

STATE OF ALASKA

**DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF AIR QUALITY
AIR PERMITS PROGRAM**

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December 18, 2006

Subject: Meteorological and Pollutant Data for New Source Review

Dear Air Permit Contact:

This letter contains important information for anyone who submits air quality pollutant data and/or computer air quality modeling in support of air quality permit applications.

The U.S. Environmental Protection Agency (EPA) has replaced the computer model that was used by most permit applicants. The new model (AERMOD) requires a meteorological parameter that was not typically collected in past meteorological monitoring programs. In such cases new meteorological monitoring will be required for future permit applications.

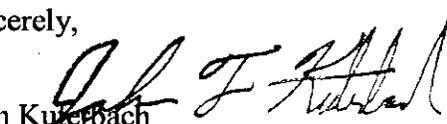
Also, some of the meteorological and/or pollutant data previously collected by permit applicants does not meet quality assurance requirements. The meteorological data requirements are described in EPA's *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA-454/R-99-005; February 2000), adopted by reference in 18 AAC 50.035(a)(4). The pollutant data requirements are described in 18 AAC 50.215(a). Pollutant data collected in support of a PSD applicant must also be consistent with EPA's *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (EPA-450/4-87-007; May 1987), adopted by reference in 18 AAC 50.035(a)(5). For air quality permit applications, the Department can no longer accept data that does not meet the applicable requirements, even if that data was used for permit applications in the past.

If you already have complete data set that meets the applicable requirements, then you are prepared for submitting future permit applications. If not, then we encourage you to take the steps needed to obtain a valid data set for your stationary source.

The enclosures provide additional information regarding meteorological and pollutant data needed to support permit applications. The following contacts can help you with specific issues:

- Modeling Requirements – Alan Schuler; (907) 465-5112; alan_schuler@dec.state.ak.us
- Monitoring Requirements – Gerry Guay; (907) 269-3070; gerry_guay@dec.state.ak.us
- Regulations Development – Rebecca Smith; (907) 465-5121; rebecca_smith@dec.state.ak.us;
- Minor/PSD Permit Program – Bill Walker; (907) 465-5124; bill_walker@dec.state.ak.us

Sincerely,


John Kuefner
Manager

Enclosures: Meteorological Data Issues for Air Quality Modeling; Pollutant Data Issues

cc: Alan Schuler
Gerry Guay
Rebecca Smith
Bill Walker
Tom Chapple
Herman Wong; EPA Region 10

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Meteorological Data for Air Quality Modeling

ADEC – Air Permits Program

December 18, 2006

Background Information

PSD and minor permit applicants are typically required to model source emissions to estimate the impact of these pollutants on air quality and the environment. This requirement exists for the construction of new sources, or modification of existing sources, which emits specific levels of a regulated pollutant. The approved models and methods for conducting these analyses are listed by EPA in their *Guideline on Air Quality Models* (Guideline). Alaska has adopted the Guideline (as in existence on July 1, 2004) by reference in the state air regulation 18 AAC 50.040(f).

EPA promulgated a revision to their Guideline on November 9, 2005. The revision includes replacement for the long-standing “workhorse” model, ISCST3, with the new AERMOD Modeling System. EPA also established a one-year transition period from ISCST3 to AERMOD. The federal transition period ended November 9, 2006.

The Department has not yet adopted the revised Guideline. However, we intend to issue a public notice to adopt the revised Guideline in mid-February 2007. The adoption would likely become effective by the end of July 2007. Until then, there will continue to be an inconsistency between state requirements and federal requirements.

For our **minor permit applicants**, this inconsistency should not present a problem as EPA does not have a minor permit program and therefore, has limited incentive to become involved in minor permit decisions. EPA Region 10 has also informally indicated that we may continue using ISCST3 for our minor permit applicants until our regulations are updated.

For **PSD applicants**, this inconsistency is a potential problem since EPA has the legal authority to over-rule our PSD decisions. With this being the case, PSD applicant should use a dispersion model authorized in the November 2005 Guideline (e.g., AERMOD) in order to be consistent with the current federal requirements. When used under the current state regulations, AERMOD would be treated as a “non-Guideline” model, which means it’s subject to Department approval and public comment. Department approval would be a formality to meet regulatory obligations. The Department would not impose any “showing” requirements since EPA already took those steps when they promulgated the revised Guideline.

Either way, minor and PSD applicants both need to note that AERMOD will be replacing ISCST3. Therefore, applicants need to assess what, if any, additional meteorological data they will need to conduct for an AERMOD analysis.

New Meteorological Data Needs

ISCST3 and AERMOD have similar meteorological data requirements, with one notable exception. Both use the same hourly wind and temperature data, which must be representative of the project site. The data can be obtained from the National Weather Service (NWS), if there is a nearby station, or collected on-site by the applicant. If atmospheric stability data is collected for a site-specific monitoring program: ISCST3 requires either “sigma-theta” data, or “solar

radiation delta-temperature” (SRDT) data; AERMOD requires either SRDT data, or NWS cloud-cover data.

Projects that can totally rely on NWS data have what they need for either ISCST3 or AERMOD. Projects that must rely on site-specific data may not. It appears that most applicants using site-specific monitoring programs have measured sigma-theta data rather than SRDT data in the past. ***If that is the case for your stationary source (i.e., you have sigma-theta data rather than SRDT/cloud cover data), or if you have no representative meteorological data at all, then you will likely need to collect new meteorological data in order to run AERMOD.*** Considering the long lead-time associated with collecting meteorological data, the Department encourages owners/operators to assess their potential data needs now, rather than later.

Transition Period

The Department intends to propose a new one-year ISCST3 to AERMOD transition period for minor permit applicants. PSD applicants would not have a new transition period since this would not be recognized by EPA.

As currently envisioned, the one-year period would start from the date of the public notice. Therefore, if the anticipated regulation package is promulgated as intended, the transition period would end February 2008. The transition period would be subject to public comment.

Monitoring Program Requirements

The meteorological data collected in support of a minor or PSD permit application must be PSD-quality. The basic requirements are summarized in the Guideline. Additional monitoring requirements are described in EPA’s *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA-454/R-99-005; February 2000), adopted by reference in the Guideline and in 18 AAC 50.035(a)(4). Data that does not meet the applicable requirements will be rejected.

Applicants must submit a Quality Assurance Project Plan (QAPP) for Department approval prior to starting the monitoring project. The purpose of the QAPP is to lay out the procedure that the applicant will use to ensure good data is collected. Since monitoring in Alaska’s harsh climate can be difficult, applicants must anticipate equipment problems and develop a plan for quickly resolving the most likely problems. Many data collection problems deal with failing to plan adequately. [Note: The other typical problems are: 1) failure to follow the written plan, and/or 2) inadequate documentation of the quality assurance steps taken during the data collection period.]

The QAPP must be in the format described on the Department’s web-site at <http://www.dec.state.ak.us/air/am/index.htm>. The data reports must also be provided in the format described at this web-site. Unless otherwise directed by an existing permit condition, please submit one hard-copy and an electronic copy of all QAPPs and Annual Data Reports to Alan Schuler; ADEC Air Permits Program; 410 Willoughby Ave., Suite 303; P.O. Box 111800; Juneau, AK 99811-1800. The Department will reject *all* submittals that are not in the requested formats.

The Department is aware that we have not always conducted timely reviews of past submittals. The Department is working to resolve the current backlog and to develop procedures to ensure timely reviews of future submittals. This effort may involve the use of term contractors, as needed, to help manage the workload. The time spent on all QAPP/data reviews is billable – whether conducted in-house or through a term contractor.

Pollutant Data Issues
ADEC – Air Permits Program
December 18, 2006

Background Information

Per 40 CFR 52.21(m)(1), PSD applicants must submit ambient pollutant data that characterizes the existing maximum impacts in the project area, unless the existing concentration or the project impact is less than the monitoring thresholds provided in 40 CFR 52.21(i)(5). The ambient data requirement only pertains to the pollutants subject to PSD review. If monitoring is required, the data are to be collected prior to construction. Hence, these data are referred as “pre-construction monitoring” data.

While pre-construction monitoring is not required of minor permit applicants, minor permit applicants (as well as PSD applicants) may still need ambient “background” data to supplement the ambient modeling analysis. If local data is non-existent, the applicant may propose a surrogate value for Department approval in their modeling protocol. The background concentration is described in EPA’s *Guideline on Air Quality Models*, adopted by reference in 18 AAC 50.040(f). It represents impacts from sources not included in the modeling analysis. Typical examples include natural, area-wide, and long-range transport sources. Once the background concentration is determined, it is added to the modeled concentration to estimate the total ambient concentration. Hence, background concentrations are typically needed for all pollutants included in the modeling analysis, regardless of whether PSD pre-construction monitoring is required. While not required, minor permit applicants may wish to collect ambient background data if the available surrogate values are overly conservative.

Monitoring Program Requirements

The pollutant data collected in support of a minor or PSD permit application must be PSD-quality. The actual requirements are described in 18 AAC 50.215(a). Pollutant data collected in support of a PSD applicant must also be consistent with EPA’s *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (EPA-450/4-87-007); May 1987), adopted by reference in 18 AAC 50.035(a)(5). Data that does not meet the applicable requirements will be rejected.

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