

LAKE MICHIGAN AIR DIRECTORS  
CONSORTIUM

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May 13, 1994

David Kee  
Director, Air and Radiation Division  
United States Environmental Protection Agency  
Metcalf Federal Building  
77 West Jackson Boulevard  
Chicago, Illinois 60604

Dear Mr. Kee:

On behalf of the Lake Michigan Air Directors Consortium, I hereby submit the results of the latest evaluation of the Urban Airshed Model (UAM-V) in the Lake Michigan region. This material is being submitted to the United States Environmental Protection Agency (USEPA) for its review and comment. Please understand that we are looking for USEPA's written approval of the model in the Lake Michigan region for regulatory purposes.

The evaluation of the model consisted of several numerical and graphical comparisons of model predictions against the ambient data collected during the 1991 LMOS field program. Highlights from the evaluation include:

- \* General compliance with USEPA performance criteria.
- \* Statistical measures are as good, if not better, than previous applications with a "rich" ambient data base.
- \* Model performance across the full domain is consistent with performance in individual subregions.
- \* Model performance for ozone precursors is quite good. (This has been a particular short-coming in previous UAM evaluations. NO<sub>x</sub>, in particular, appears to be reproduced quite well. Being able to accurately simulate the ozone precursors is an important consideration in being able to use the model to assess the benefits from reductions in such emissions.)
- \* The spatial representation of surface ozone concentrations is reasonable.

These highlights support the overall conclusion that model performance is acceptable at this time. Nevertheless, efforts to improve model performance through various diagnostic analyses and possible refinement in certain model inputs are continuing. The results of these upcoming tests, and their effect on overall model performance, will be provided to

USEPA in the near future. This additional modeling is intended to build confidence in the absolute model predictions. We believe that the evaluation completed to date already supports the use of the model in a relative sense (e.g., to assess the relative benefits of reducing volatile organic compound emissions versus nitrogen oxides emissions) and to **approximate** the level of control needed to provide for attainment. Therefore, we believe that the model is ready for general regulatory application.

Finally, I would like to acknowledge the constructive comments and advice provided by your staff during the model evaluation process. Their interest and involvement has contributed greatly to the success of this effort. We look forward to continued open discussions between our organizations.

Sincerely,

A handwritten signature in cursive script, reading "Steve Gerritson". The signature is written in black ink and is positioned above the typed name.

Stephen L. Gerritson  
Executive Director

Enclosures

c: Joseph Tikvart, USEPA, OAQPS