

## FACT SHEET

### **REVISION TO THE *GUIDELINE ON AIR QUALITY MODELS* (APPENDIX W TO 40 CFR PART 51): ENHANCEMENTS TO THE AERMOD DISPERSION MODELING SYSTEM AND INCORPORATION OF APPROACHES TO ADDRESS OZONE AND SECONDARY PM<sub>2.5</sub>**

#### **TODAY'S ACTION**

- ◆ On July 14, 2015, the Environmental Protection Agency (EPA) proposed to update to its *Guideline on Air Quality Models (Guideline)*. The *Guideline*, which was last updated in 2005, is used by the EPA, states, tribes, and industry to prepare and review permits for new sources of air pollution. State and tribal air agencies also use the *Guideline* to revise their plans detailing strategies for reducing emissions and improving air quality known as State or Tribal Implementation Plans.
- ◆ The EPA is proposing enhancements to the scientific formulation of the preferred near-field dispersion model, AERMOD, to address technical concerns expressed by the stakeholder community and improve model performance in its regulatory applications.
- ◆ This proposed action also will streamline resources necessary to conduct regulatory modeling with AERMOD by incorporating model algorithms from the Buoyant Line and Point Source (BLP) model and replacing the model known as CALINE3 for mobile source applications including fine particle pollution (PM<sub>2.5</sub>, PM<sub>10</sub>), and carbon monoxide (CO) hot-spot analyses. The EPA is proposing this change based on evidence of a more scientifically sound basis for the use of AERMOD, improved model performance over CALINE3, and its ability to use more recent and representative meteorological input data.
- ◆ To provide more flexibility and improve the meteorological inputs used for regulatory modeling, the EPA is proposing to allow the use of prognostic meteorological data in AERMOD where there is no representative National Weather Service (NWS) station, and it is prohibitive or not feasible to collect adequately representative site-specific data.
- ◆ In January 2012, the EPA granted a Sierra Club petition requesting the EPA establish air quality models for ozone and PM<sub>2.5</sub> for use by all major sources applying for a pre-construction, Prevention of Significant Deterioration (PSD) permit. In response, the EPA is proposing to revise the *Guideline* to incorporate current modeling techniques to address the secondary chemical formation of fine particle and ozone pollution from direct, single source emissions of pollutants that form them such as sulfur dioxide, oxides of nitrogen, volatile organic compounds.
- ◆ For long-range air quality assessments, the EPA is proposing to remove CALPUFF as a preferred model and recommending its use as a screening technique along with other Lagrangian models for addressing PSD increment beyond 50 km from a new or modifying source. This proposed change does not affect the EPA's recommendation in the 2005 BART Guidelines to use CALPUFF in the BART determination process.

- ◆ These model enhancements and Guideline revisions would increase the efficiency and accuracy of regulatory modeling demonstrations and also reduces the burden on the regulated community and agencies. The accuracy of modeling demonstrations is paramount in the determination of ambient impacts and effectiveness of controls on new or modify sources.
- ◆ The EPA is also announcing the Eleventh Conference on Air Quality Modeling on August 12 and 13, 2015 and inviting the public to participate in the conference. The conference will focus on the revisions that the EPA is proposing to the *Guideline* and part of the conference will also serve as the public hearing for these revisions.

## **BACKGROUND**

- ◆ The Clean Air Act requires EPA to standardize air quality modeling procedures.
- ◆ EPA originally published the *Guideline on Air Quality Models* in 1978 and revised it several times since then. The latest revision occurred in November 2005.
- ◆ EPA developed the *Guideline* to help EPA, States, and industry prepare and review new source permits and “State or Tribal Implementation Plan” revisions. The *Guideline* is important because it specifies models for regulatory application and provides guidance for their use. The *Guideline* provides a common basis for estimating the air quality concentrations of criteria pollutants used in assessing control strategies and developing emissions limits.
- ◆ Based on other studies presented and discussed at the Tenth Modeling Conference in March 2012, and additional relevant research since 2010, the EPA and other researchers have conducted additional model evaluations and developed changes to the model formulation of the AERMOD Modeling System to improve model performance in its regulatory applications. The proposed updates to the AERMOD Modeling System are to address a number of the technical concerns expressed by stakeholders.
- ◆ On January 4, 2012, the EPA granted a petition submitted on behalf of the Sierra Club on July 28, 2010, that requested the EPA to establish air quality models for ozone and PM<sub>2.5</sub> for use by all major sources applying for a PSD permit. In granting that petition, the EPA committed to engage in rulemaking to evaluate whether updates to the *Guideline* are warranted and, as appropriate, incorporate new analytical techniques or models for ozone and secondarily formed PM<sub>2.5</sub>. As a part of this commitment and in compliance with section 320 of the Clean Air Act, the EPA conducted the Tenth Conference on Air Quality Modeling in March 2012 where there were presentations of ongoing research of single-source plume chemistry and photochemical grid modeling techniques, as well as several public forums. The EPA subsequently received written comments pertaining to such modeling.

- ◆ The EPA initiated Phase 3 of the Interagency Workgroup on Air Quality Modeling process in June 2013 to inform the update to the *Guideline* to address chemically reactive pollutants for near field and long-range transport applications. Comments received from stakeholders at the Tenth Conference on Air Quality Modeling supported this collaborative effort to provide additional guidance for modeling single-source impacts of secondarily formed pollutants in the near-field and for long-range transport. Stakeholder comments also supported the idea of this collaborative effort occurring in parallel with stakeholders' efforts to further model development and evaluation. The EPA's recommended revisions to the *Guideline* related to addressing single-source ozone and secondary PM<sub>2.5</sub> impacts are largely based on detailed review and assessment of this input.

### **FOR FURTHER INFORMATION . . .**

- ◆ We encourage interested parties to review the Notice of Proposed Rulemaking and supporting technical support documentation through the Federal eRulemaking Portal: <http://www.regulations.gov>. The Docket identification number is: EPA-HQ-OAR-2015-0310
- ◆ Preregistration details, additional background information, and a more detailed agenda for the Eleventh Conference on Air Quality Modeling are electronically available at <http://www.epa.gov/ttn/scram/11thmodconf.htm>. Preregistration for the conference, while not required, is strongly recommended due to heightened security protocols at the EPA-RTP facility.
- ◆ Interested parties can access EPA's regulatory atmospheric modeling website at [www.epa.gov/ttn/scram](http://www.epa.gov/ttn/scram) to obtain technical information related to the *Guideline*.
- ◆ For further information about this promulgation, contact George Bridgers of EPA's Office of Air Quality Planning and Standards at (919) 541-5563.