UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

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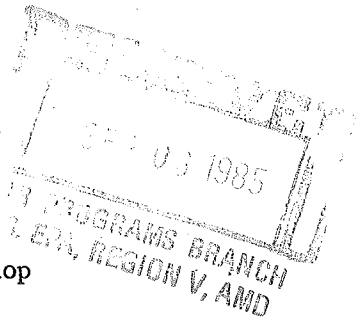

MEMORANDUM

SUBJECT: Modeling Issues Raised at The Region IV PSD Workshop

FROM: Dean A. Wilson
Techniques Evaluation Section

TO: Lewis Nagler
Regional Meteorologist, Region IV

In response to your request the Model Clearinghouse has reviewed the Region IV positions on several modeling/PSD issues raised at your June 11-12, 1985, PSD workshop. Our responses below have been coordinated with the New Source Review Section, CPDD, where appropriate, and are listed in the same order and format as in your memorandum.

1a. Return period of similar worst case meteorology. You are correct in your position that current policy does not allow the consideration of the probability that worst case meteorology may or may not recur over any given period of time. Such a consideration (if we could even reliably establish it) implies a statistical form of the NAAQS. Currently only the ozone standard is written in such a fashion.

1b. Research on return periods. We are aware that Dr. Ralph Larsen of the Meteorology Division is conducting some research that may be pertinent to the probability aspects of return periods of air quality levels. However, even if the results of this research are conclusive, they could not be used at this time, given the current form of the NAAQS.

2a. Downwash estimates. You are correct in your policy that concentration estimates resulting from downwash are to be used for comparison with NAAQS, PSD increments, etc.

2b. Role of post-construction monitoring. You are correct that a permit cannot be issued to a source if there is a modeled violation of the PSD increments or the NAAQS. The primary purpose of post-construction monitoring is either to verify that no violations are occurring, in case the modeled estimate was near (but less than) the allowable increment/standard or else to trigger corrective action if nonattainment occurs. With regard to your request for a policy letter widening the discretion to use post construction monitoring under certain circumstances, we do not agree that the language on page 4 of the PSD Monitoring Guideline allows the use of such monitoring data as a viable alternative to modeling for a PSD source. Thus we do not support this action.

3a. Modeling fugitive emissions. Yes, fugitive emissions are to be modeled. We also agree with your position that if such emissions result in ambient problems, it is prudent to conduct a more in-depth analysis. However, the State or source should be cautioned not to make arbitrary or weakly founded assumptions on the amount or character of fugitive emissions with the sole goal to reduce model estimates.

3b. Validation of ISC. The evaluations of ISC performed by EPA are described in the Armco Middleton, Ohio report, EPA-450/4-82-006, and "An Evaluation Study for the ISC Dispersion Model," EPA-450/4-81-002. In ISC the wind speed below the anemometer height (7-10 meters) is assumed to be the same as at that height.

3c. ISC model estimates within 100 meters of the source. Over the next few months SRAB will be modifying ISC and CRSTER to allow for receptors within 100 meters of a source. This change will make these models equivalent to RAM and MPTER in this regard. No specific performance evaluation studies (other than those that have been done for RAM) are planned. We have heard from several people (including your Region) that ISC estimates close to complicated industrial sources are too high. We have seen little documentation of this claim that includes comparisons between estimates and measured data. Also, most of the situations where the estimates appear to be high involve sources where the emissions inventory/source characterizations are poorly known. Thus we are not sure whether the problem, if there is one, stems from the emissions inventory or the model. If you are aware of any case studies pertinent to the problem (other than ILCO) we would be interested in learning about them.

4. Significant impacts on Class I areas. Since this question is more of a policy matter than a modeling question, I discussed it with the New Source Review Section, CPDD. They believe that the 1 $\mu g/m^3$ significance level applies to Class I areas regardless of distance from the source, but in a slightly different sense. The rationale is as follows: On page A-4 of the November, 1980 PSD Monitoring Guideline (EPA-450/4-80-012), Table A-1 lists significant emission rates. Once a source has become subject to PSD review for one pollutant it must generally conduct ambient analyses and BACT analyses for all pollutants which are emitted in quantities in excess of those listed in the Table. In addition, if the source is within 10 kilometers of a Class I area, an ambient impact analysis for TSP and/or SO_2 must be conducted if the potential 24-hour impact is greater than 1 $\mu g/m^3$, regardless of the emission rate of these pollutants.

If the Class I area is greater than 10 kilometers from the source, then an ambient analysis for SO_2 and/or TSP must be conducted only if the emissions are greater than the amounts listed in Table A-1. In this case the footnote on the bottom of Table A-3 applies and if the 24-hour impact on the Class I area is less than 1 $\mu g/m^3$, no further ambient analyis is required. (A BACT analysis would still be required.) Dealing with a reported impact of less then 1 $\mu g/m^3$ is a responsibility of the permit granting authority and, possibly, the Federal Land Manager.

Thus the footnote on the bottom of Table A-3 is not in error; it was deliberately included to cover Class I areas further than 10 kilometers from the source.

I hope this satisfactorily answers your questions. If I can be of further assistance to you please contact me at 629-5681.

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