

Choice of Model – For Prevention of Significant Deterioration (PSD) modeling demonstrations, the applicant must use AERMOD. Once AERMOD has been used at a site for PSD, it should also be used for Minor New Source Review (NSR). For all other minor NSR modeling, the choices are ISC-Prime and SCREEN3. ISCST3 may be used for Minor NSR for cases when there is no downwash.

Urban Option – AERMOD has an urban option. The urban option allows for enhanced mixing that occurs during nighttime conditions due to the urban heat island effect. This effect is most pronounced during periods of light winds and clear skies. During these conditions, a rural-urban temperature gradient may exist. It may be appropriate in limited cases to use the urban option.

Applicants can propose the use of the urban option. The justification for using the urban option should be provided and approved by the ADMT **prior** to conducting air dispersion modeling.

Modeling Templates – The applicant is encouraged to fill out the modeling templates. These templates are used by the ADMT in order to expedite the modeling review process. Failure to use these templates or to provide completed modeling templates may extend the period required to review a project. The templates can be found at the following:

ftp://ftp.tceq.state.tx.us/pub/OPRR/APD/Spreadsheets/TemplateUpdate_10102008/

Refining Exceedances – An applicant may need to refine the number of hours that the model predicts concentrations could exceed a threshold to address impacts from sources of emissions that do not operate simultaneously and/or continuously. In addition, an applicant may need to consider multiple operating scenarios other than the scenario that predicts the maximum concentration for a contaminant when sources do not occur simultaneously and the frequency of exceedance is above a “screening” level of potential concern. These screening levels may be those contained in documents such as the [Air Permit Reviewer Reference Guide \(APDG\) 5874, Modeling and Effects Review Applicability](#), or those provided by the Toxicology Section staff for a specific permitting project.

There are several different methods to refine these predictions. The following are suggested ways to refine exceedances. All refinements must be supported by a technical justification whether the method is in this memorandum or proposed and approved during the impacts review process.

- 1. Consider operating hours of culpable sources.** Use the operating hours instead of the model predicted hours of exceedance. For example, the maximum number of hours exceeding an effects screening level (ESL) is 156. If the activity is limited to 50 hours per year, then the maximum number of exceedances is 50.
- 2. Consider operation schedule.** Limit the hours modeled to represent an operation with a set operating schedule. For example, if an applicant has limited production and maintenance, startup, and shutdown activities (MSS) to 8 a.m. to 5 p.m., then only those hours should be evaluated in the modeling analysis to predict hours of exceedance as well as the maximum ground level concentration (GLC_{max}).
- 3. Examination of MAXIFILE.** Examine the MAXIFILE for the ALL source group and MAXIFILES for each modeled source group included in the analysis. Evaluate the modeled exceedances relative

to how production and MSS activities would operate in practice. For example, if the activity is completed within one hour, cannot occur again for several more hours, and the modeled exceedances occur in sequential hours, all but one of those hours of exceedance can be removed from consideration.

Another refinement is to determine the contribution of each source to an exceedance during a certain time of day. If the applicant limits which sources can operate simultaneously in order to prevent a predicted exceedance, that exceedance can be removed from consideration.

Annual results – The applicant should provide annual modeling results for health effects pollutants that exceed the 1-hr ESL. Annual results can be predicted by the model using an annual emission rate (tpy). It may be more appropriate, if the number of MSS hours are low (< 2000 hrs/yr), to estimate the worst-case annual concentration by multiplying the predicted short-term concentration at the GLCmax by the expected hours of MSS activity and dividing by 8760.