

EPA workshops conducted for the purpose of ensuring consistency and providing clarification in the application of models. The second activity is the solicitation and review of new models from the technical and user community. In the March 27, 1980 **Federal Register**, a procedure was outlined for the submittal to EPA of privately developed models. After extensive evaluation and scientific review, these models, as well as those made available by EPA, are considered for recognition in the *Guideline*. The third activity is the extensive on-going research efforts by EPA and others in air quality and meteorological modeling.

c. Based primarily on these three activities, new sections and topics are included as needed. EPA does not make changes to the guidance on a predetermined schedule, but rather on an as needed basis. EPA believes that revisions of the *Guideline* should be timely and responsive to user needs and should involve public participation to the greatest possible extent. All future changes to the guidance will be proposed and finalized in the **Federal Register**. Information on the current status of modeling guidance can always be obtained from EPA's Regional Offices.

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1.0 Introduction

a. The *Guideline* recommends air quality modeling techniques that should be applied to State Implementation Plan (SIP) revisions

for existing sources and to new source reviews (NSR), including prevention of significant deterioration (PSD). (See Ref. 1, 2, 3). Applicable only to criteria air pollutants, it is intended for use by EPA Regional Offices in judging the adequacy of modeling analyses performed by EPA, State and local agencies and by industry. The guidance is appropriate for use by other Federal agencies and by State agencies with air quality and land management responsibilities. The *Guideline* serves to identify, for all interested parties, those techniques and data bases EPA considers acceptable. The *Guideline* is not intended to be a compendium of modeling techniques. Rather, it should serve as a common measure of acceptable technical analysis when supported by sound scientific judgement.

b. Due to limitations in the spatial and temporal coverage of air quality measurements, monitoring data normally are not sufficient as the sole basis for demonstrating the adequacy of emission limits for existing sources. Also, the impacts of new sources that do not yet exist can only be determined through modeling. Thus, models, while uniquely filling one program need, have become a primary analytical tool in most air quality assessments. Air quality measurements can be used in a complementary manner to dispersion models, with due regard for the strengths and weaknesses of both analysis techniques. Measurements are particularly useful in assessing the accuracy of model estimates. The use of air quality measurements alone however could be preferable, as detailed in a later section of this document, when models are found to be unacceptable and monitoring data with sufficient spatial and temporal coverage are available.

c. It would be advantageous to categorize the various regulatory programs and to apply a designated model to each proposed source needing analysis under a given program. However, the diversity of the nation's topography and climate, and variations in source configurations and operating characteristics dictate against a strict modeling "cookbook". There is no one model capable of properly addressing all conceivable situations even within a broad category such as point sources.

Meteorological phenomena associated with threats to air quality standards are rarely amenable to a single mathematical treatment; thus, case-by-case analysis and judgement are frequently required. As modeling efforts become more complex, it is increasingly important that they be directed by highly competent individuals with a broad range of experience and knowledge in air quality meteorology. Further, they should be coordinated closely with specialists in emissions characteristics, air monitoring and data processing. The judgement of experienced meteorologists and analysts is essential.

d. The model that most accurately estimates concentrations in the area of interest is always sought. However, it is clear from the needs expressed by the States and EPA Regional Offices, by many industries and trade associations, and also by the deliberations of Congress, that consistency in