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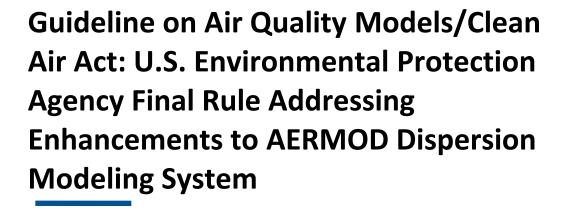
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Guideline on Air Quality Models/Clean Air Act: U.S. Environmental Protection Agency Final Rule Addressing Enhancements to AERMOD Dispersion Modeling System

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The United States Environmental Protection Agency ("EPA") published in the November 29th Federal Register a final rule/revision to the:

Guideline on Air Quality Models ("Guideline").

See 89 Fed. Reg. 95034.

The final revisions to the Guideline include:

- Enhancements to the formulation and application of the EPA's near-field dispersion modeling system.
- Updates to the recommendations for the development of appropriate background concentration for 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 concentration. 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 Clear 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 pollutants 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 ("AERMOD") 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 162(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 revisions have been described by EPA as corresponding to the updates to the scientific formulation of the AERMOD modeling system along with updates to the recommendations for the development of appropriate background concentration for cumulative impact analyses.

The topics addressed in the revisions to the Guideline include:

- Updates to EPA's AERMOD modeling system.
- Incorporation of COARE algorithms into AERMET for use over water marine boundary layer environments,
- Addition of a new Tier 3 detailed screening technique for NO2.
- Addition of RLINE as a mobile source type.
- Support information, documentation, and model code.
- Updates to recommendations on the development of background concentration.
- Transition period for applicability of revisions to the Guideline.
- Proposed revisions by Section (addressing certain Sections).
- Ongoing model development.

A copy of the Federal Register notice can be downloaded here.