



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

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MAR 06 1992

REPLY TO THE ATTENTION OF:
(AR-18J)

Stephen Gerritson
Executive Director
Lake Michigan Air Directors Consortium
2350 East Devon Avenue, Suite 242
Des Plaines, Illinois 60018

Dear Mr. Gerritson:

The purpose of this letter is to transmit the comments of the United States Environmental Protection Agency (USEPA) concerning your December 26, 1991, submittal of the final draft of the model evaluation protocol for the Lake Michigan Ozone Study (LMOS) modeling system. The final draft protocol has been reviewed by both Region V and the Office of Air Quality Planning and Standards (OAQPS). The comments given here are the combined comments resulting from these reviews.

Review of the draft protocol showed that the planned evaluation tests of the Urban Airshed Model-Version V (UAM-V) results equal or exceed the guidelines given for such modeling in the Guideline for Regulatory Application of the Urban Airshed Model (July 1991, EPA-450/4-91-013). The planned tests and model rejection criteria should assure relatively reliable results from the modeling effort.

Lacking guidance on the evaluation of the prognostic wind modeling and emissions modeling efforts, we can only comment on the technical reasonableness of the planned model evaluation approaches for these portions of the modeling effort. The planned approach is technically reasonable given the current uncertainties in such modeling efforts. The approach appears to represent the current state-of-the-art in such an exercise, and is, therefore, acceptable.

The only concerns we have regarding the submittal are discussed in the following comments:

1. It should be noted that the schedule for Regional Oxidant Model (ROM) runs have been revised and will result in later model runs and data submittals than indicated in the draft protocol. The revised schedule, of which you have been previously briefed, now anticipates the completion of the run for Episode 1 by March 31, 1992, with completion of the model operational evaluation by approximately May 15, 1992. The run for Episode 2 is planned to be completed by April 1991, with its model operational evaluation completed by the end of May. The runs for Episode 3 and Episode 4 will not be completed until early

October, 1992 with the model operational evaluation expected to be completed by late November, 1992. It should be noted that the ROM will be reapplied for Episodes 1 and 2 using the prognostic meteorological data when the prognostic model results are made available by ASTeR. It should also be noted that, if ASTeR is late in providing the prognostic wind results, the application of the ROM for Episodes 3 and 4 will also be delayed. The primary meteorological inputs to be used in the ROM runs for Episodes 3 and 4 will be the output of the prognostic meteorological models. Whereas, the initial ROM meteorological inputs to be used for Episodes 1 and 2 will be derived from other existing meteorological data.

The dates given above for the application of the ROM to the selected episodes are somewhat tentative at the time of the drafting of this letter. OAQPS will provide you with a written schedule for the ROM runs in the near future.

2. In the portion of the protocol dealing with the evaluation of the meteorological modeling results, it is stated that one of the rejection criteria of the results is the situation in which the modeled synoptic features and inland flow patterns are "dramatically" at odds with observed conditions. This criteria is very poorly defined and could lead to questionable subjective decisions. If possible, more definitive rejection criteria should be developed for this portion of the model evaluation.
3. It is stated in the draft protocol that, if ROM results are found to be in poor agreement with ambient measurements and these discrepancies are not eliminated by further analyses and model reformulation, ambient measurements alone will be used to set the boundary conditions. Given the lack of ambient measurements along the boundary of the IMOS analysis area, it is not clear that the use of ambient measurements alone would provide more technically reliable input data over the entire IMOS boundary than the use of the ROM results. The sparsity of ambient monitoring data along the boundary (at the surface and aloft) will make it difficult to technically challenge the ROM results. The comparison of the ROM results with the monitoring results will be particularly problematic given the large zonal volumes and volume-averaged concentrations of the ROM output. Any differences between the ROM results and monitoring results can be challenged on this basis. In addition, monitoring concentrations alone can provide no insight into future boundary concentrations required in the emission control strategy analyses of the Lake Michigan Ozone Control Project to follow the IMOS.

USEPA is generally pleased with the draft model evaluation protocol. This protocol should prove to be a useful guide in the model evaluation process.

I hope these comments adequately address your needs for USEPA's approval of the model evaluation protocol. If you have any questions on these comments, please refer them to Edward Doty at (312) 886-6057.

Sincerely yours,



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