

Alan Dresser
New Jersey DEP, Bureau of Air Quality Evaluation
12/9/04

NJDEP Comments on STAPPA/ALAPCO/WESTAR List of Issues to be Addressed in the PSD Reform Initiative

Emission Inventory Issues

General Comment – Obtaining an accurate inventory is the most difficult problem in conducting a PSD increment consumption analysis. This is especially true in the urbanized areas of the state.

Issues A/B/E. In New Jersey we track PSD increment with one inventory that accounts for emission changes since the baseline dates. Specifically, it attempts to include emissions increases from new and modified major sources permitted since the major source baseline dates (January 6, 1975 for SO₂ and PM-10, February 8, 1988 for NO₂) and emission increases from new and modified minor sources permitted since the minor source baseline dates. If documented, the emission reductions due to shutdown of major sources since the minor baseline date are included. Emissions from unmodified existing baseline sources are assumed unchanged.

Issue C. If fugitive emissions from a major source have been quantified by the permit applicant they are included in the increment modeling.

Issue D. When modeling short-term increment consumption from existing sources (i.e. 3 and 24-hour SO₂ and 24-hour PM-10 impacts), as a first guess the allowable emission rate for sources permitted since the baseline date and the allowable emissions increase (current permitted minus old actual) for sources modified since the baseline date are used. The basis for this methodology is from guidance in the EPA document *New Source Review Workshop Manual –Draft* (Oct. 1990). Page C.49 of this document states that the maximum actual emission rate should be used to model short-term increment consumption, and that the maximum rate is the highest occurrence for that averaging period during the previous two years of operations. It is reasonable to assume that a relatively new or recently modified source operating near its maximum capacity and emission rate sometime in the previous two years. If a violation of the increment is predicted, a more detailed examination of short-term emissions from the major contributors to the violation is made (CEM data, daily fuel use, etc).

Issue B, G and H. The short-term SO₂ and PM-10 increments are deterministic therefore are attained if exceeded no more than once in a calendar year. Compliance is determined on a receptor-by-receptor basis for the averaging time of concern.

What Happens when increment consumption exceeds the available increment?

Issue D. Per New Jersey rules, if a minor source violates a PSD increment the permit is denied.

AQRV Issues

The Federal Land Managers need to do a better job of defining the AQRV's of concern for the individual Class I areas. The critical pollutant concentration or deposition load above which adverse affects may occur needs to be established for the AQRV's besides visibility. The FLM's should propose the tools and assumptions to use when evaluating AQRV impacts, not the states.

Inter-Jurisdictional Coordination

Issue A. Interstate cooperation is not only important when there are interstate impacts, but also when generating the inventories for the increment consumption modeling. Per EPA guidance, increment consuming sources within the significant impact area (SIA) and 50 km beyond the (SIA) must be evaluated for inclusion in the modeling inventory. In many cases, especially in the Eastern U.S., this area may cover several states. Emission inventories needed for Class I area increment modeling may also cover several states. Therefore, neighboring states need to provide each other PSD and NAAQS inventories when requested from the permitting state. A mechanism for providing such information should be set up between the modelers of the individual states. When the source's SIA extends into a neighboring state, the neighboring state should have the opportunity to comment on all modeling submittals.

NJDEP Comments on STAPPA/ALAPCO/WESTAR Increment Recommendations

Increment Recommendation #2 – A cumulative increment analysis should be conducted by permitting authorities on a periodic basis, with five years as a benchmark.

Comment: 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):

- 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.
- 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.
- 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.

Alan Dresser
BAQEv, NJDEP
December 27, 2004

Alan Dresser
New Jersey DEP, Bureau of Air Quality Evaluation
3/16/05

NJDEP Comments on WESTAR PSD Workgroup Recommendations

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.

NJDEP Comment: 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.¹

Reliable data needed to establish short-term emission rates (24-hour SO₂ and PM-10, 3-hour SO₂) 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

¹ "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."

CEMs, the same information would be needed for calculating SO₂ 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.

If the necessary data is available to accurately calculate short-term SO₂ 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 #6 and #7

NJDEP Comment - 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 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.

Recommendation #9

NJDEP Comment - Five factors are listed that can affect the response strategies and timelines when there is a 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 a AQRV and the state agrees. They would only have to take action if there was a violation of a Class II increment.

Recommendation #11

NJDEP Comment - 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

NJDEP Comment - 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 a 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.