

situations, acceptance will become clear and those cases that are problematic will be better identified. As suggested by comments, we have removed reference to WYNDvalley from the *Guideline*.

Implementation issues/additional guidance. Some comments suggested that the CALMET (meteorological preprocessor for CALPUFF) and CALPUFF options should be defined for a variety of specific situations. We believe that more experience is needed before specific guidance can be offered for the variety of applications envisioned that might use the CALPUFF modeling system. We placed emphasis on (1) amplifying the available guidance information, (2) expanding the data formats for meteorological input data, and (3) making the code more robust to various choices in compilers. When sufficient experience has been attained, and it has become obvious what settings should be employed for best results for certain situations, we will promulgate expanded guidance after allowing opportunity for public review and comment. In the meantime, we will release interim guidance as it becomes available to assist users in tailoring CALPUFF for application. We have created a series of frequently asked questions (FAQ) with answers which the public can access via Earth Tech's Internet Web site: (<http://www.src.com/calpuff/calpuff1.htm>). This interim FAQ list will be extended as resources permit.

For long range transport and complex winds applications, we proposed that if only National Weather Service (NWS) or comparable standard meteorological observations are employed, then five consecutive years of data should be used. We further proposed that less than five years of data were acceptable if appropriate NWS data are merged with available mesoscale meteorological fields. These proposals were generally supported by public comments,³ but the commenters did provide a variety of opinions about how many years of data should be minimally acceptable, ranging from 1 to 5 years. As we explained in our response-to-comments, we sought to strike a balance between the need for a sufficiently robust meteorological record to ensure results of reliable integrity, while maintaining administrative and computational burdens at a practical level. In consultation with the Regional Offices, we therefore have agreed to allow use of less than five, but at least three, years of assimilated mesoscale meteorological data. More than 3 years may lead to the objectionable computations burdens noted here, whereas less than 3 provides

insufficient variation in meteorological conditions to capture the range of possible concentrations. We have also clarified that when merging NWS data with mesoscale meteorological fields, the NWS data should be shown to be relevant and appropriate.

For long range transport, we proposed use of a CALPUFF screening approach on a case-by-case basis that was first outlined in the IWAQM Phase 2 report (*op. cit.*) and was generally supported by commenters. The full scope of public comments is presented and addressed in our response-to-comments document.³ We agree with the comments suggesting use of terrain heights for each receptor ring to be representative of the Class I areas of interest. Furthermore, to ensure an appropriate degree of flexibility, we will allow the permitting agency to decide whether it will accept the CALPUFF screening results as proposed, and in that decision process will defer to the appropriate reviewing authority to decide on the details of how the CALPUFF screen is to be implemented.

Resource constraints. The full scope of public comments is presented and addressed in our response-to-comments document.³ There was a general sense from commenters that a skilled person having experience with CALMET can perform the required processing steps. Still some commenters encouraged us to find and promote a simplification to the CALMET meteorological processing steps. We did not support the suggestion to use screening level (ISC-like) meteorological data until such time as packaged data sets are made available. This would negate the benefits of using the system to simulate trajectories over large downwind distances, thereby undermining the purpose for which CALPUFF is intended. Although the processing steps are numerous and complex, they can be managed by competent staff.

Long range transport and complex wind situations are not trivial modeling problems. All commenters were aware that to address these situations requires more information (*e.g.*, terrain heights, land use mosaic, time and space variations in meteorological conditions) than is typical when using standard plume models. Processing the input data is a necessary but demanding task. The complexity of these situations requires a selection of options to provide the flexibility to tailor the model to specific situations. The CALPUFF system is currently configured to support a specific applied approach for long range transport, while at the same time, it has the flexibility for

case-by-case applications involving complex winds.

Additional analyses. Some commenters questioned whether CALPUFF has undergone sufficient testing to secure its accuracy for assessing impacts on air quality related values (AQRVs). We believe the available testing for assessing AQRVs addresses many of these concerns. In addition, it should be recognized that the FLMs are responsible for defining the relevant AQRV's of interest and the procedures to employ to assess whether there is an adverse impact. When CALPUFF is used for a visibility impact assessment, this would likely be for a Class I AQRV assessment, and the reviewing authorities are the FLMs responsible for the management and protection of the resources for the particular Class I areas involved. The Federal Land Managers' Air Quality Related Values Work Group (FLAG) was formed in 1997 to provide a more consistent approach for FLMs to evaluate air pollution effects on their resources. In IWAQM's Phase 2 report, we indicated that EPA would use the procedures specified by the FLMs as a consequence of their deliberations (*e.g.*, in their FLAG report: <http://www.aqd.nps.gov/ard/flagfree/index.htm>). To assist permit applicants, the FLMs have provided procedures in the December 2000 (Phase I) FLAG report for performing such analyses as may be required. Included in these instructions, they have identified significance thresholds for potential adverse impacts, and methodologies for computing a visibility impact. The commenters are in fact addressing the FLAG procedures which are not the subject of today's action. To the extent that they were addressed in the response to comments developed by the FLMs in the FLAG Phase I report, we refer commenters to that document.

Criticism was also directed at CALPUFF's treatment of chemical transformations, which affect AQRVs. Specific concern was expressed about the sulfate and aqueous phase chemistry algorithms. As chronicled on the FLAG Web site (above), these procedures and criteria have been published and received review and comment. However, today's rule addresses the suitability of CALPUFF for PSD increment consumption and for complex wind situations (with case-by-case approval), not AQRV analyses.

Other Modeling Systems

Our proposal to remove UAM-IV from appendix A as a recommended model for ozone and to remove reference to ROM and RADM for