Notes on Programs NO2HRSTDBG and SO2HRSTDBG

Software programs NO2HRSTDBG and SO2HRSTDBG are provided by the North Dakota Department of Health (NDDH) to assist permit applicants and consultants in the demonstration of modeled compliance with new 1-hour NAAQS for NO_2 and SO_2. The programs use the optional formatted "post" file output from AERMOD (ISC-Prime) to fully implement EPA modeling guidance, and the form of the new standards.

The programs provide for the addition of concurrent hourly background concentrations to hourly model results, before processing the form of the standard. The programs also work with either five-year post output and background concentration files, or one-year files. If five-year files are available, the programs will fully implement the form of the new 1-hour NAAQS (and associated modeling guidance) by computing the five-year average of annual 99^{th} (SO_2) or 98^{th} (NO_2) percentile of maximum daily 1-hour concentrations. Background concentrations are added to modeled concentrations prior to computation. The programs provide a result for each receptor location, and identify the worst receptor. Note that the least conservative results will be obtained if the programs are fully implemented with five-year files and concurrent hourly background.

The programs allow the use of a single, fixed hourly background concentration rather than concurrent hourly concentrations from a file. To implement post processing without a background concentration(s), the fixed background concentration is simply set to zero.

Programs NO2HRSTDBG and SO2HRSTDBG must be executed in the Windows DOS environment by entering the program name at the command prompt. All input information, including post and background file names, is requested and entered during execution of the program. The programs take 15-20 minutes to run on an HP Compaq dc7700 computer for five-year files and about 2000 receptors. Execution status messages are written to the screen. Note that the model post file output can become very large, approaching about 10 gigabytes for five years and 2000 receptors.

Additional notes regarding NO2HRSTDBG and SO2HRSTDBG follow:

1) The programs currently accommodate up to 5000 receptors (this can easily be increased by NDDH, if necessary).
2) The model post file must be constructed using the formatted (plot) option.
3) The model post file and the background concentration file must reflect the same time zone.
4) File name for the model post output must be at least 6 characters long (including extension).
5) Model post output file must contain only one source group.