

(Adopted January 8, 1982)(Amended January 6, 1984)(Amended June 6, 1986)

RULE 1112. EMISSIONS OF OXIDES OF NITROGEN FROM CEMENT KILNS

(a) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) Cement Kiln is a device for the calcining and clinkering of limestone, clay and other raw materials, and recycle dust in the dry-process manufacture of gray cement.
- (2) Clinker is a mass of fused material produced in a cement kiln from which the finished cement is manufactured by milling and grinding.
- (3) Energy Recovery is the use of waste heat from a permit unit in another permit unit on the same premises so that not less than five percent of the total waste heat is recovered for useful purposes at the first stage of heat transfer.
- (4) Start-up is that period of time during which a cement kiln is heated to operating temperature from a lower temperature.
- (5) Shut-down is that period of time during which the cement kiln is allowed to cool from operating temperature to a lower temperature.

(b) Requirements

- (1) No person shall operate a gray cement kiln unless such kiln is equipped with a device which continuously monitors and records NO_x emissions in a manner approved by the Executive Officer whenever the kiln is operating. Such records as well as heat input and clinker production records shall be maintained at the facility for at least two (2) years and shall be available to and in a manner and form acceptable by the Executive Officer upon request.
- (2) No person shall operate a gray cement kiln capable of discharging nitrogen oxides into the atmosphere unless such discharge of nitrogen oxides into the atmosphere is limited to no more than:
 - (A) 11.6 lbs/ton of clinker produced when averaged over any 24 consecutive hour period, and
 - (B) 6.4 lbs/ton of clinker produced when averaged over any 30 consecutive day period.

- (3) For installations using energy recovery, the emission limit shall be based on the following equation:

$$\text{Energy Recovery Based Emission Limit} = \text{Emission Limit} \times A$$

Where: Emission Limits = lbs. NO_x/ton of clinker per paragraphs (b)(2)(A) and (b)(2)(B)

$$A = 1 + \frac{\text{Energy Recovered (BTU/hr)}}{\text{Kiln Heat Input (BTU/hr)}}$$

- (4) The energy recovered shall not be required for compliance with any other District rule, used as an offset pursuant to Regulation XIII, banked as an emission reduction credit, nor used for alternative emission control pursuant to Rule 1100.
- (5) Kiln Heat Input shall be based on the higher heating value of the fuel fired.
- (c) Compliance Determination
- (1) All emission determinations shall be made in the as-found operating condition, except no compliance determination shall be established during start-up, shut-down, or under breakdown conditions.
- (2) For the purposes of this rule, nitrogen oxides shall be calculated as NO₂ on a dry basis, or by an alternative method approved by the Executive Officer.
- (3) The following expression shall be used to convert uncorrected observed volume in parts per million of NO_x to pounds of NO_x per ton of clinker produced at standard conditions of 68°F and 29.92 inches of mercury:

$$\frac{(\text{PPM}_v \text{NO}_x)(46 \text{ grams/mole})(1.56 \times 10^{-7})(\text{SDCFM})}{\text{Ton/hour of Clinker}} = \frac{\text{lbs NO}_x}{\text{Ton of Clinker}}$$

- (d) Effective Date
- The operator of any cement manufacturing facility, subject to this rule, shall comply with the provisions of this rule on or before July 1, 1986.

(e) Alternative Emissions Control Plan

The requirements of subparagraph (b)(2) shall not apply to cement kilns which comply with an alternative emissions control plan which satisfies all of the following requirements:

- (1) The maximum emission of any air contaminant in any 24 hour or 30 day period shall not exceed the emission of such air contaminant if the cement kilns complied with (b)(2).
- (2) The cement kilns are located within the same premises.
- (3) Prior to its implementation, the control plan shall be approved, in writing, by the Executive Officer.
- (4) The control plan shall be enforceable by the District and shall include methods acceptable to the Executive Officer for demonstrating compliance with the control plan on a daily basis.
- (5) Continuous NO_x monitors shall be required for each cement kiln included in a control plan and shall be operated whenever the kiln is operating.
- (6) A modified alternative emission control plan shall be required prior to modification of any permit units subject to alternative emission control, or upon amendment of this rule. Such plan shall not include credit for those reductions required by amendments to this rule.
- (7) The Permits to Operate for the equipment described in the control plan shall be surrendered and cancelled at the time new Permits to Construct or Operate are issued. Such new permits shall not be effective unless surrender of such existing permits has been made. If such new permits are denied, the existing permits surrendered pursuant to this section shall be reissued and restored to the same conditions which were applicable to the original permits prior to their surrender. The Executive Officer shall impose written conditions on any permits specifying emission limits or other conditions as necessary.
- (8) The person submitting the control plan shall maintain such records (for a period of two years) and submit such information on cement kiln operation, source tests, monitoring data, and other information in a manner and form prescribed by the Executive Officer to determine compliance with the control plan.