

Frequently Asked Questions Regarding the Department's Adoption of EPA's 2016 Revision to the *Guideline on Air Quality Models*

January 10, 2018

1. What is the *Guideline on Air Quality Models*?

Answer: The *Guideline on Air Quality Models* (Guideline) is a document developed by the U.S. Environmental Protection Agency (EPA) that describes acceptable air quality modeling techniques. As stated in Section 1.0(a) of the Guideline:

The *Guideline* provides air quality modeling techniques that should be applied to State Implementation Plan (SIP) submittals and revisions, to New Source Review (NSR), including new or modifying sources under Prevention of Significant Deterioration (PSD), conformity analyses, and other air quality assessments required under (EPA) regulation.

EPA developed the Guideline to meet a congressional (Clean Air Act) requirement to standardize air quality modeling procedures. EPA originally published the Guideline in 1978, but they have revised it several times since then. EPA has also incorporated the Guideline as a regulation in Title 40 of the Code of Federal Regulations, Part 51, Appendix W (40 CFR 51, Appendix W).

2. Why is the Department updating its adoption of the Guideline in 18 AAC 50.040(f)?

Answer: The Department is incorporating revisions that EPA finalized on December 20, 2016. EPA's decision, along with the revised Guideline, was published in the Federal Register (FR) on January 17, 2017 (82 FR 5182). As stated on page 5182 of the FR notice, the changes are to be integrated into the reviewing authority's regulatory processes. The Department is therefore updating its adoption of the Guideline.

3. What happens if the Department does not use the Guideline, or the 2016 update?

Answer: The Department could potentially lose control of its air permit programs. The Department must meet certain EPA requirements in order to have an acceptable air permit program under the Clean Air Act. EPA has a separate set of regulations for each type of air permit, but in all cases, the regulations include a requirement to comply with the Guideline.

For example:

- An air quality modeling analysis conducted in support of a PSD permit application must comply with the Guideline per 40 CFR 52.21(l); and
- An air quality modeling analysis conducted in support of a minor permit application must comply with the Guideline per 40 CFR 51.160(f)(1).

4. Did EPA make significant changes to the Guideline?

Answer: Yes. EPA made a number of substantive revisions to the Guideline. They also adopted a number of changes to the AERMOD Modeling System. The changes are described in the FR notice, which may be found on EPA's modeling webpage at:

https://www3.epa.gov/ttn/scram/appendix_w/2016/AppendixW_2017.pdf. EPA has also posted a Fact Sheet that summarizes the changes. See
https://www3.epa.gov/ttn/scram/appendix_w/2016/Appendix_W-Fact_Sheet.pdf.

5. Will I need to revise my NSR permit application and modeling analysis if it was submitted *before* the proposed update to 18 AAC 50 becomes effective?

Answer: With some exceptions, the answer is “no” – you will not need to resubmit your permit application and modeling analysis. The Department will not generally require a revised application/analysis if you have a “complete” permit application prior to the effective date of the proposed regulation. A complete application is defined in Alaska Statute (AS) 46.14.160(a) as an application that, “provides the information identified by the department in regulations adopted under AS 46.14.140(a) and in standard application forms provided by the department under AS 46.14.140(a)(1) and must be certified true and correct by the owner and operator.”

The possible exceptions include:

- Projects with an incomplete permit application and no approved modeling protocol; and
- Applications that appear to have been submitted in order to avoid future permitting/modeling obligations while the project continues to be designed.

In all cases, applicants should maintain contact with the Department regarding the specific details of their project and the associated permitting/modeling obligations. If in doubt, ask a question.

6. Will I need to revise my approved modeling protocol if I have not submitted the associated permit application and modeling analysis when the changes to 18 AAC 50 become effective?

Answer: This question is a little trickier to answer. EPA allows regulatory review agencies to approve modeling protocols based on the 2005 version of the Guideline up through January 17, 2018. However, the proposed regulations would not be effective until after EPA's January 17, 2018, sunset date. If you are conducting a modeling analysis during this interim period, then the best course of action is to discuss the project with the Department in order to develop a viable and defensible solution.

7. Will the Department now require modeling protocols, as suggested in Section 9.2.1 of the revised Guideline?

Answer: The Department is not proposing any regulatory changes regarding the use of a modeling protocol. The Department already has a provision in 18 AAC 50.540(c)(2) for requesting a modeling protocol for a minor permit project. The Department does not have a similar provision for PSD projects since PSD applicants tend to always engage the Department in pre-application discussions. They also generally provide a modeling protocol since it's a great tool for expressing a desired modeling approach.

Required or not, the Department encourages applicants to submit modeling protocols prior to conducting the actual analysis. They can be useful tools for working through the various details of a modeling analysis.

The Department has developed and posted suggested outlines for a modeling protocol on its air quality modeling website. See <http://dec.alaska.gov/air/ap/modeling.htm>.

8. May I use computer-generated “prognostic” meteorological data, instead of collecting site-specific meteorological data, for my NSR modeling analyses?

Answer: Maybe.

Prognostic meteorological data refers to data that was computer-generated using a three-dimensional mesoscale computer model, such as the Weather Research and Forecasting (WRF) model, or the 5th Generation Penn State/NCAR Mesoscale Model (MM5). EPA has previously required prognostic meteorological data to be used in photochemical or long-range transport modeling.

The revised Guideline now allows prognostic data *to be considered* for a near-field analysis where, “there may not be a representative [National Weather Service (NWS)] or comparable meteorological station available (e.g., complex terrain), and it may be cost prohibitive or infeasible to collect adequately representative site-specific data.” EPA has also released the Mesoscale Model InterFace (MMIF) program for extracting the meteorological parameters for a given location within the given WRF/MM5 domain. These parameters could then be used by AERMOD, or other various models, for the air quality simulation.

The prognostic data provision may prove to be very useful for many areas within Alaska. However, the mechanism for using this provision are currently not as developed as the general concept. There are a lot of details regarding this approach that still need to be developed. Applicants who desire to use this approach must not only develop the dataset, but they must also show that their approach provides representative data at the appropriate resolution for the given situation. The first few applicants who desire to use this approach will, therefore, need to closely work through these issues with the Department, and possibly, the Region 10 Office of EPA. Subsequent applicants will still need to provide an adequate demonstration that their

approach provides representative data, but the effort should become more streamlined as the techniques and guidance is developed over time.

9. Will I be required to conduct a photochemical modeling analysis to assess my project’s “secondary” PM-2.5 and/or ozone impacts?

Answer: EPA is still developing the guidance needed to make this determination, but their stated intent is that the case-specific photochemical modeling analysis discussed in Section 5.4.2(c) Guideline would be the exception, rather than the rule. The Department is closely monitoring this issue and has discussed the issue with EPA on several occasions. The Department has also commented on EPA’s draft guidance. The Department is encouraging EPA to allow for substantially simpler demonstration techniques for small and/or isolated stationary sources.

10. Will the Department be incorporating the Guideline revisions into the *Modeling Review Procedures Manual* and *Modeling Protocol Outlines* posted at: <http://dec.alaska.gov/air/ap/modeling.htm>?

Answer: Yes. The Department is drafting updated versions of these documents. The Department’s intent is to post them on its website when the regulation update becomes effective.

11. Who should I talk to if I have additional questions regarding a current or future permit application or modeling analysis?

Answer: For questions regarding a previously submitted application/analysis, contact the permit writer/modeler that the Department assigned to the project.

Questions regarding future applications/analysis should initially be addressed to either Aaron Simpson (aaron.simpson@alaska.gov) or Patrick Dunn (patrick.dunn@alaska.gov). They in turn may forward your questions to one or more staff members for developing the response. You will need an active billing account in place in order for the Department to charge for the time spent answering the questions. If you do not have a current pre-application account, you may set one up by sending the following information to: Elizabeth Nakanishi (elizabeth.nakanishi@alaska.gov) with a cc to Tammy Walker (tammy.walker@alaska.gov).

Source Information:

1. Company (owner, not consultant): name and mailing address
2. Stationary Source (facility): name and address if known. If stationary source name is not provided, name will default to project name.
 - a. Latitude/longitude for stationary source (necessary if company mailing address is not located in Alaska)

PAA information:

3. Project Name (this name is not available to the public)

For billing purposes:

4. Company name responsible for billing
5. Billing address (if different than mailing address)
6. Billing contact: Name, Phone Number, and email address

General information?

7. Responsible Official: name and contact information
8. Project contact: name and contact information