to conduct cumulative AQRV analyses and Periodic Review for AQRVs.

As discussed in Recommendation 5, the PSD WORKGROUP also believes that there is a need for affirmative legislative action or rulemaking to enable permitting authorities to take action to address adverse AQRV impacts identified during Periodic Review. Such action or rulemaking would minimize the potential for legal challenge to permitting authorities over possible actions to address adverse AQRV impacts.

Rationale: The rationale for Recommendation 10 is similar to that for recommendation 9. The workgroup discussed, however, that the range of flexibility for response options may need to be constrained more than those available to address increment violations in Class II areas due to the sensitive nature of conditions in many Class I areas.

Recommendation 11: The PSD WORKGROUP recommends that proven, new technical tools and emissions data should be used when they become available for future analysis involving evaluating and planning air quality management. However, fair and equitable approaches must be sought when addressing increment exceedances associated with revised assumptions and/or techniques.

Comment: There is nothing new here which has not been the issue in previous promulgation of new or revised versions of models. This is more of a concern to those who have little experience in what the technical changes might do to their permitting status.

Description: In situations where proven (e.g., recognized by air permitting authorities as providing a better basis of analysis), new technical tools or emissions data become available (e.g., new model, AP42 factors, met data, etc.), the new tools or information would be used to conduct all future air quality analyses. In the event that the future application of the new tools or data significantly change prior increment analyses, consideration needs to be given to the options available to address increment violations in a fair and equitable manner. For example, if a source obtained a permit based on a previous increment model and analysis, it still should be entitled to that permit. However, if a new model or other tool now shows increment violations, the state should take measures to correct the violations. Such measures may require the previously permitted source, as well as other previously permitted sources also contributing to the increment violations, to alter its operations or attendant permit conditions. The PSD WORKGROUP believes that actions undertaken in response to increment violations established in this manner should reflect the "tiered response process" articulated in Recommendation 9. In this way, permitting authorities and permittees are provided with reasonable certainty that newly modeled violations will not result in rapid and dramatic changes to existing operations. Violations will be addressed through a deliberate planning process that balances the need to resolve the PSD increment issue in a timely

manner with the need to provide reasonable time to respond given the economic consequences.

Rationale: The Workgroup participants expressed an interest to encourage improvements in technology and technical approaches to emissions measurement and modeling, while preventing these improvements from retroactively or unfairly penalizing a particular source.

Comment by NJDEP:

How has EPA dealt with this issue in similar situations? (i.e., when an earlier modeling analysis shows no PSD increment violations, but a later analysis with updated meteorological data does predict a violation)

Recommendation 12: The PSD WORKGROUP recommends that EPA explicitly acknowledge the roles that ambient monitoring information can play in PSD program implementation.

Comments: Although the recommendation seems to be merely asking for EPA to better define the role which monitoring data can play in the PSD program, some of the specific references to potential uses of monitoring data are either not consistent with longstanding PSD program implementation steps or rely on arguments that are not technically sound. During the conference call to discuss this recommendation, it was indicated that the Workgroup members consider monitoring data as supplemental information to decision making in the PSD program. However, the discussions and statements in this recommendation (and also in # 4) could be interpreted far more general and need to be addressed. The descriptions below do identify some of the limitations of using monitoring data in specifically noting the influence of proper site locations, the effects of other than PSD sources, and meteorological data variability. These limitations are not the only ones which highlight the concern with using monitoring data in determining PSD increment consumption or expansion.

In the initial stages of implementing the PSD program, EPA did recognize the role of monitoring data in establishing the baseline concentrations and the determination of whether the full PSD increments were available in a baseline area at the time of the minor source baseline triggers (as noted in the NSR Workshop Manual). Beyond that, the use of monitoring data in PSD increment determinations was discouraged and disallowed for obvious technical reasons. EPA has, thus, held that monitoring has little or no place in increment determinations. For AQRV assessments, monitoring data has been used to establish whether a certain AQRV has reached a concern level or threshold value (such as the "red line" aquatic impact and Ozone determinations in some of the Class I areas by the Forest Service). These determinations, however, have been made in recognition that it is the total loading which determines these effects and that such total loading includes both PSD and non-PSD sources, plus "natural"

effects. On the other hand, for AQRVs such as visibility, the FLMs have attempted to identify quantifiable levels to determine not only these thresholds, but also "significant effect" levels. The difficulty in establishing the latter level is reflective of the inability of any monitoring data to determine source contributions in the PSD source review process and their "significance".

The recommendation suggests that in some instances monitoring data can be used to assist in the PSD program. One of these areas is in encouraging permit authorities to validate model performance when representative data is available. Leaving the question of just how this representative data would be carried out in the "complex mix of sources and other factors", it is highly unlikely that state or local agencies would want to undertake model validation efforts, even if they are technically capable. Model validation is a very rigorous process, in most instances requiring a large set of well placed monitor sites and even under these conditions it has been consistently shown that model validation reduces to the ability to, at best, match the higher unpaired time-space concentrations in a very well controlled experiment. In most instances, such model validations are more akin to model "calibration", which has been contrary to the EPA Modeling Guidelines for a long time for good technical reasons. Even with these model "calibrations", the results only indicate whether a specific model application "matches" observed data. The recommendation goes beyond this step and presumes that such an analysis can establish whether PSD increment affecting sources have had a discernable effect on the existing air quality. This step only adds to the complexity of the question. Furthermore, it is also asserted that this sort of an analysis can be used to guide the determination of a PSD source emission inventory, but just how one would achieve that goal is left unclear.

Even under ideal monitor data gathering conditions, the data will only be able to establish whether a threshold such as a standard is being exceeded, but it cannot establish whether a "significant" deterioration (or improvement) or some portion of it has occurred due to existing PSD sources. This is not only because the monitoring data are affected by more than the subset of PSD sources in the area, but also because the contribution of these sources cannot be established to any degree with simple assessment of monitor data "trends". Assuming one can site monitors reflect the impacts of all of the important PSD sources, even an observation of "no changes" in these levels does not establish that PSD increments were not consumed. In many instances monitored data levels are seen to be above PSD increments and any assessment will then need to establish that all of the events observed (say, 24 hour values corresponding to a 24 hour increment) have not been affected above the PSD increments (or some portion of it) on both time and space scales which include the consideration of similar weather conditions. Furthermore, in Class I areas, a majority of SO2 and PM10 monitors have a "sensitivity" level close to the 24 hour PSD increments of 5 and 8 $\mu g/m^3$, respectively, and could be hard pressed to establish any trends in PSD increment consumption. This type of assessment would then resemble the high order statistical assessments which have been tried recently to establish that

years of control strategies have in fact resulted in improvements in Ozone trends, even though other forms of "casual" observations say something different.

Beyond these technical limitations, the practical reality is that states have limited resources for general monitoring for even standards compliance demonstration as more of the NO2 and SO2 monitor sites are being replaced by other pollutant monitoring. Even PM10 monitors are essentially being replaced by PM2.5 monitors and EPA's current thinking is to considerably reduce the mandated/funded monitoring sites through their proposed Ncore network proposal. Thus, it is highly unlikely that any substantive data will be available in most instances to help establish PSD increments or even AQRV affects. Presumably to counter act such limitations, the recommendation suggests that pre or post construction monitoring can be realigned for such purposes. However, the trend in PSD permitting has been to minimize the need for such monitoring, not only by permit applicants, but also by regulatory agencies when the criteria in 40 CFR 51.21(i)(8) are met. That was one of the reasons for EPA's proposed streamlining of onsite monitoring requirements in the 1996 proposed PSD rule changes.

The recommendation also notes that the monitoring data can be useful in establishing whether a detailed Periodic Review is necessary for a given area. Since there are a number of ways and levels by which such a determination can be made, as recommended in #2, it should be left to these limited cases to try to establish if monitoring data is useful for such a purpose. Such narrowly defined situations do not appear to be the basis of this recommendation, however.

Description: The PSD WORKGROUP recommends that EPA explicitly acknowledge the use of ambient monitoring information as a legitimate tool in the PSD program implementation toolbox, when used under appropriate conditions. The PSD WORKGROUP does not expect monitoring data to replace the use of modeling activity in the PSD Program. The PSD WORKGROUP believes, however, that a range of opportunities exist for increasing the use of ambient monitoring data to complement the use of air quality models in situations where representative data are available. In many cases, States have been reluctant to use monitoring data in the absence of clear recognition that such data have a legitimate role in increment and AQRV analysis.

The PSD WORKGROUP believes that there are steps that can be taken to increase the use of ambient monitoring data in current PSD program implementation. Ambient monitoring data can be used in certain circumstances to assist with the evaluation of air quality models. In the context of Periodic Review, trends in ambient monitoring data can be used as a tool to support the screening approach discussed in Recommendation 2, helping to indicate whether a cumulative increment modeling analysis may be needed for an area. In situations where an airshed may have a complex mix of sources or other factors affecting increment consumption, permitting authorities should be encouraged to validate model performance using ambient monitoring data, when representative data are available. Ambient monitoring data may also be useful to guide permitting authority

selection of appropriate emissions calculation methods for use in preparing PSD emission inventories, as discussed in Recommendation 4. In the context of AQRV analysis, monitoring data can be useful for assessing the AQRV impacts associated with actual ambient pollutant concentrations. It should be noted that the PSD WORKGROUP does not propose that it is appropriate for ambient monitoring to replace the role of modeling in PSD program implementation. Instead, the PSD WORKGROUP believes ambient monitoring information should be allowed to inform the PSD program decision-making process in a manner similar to how modeling information is used, when used under appropriate conditions.

The PSD WORKGROUP also believes that opportunities exist to expand the use of ambient monitoring data in future PSD program implementation. Several states identified opportunities to more effectively utilize pre-construction and post-construction ambient monitoring requirements imposed as part of major source permitting actions. For example, permitting authorities could adjust monitoring regimes to better align with increment analysis needs. In addition, there is the potential to use temporary ambient monitoring networks to track pollutant concentrations in "problem areas" where increment is close to being fully consumed. This approach could supplement the use of modeling information in informing program decision-making.

The PSD WORKGROUP believes that it is also important to recognize the limitations of ambient monitoring data as well as conditions that can constrain its usefulness. One constraint pertains to the location of ambient monitoring stations relative to modeling receptors or emissions sources. Additional constraints can be the absence of ambient monitoring data at the baseline date and the inability of ambient monitors to distinguish between impacts on concentrations from baseline source emissions and emissions from increment consuming sources. In some cases, it can be difficult to infer too much about increment consumption from trends in monitored concentration levels because of variability in meteorological conditions from year to year. Despite the constraints, the PSD WORKGROUP believes that there are important roles for ambient monitoring data in the increment analysis process.

Rationale: Workgroup participants expressed a desire to consider conditions under which the use of ambient monitoring data would be appropriate and useful in the context of PSD program implementation. Several state representatives indicated that the use of monitoring data is becoming increasingly important as some areas are nearing full consumption of increment. Some participants acknowledged that the need to base permitting decisions on sound science can make it difficult for permitting authorities to deny permit applications in situations where actual ambient air quality has not been assessed or where ambient monitoring data suggest significantly different air quality status from modeled results.

Comment by NJDEP:

Monitoring data can be very helpful when used in the context of the periodic review. Data collected since the baseline date would provide the region's long-term trends in air quality and an indicator of how much increment is available. Review of this monitoring data would help determine whether a cumulative increment analysis is needed for an area as part of the periodic review. However, in urban/suburban areas with numerous and a complex mix of emission sources, monitoring data will have very limited use in selecting appropriate emission calculation methods.

Recommendation 13: THE PSD WORKGROUP recommends that States and FLMs should recognize the importance of, and work to improve where necessary, communication, coordination, and public notification expectations and procedures associated with PSD permitting activities. Such expectations and procedures are crucial to an effective working relationship between the FLMs and each unique state.

Description: The PSD WORKGROUP recognizes that many states currently have a productive working relationship with FLMs in the context of PSD permitting actions. The PSD WORKGROUP believes, however, that it is important for individual states and FLMs to explicitly establish expectations and procedures to ensure that AQRV impact reviews and analyses can be effectively accomplished in the context of each state's PSD permitting program. One approach for clarifying expectations and procedures for an effective working relationship is to pursue a Memorandum of Understanding (MOU). Less formal coordination can also be appropriate, provided that there are clear and open channels of communication to prevent and address challenges.

For an effective permitting program, the Clean Air Act and its implementing regulations envision that a complete and adequate air quality and air quality related values analyses be submitted as part of a complete permit application, for both the permitting authority and the FLM to perform an adequate review. A complete permitting program also should have adequate public notice provisions—including publicizing the complete air quality and air quality related values analyses at the time of notice of public hearing, as well as the basis for disagreement with a FLM adverse impact determination, if applicable. The PSD WORKGROUP believes that the following specific expectations are important to consider in the context of permitting authority-FLM coordination.

1. States should consider including federal land management agency representatives in pre-application review meetings. Consultation among the state, the FLM, and the permit applicant prior to the formal submittal of an application can help to clarify analysis expectations and expedite permit approval.
2. Early consultation with FLM representatives can help to identify and address areas and issues of concern before an application is submitted, potentially avoiding a finding of adverse impact by the FLM during the comment period.
3. States with mandated permit-processing timeframes should notify federal land management agencies immediately upon determining that a permit application is complete. This will afford FLM representatives the maximum time allowed under

state or local regulations to resolve issues that might otherwise result in an adverse impact finding.

4. States should, to the extent possible under state regulations, ensure a complete application includes complete and adequate air quality and Air Quality Related Value (AQRV) analyses.
5. The State's public notice procedures should allow for publication of the air quality and AQRV analyses, and be adequate to allow the FLM sufficient time to determine if adverse AQRV impacts would occur, and if so, to inform the public of this finding and the State's response.
6. Prior to issuing a permit over a FLM's adverse impact finding, permitting authorities should communicate and discuss with the FLM their intention to do so (including a basis for their decision).

Rationale: Participants recognized the need to ensure productive participation by FLMs in Class I area permitting processes, including provisions to ensure that important potential AQRV issues get discussed and considered and that all parties have adequate time for quality review and participation. Participants also acknowledged the importance of ensuring that AQRV impact analyses receive fair consideration, while recognizing that States have primacy in making permitting decisions.

The Workgroup discussed the potential need to clarify expectations around a "rational basis" for a permitting authority to reject a FLM's finding of adverse AQRV impact. Participants discussed that a State must explain its reasons for disagreeing (e.g., lack of adequate evidence, interpretation of data). Participants also discussed that a potential test is whether the State would be determined to be "arbitrary and capricious" in its decision, by not responding to an FLM analysis, for example.

In discussing this issue, Workgroup participants tried to balance the statutory provisions concerning the affirmative responsibility given to the FLM to protect AQRV and the stipulation that the permitting authority must be satisfied with the FLM's demonstration of adverse impact on AQRV in any particular situation.

Recommendation 14: In the context of single source permit and Periodic Review inter-jurisdictional emissions impacts, the PSD WORKGROUP encourages states to consult early and often and agree in advance on modeling protocols to enable consistency in and ensure the equity of the analysis. The PSD WORKGROUP further recommends EPA take steps to ensure EPA Regions, in partnership with states, operate consistently among themselves in inter-jurisdictional contexts and develop data and methods that will better enable inter-jurisdictional analysis.

Description: The PSD WORKGROUP believes a balance is needed between providing States with case-by-case, cross-jurisdictional PSD increment analysis flexibility and providing the national or regional standardization necessary to ensure equity among states, simplify cross-jurisdictional analysis, and facilitate coordination with FLMs. The

PSD WORKGROUP recognizes the occasional need to include facilities from multiple jurisdictions in the Class I area increment consumption analysis. These conditions, at times, can draw multiple EPA Regions into the increment analysis. States therefore must collaborate early to determine and agree on increment consumption approaches, and the affected EPA Regions must engage consistently with the collaborative effort.

A number of PSD WORKGROUP recommendations will drive more consistency and efficiency into inter-jurisdictional increment consumption analyses (Recommendations 3 and 4). These recommendations will provide stronger footing to initiate collaborative discussions among states and between states and relevant EPA Regions and FLMs. The PSD WORKGROUP believes, however, that states and EPA Regions will face substantial inter-jurisdictional increment consumption analyses condition variability, driving a case-by-case approach need for each. To support this need, the PSD WORKGROUP recommends working in partnership with EPA to make available current workable collaborative agreement models in the form of, for example, MOU language. These models will help states effectively coordinate and can drive more consistency among EPA regions.

EPA also can better support inter-jurisdictional efforts by taking three actions:

1. fund high resolution, meteorological data development for the US (particularly in complex terrain areas) to provide states reliable and consistent met data;
2. develop an NEI increment tracking module to facilitate the interstate use of emissions data for increment consumption; and
3. support regional modeling centers to coordinate multi-state, Class I increment tracking efforts (EPA would need to increase funding for, and expand the charter of, RPOs to accomplish this).

Rationale: Participant discussions indicated an important need for states to coordinate early in any increment consumption analysis that will involve inter-jurisdictional impacts. Early coordination will help avoid the need to redo analyses and/or avoid an inequitable outcome between jurisdictions. At the same time, participants recognized that the variable conditions under which inter-jurisdictional coordination will take place limits the development of an effective standard coordination protocol. Participants did indicate that, although early coordination is desirable, the need for coordination may not emerge until initial modeling analysis indicates an inter-jurisdictional impact. Participants concluded that it is important to handle coordination needs on a case-by-case basis supported by available coordination models to enable efficient agreement development among affected parties. Participants expected local and Tribal jurisdictions would operate with similar principles in mind.

Participants also indicated that EPA regions have, at times, participated inconsistently in inter-jurisdictional analyses with resulting confusion, uncertainty, and/or delays in the process. Participants believed EPA should examine its participation in such efforts and develop internal protocols to drive more consistent participation. Participants further observed that, at times, the need for inter-jurisdictional coordination may represent a very

different priority for affected parties. For example, one state may view the impact as a low priority relative to other state air quality needs and available resources. This situation can limit a state's ability/willingness to participate in the effort. In such contexts, federal resources may be needed to attain participation by all parties.

With respect to EPA data and analytical methods development support to inter-jurisdictional analysis, participants recognized these as long-term undertakings – they will not help inter-jurisdictional analysis in the short run. Additionally, certain participants indicated that such efforts, although likely helpful to Periodic Review, will probably produce data and tools with insufficient detail to support single source permit increment consumption analysis.