

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

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SUBJECT: Urban/Rural Determinations

FROM: *M Koerber*
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TO: Dean Wilson (MD-14)
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At our recent Region V modelers meeting, several States questioned the viability of USEPA's guidance on urban/rural determinations. As the attached correspondence indicates, this concern has been lingering for many years. To resolve these concerns, I am requesting further clarification from the Model Clearinghouse on USEPA's urban/rural guidance.

The "Guideline on Air Quality Models (Revised)" states that the selection of urban or rural dispersion coefficients should follow the land use classification procedure or the population density procedure, as suggested by John Irwin in an undated paper entitled "Proposed Criteria for Selection of Urban Versus Rural Dispersion Coefficients". Neither procedure, however, is sufficient for dealing with two common situations in Region V (i.e., shoreline power plant located in a large city and a refinery located in a "rural" area). Strict application of the procedures in Section 8.2.8 of the Guideline would result in misclassification of these two situations.

For the shoreline power plant, while the land use procedure would surely come out rural, I believe that the analysis for this city (including the shoreline power plant) should use an urban model. Any single-source modeling for the power plant must then also rely on the urban model.

For the refinery, although the land use procedure would also come out rural, consideration of the substantial heat flux (the most important criteria identified by Irwin), as well as the enhanced surface roughness (generated by a group of structures, rather than a well-defined downwash problem due to a single building), may necessitate the use of an urban model. Comparisons between modeled concentrations (urban and rural) and monitored concentrations have been performed to support further the use of an urban model.

Thus, I believe that in addition to the land use and population density procedures, urban/rural determinations should also consider heat flux, surface roughness, comparisons with existing monitored data, and the overall classification of the area comprising all major sources. Section 8.2.8 must be read in context with the fundamental principle of the Guideline to use the model that most accurately estimates concentrations in the area of interest and must not be misunderstood to limit consideration to two imperfect procedures. I request the Model Clearinghouse's comments on this more general urban/rural guidance. I also ask for any comments on the use of an urban model for the two situations noted above and on the suggestions offered in the Attachment.

Attachment

*Do you have these problems?
How do you deal with them?*