

**15A NCAC 02D .0533 STACK HEIGHT**

(a) For the purpose of this Rule, the following definitions apply:

- (1) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.
- (2) "A stack in existence" means that the owner or operator had:
  - (A) begun, or caused to begin, a continuous program of physical on-site construction of the stack; or
  - (B) entered into binding agreements or contractual obligations, which could not be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed in the time that is normally required to construct such a stack.
- (3) "Dispersion technique"
  - (A) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:
    - (i) using that portion of a stack which exceeds good engineering practice stack height,
    - (ii) varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant, or
    - (iii) increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.
  - (B) "Dispersion technique" does not include:
    - (i) the reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;
    - (ii) the using of smoke management in agricultural or silvicultural prescribed burning programs;
    - (iii) the merging of exhaust gas streams where:
      - (I) The facility owner or operator demonstrates that the source was originally designed and constructed with such merged gas streams;
      - (II) After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or
      - (III) Before July 8, 1985, such merging was part of a change in operation at the source that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the Director shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the Director shall deny credit for the effects of such merging in calculating the allowable emissions for the source;
    - (iv) Episodic restrictions on residential woodburning and open burning; or
    - (v) Techniques under Subpart (A)(iii) of this Subparagraph which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.
- (4) "Good engineering practice (GEP) stack height" means the greater of:
  - (A) 65 meters measured from the ground-level elevation at the base of the stack;
  - (B) 2.5 times the height of nearby structure(s) measured from the ground-level elevation at the base of the stack for stacks in existence on January 12, 1979 and for which the owner or operator had obtained all applicable permit or approvals required under 15A NCAC 2Q and 40 CFR Parts 51 and 52, provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation;

- (C) for stacks not covered under Part (B) of this Subparagraph, the height of nearby structure(s) measured from the ground-level elevation at the base of the stack plus 1.5 times the lesser dimension (height or projected width) of nearby structure(s) provided that the Director may require the use of a field study or fluid model to verify GEP stack height for the source; or
  - (D) the height demonstrated by a fluid model or a field study approved by the Director, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.
- (5) "Nearby" means, for a specific structure or terrain feature:
- (A) under Parts (4)(B) and (C) of this Paragraph, that distance up to five times the lesser of the height or the width dimension of a structure but not greater than one-half mile. The height of the structure is measured from the ground-level elevation at the base of the stack.
  - (B) under Part (4)(D) of this Paragraph, not greater than one-half mile, except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height [Ht] of the feature, not to exceed two miles if such feature achieves a height [ht] one-half mile from the stack that is at least 40 percent of the GEP stack height determined by Part (4)(C) of this Paragraph or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.
- (6) "Excessive concentrations" means, for the purpose of determining good engineering practice stack height under Part (4)(D) of this Paragraph:
- (A) for sources seeking credit for stack height exceeding that established under Part (4)(B) or (C) of this Paragraph, a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to Rule .0530 of this Section, an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this Part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the Director, an alternative emission rate shall be established in consultation with the source owner or operator;
  - (B) for sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under Part (4)(B) or (C) of this Paragraph:
    - (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in Part (A) of this Subparagraph, except that the emission rate specified by any applicable Rule in this Subchapter (or, in the absence of such a limit, the actual emission rate) shall be used, or
    - (ii) the actual presence of a local nuisance (odor, visibility impairment, or pollutant concentration) caused by the existing stack, as determined by the Director; and
  - (C) for sources seeking credit after January 12, 1979, for a stack height determined under Part (4)(B) or (C) of this Paragraph where the Director requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by Part (4)(B) or (C) of this Paragraph, a maximum ground-level concentration due in whole or part to downwash, wakes, or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.
- (7) "Emission limitation" means a requirement established by this Subchapter or a local air quality program certified by the Commission that limits the quantity, rate, or concentration of emissions of air pollutants on

a continuous basis, including any requirements that limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(b) With the exception stated in Paragraphs (c) and (d) of this Rule, the degree of emission limitations required by any rule in this Subchapter shall not be affected by:

- (1) that amount of a stack height that exceeds good engineering practice; or
- (2) any other dispersion technique.

(c) Paragraph (b) shall not apply to:

- (1) stack heights in existence or dispersion techniques implemented before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources, as defined in Section 111(a)(3) of the Clean Air Act, which were constructed, or reconstructed, or for which major modifications, as defined in Rules .0530 (b) and .0531 (b) of this Section were carried out after December 31, 1970; or
- (2) coal-fired steam electric generating units, subject to provisions of Section 118 of the federal Clean Air Act, which began operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

However, these exemptions shall not apply to a new stack that replaces a stack that is exempted by Subparagraphs (1) and (2) of this Paragraph. These exemptions shall not apply to a new source using a stack that is exempted by Subparagraphs (1) and (2) of this Paragraph.

(d) This Rule shall not restrict the actual stack height of any source.

*History Note: Filed as a Temporary Amendment Eff. March 8, 1994 for a period of 180 days or until the permanent rule becomes effective, whichever is sooner;  
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