



Katie Hobbs  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY



Karen Peters  
Cabinet Executive Officer  
Executive Deputy Director

December 21, 2023

## **Submitted via Electronic Docket and E-mail**

Attn: Docket ID No. EPA-HQ-OAR-2022-0872  
Environmental Protection Agency  
EPA Docket Center  
Mail Code 28221T  
1200 Pennsylvania Avenue, NW.  
Washington, DC 20460

Re: Revision to the *Guideline on Air Quality Models* (Appendix W To 40 CRF Part 51):  
Enhancements to the AERMOD Dispersion Modeling System

Dear Sir or Madam:

The Arizona Department of Environmental Quality (ADEQ) appreciates the opportunity to comment on the U.S. Environmental Protection Agency's (EPA) 2023 proposed revisions to the Guideline on Air Quality Models (herein referred to as Guideline) and enhancements to the AERMOD dispersion modeling system. Based on the review of the proposed model enhancements and Guideline revisions, ADEQ offers the following comments for your consideration:

### **Transition Period for Applicability of Revisions to the Guideline**

ADEQ values EPA's recognition of the time and expense associated with revisiting modeling after the promulgation of the revised Guideline. Revising permit applications or SIP modeling that was completed shortly after a Guideline revision would result in undue delays to ADEQ's work. Given this, ADEQ supports a 1-year transition after a revision of the Guideline where approved modeling protocols would still be acceptable.

### **Proposed Updates to Recommendations on the Development of Background Concentration**

In general, ADEQ supports efforts by EPA to provide more clarity regarding the development of background concentrations. However, ADEQ has a few comments on the proposed revisions as discussed below:

- (i) The Draft Appendix W recommends utilizing the current design value for the relevant NAAQS as a uniform monitored background contribution across the project area. However, the design values for PM<sub>10</sub> are determined based on the number of exceedances rather than a specific concentration level. It is unclear how to

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incorporate the design value of PM10 into a modeling analysis.

- (ii) The Draft Guidance on Background Concentrations stipulates that the selected ambient monitoring data for background determinations should be current (measured in the previous three years). We recommend that historical data from deactivated monitors be considered in certain cases, provided that reviewing agencies determine that the data are representative and/or conservative. In some instances, ambient air monitors were deactivated due to consistently low monitoring concentrations observed in the areas where monitors were located.
- (iii) The Draft Appendix W does not recommend the hourly or daily pairing of monitored background and modeled concentrations. We suggest considering daily pairing as an alternative for modeling 24-hour PM10. Due to the arid nature of southwestern Arizona, elevated PM10 concentrations are typically observed on windy days, particularly during the monsoon. However, because a steady-state Gaussian plume models assume that concentration is inversely proportional to wind speed, based on our experiences, high modeled concentrations from emission sources are usually associated with light winds and stable conditions. Therefore, it is very unlikely that the occurrence of the highest modeled concentrations and the highest monitoring concentrations would occur simultaneously is improbable. Combining the maximum PM10 background concentration with the highest modeled PM10 concentrations would be unnecessarily conservative for the purpose of a model compliance demonstration. Additionally, many elevated PM10 concentrations (above 100  $\mu\text{g}/\text{m}^3$  but below the NAAQS of 150  $\mu\text{g}/\text{m}^3$ ) may not be excluded from the background determination, as the associated meteorological conditions need not necessarily be classified as "exceptional events" or "atypical" conditions. Therefore, the daily pairing approach may be the only viable option for demonstrating model compliance. We recommend that the EPA allows reviewing agencies to determine the appropriateness of the pairing approach for specific cases.
- (iv) Background concentrations may display noteworthy variation within a modeling domain in specific cases. For instance,  $\text{NO}_2$  monitoring concentrations could significantly decrease with an increase in distance from highways with heavy traffic. In such scenarios, determining background concentrations may require prioritizing or placing emphasis on the background concentration in the hot-spot areas where the maximum impacts from modeled emission sources occur. Furthermore, we recommend that the EPA explore potential enhancements to the AERMOD modeling system in the future, allowing users to specify varied background concentrations tailored to different receptors.

If you have any questions regarding ADEQ's comments, please contact me at Krause.Hether@azdeq.gov or (602) 771-4655.

Sincerely,

DocuSigned by:  
*Hether Krause*  
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Hether Krause, Deputy Assistant Director  
Air Quality Division  
Arizona Department of Environment