



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

December 10, 2015

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Clarification on the Approval Process for Regulatory Application of the AERMOD Modeling System Beta Options

FROM: Richard A. Wayland, Director *Richard A. Wayland*
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TO: See Addressees

With the recent closure of the public comment period for the proposed "Revision to the *Guideline on Air Quality Models: Enhancements to the AERMOD Dispersion Modeling System and Incorporation of Approaches to Address Ozone and Fine Particulate Matter*" rulemaking, we wanted to clarify the approval process for regulatory application¹ of the AERMOD Modeling System beta options. It is vitally important to the integrity of the promulgation and application of the Environmental Protection Agency's (EPA's) preferred models and flexibility of alternative models in unique circumstances that the approval process for alternative models adhere to the requirements of Section 3.2 in the current 2005 version of the *Guideline on Air Quality Models* (Appendix W).

Beginning with version 06341, "beta options" have been incorporated into the AERMOD model code to allow for the public sharing and vetting of yet to be formally promulgated model options that are still undergoing research and development that can be applied in regulatory applications on a case-by-case basis with appropriate justification and formal approval under Section 3.2.2 of Appendix W. The incorporation of beta options is beneficial to the entire stakeholder community, because these new model options can be scientifically reviewed and fully evaluated by the community (thereby shortening the time it might take to otherwise formally propose and adopt the new model option into a preferred model), while also allowing for its use in the regulatory arena when it is appropriate and justified consistent with our existing processes and procedures under Appendix W. It should be noted that the inclusion by EPA of a beta option into any part of the AERMOD Modeling System or any other preferred model listed in Appendix A

¹ Prevention of Significant Deterioration (PSD) and nonattainment New Source Review (NA NSR)

to Appendix W does not bestow any special status or implicit approval of that non-regulatory beta option. If a beta option within an EPA preferred model is used in a regulatory application, then the status of the preferred model is changed to that of an alternative model.

The horizontal and capped stack beta options, some of the beta options for the more appropriate treatment of low wind conditions, and the alternative NO₂ Tier 2 option are currently proposed as future regulatory options in the proposed revisions to Appendix W rulemaking package. The first beta option in AERMOD version 06341 (released December 7, 2006) was specific to the consideration of dispersion from horizontal and capped stacks. This beta option was incorporated in response to an earlier Model Clearinghouse action² and the need for appropriate integration of that Model Clearinghouse response into the AERMOD framework to account for the PRIME plume rise algorithm. More recently, in AERMET and AERMOD versions beginning with version 12345 (released December 10, 2012), beta options that address concerns regarding model performance under low wind speed conditions have been incorporated. Additionally, AERMOD versions beginning with version 13350 (released December 16, 2013) have included a beta Ambient Ratio Method-2 option as an alternative to the existing Tier 2 Ambient Ratio Method³ for modeling NO₂ applications.

Even with formal proposal as future regulatory options within the AERMOD Modeling System, the regulatory application of any of the beta options in AERMET or AERMOD versions 15181 require formal approval as an alternative model and are subject to the requirements of Appendix W, Section 3.2.2. This is applicable for compliance demonstrations in the PSD context and State Implementation Plan development for NAAQS criteria pollutants as well as the specific use for SO₂ designations and consent decree modeling. Given the need for national consistency on any interpretation of the Act, rule, regulation, or program directive⁴ and aspects of certain beta options being proposed as future regulatory options in the proposed revisions to Appendix W rulemaking, the delegated approval of any alternative model to the Regional Offices that includes the application of a beta option must be done in consultation and concurrence with the Model Clearinghouse. The participation of the Model Clearinghouse allows for national consistency in approvals and complete transparency with the stakeholder community through the documentation and public provision of all decisions in the Model Clearinghouse Information Storage and Retrieval System⁵ and the EPA's Support for Regulatory Atmospheric Modeling (SCRAM) website⁶.

² <http://cfpub.epa.gov/oarweb/MCHISRS/index.cfm?fuseaction=main.resultdetails&recnum=93-II%20%20-09>

³ 40 CFR Part 51 – Appendix W, Section 5.2.4

⁴ 40 CFR Part 56 – Section 56.5 (2) (b)

⁵ <http://cfpub.epa.gov/oarweb/MCHISRS/>

⁶ <http://www3.epa.gov/ttn/scram/>

If you have additional questions regarding the approval and application of the beta options in the AERMOD Modeling System, version 15181, please feel free to contact George Bridgers, (919) 541-5563 or bridgers.george@epa.gov, or Tyler Fox, (919) 541-5562 or fox.tyler@epa.gov.

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