



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

July 13, 1999

REPLY TO
ATTENTION OF: OEA-095

Mr. Patrick L. Hanrahan
Air Quality Division
Oregon Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204-1390

Dear Mr. Hanrahan:

We have received your request, dated June 25, 1999, for approval of the use of the Calpuff air quality model for long-range transport impact analyses. Calpuff is not a recommended model in EPA's *Guideline on Air Quality Models* [40 CFR Part 51, Appendix W], and, therefore, EPA approval of its use is required. This approval is generally given on a case-specific basis for an individual permit or State Implementation Plan action. However, you are requesting a generic approval of the use of Calpuff for all permit actions requiring assessment of long-range (i.e., distances greater than 50 kilometers) transport impacts.

As you correctly point out, EPA is proceeding toward the formal proposal to include Calpuff as a recommended model in the *Guideline* for long-range transport analyses. That proposal should take place this summer, and will be followed by a public comment period. The technical basis for this proposal includes a peer review of Calpuff and evaluations of the model's performance compared to observed concentrations. Furthermore, both the Interagency Workgroup on Air Quality Modeling (IWAQM) and Federal Land Managers are currently recommending the use of Calpuff for long-range transport assessments of impacts on PSD Class I areas.

At this point in time, we believe there exists an adequate basis for, and we hereby grant, a generic approval of the use of Calpuff for all analyses requiring assessment of long-range transport impacts. However, in the unlikely event that unfavorable public comment is received on EPA's proposed adoption of Calpuff as a recommended model, which causes EPA to reconsider its recommendation of Calpuff, this generic approval of Calpuff may be rescinded. In this case, prior regulatory decisions based on Calpuff will not be reconsidered, but future use of the model will require a case-specific approval.

You understand that until such time as EPA has formally adopted Calpuff as a recommended model in the *Guideline*, each time you use Calpuff model results as a basis for a regulatory action, you are required to give public notice of the use of Calpuff, and provide the opportunity for a public hearing on this matter. This public notice and opportunity for hearing may be included in the public review process for the particular regulatory action.

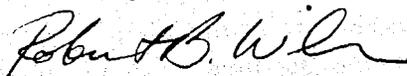
We must offer a couple of words of caution with regard to the regulatory application of Calpuff. While versions of this model have existed since the late 1980's, Calpuff is a relatively new regulatory air quality model in the sense that the regulatory modeling community in general does not yet have a wealth of experience with Calpuff. Moreover, Calpuff is a more technically challenging model to apply than those models that we are accustomed to applying, such as, the Industrial Source Complex (ISC) model. That is to say, there is a larger number of model options from which to select, and a higher degree of technical detail required in the input data, confronting the user of Calpuff, as compared to ISC, for example. This will require a higher level of technical review of Calpuff analyses by your agency, especially for the first few years of its use, to ensure that those applying the model have not made errors that may lead to inappropriate conclusions. You should consider requiring all applicants using Calpuff to submit an adequately detailed modeling protocol to help minimize the potential for errors and avoid misunderstandings. Early involvement of Federal Land Managers in PSD Class I area assessments should also be a requirement.

Another word of caution is in order due to Calpuff's (current) inability to simulate aqueous-phase sulfate formation. The concern is that in some situations, where plume/cloud interactions are significant, Calpuff may under-predict sulfate formation, and, thus, under-predict particulate concentrations, visibility impairment, and acidic deposition. We believe that Calpuff is currently the best model to use for such analyses, however, extreme caution should be employed in the interpretation of the Calpuff results, especially in areas of Western Oregon where cloud cover is prominent. Note that a new version of Calpuff that is able to simulate aqueous-phase chemistry may become available later this year.

Finally, should you consider application of screening methodologies using Calpuff (e.g., <http://www.epa.gov/scram001/7thconf/calpuff/phase2.pdf>, Sections 2.1, 2.3.1, and 4.8; <http://apcd.state.co.us/permits/lrt.pdf>, Section 2), you should be aware that these methodologies are 'young,' and subject to further development and refinement. Appropriate caution should be exercised in the application of these or other screening methods.

Please contact me at (206) 553-1531 if you have any questions regarding this approval of the generic use of Calpuff for long-range transport analyses.

Sincerely,



Robert B. Wilson
Regional Meteorologist

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