

#### **15A NCAC 02D .1106 DETERMINATION OF AMBIENT AIR CONCENTRATION**

(a) Modeling shall not be used for enforcement. Modeling shall be used to determine process operational and air pollution control parameters and emission rates for toxic air pollutants to place in the air quality permit for that facility that will prevent any of the acceptable ambient levels in 15A NCAC 02D .1104 from being exceeded, except as allowed pursuant to 15A NCAC 2Q .0700. Enforcing these permit stipulations and conditions shall be the mechanism used to ensure that the requirements of 15A NCAC 02D .1104, except as allowed by 15A NCAC 2Q .0700, are met.

(b) The owner or operator of the facility may provide a modeling analysis or may request the Division to perform a modeling analysis of the facility. If the owner or operator of the facility requests the Division to perform the modeling analysis, the owner or operator shall provide emissions rates, stack parameters, and other information that the Division needs to conduct the modeling. The data that the owner or operator of the facility provides the Division to use in the model or in deriving the data used in the model shall be the process, operational, and air pollution control equipment parameters and emission rates that will be contained in the facility's permit. If the Division's initial review of the modeling request indicates extensive or inappropriate use of state resources, or if the Division's modeling analysis fails to show compliance with the acceptable ambient levels in 15A NCAC 02D .1104, the modeling demonstration shall become the responsibility of the owner or operator of the facility.

(c) When the owner or operator of the facility is responsible for providing the modeling demonstration and the data used in the modeling, the owner or operator of the facility shall use in the model or in deriving data used in the model the process operational and air pollution control equipment parameters and emission rates that will be contained in his or her permit. Sources that are not required to be included in the model shall not be included in the permit to emit toxic air pollutants.

(d) For the following pollutants, modeled emission rates shall be based on the highest emissions occurring in any 15-minute period. The resultant modeled one-hour concentrations shall then be compared to the applicable one-hour acceptable ambient levels to determine compliance:

- (1) acetaldehyde (75-07-0);
- (2) acetic acid (64-19-7);
- (3) acrolein (107-02-8);
- (4) ammonia (7664-41-7);
- (5) bromine (7726-95-6);
- (6) chlorine (7782-50-5);
- (7) formaldehyde (50-00-0);
- (8) hydrogen chloride (7647-01-0);
- (9) hydrogen fluoride (7664-39-3); and
- (10) nitric acid (7697-37-2).

(e) The owner or operator of the facility and the Division may use any model allowed by 40 CFR Part 51, Appendix W, if the model is appropriate for the facility being modeled. The owner or operator or the Division may use a model other than one allowed by 40 CFR Part 51, Appendix W if the model is equivalent to the model allowed by 40 CFR Part 51, Appendix W.

(f) Ambient air concentrations shall be evaluated for annual periods over a calendar year, for 24-hour periods from midnight to midnight, and for one-hour periods beginning on the hour.

(g) The owner or operator of the facility shall identify each toxic air pollutant emitted and its corresponding emission rate using mass balancing analysis, source testing, or other methods that provides an equivalently accurate estimate of the emission rate.

(h) The owner or operator of the facility shall either submit a modeling plan prior to submitting modeling or submit a model protocol checklist with modeling to the Director. The modeling plan or protocol checklist shall include:

- (1) a diagram of the plant site, including locations of all stacks and associated buildings;
- (2) on-site building dimensions;
- (3) a diagram showing property boundaries, including a scale, key, and north indicator;
- (4) the location of the site on a United States Geological Survey (USGS) map;
- (5) discussion of good engineering stack height and building wake effects for each stack;
- (6) discussion of cavity calculations, impact on rolling and complex terrain, building wake effects, and urban or rural considerations;
- (7) discussion of reasons for model selection;
- (8) discussion of meteorological data to be used;

- (9) discussion of sources emitting the pollutant that are not to be included in the model with an explanation of why they are being excluded, including why the source will not affect the modeling analysis; and
- (10) any other pertinent information.

*History Note:* Authority G.S. 143-215.3(a)(1); 143-215.107(a)(3),(5); 143B-282; S.L. 1989, c. 168, s. 45;  
Eff. May 1, 1990;  
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