

CHAPTER 1200-3-24
GOOD ENGINEERING PRACTICE STACK HEIGHT REGULATIONS

1200-3-24-.01 GENERAL PROVISIONS

- (1) This chapter provides that the degree of emission limitation required of any source of any air pollutant must not be affected by that portion of any source's stack height that exceeds good engineering practice (GEP) or by any other dispersion technique, except as provided in (a) and (b) of paragraph (2) of this rule. A source may want to establish an emission limitation based on the good engineering practice stack height demonstrated by a fluid model or field study. If the source demonstrates the good engineering practice stack height demonstrated by a fluid model or field study, the Technical Secretary must notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. This chapter does not restrict in any manner the actual stack height of any source.
- (2) The provisions of this chapter shall not apply to:
- (a) 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 stationary sources which were constructed, or reconstructed, or for which major modifications, as defined in 1200-3-9-.01(4)(b)2. and 1200-3-9-.01(4)(b)2.(i)(I) and which were carried out after December 31, 1970; or
- (b) Coal-fired steam electric generating units which commenced operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

Authority: *T.C.A. 68-25-105 and T.C.A. 4-5-202. Administrative History: Original Rule Filed October 8, 1987; effective November 22, 1987.*

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg	AUG 18, 1986	OCT 19, 1988	53 FR 40881

1200-3-24-.02 DEFINITIONS

(1) Within the context of this chapter the following definitions apply:

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

1. Using that portion of a stack which exceeds good engineering practice stack height;
2. Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations or that pollutant; or
3. Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, or combining exhaust gases from several existing stack into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(i) The preceding sentence 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 merging of exhaust gas streams where:

- I. The source owner or operator demonstrates that the facility 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 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 emissions 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 Technical Secretary 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 Technical Secretary shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

- (III) Smoke management in agricultural or silvicultural prescribed burning programs;
- (IV) Episodic restrictions on residential woodburning and open burning; or
- (V) Techniques under 1200-3-24-.02(1)(a)3. which increase final exhaust gas plume rise where the resulting plant wide allowable emissions of sulfur dioxide do not exceed 5,000 tons per year.

(b) **"Emission limitation" and "emission standard"** mean a requirement established by the Technical Secretary, which limits the quantity rate or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(c) **"Good engineering practice" (GEP) stack height** means the greater of:

- 1. 65 meters (213 feet), measured from the ground-level elevation at the base of the stack:
- 2. Considering other stack criteria the following formulae apply:
 - (i) For stacks in existence on January 12, 1979 and for which the owner or operator had obtained all applicable permits or approvals required,

$$H_g = 2.5 H,$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation;

(ii) 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 structure(s) measured from ground-level elevation at the base of the stack,

L = lesser dimension, height (H) or projected width, of nearby structure(s) provided that the Technical Secretary may require the use of a field study or fluid model to verify GEP stack height for the source; or

3. The height demonstrated by a fluid model or a field study approved by the Technical Secretary, 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 structure or nearby terrain features.

(d) **"Nearby"** as used in 1200-3-24-.02(1)(c) is defined for a specific structure or terrain feature and

1. For the purposes of applying the formulae provided in part 1200-3-24-.02(1)(c)2. means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (1/2 mile), and
2. For conducting demonstrations under part 1200-3-24-.02(1)(c)3. means not greater than 0.8 km (1/2 mile), except that the portion of a terrain feature may be considered to be nearby which fall within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (h_t) 0.8 km from the stack height that is at least 40 percent of the GEP stack height determined by the formulae provided in 1200-3-24-.02(1)(c)2.(ii) or 26 meters (85 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 groundlevel elevation at the base of the stack.

- (e) **"Excessive concentration"** is defined for the purposes of determining good engineering practice stack height under 1200-3-24-.02(1)(c)3 and means:
1. For sources seeking credit for stack height exceeding that established under 1200-3-24-.02(1)(c)2., a maximum groundlevel concentration due to emissions from a stack due in part to a 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, and 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 the prevention of significant deterioration program, an excessive concentration alternately 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 Chapter shall be prescribed by the new source performance standard (NSPS) 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 Technical Secretary, an alternative emission rate shall 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 established under 1200-3-24-.02(1)(c)2. either:
 - (i) a maximum ground-level concentration due in whole or part to downwash, wakes, or eddy effects as provided in 1200-3-24-.02(1)(e)1., except that the emission rate specified by the State Implementation Plan (or, in absence of such a limit, the actual emission rate) shall be used, or
 - (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the Technical Secretary; and
 3. For sources seeking credit after January 12, 1979 for a stack height determined under 1200-3-24-.02(1)(c)2. where the Technical Secretary 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 the equations in Rule 1200-3-24-02(1)(c)2., 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 downwash, wakes, or eddy effects.

- (f) **"Stack"** for the purpose of good engineering practice 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.
- (g) **"A stack in existence"** means that the owner or operator had;
 - (1) begun, or caused to begin, a continuous program of physical on-site 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 operator to undertake a program of construction of the stack to be completed in a reasonable time.
- (h) **"Coal-fired steam electric generating unit"** means any furnace boiler, or other device used for combusting coal for the purpose of producing steam and is constructed for the purpose of supplying more than one-third of its potential electric outlet capacity and more than 25 megawatts electrical output to any utility power distribution system for sale.

Authority: *T.C.A. 68-25-105 and T.C.A. 4-5-202. Administrative History: Original Rule filed October 8, 1987; effective November 22, 1987.*

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg	AUG 16, 1986	OCT 19, 1988	53 FR 40881

1200-3-24-.03 GOOD ENGINEERING PRACTICE STACK HEIGHT REGULATIONS STANDARDS

- (1) No person shall cause, suffer, allow, or permit emissions in excess of the standards in this chapter.
- (2) Upon mutual agreement of the owner or operator of a source and the Technical Secretary, an emission limitation more restrictive than that otherwise specified in this chapter may be established. Violation of any accepted special limitations is grounds for revocation of the issued permit and/or other enforcement measures provided for in the Tennessee Air Quality Act.
- (3) The possession of a valid permit shall not protect the source from enforcement actions if permit conditions are not met.

Authority: *T.C.A 68-25-105 and T.C.A. 4-5-202. Administrative History: Original Rule filed October 8, 1987; effective November 22, 1987.*

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg	AUG 18, 1986	OCT 19, 1988	53 FR 40881

1200-3-24-.04 SPECIFIC EMISSION STANDARDS

For any affected air contaminant source(s) at a facility, the Technical Secretary shall specify on the construction and/or operating permit(s) as permit conditions the emission limitation that is determined to be necessary under the provisions of this chapter. The permit(s) must be subjected to a public hearing and incorporated as a revision to the State Implementation Plan.

Authority: *T.C.A. 68-25-105 and T.C.A. 4-5-202. Administrative History: Original Rule filed October 8, 1987; effective November 22, 1987.*

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