

Guideline on Air Quality Models/Clean Air Act: U.S. Environmental Protection Agency Proposal Addressing Enhancements to the AERMOD Dispersion Modeling System



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The United States Environmental Protection Agency (“EPA”) published in the October 23rd Federal Register a proposed revision to the:

Guideline on Air Quality Models (“Guideline”)

See 88 Fed. Reg. 72826.

The proposed revisions to the *Guideline* include:

- Enhancements to the formulation and application of EPA’s near-field dispersion modeling system – AERMMOD
- Updates to the recommendations for the development of appropriate background concentration of cumulative impact analyses

Air quality modeling is often used to estimate the probable concentration of a given pollutant at a certain geographical point. The models use emission data along with meteorological information to produce such predictions. Additional informational components utilized are the chemistry of air emissions and topographical features in the relevant area.

Changes to model components (i.e., meteorological data, etc.) will affect the result in estimated air pollutant concentrations. The models are sometimes adjusted (i.e., “calibrated”) as better information becomes available to improve their accuracy.

The complexity of the models can vary. Regardless, they are an important tool in efforts to determine what impact a given quantity of pollutants will have on Clean Air Act National Ambient Air Quality Standards or Prevention of Significant Deterioration standards or requirements. The states utilize models to prepare State Implementation Plans as required by Section 110 of the Clean Air Act.

EPA has an extensive air quality modeling program that develops, evaluates, and applies models to support a wide variety of air quality needs.

Advances in modeling enable users to:

- Better estimate the relationship between sources of pollution and their effects on ambient air quality

- Predict the impacts from potential emission sources
- Simulate ambient pollution concentrations under different policy scenarios

The Air Quality Dispersion Model (“AERMMOD”) was developed by EPA and others as a dispersion modeling system. It is used to model the impact on air quality from sources that emit a variety of pollutants such as:

- Carbon monoxide
- Lead
- Sulfur dioxide
- Nitrogen dioxide
- Primary particulate matter
- Hazardous air pollutants

The *Guideline* is driven by the regulations implementing the Clean Air Act to satisfy Section 165(e)(3)(D) for purposes of specifying models to be used in the Prevention of Significant Deterioration program.

The *Guideline* provides:

- EPA-preferred models and other recommended techniques
- Guidance for models used in predicting ambient concentrations of air pollutants

The proposed revisions are described by EPA as corresponding to the updates to the scientific formulation of the AERMMOD modeling system along with updates to the recommendations for the development of appropriate background concentration for cumulative impact analyses.

The topics addressed in the proposed revisions to the *Guideline* include:

- Proposed Updates to EPA’s AERMOD Modeling System
- Incorporation of COARE Algorithms Into AERMET for Use in Overwater Marine Boundary Layer Environments
- Proposed Addition of a New Tier 3 Detailed Screening Technique for NO₂
- Proposed Addition of RLINE as Mobile Source Type
- Support Information, Documentation, and Model Code
- Proposed Updates to Recommendations on the Development of Background Concentration
- Transition Period for Applicability of Revisions to the *Guideline*
- Proposed Revisions by Section (addressing Sections 1,3, 4, 5, 6, 7, 8, 9, 10)
- Ongoing Model Development

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