UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711
January 16, 1990

MEMORANDUM

SUBJECT: Recent Texas Air Control Board (TACB) Evaluation of the ISC Area Source Algorithm

FROM: Joseph A. Tikvart, Chief
Source Receptor Analysis Branch (MD-14)

TO: James W. Yarbrough, Air Modeling Contact
Region VI (6T-AN)

As you are aware from telephone conversations you've had with the Model Clearinghouse over the last several months, we have been looking into several of the issues that the State of Texas has raised in conjunction with modeling area sources with ISC. Also we have been awaiting the results of a contractor study on area source algorithms for several models. That report is now complete and copies were sent to the Regional Modeling Contacts last month. In addition to the TRC report that you already have, I am attaching copies of two memoranda written by Russ Lee. These memoranda deal more directly with the issues that Texas has raised. Please feel free to distribute these materials to the State.

The results of our analysis dispute the conclusion that the ISCST area source algorithm should not be used for modeling landfills or other area sources where two or more sources share a common boundary. Rather, the model is appropriate for landfills, when used properly and judiciously. The key is use of sources sufficiently small in size to minimize problems like those noted by TACB; use of multiple small areas is also recommended by the TRC report. Our guidance has always encouraged the use of such discretion, but it is frequently ignored by model users.

As Russ notes, we have explored the various options suggested by TACB and found one of them to be inappropriate and two others to provide similar results to the current area source algorithm. We are also aware of the problems identified by TACB, and previously confirmed them by our own analyses. Issues like these have occurred in the past but we had not found a ready correction or a better modeling alternative. Thus the need for discretion. Resources preclude us from more vigorously pursuing the problems. But we believe that the TRC report now presents us with a firm enough basis to explore use of a PAL-like area source algorithm in ISC; we will consider this in our FY-91 plans.

To summarize, we would like to make the following observations. Given the limitations of current area source algorithms in general, case-by-case professional judgment is necessary when determining the appropriate sizes of area sources to be modeled, thus making the results obtained from different modelers not necessarily replicable. While this is not an ideal situation from a regulatory point of view, it is a practical necessity when dealing with area sources and is an outcome that we have been aware of for a long time. Similarly, the occurrence of spurious spikes can be mitigated if sizes of the area source are made small compared to the distance to the nearest receptor. This latter mitigating measure may introduce some problems in practicality in cases where receptors need to be placed very close to the edge of an area source. Prudent judgment and perhaps some "microscale" remodeling may be useful in such cases.

If you have any questions, please contact me.

Attachments

cc: J. Dicke
R. Lee
M. Smith
J. Touma
D. Wilson

bcc: Regional Modeling Contact, Regions I-V, VII-X (with copy of incoming memorandum and list of FY 90 Clearinghouse memoranda)