CHAPTER 33.1-15-18
STACK HEIGHTS

Section
33.1-15-18-01 General Provisions
33.1-15-18-02 Good Engineering Practice Demonstrations
33.1-15-18-03 Exemptions

33.1-15-18-01. General provisions.

1. The degree of emission limitation required of any source for control of any air contaminant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in section 33.1-15-18-03.

2. Definitions. As used in this chapter, all terms not defined herein shall have the meaning given them in section 33.1-15-01-04 or in North Dakota Century Code chapter 23.1-06.

   a. "A stack in existence" means that the owner or operator had:

      (1) Begun, or caused to begin, a continuous program of physical onsite construction of the stack; or

      (2) 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 a reasonable time.

   b. (1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

         (a) Using that portion of a stack which exceeds good engineering practice stack height;

         (b) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

         (c) 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.

      (2) The preceding sentence does not include:

         (a) 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;

         (b) The merging of exhaust gas streams where:

            [1] The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

            [2] 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

[3] Before July 8, 1985, such merging was part of a change in operation at the facility 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 reviewing agency 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 reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source.

(c) Smoke management in prescribed agricultural or silvicultural burning programs;

(d) Episodic restrictions on residential woodburning and open burning; or

(e) Techniques under subparagraph c of paragraph 1 which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed five thousand tons per year.

c. "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under paragraph 3 of subdivision d and means:

(1) For sources seeking credit for stack height exceeding that established under paragraph 2 of subdivision d, a maximum ground-level concentration due to emissions from a stack due in whole or in part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least forty 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 chapter 33.1-15-15, prevention of significant deterioration of air quality, an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or in part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least forty 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 must 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 department, an alternative emission rate must be established in consultation with the source owner or operator;

(2) For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under paragraph 2 of subdivision d, either:

(a) Amaximum ground-level concentration due in whole or part to downwash, wakes, or eddy effects as provided in paragraph 1, except that the emission rate specified by the department (or, in the absence of such a limit, the actual emission rate) shall be used; or

(b) The actual presence of a local nuisance caused by the existing stack, as determined by the department; and

(3) For sources seeking credit after January 12, 1979, for a stack height determined under paragraph 2 of subdivision d where the department requires the use of a field study or fluid model to verify good engineering practice 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 the equations in paragraph 2 of subdivision d, a maximum ground-level concentration due in whole or in part to downwash, wakes, or eddy effects that is at least forty percent in excess of the maximum concentration experience in the absence of such downwash, wakes, or eddy effects.

d. "Good engineering practice" (GEP) stack height means the greater of:

(1) Sixty-five meters [213.25 feet], measured from the ground-level elevation at the base of the stack;

(2) (a) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required by article 33.1-15, air pollution control, $H_g = 2.5H$, provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation.

(b) For all other stacks:

$H_g = H + 1.5L$

where:

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack.

H = height of nearby structures measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of nearby structures, provided that the department may require the use of a field study or fluid model to verify good engineering practice stack height for the source.

(3) The height demonstrated by a fluid model or a field study approved by the environmental protection agency, state or local control agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air contaminant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures, or nearby terrain features.

e. "Nearby" as used in subdivision d is defined for a specific structure or terrain feature and:

(1) For purposes of applying the formulae provided in paragraph 2 of subdivision d means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than eight-tenths kilometer [0.5 mile]; and

(2) For conducting demonstrations under paragraph 3 of subdivision d means not greater than eight-tenths kilometer [0.5 mile], except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to ten times the maximum height (H_t) of the feature not to exceed 3.22 kilometers [2 miles] if such feature achieves a height (H_t) eight-tenths kilometer [0.5 mile] from the stack that is at least forty percent of the good engineering practice stack height determined by the formulae provided in subparagraph b of paragraph 2 of

subdivision d or twenty-six meters [85.30 feet], 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.

f. "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.

History: Effective January 1, 2019.
General Authority: NDCC 23.1-06-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-06-04; S.L. 2017, ch. 199, § 21

33.1-15-18-02. Good engineering practice demonstrations.

Before a new or revised emission limitation is approved that is based on a good engineering practice stack height that exceeds the height allowed by paragraph a or b of subdivision d of subsection 2 of section 33.1-15-18-01, the department shall notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. In no event may the department prohibit any increase in stack height or restrict the stack height of any source.

History: Effective January 1, 2019.
General Authority: NDCC 23.1-06-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-06-04; S.L. 2017, ch. 199, § 21

33.1-15-18-03. Exemptions.

The provisions of this chapter do not apply to stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources which were constructed, or reconstructed, or for which major modifications, were carried out after December 31, 1970.

History: Effective January 1, 2019.
General Authority: NDCC 23.1-06-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-06-04; S.L. 2017, ch. 199, § 21