

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION

Subpart C. PROTECTION OF NATURAL RESOURCES

ARTICLE III. AIR RESOURCES

CHAPTER 121. GENERAL PROVISIONS

§ 121.1. Definitions.

The definitions in section 3 of the act (35 P. S. § 4003) apply to this article. In addition, the following words and terms, when used in this article, have the following meanings, unless the context clearly indicates otherwise:

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~~CEMS--Continuous emissions monitoring system--~~[For purposes of Chapter 127, Subchapter E, all of the equipment that may be required to meet the data acquisition and availability requirements of Chapter 127, Subchapter E to sample, condition, analyze and provide a record of emissions on a continuous basis.] [All of the equipment required to meet applicable data acquisition and availability requirements in this article (relating to Air Resources) to sample, condition (if applicable), analyze, measure and provide a permanent record of emissions of air contaminants to the outdoor atmosphere, in accordance with the standards set forth by the Department under Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources).]

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~~[Calcine--To heat a substance to a high temperature, but below its melting or fusing point, to bring about thermal decomposition or a phase transition in its physical or chemical constitution.]~~

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~~[Clinker--The product of a Portland cement kiln from which finished cement is manufactured by milling and grinding.]~~

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~~[Long dry process cement kiln--A Portland cement kiln that employs no preheating of the feed. The inlet feed to the kiln is dry.]~~

~~—Long-wet-process cement kiln--A Portland cement kiln that employs no preheating of the feed. The inlet feed to the kiln is a slurry.]~~

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~~[Portland cement--A hydraulic cement produced by pulverizing clinker consisting essentially of hydraulic calcium silicates, usually containing one or more of the forms of calcium sulfate as an interground addition.~~

~~—Portland cement kiln--A system, including solid, gaseous or liquid fuel combustion equipment, used to calcine and fuse raw materials, including limestone and clay, to produce Portland cement clinker.]~~

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~~[Precalciner cement kiln--A Portland cement kiln where the feed to the kiln system is preheated in cyclone chambers and a second burner is used to calcine material in a separate vessel attached to the preheater prior to the final fusion in a kiln that forms clinker.~~

~~—Preheater cement kiln--A Portland cement kiln where the feed to the kiln system is preheated in cyclone chambers prior to the final fusion in a kiln that forms clinker.]~~

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## CHAPTER 129. STANDARDS FOR SOURCES

### EMISSIONS OF NO<sub>x</sub> FROM CEMENT MANUFACTURING

#### § 129.401. Applicability.

~~—Beginning May 1, 2009, an owner or operator of a Portland cement kiln shall comply with the requirements in this section and §§ 129.402--129.405.~~

#### § 129.402. Emission requirements.

~~—(a) During the period from May 1 through September 30, 2009, and for each year thereafter, the owner or operator of a Portland cement kiln may not operate a Portland cement kiln in a manner that results in NO<sub>x</sub> emissions in excess of the allowable limits established under subsection (b).~~

~~—(b) The owner or operator of a Portland cement kiln shall determine allowable emissions of NO<sub>x</sub> by multiplying the tons of clinker produced by the Portland cement kiln for the period from May 1 through September 30, 2009, and for each year thereafter by:~~

~~—(1) 3.88 pounds of NO<sub>x</sub> per ton of clinker produced for long wet-process cement kilns.~~

~~—(2) 3.44 pounds of NO<sub>x</sub> per ton of clinker produced for long dry-process cement kilns.~~

~~—(3) 2.36 pounds of NO<sub>x</sub> per ton of clinker produced for:~~

~~—(i) Preheater cement kilns.~~

~~—(ii) Precalciner cement kilns.~~

~~§ 129.403. Compliance determination.~~

~~—(a) By May 1, 2009, the owner or operator of a Portland cement kiln shall:~~

~~—(1) Install, operate and maintain CEMS for NO<sub>x</sub> emissions.~~

~~—(2) Report CEMS emissions data, in accordance with the CEMS requirements of Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources), to the Department.~~

~~—(3) Calculate actual emissions using the CEMS data reported to the Department.~~

~~—(b) Data invalidated under Chapter 139, Subchapter C, shall be substituted with either of the following:~~

~~—(1) Data calculated using the potential emission rate for the kiln.~~

~~—(2) If approved by the Department, in writing, the highest valid 1-hour emission value that occurred during the reporting quarter for an invalid data period during that quarter. If no valid data were collected during the reporting quarter, one of the following shall be reported to the Department:~~

~~—(i) The highest valid 1-hour emission value that occurred during the most recent quarter for which valid data were collected.~~

~~—(ii) If approved by the Department, in writing, the highest valid 1-hour emission value that occurred during an alternative reporting period.~~

~~—(c) The owner or operator of a Portland cement kiln subject to this section shall submit to the Department quarterly reports of CEMS monitoring data in pounds of NO<sub>x</sub> emitted per hour, in a format approved by the Department, in writing, and in compliance with Chapter 139, Subchapter C.~~

~~—(d) The CEMS for NO<sub>x</sub> installed under the requirements of this section must meet the minimum data availability requirements in Chapter 139, Subchapter C.~~

~~§ 129.404. Compliance demonstration.~~

~~—(a) By October 31, 2009, and each year thereafter, the owner or operator of a Portland cement kiln shall report to the Department, in a format approved, in writing, by the Department:~~

~~—(1) The difference between the actual NO<sub>x</sub> emissions from the kiln during the interval from May 1 through September 30 and the allowable emissions for that period.~~

~~—(2) The calculations used to determine the difference in emissions, including the CEMS data and clinker production data used to show compliance with the allowable emission limits in § 129.402 (relating to emission requirements). The clinker production data must consist of the quantity of clinker, in tons, produced per day for each kiln.~~

~~—(b) The owner or operator of a Portland cement kiln or multiple Portland cement kilns shall demonstrate compliance with the emission requirements in § 129.402 on either:~~

~~—(1) A kiln-by-kiln basis.~~

~~—(2) A facility-wide emissions averaging basis.~~

~~—(3) A system-wide averaging basis among Portland cement kilns under the common control of the same owner or operator in this Commonwealth.~~

~~—(c) The owner or operator of a Portland cement kiln may demonstrate compliance with the emission requirements of § 129.402 in accordance with the following:~~

~~—(1) For the period from May 1 through September 30, 2009, and each year thereafter, the owner or operator of a Portland cement kiln shall surrender to the Department one CAIR NO<sub>x</sub> Ozone Season allowance, as defined in § 145.202 (relating to definitions), for each ton of NO<sub>x</sub> by which the combined actual emissions exceed the allowable emissions of the Portland cement kilns at a facility subject to this section.~~

~~—(2) The surrendered CAIR NO<sub>x</sub> Ozone Season allowances shall be of current year vintage.~~

~~—(3) For purposes of determining the amount of allowances to surrender, any remaining fraction of a ton equal to or greater than 0.50 ton is deemed to equal 1 ton and any fraction of a ton less than 0.50 ton is deemed to equal zero tons.~~

~~—(d) If the combined allowable emissions from Portland cement kilns at a facility from May 1 through September 30 exceed the combined actual emissions from Portland cement kilns at the facility subject to this section and §§ 129.401–129.403 and 129.405 (relating to applicability; emission requirements; and compliance determination; and recordkeeping) during the same period, the owner or operator may deduct the difference or a portion of the difference from the amount of actual emissions from Portland cement kilns for that period at the owner or operator's other facilities located in this Commonwealth. The owner or operator of a kiln that commences operation after \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.) may average only those emissions that are below the permitted NO<sub>x</sub> limit for the kiln or below 1.52 pounds of NO<sub>x</sub> per ton of clinker, whichever is lower.~~

~~—(e) By November 1, 2009, and each year thereafter, an owner or operator of a Portland cement kiln subject to this section and §§ 129.401–129.403 and 129.405 shall surrender the required CAIR NO<sub>x</sub> Ozone Season allowances to the Department's designated NATS NO<sub>x</sub> allowance tracking system account as defined in § 121.1 (relating to definitions) and shall provide to the Department, in writing, the following:~~

~~—(1) The serial number of each CAIR NO<sub>x</sub> Ozone Season allowance surrendered.~~

~~—(2) The calculations used to determine the quantity of CAIR NO<sub>x</sub> Ozone Season allowances required to be surrendered.~~

~~—(f) If an owner or operator of a Portland cement kiln fails to comply with subsection (e), the owner or operator shall by December 31 surrender three CAIR NO<sub>x</sub> Ozone Season allowances of the current or later year vintage for each CAIR NO<sub>x</sub> Ozone Season allowance that was required to be surrendered by November 1 of that year.~~

~~—(g) The surrender of CAIR NO<sub>x</sub> Ozone Season allowances under subsection (f) does not affect the liability of the owner or operator of the Portland cement kiln for any fine, penalty or assessment, or an obligation to comply with any other remedy for the same violation, under the CAA, or the act.~~

~~—(1) For purposes of determining the number of days of violation, if a facility has excess emissions for the period May 1 through September 30, each day in that period (153 days) constitutes a day in violation unless the owner or operator of the Portland cement kiln demonstrates that a lesser number of days should be considered.~~

~~—(2) Each ton of excess emissions is a separate violation.~~

~~§ 129.405. Recordkeeping.~~

~~—(a) The owner or operator of a Portland cement kiln shall maintain an operating log for each Portland cement kiln. The operating log must include the following on a monthly basis:~~

~~—(1) The total hours of operation.~~

~~—(2) The type and quantity of fuel used.~~

~~—(3) The quantity of clinker produced.~~

~~—(b) The records maintained by the owner or operator of a Portland cement kiln must include the following:~~

~~—(1) Source tests and operating parameters established during the initial source test and subsequent testing~~

~~—(2) The date, time and duration of any start-up, shutdown or malfunction of a Portland cement kiln or emissions monitoring system.~~

~~—(3) The date and type of maintenance, repairs or replacements performed on the kilns, control devices and emission monitoring systems.~~

~~—(c) The owner or operator of a Portland cement kiln shall maintain the records required under this section onsite for 5 years. The records shall be made available to the Department upon request.]~~

## CHAPTER 145. INTERSTATE POLLUTION TRANSPORT REDUCTION

### Subchapter C. EMISSIONS OF NO<sub>x</sub> FROM CEMENT MANUFACTURING

#### § 145.141. Applicability.

Beginning May 1, 2005, ~~[until April 30, 2009,]~~ an owner or operator of a Portland cement kiln shall comply with this subchapter. ~~[Beginning May 1, 2009, an owner or operator of a Portland cement kiln shall comply with §§ 129.401-129.405 (relating to emissions of NO<sub>x</sub> from cement manufacturing).]~~

#### § 145.142. Definitions.

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise:

**CALCINE—TO HEAT A SUBSTANCE TO A HIGH TEMPERATURE, BUT BELOW ITS MELTING OR FUSING POINT, TO BRING ABOUT THERMAL DECOMPOSITION OR A PHASE TRANSITION IN ITS PHYSICAL OR CHEMICAL CONSTITUTION.**

*CEMS—Continuous Emission Monitoring System*—The equipment required under this subchapter or Chapter 139 (relating to sampling and testing) to sample, analyze, measure and provide, by readings taken at least every 15 minutes of the measured parameters, a permanent record of NO<sub>x</sub> emissions.

*Clinker*—The product of a Portland cement kiln from which finished cement is manufactured by milling and grinding.

**LONG DRY-PROCESS CEMENT KILN--A PORTLAND CEMENT KILN THAT EMPLOYS NO PREHEATING OF THE FEED. THE INLET FEED TO THE KILN IS DRY.**

**LONG WET-PROCESS CEMENT KILN--A PORTLAND CEMENT KILN THAT EMPLOYS NO PREHEATING OF THE FEED. THE INLET FEED TO THE KILN IS A SLURRY.**

*Portland cement*—A hydraulic cement produced by pulverizing clinker consisting essentially of hydraulic calcium silicates, usually containing one or more of the forms of calcium sulfate as an interground addition.

*Portland cement kiln*—A system, including any solid, gaseous or liquid fuel combustion equipment, used to calcine and fuse raw materials, including limestone and clay, to produce Portland cement clinker.

**PRECALCINER CEMENT KILN--A PORTLAND CEMENT KILN WHERE THE FEED TO THE KILN SYSTEM IS PREHEATED IN CYCLONE CHAMBERS AND A SECOND BURNER IS USED TO CALCINE MATERIAL IN A SEPARATE VESSEL ATTACHED TO THE PREHEATER PRIOR TO THE FINAL FUSION IN A KILN THAT FORMS CLINKER.**

**PREHEATER CEMENT KILN--A PORTLAND CEMENT KILN WHERE THE FEED TO THE KILN SYSTEM IS PREHEATED IN CYCLONE CHAMBERS PRIOR TO THE FINAL FUSION IN A KILN THAT FORMS CLINKER.**

**SYSTEM-WIDE—TWO OR MORE PORTLAND CEMENT KILNS UNDER THE COMMON CONTROL OF THE SAME OWNER OR OPERATOR, OR MULTIPLE OWNERS, IN THIS COMMONWEALTH.**

#### § 145.143. Standard requirements.

(a) By October 31, 2005, and each year thereafter, the owner or operator of a Portland cement kiln shall calculate the difference between the actual emissions from the unit during the period from May 1 through September 30 and the allowable emissions for that period.

(b) The **OWNER OR OPERATOR OF A PORTLAND CEMENT KILN MAY NOT OPERATE A PORTLAND CEMENT KILN IN A MANNER THAT RESULTS IN NO<sub>x</sub> EMISSIONS IN EXCESS OF ITS ALLOWABLE EMISSIONS, EXCEPT AS OTHERWISE SPECIFIED IN THIS SECTION.**

**(1) BEGINNING MAY 1 THROUGH SEPTEMBER 30, 2005, AND EACH YEAR THEREAFTER, THE** owner or operator shall determine allowable emissions by multiplying the tons of clinker produced by the Portland cement kiln for the period by 6 pounds per ton of clinker produced.

**(2) BEGINNING MAY 1 THROUGH SEPTEMBER 30, 2011, AND EACH YEAR THEREAFTER, THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SHALL DETERMINE ALLOWABLE EMISSIONS OF NO<sub>x</sub> BY MULTIPLYING THE TONS OF CLINKER PRODUCED BY THE PORTLAND CEMENT KILN FOR THE PERIOD BY:**

**(i) 3.88 POUNDS OF NO<sub>x</sub> PER TON OF CLINKER PRODUCED FOR LONG WET-PROCESS CEMENT KILNS.**

**(ii) 3.44 POUNDS OF NO<sub>x</sub> PER TON OF CLINKER PRODUCED FOR LONG DRY-PROCESS CEMENT KILNS.**

**(iii) 2.36 POUNDS OF NO<sub>x</sub> PER TON OF CLINKER PRODUCED FOR:**

**(A) PREHEATER CEMENT KILNS.**

**(B) PRECALCINER CEMENT KILNS.**

(c) The owner or operator **OF A PORTLAND CEMENT KILN SUBJECT TO PARAGRAPH (b)(1)** shall install and operate a CEMS, and shall report CEMS emissions data, in accordance with the CEMS requirements of either Chapter 139 or 145 (relating to sampling and testing; and interstate pollution transport reduction) and calculate actual emissions using the CEMS data reported to the Department. Any data invalidated under Chapter 139 shall be substituted with data calculated using the potential emission rate for the unit or, if approved by the Department in writing, an alternative amount of emissions that is more representative of actual emissions that occurred during the period of invalid data.

(d) The owner or operator of a Portland cement kiln subject to this section shall surrender to the Department one CAIR NO<sub>x</sub> allowance and one CAIR NO<sub>x</sub> Ozone Season allowance, as defined in 40 CFR 96.102 and 96.302 (relating to definitions), for each ton of NO<sub>x</sub> by which the combined actual emissions exceed the allowable emissions of the Portland cement kilns subject to this section at a facility from May 1 through September 30. The surrendered allowances shall be of current year vintage. For the purposes of determining the amount of allowances to surrender, any remaining fraction of



a ton equal to or greater than 0.50 ton is deemed to equal 1 ton and any fraction of a ton less than 0.50 ton is deemed to equal zero tons.

(e) If the combined allowable emissions from Portland cement kilns at a facility from May 1 through September 30 exceed the combined actual emissions from Portland cement kilns subject to this section at the facility during the same period, the owner or operator may deduct the difference or any portion of the difference from the amount of actual emissions from Portland cement kilns at the owner or operator's other facilities located in this Commonwealth for that period.

(f) By November 1, 2005, and each year thereafter, an owner or operator subject to this subchapter shall surrender the required NOx allowances to the Department's designated NOx allowance tracking system account, as defined in § 121.1 (relating to definitions), and shall provide in writing to the Department, the following:

(1) The serial number of each NOx allowance surrendered.

(2) The calculations used to determine the quantity of NOx allowances required to be surrendered.

(g) If an owner or operator fails to comply with subsection (f), the owner or operator shall by December 31 surrender three NOx allowances of the current or later year vintage for each NOx allowance that was required to be surrendered by November 1.

(h) The surrender of NOx allowances under subsection (g) does not affect the liability of the owner or operator of the Portland cement kiln for any fine, penalty or assessment, or an obligation to comply with any other remedy for the same violation, under the CAA or the act.

(1) For purposes of determining the number of days of violation, if a facility has excess emissions for the period May 1 through September 30, each day in that period (153 days) constitutes a day in violation unless the owner or operator of the Portland cement kiln demonstrates that a lesser number of days should be considered.

(2) Each ton of excess emissions is a separate violation.

#### **§ 145.144. COMPLIANCE DETERMINATION.**

**(a) BY APRIL 15, 2011, THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SUBJECT TO § 145.143(b)(2) (RELATING TO STANDARD REQUIREMENTS) SHALL:**

(1) INSTALL, OPERATE AND MAINTAIN CEMS FOR NO<sub>x</sub> EMISSIONS.

(2) REPORT CEMS EMISSIONS DATA, IN ACCORDANCE WITH THE CEMS REQUIREMENTS OF CHAPTER 139, SUBCHAPTER C (RELATING TO REQUIREMENTS FOR SOURCE MONITORING FOR STATIONARY SOURCES), TO THE DEPARTMENT.

(3) CALCULATE ACTUAL EMISSIONS USING THE CEMS DATA REPORTED TO THE DEPARTMENT.

(b) IF APPROVED BY THE DEPARTMENT IN WRITING, DATA INVALIDATED UNDER CHAPTER 139, SUBCHAPTER C, SHALL BE SUBSTITUTED WITH ONE OF THE FOLLOWING:

(1) THE HIGHEST VALID 1-HOUR EMISSION VALUE THAT OCCURRED UNDER SIMILAR SOURCE OPERATING CONDITIONS DURING THE REPORTING QUARTER FOR AN INVALID DATA PERIOD DURING THAT QUARTER.

(2) IF NO VALID DATA WERE COLLECTED DURING THE REPORTING QUARTER, ONE OF THE FOLLOWING SHALL BE REPORTED TO THE DEPARTMENT:

(i) THE HIGHEST VALID 1-HOUR EMISSION VALUE THAT OCCURRED UNDER SIMILAR SOURCE OPERATING CONDITIONS DURING THE MOST RECENT QUARTER FOR WHICH VALID DATA WERE COLLECTED.

(ii) THE HIGHEST VALID 1-HOUR EMISSION VALUE THAT OCCURRED UNDER SIMILAR SOURCE OPERATING CONDITIONS DURING AN ALTERNATIVE REPORTING PERIOD.

(3) AN ALTERNATIVE METHOD OF DATA SUBSTITUTION.

(c) THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SUBJECT TO THIS SECTION SHALL SUBMIT TO THE DEPARTMENT QUARTERLY REPORTS OF CEMS MONITORING DATA IN POUNDS OF NO<sub>x</sub> EMITTED PER HOUR, IN A FORMAT APPROVED BY THE DEPARTMENT, WHICH IS IN COMPLIANCE WITH CHAPTER 139, SUBCHAPTER C.

(d) THE CEMS FOR NO<sub>x</sub> INSTALLED UNDER THE REQUIREMENTS OF THIS SECTION MUST MEET THE MINIMUM DATA AVAILABILITY REQUIREMENTS IN CHAPTER 139, SUBCHAPTER C.

§ 145.145. COMPLIANCE DEMONSTRATION AND REPORTING REQUIREMENTS.

**(a) BY OCTOBER 31, 2011, AND EACH YEAR THEREAFTER, THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SUBJECT TO § 145.143(b)(2) (RELATING TO STANDARD REQUIREMENTS) SHALL SUBMIT A WRITTEN REPORT TO THE DEPARTMENT, IN A FORMAT APPROVED BY THE DEPARTMENT, WHICH INCLUDES THE FOLLOWING:**

**(1) THE DIFFERENCE BETWEEN THE ACTUAL NO<sub>x</sub> EMISSIONS FROM THE KILN DURING THE INTERVAL FROM MAY 1 THROUGH SEPTEMBER 30 AND THE ALLOWABLE EMISSIONS FOR THAT PERIOD.**

**(2) THE CALCULATIONS USED TO DETERMINE THE DIFFERENCE IN EMISSIONS, INCLUDING THE CEMS DATA AND CLINKER PRODUCTION DATA USED TO SHOW COMPLIANCE WITH THE ALLOWABLE EMISSION LIMITS IN § 145.143(b)(2). THE CLINKER PRODUCTION DATA MUST CONSIST OF THE QUANTITY OF CLINKER, IN TONS, PRODUCED PER DAY FOR EACH KILN.**

**(b) THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SHALL DEMONSTRATE COMPLIANCE WITH THE STANDARD REQUIREMENTS IN § 145.143(b)(2) ON ONE OF THE FOLLOWING:**

**(1) A KILN-BY-KILN BASIS.**

**(2) A FACILITY-WIDE BASIS.**

**(3) A SYSTEM-WIDE BASIS.**

**§ 145.146. RECORDKEEPING.**

**(a) THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SHALL MAINTAIN AN OPERATING LOG FOR EACH PORTLAND CEMENT KILN. THE OPERATING LOG MUST INCLUDE THE FOLLOWING ON A MONTHLY BASIS:**

**(1) THE TOTAL HOURS OF OPERATION.**

**(2) THE TYPE AND QUANTITY OF FUEL USED.**

**(3) THE QUANTITY OF CLINKER PRODUCED.**

**(b) THE RECORDS MAINTAINED BY THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN MUST INCLUDE THE FOLLOWING:**

**(1) SOURCE TESTS AND OPERATING PARAMETERS ESTABLISHED DURING THE INITIAL SOURCE TEST AND SUBSEQUENT TESTING.**

**(2) THE DATE, TIME AND DURATION OF ANY START-UP, SHUTDOWN OR MALFUNCTION OF A PORTLAND CEMENT KILN OR EMISSIONS MONITORING SYSTEM.**

**(3) THE DATE AND TYPE OF MAINTENANCE, REPAIRS OR REPLACEMENTS PERFORMED ON THE KILNS, CONTROL DEVICES AND EMISSION MONITORING SYSTEMS.**

**(c) THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SHALL MAINTAIN THE RECORDS REQUIRED UNDER THIS SECTION ONSITE FOR 5 YEARS. THE RECORDS SHALL BE MADE AVAILABLE TO THE DEPARTMENT UPON REQUEST.**