UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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DALLAS, TEXAS 75202-2733

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MEMORANDUM

SUBJECT: Request for Assistance in Reviewing Phelps Dodge-Hidalgo Modeling Protocol

FROM: James W. Yarbrough
Air Modeling Contact, Region 6 (6T-AP)

TO: Dean Wilson
Model Clearinghouse (MD-14)

I have attached a copy of "Proposed Model Evaluation Protocol For The Mesoscale Puff Dispersion Model Developed For The Hidalgo GEP Stack Height Review Preliminary Draft" and my comments previously forwarded to the State of New Mexico regarding this preliminary draft protocol. The purposes of this memo are to raise to you two separate issues with this draft protocol and to request the Model Clearinghouse's assistance in resolving these issues.

First, on page 13 of the preliminary draft protocol (and mentioned in comment 12 of my attached April 16, 1991 letter) it is stated that ISCST will be modified to allow input of hourly emissions rates and stack parameters (useful for Phelps Dodge because of the availability of CEM data at the smelter). Of course, this involves altering a GAQM Appendix A model (i.e., ISCST). Consequently, Phelps Dodge must submit a complete technical explanation of the changes it effects in ISCST (including changes in the computer code). However, it is unclear to me which of the following actions the company should complete: (1) an ambient equivalency analysis vis-a-vis ISCST (regulatory version) or (2) a performance evaluation for the ISCST-modified model. A performance evaluation would be required if one takes the position that ISCST is being fundamentally changed into a different model.

I believe that an ambient equivalency analysis, such as the one outlined in the Attachment, would be the appropriate course of action. This is true because one could do separate runs of the regulatory version of ISCST for each hour to obtain ambient levels with hourly changes in emissions now if he/she were willing to make the large number of runs that would be necessary. Thus, the proposed Phelps Dodge changes are only meant to enhance convenience. Please inform me if you concur with my interpretation.

Second, in Section 5.0 of its preliminary draft protocol, Phelps Dodge has proposed a modification to the standard Cox model performance methodology. Given the highly specialized nature of the discussion, I would appreciate the Model Clearinghouse's lead in evaluating this part of the Phelps Dodge proposal.

Thank you in advance for your involvement and that of other OAQPS staff in the review of these issues. I would appreciate it if the Model Clearinghouse review could be completed within 60 days of receipt of this memo. Please contact me at FTS 255-7214 if you or other staff have questions regarding this request.

Attachments

cc: Gerald Fontenot (6T-A)
Tom Diggs (6T-AP)

Proposed Scheme for Phelps Dodge-Hidalgo ISCST Equivalency Test

Model	Emissions Rate	Stack Parameters
ISCST (regulatory version)	100 g/s (constant rates for the entire one year modeling period)	Stack gas exit temperature and stack gas exit velocity constant for the entire one year period, consistent with 100 g/s emissions rate from main Phelps Dodge-Hidalgo smelter and acid plant stacks
ISCST (modified version)	hourly variable emissions, but all hours equal to 100 g/s	hourly variable stack parameters, but these values would be constant and consistent with the parameters expected with a 100 g/s emissions rate

Comparison criteria: highest, 2nd highest concentrations, and high 25 concentrations for 1-hour, 3-hour, 24-hour, and annual averaging times over the entire modeling domain; equivalency demonstrated if ISCST-modified results are within plus/minus 2% of ISCST-regulatory version

Meteorological data set to be used will be a one year, on-site data base.