



AIR QUALITY CONTROL ADVISORY COUNCIL

AGENDA

May 19, 2014
8:15 a.m.

Montgomery Park
Aeris Conference Room, 1st Floor
1800 Washington Boulevard
Baltimore, Maryland 21230

8:15 a.m. Welcome and Introductions John Quinn, Advisory Council Chair
Tad Aburn, Air Director

8:20 a.m. Approval of Meeting Minutes John Quinn

Action Items for Discussion/Approval:

8:30 a.m. Control of NO_x Emissions from Natural Gas Pipeline Compression Stations
COMAR 26.11.29 Randy Mosier

9:00 a.m. Control of Portland Cement Manufacturing Plants Diane Franks
COMAR 26.11.30
Continuous Opacity Monitoring Requirements
COMAR 26.11.01.10
Control of NO_x Emissions for Major Stationary Sources
COMAR 26.11.09.08

Briefings:

9:30 a.m. Distributed Generation updates Carolyn Jones

9:40 a.m. 111 (b & d) for Power Plants Diane Franks

10:15 a.m. Confirm Next Meeting Dates Members
September 8, 2014
December 8, 2014

10:30 a.m. Adjourn



Facts About...

COMAR 26.11.29

NO_x Emissions from Natural Gas Pipeline Compression Stations

5/12/14

Purpose of New Regulation

The primary purpose of this action is to maintain and consolidate NO_x emission requirements for internal combustion engines used to compress natural gas located at natural gas pipeline compression stations. These NO_x emission requirements were established under RACT and by the U.S. EPA under the NO_x SIP Call for affected nontrading sources.

Background

The Department's RACT requirement, currently under COMAR 26.11.09.08I, established maximum hourly NO_x emission limits on affected facilities that was based on the number of engines at the facility. Different limits were established for facilities with 5 or fewer engines and for facilities with more than 5 engines. The RACT requirement allowed some degree of control flexibility in that it required no further emission controls provided historic gas throughputs were not exceeded.

NO_x SIP Call requirements for internal combustion engines located at natural gas pipeline compression stations were re-codified when these requirements were moved to new COMAR 26.11.29 on May 31, 2010. Under the NO_x SIP Call, larger engines were to be modified or controlled to meet a specific NO_x emission concentration based upon engine type and size.

There were several facilities affected by the NO_x SIP Call requirements in Maryland. One of the affected facilities modified its engines to meet the requirement of this regulation. The second facility added a NO_x emission control to the one affected engine. A smaller affected facility, having two engines, installed high pressure fuel injection NO_x controls to both the affected and unaffected engine at approximately the same time in 2002. Only the affected engine was required to meet the NO_x emission standard.

This new chapter requires the affected facilities to continue to meet the maximum hourly NO_x emission limits and the NO_x emission concentration requirements. There are no additional requirements established at this time. One of the other source categories that were part of the EPA NO_x SIP Call requirements for nontrading sources was cement kilns at Portland cement plants. The Department proposes to establish a new chapter, COMAR 26.11.30, that will include all of the requirements for cement plants including some requirements that are currently in COMAR 26.11.29.

Sources Affected and Location

This action affects one facility in Garrett County with two engines and one facility in Howard County with over five engines. Both facilities are currently in compliance with all the requirements.

Requirements

This new chapter requires the affected facilities to continue to meet the maximum hourly NO_x emission limits and the NO_x emission concentration requirements. There are no additional requirements resulting from this regulation.

Expected Emission Reductions

There are no expected emission reductions from this action.

Economic Impact on Affected Sources, the Department, other State Agencies, Local Government, other Industries or Trade Groups, the Public

There is no economic impact on affected sources or the Department. This regulation is a combination of the two existing regulations that apply to natural gas pipeline compression stations without change.

Economic Impact on Small Businesses

There is no economic impact on small businesses as a result of this action.

Submission to EPA as Revision to Maryland's SIP (or 111(d) Plan, or Title V Program)

This regulation will be submitted to EPA to be included in the approved SIP.

Is there an Equivalent Federal Standard to this Proposed Regulatory Action?

The Department's Reasonably Available Control Technology (RACT) requirements established maximum hourly NO_x emission limits for affected natural gas compression stations. RACT is a federal requirement for State Implementation Plans in nonattainment areas which requires affected sources to meet “the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility” (44 FR 53762; September 17, 1979).

The NO_x SIP Call for internal combustion engines located at natural gas pipeline compression stations required larger engines to be modified or controlled to meet a specific NO_x emission concentration based upon engine type and size. The NO_x SIP Call Rule (63 FR 57356, October 27, 1998 and 69 FR 21604, April 21, 2004), was developed

to address the interstate transport of ozone. The rule required twenty-one States and the District of Columbia to eliminate those amounts of NO_x emissions that contribute significantly to downwind nonattainment of the 1-hour ozone standard.

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 29 [NO_x Reduction Requirements for Non-Electric Generating Units] *Control of NO_x Emissions from Natural Gas Pipeline Compression Stations*

Authority: Environment Article, §§1-101, 1-404, 2-101—2-103, and 2-301—2-303, Annotated Code of Maryland

Regulations .01—.05 repealed

ALL NEW MATTER

.01 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms defined.

(1) "Natural gas pipeline compression station" means a main line natural gas transmission station, consisting of one or more internal combustion engines, used to compress natural gas there-by sustaining flow of natural gas through the pipeline.

(2) "Parametric Optimization" means the adjustment of an internal combustion engine, such as adjustment of the air to fuel ratio, that maximizes engine efficiency and minimizes emissions.

.02 Applicability and General Requirements.

A. *Applicability.* This chapter applies to stationary internal combustion engines used to compress natural gas located at natural gas pipeline compression stations.

B. *NO_x Emission Limits.* A person who owns or operates a stationary internal combustion engine to which this chapter applies shall perform either parametric optimization or engine re-build to meet the following NO_x emission limits:

(1) Facilities with five or less internal combustion engines shall meet a combined maximum hourly emission limit of 300 pounds per hour or less.

(2) Facilities with more than five engines shall meet a combined maximum hourly emission limit of 566 pounds per hour or less.

C. *NO_x Emission Rates.*

(1) The NO_x emission rates in §C(2) of this regulation apply to a stationary internal combustion engine used to compress natural gas at a natural gas pipeline compression station if the engine is one of the types and corresponding sizes identified in §C(2).

(2) *Emission Rates.*

Type Engine percent oxygen)	Size (brake HP)	NO _x Emission Rate (15
Spark ignited rich burn	2400 HP or greater	110 ppmv
Spark ignited lean burn	2400 HP or greater	125 ppmv
Diesel engines	3100 HP or greater	175 ppmv
Dual fuel engines	4400 HP or greater	125 ppmv

(3) The NO_x emission rates in §C(2) of this regulation shall apply on and after May 1, 2003.

.03 Monitoring Requirements.

A. A person who owns or operates a stationary internal combustion engine subject to Regulation .02C shall:

(1) Continuously monitor NO_x emissions with a continuous emissions monitor ("CEM") certified in accordance with 40 CFR Part 60 or use an alternative method approved by the Department and the EPA;

(2) On or before May 1, 2002, collect NOx emissions data that was obtained pursuant to §A(1) of this regulation; and

(3) Submit emissions data collected pursuant to §A(2) of this regulation to the Department for the previous calendar year by April 1 of each year.

B. The NOx emissions data collected pursuant to §A(2) of this regulation shall be used to demonstrate compliance with the emission reduction requirements in Regulation .02C of this chapter.

.04 Demonstrating Compliance.

A. Internal combustion engines equipped with a CEM.

(1) The owner or operator of an internal combustion engine subject to this chapter that is equipped with a CEM shall demonstrate compliance with the NOx emissions limits and rates in Regulation .02B & C of this chapter using CEM data.

(2) The sum of the NOx emissions from all affected engines at the facility shall be used to demonstrate compliance with Regulation .02B.

B. Internal combustion engines not equipped with a CEM.

(1) The owner or operator of an internal combustion engine subject to this chapter that is not equipped with a CEM shall demonstrate compliance with the NOx emissions limits and rates in Regulation .02B & C of this chapter as follows:

(a) Compliance shall be established by stack tests using EPA Method 7 or other test methods approved by the Department and the EPA; or

(b) Compliance shall be established by an alternative emissions test approved by the Department.

(2) The results of the stack tests or alternative emissions test for each engine and fuel consumption records submitted to the Department pursuant to Regulation .05 shall be used to calculate NOx emissions for each affected engine.

(3) The sum of the NOx emissions from all of the stationary internal combustion engines at a natural gas pipeline compression station that are subject to this chapter shall be used to demonstrate compliance with Regulation .02B.

(4) Stack test schedule. The owner or operator of an internal combustion engine subject to this chapter that is not equipped with a CEM shall conduct a stack test or an alternative emissions test approved by the Department to determine NOx emissions for each affected engine not less than once each 12-month period.

.05 Maintaining Records. Results from the previous calendar year of the stack tests, emissions tests or CEM data and fuel consumption records for each internal combustion engine subject to this chapter shall be submitted to the Department as part of the annual emissions report due April 1 of each year.

END ALL NEW MATTER



Facts About...

COMAR 26.11.30 Control of Emissions from Portland Cement Manufacturing Plants

05/12/14

Purpose of New Chapter

The primary purpose of this chapter is to:

1. Combine all of the existing requirements in COMAR 26.11.01, .06, and .29 regarding NO_x, SO_x and particulate matter that apply to Portland cement manufacturing plants into one chapter;
2. Repeal NO_x RACT requirements in COMAR 26.11.09.08 which apply to Portland cement manufacturing plants and establish new NO_x RACT emission standards based upon recommended control measures for cement kilns from the 2007 Ozone Transport Commission (OTC) Technical Support Document on Identification and Evaluation of Candidate Control Measures; and
3. Repeal existing Continuous Opacity Monitoring (COM) requirements for Portland cement plants. New particulate and monitoring procedures as specified in EPA's 2013 National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants replace the need for COMs.

Background

Although Portland cement plants burn fuel in the cement kiln, the kilns are not considered fuel burning equipment as defined in COMAR 26.11.01 and are therefore subject to different NO_x and SO_x emission standards. The existing COMAR 26.11.06.05 establishes a concentration standard for SO_x depending on the location of the plant and the date the plant was constructed. The existing COMAR 26.11.29 contains NO_x emission standards and monitoring requirements for Portland cement plants. These requirements for SO_x and NO_x are being moved into this new chapter.

When EPA revised the ozone standard in 2008 the change triggered a requirement to recertify RACT requirements as sufficient in light of a more stringent standard. The Department implemented an interim RACT standard for cement kilns in 2011 in response to implementation of the 0.08 ppm ozone standard. The Department has developed these RACT limits based on the 2008 ozone standard of 0.075 ppm.

Effective April 1, 2016, Portland cement plants will be subject to new NO_x RACT emission standards based upon recommended controls measures for cement kilns from

the 2007 Ozone Transport Commission (OTC) Technical Support Document on Identification and Evaluation of Candidate Control Measures. Cement kilns in Maryland are required to measure opacity using COMs as a surrogate standard for particulate matter. Cement kilns have operated COMs since the early 1990's and have not had significant difficulties complying with opacity standards.

New particulate monitoring procedures specified in EPA's 2013 National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants offer alternatives to COMs for tracking particulate emissions. The Department proposes to repeal existing COM requirements under this action as both kilns intend to utilize the new procedure. The NESHAP procedure uses stack test data to calibrate a PM CEMs monitor. The PM CEMs monitor is then used as a parametric control for particulate control operation at the plant. As part of the SIP submittal, the Department will demonstrate the equivalency of the two methods in limiting particulate emissions. The new chapter will also include specific particulate matter requirements that are already in place for confined sources in COMAR 26.11.06.03.

Sources Affected and Location

There are two existing Portland cement manufacturing plants in Maryland. The larger plant has a pre-calciner kiln and is located in Carroll County. The smaller plant has a long-dry kiln and has applied for and received a Permit to Construct to modify the plant to a pre-calciner kiln. The smaller plant is located in Washington County.

Requirements

The main purpose of this action is to:

1. Combine existing requirements for cement plants into a single chapter;
2. Repeal NOx RACT requirements in COMAR 26.11.09.08 which apply to Portland cement manufacturing plants and establish new NOx RACT emission standards based upon recommended control measures for cement kilns from the 2007 Ozone Transport Commission (OTC) Technical Support Document on Identification and Evaluation of Candidate Control Measures; and
3. Repeal existing Continuous Opacity Monitoring (COM) requirements for Portland cement plants. New particulate and monitoring procedures as specified in EPA's 2013 National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants replace the need for COMs.

Expected Emissions Reductions

On and after April 1, 2017, Portland cement plants will need to meet a NOx RACT rate based upon recommended control measures for cement kilns from the 2007 Ozone Transport Commission (OTC) Technical Support Document on Identification and Evaluation of Candidate Control Measures. The proposed NOx RACT emission rate for

long dry kilns is a maximum emissions of 3.4 pounds of NOx per ton of clinker produced and for pre-calciner kilns, a maximum emissions of 2.4 pounds of NOx per ton of clinker produced.

As a result of this action, the Portland cement plant in Carroll County will reduce annual NOx emissions by 400 tons. NOx emissions at the Portland cement plant in Washington County will be reduced by 510 tons annually.

Economic Impact on Affected Sources, the Department, other State Agencies, Local Government, other Industries or Trade Groups, the Public

Affected sources will need to increase the amount of ammonia reagent used in existing pollution control equipment to meet the proposed NOx RACT requirements.

The Portland cement plant in Carroll County is injecting 600-730 liters/hr of ammonia into their Selective non-catalytic reduction (SNCR) control technology to keep their NOx emissions below 2.5 lbs/ton of clinker to ensure compliance with the current 2.8 pounds of NOx per ton of clinker produced limit. Operating the SNCR costs approximately \$1 million per year. Using a linear equation, the plant would need to inject 760 liters/hr of ammonia to keep their NOx emissions enough below 2.4 lbs/ton clinker to ensure compliance. To meet the NOx emission rate of 2.4 lbs/ton clinker produced would cost an additional approximate \$143,000 per year, or a total annual SNCR operating cost of approximately \$1.143 million per year.

The Portland cement plant in Washington County is injecting 6-7 gallons/minute of ammonia into their SNCR to comply with the existing 5.1 lbs/ton of clinker NOx RACT limit. Using a linear equation, the plant would need to inject between 8.5 to 9.5 gallon/minute of ammonia to ensure their NOx emissions meet the proposed 3.4 lbs/ton clinker NOx emission limit for long-dry kilns.

Replacement of the COMs with PM CEMs as a parametric operations control shifts monitoring costs from one instrument to another.

There is no economic impact on the Department, other government agencies, trade groups or the public.

Economic Impact on Small Businesses

There is no economic impact on small businesses.

Submission to EPA as Revision to Maryland's SIP (or 111(d) Plan, or Title V Program)

This chapter will be submitted to the EPA as a revision to the approved SIP.

Is there an Equivalent Federal Standard to this Proposed Regulatory Action?

There is an equivalent federal standard for the use of CEMS to demonstrate NOx compliance by cement plants. It is found in 40 CFR 60 Appendix F. New particulate and monitoring procedures as specified in EPA's 2013 National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants replace the need for COMs.

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 01 General Administrative Provisions

Authority: Environment Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 10-102, and 10-103, Annotated Code of Maryland

.10 Continuous Opacity Monitoring Requirements.

A. Applicability and Exceptions.

(1) The provisions of this regulation apply to:

(a) – (b) (text unchanged)

[(c) A cement kiln;]

[(d)] (c) A fluidized bed combustor of any size; and

[(e)] (d) A municipal waste combustor with a burning capacity of 35 tons or greater per day.

(2) – (4) (text unchanged)

B. – F. (text unchanged)

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 09 Control of Fuel-Burning Equipment, Stationary Internal Combustion Engines, and Certain Fuel-Burning Installations

Authority: Environment Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 10-102, and 10-103, Annotated Code of Maryland

.08 Control of NO_x Emissions for Major Stationary Sources.

A.—G. (text unchanged)

H. Requirements for [Cement Manufacturing Facilities,] Municipal Waste Combustors, and Hospital, Medical, and Infectious Waste Incinerators.

(1) A person who owns or operates a [cement manufacturing facility or a] municipal waste combustor shall install, operate, and maintain a CEM for NO_x emissions.

[(2) NO_x emissions from cement manufacturing kilns may not exceed the following total hourly NO_x emissions as determined on a 30-day rolling average of the daily average:

(a) 1,000 pounds for a facility with a total kiln capacity of 600,000 tons per year or less; and

(b) 1,800 pounds for a facility with a total kiln capacity greater than 600,000 tons per year.]

[(3)] (2) NO_x emissions from municipal waste combustors may not exceed the NO_x emissions standards in *COMAR 26.11.08.07* and *COMAR 26.11.08.08* [(205 ppm 24-hour average)] or applicable Prevention of Significant Deterioration limits, whichever is more restrictive.

[(4)] (3) NO_x emissions from hospital, medical, and infectious waste incinerators as defined in *COMAR 26.11.08.01B(18)* may not exceed the NO_x emission standards in *COMAR 26.11.08.08-1A(2)* (250 ppm 24-hour average) as applicable.

I. Requirements for Glass Melting Furnaces [and Internal Combustion Engines at Natural Gas Pipeline Stations].

(1)—(2) (text unchanged)

[(3) A person who owns or operates an internal combustion engine at a natural gas pipeline station with a capacity factor over 15 percent shall perform either parametric optimization or engine rebuild to meet the following emission standards:

(a) Facilities with five or less engines shall meet a combined maximum hourly emission rate of 300 pounds per hour; and

(b) Facilities with more than five engines shall meet a combined maximum hourly emissions rate of 566 pounds per hour.

(4) Records demonstrating performance of parametric optimization shall be maintained on site for at least 2 years and made available to the Department upon request.]

J.—K. (text unchanged)

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 30 Control of Portland Cement Manufacturing Plants

Authority: Environment Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 10-102, and 10-103, Annotated Code of Maryland

ALL NEW MATTER

.01 Scope. *This chapter contains all of the general requirements that apply to Portland cement manufacturing plants. New or modified cement plants may be subject to more restrictive requirements that are included in a permit issued by the Department. Portland cement manufacturing plants subject to this chapter may also be subject to federal New Source Performance Standards under 40CFR Part 60 Subpart F and National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry under 40CFR Part 63 Subpart LLL.*

.02 Applicability.

A. *The requirements of this chapter apply to cement kilns and other installations located at Portland cement manufacturing plants.*

B. *Any source which is subject to the provisions of this chapter is also subject to the provisions of any other chapter. However, when this chapter establishes an emission standard for a specific installation which differs from the general emission standards in COMAR 26.11.06.01--09, this chapter takes precedence.*

.03 Definitions.

A. *Definitions. In this chapter, the following terms have the meanings indicated.*

B. *Terms defined.*

(1) *"Cement kiln" means an installation, including any associated pre-heater or pre-calciner devices, that produces clinker by heating limestone and other materials to produce Portland cement.*

(2) *"Cement manufacturing installation" means process equipment used for subsequent production of Portland cement.*

(3) *"Clinker cooler" means an installation into which clinker product leaving the kiln is placed to be cooled by air supplied by a forced air draft or natural draft supply system.*

(4) *"Long dry kiln" means a cement kiln that does not have a pre-calciner and in which dry starting raw materials are fed into the kiln.*

(5) *"Pre-calciner kiln" means a cement kiln that contains a pre-calciner at the bottom of the pre-heater tower before the materials enter the kiln.*

.04 Particulate Matter.

A. *The owner or operator of a cement manufacturing installation may not cause or permit the discharge of emissions of particulate matter to exceed the limits in §B of this regulation:*

B. *Emission Limits.*

(1) *Areas I, II, V, and VI. In Areas I, II, V, and VI, a person may not cause or permit particulate matter to be discharged from any installation in excess of 0.05 grains per standard cubic foot dry.*

(2) *Areas III and IV. In Areas III and IV, a person may not cause or permit particulate matter to be discharged from any installation in excess of 0.03 grains per standard cubic foot dry.*

.05 Sulfur Compounds.

A. *Sulfur Dioxide (SO₂):*

(1) *Areas I, II, V, and VI. In Areas I, II, V, and VI, an owner or operator of a cement manufacturing installation may not cause emissions into the atmosphere with an SO₂ concentration greater than 2,000 ppm for sources constructed before January 17, 1972 or 500 ppm for sources constructed on or after January 17, 1972.*

(2) *Areas III and IV. In Areas III and IV, an owner or operator of a cement manufacturing installation may not cause emissions into the atmosphere with an SO₂ concentration greater than 2,000 ppm for sources constructed before February 21, 1971 or 500 ppm for sources constructed on or after February 21, 1971.*

B. *Sulfuric Acid and Sulfur Trioxide.*

(1) *Areas I, II, V, and VI. In Areas I, II, V, and VI, an owner or operator of a cement manufacturing installation may not cause emissions of sulfuric acid, sulfur trioxide, or any combination of them, in excess of 70 milligrams per cubic meter reported as sulfuric acid, for any source constructed before January 17, 1972 or 35 milligrams per cubic meter reported as sulfuric acid, for any source constructed on or after January 17, 1972.*

(2) *Areas III and IV. In Areas III and IV, an owner or operator of a cement manufacturing installation may not cause emissions of sulfuric acid, sulfur trioxide, or any combination of them, in excess of 70 milligrams per cubic meter reported as sulfuric acid for any source constructed before February 21, 1971 or 35 milligrams per cubic meter reported as sulfuric acid for any source constructed on or after February 21, 1971.*

C. *All calculations of emissions for §§A and B of this regulation shall be adjusted to standard conditions and 7 percent oxygen.*

.06 Nitrogen Oxides (NOx).

A. *A person who owns or operates a cement kiln at a Portland cement manufacturing plant shall meet the applicable NOx emission standards:*

(1) *For long dry kilns, maximum emissions of 5.1 pounds of NOx per ton of clinker produced; and*

(2) *For pre-calciner kilns, maximum emissions of 2.8 pounds of NOx per ton of clinker produced.*

B. *On and after April 1, 2017, the requirements in §A of this regulation no longer apply and cement kilns shall meet the applicable NOx emission standards in §C of this regulation.*

C. *On and after April 1, 2017 a person who owns or operates a cement kiln at a Portland cement manufacturing plant shall meet the applicable NOx emission standards:*

(1) *For long dry kilns, maximum emissions of 3.4 pounds of NOx per ton of clinker produced; and*

(2) *For pre-calciner kilns, maximum emissions of 2.4 pounds of NOx per ton of clinker produced.*

D. *Compliance with the emission standards in §A of this regulation shall be demonstrated as a 30-day rolling average.*

.07 Continuous Emission Monitoring Requirements.

A. *The owner or operator of a Portland cement manufacturing plant shall:*

(1) *Continuously monitor NOx emissions with a continuous emissions monitor (CEM) system in accordance with COMAR 26.11.01.11B(1) and (4) and C;*

(2) *Collect NOx emissions data that was obtained pursuant to §A(1) of this regulation; and*

(3) *Submit emissions data collected pursuant to §A(2) of this regulation to the Department as specified under COMAR 26.11.01.11E(2).*

B. *The NOx emissions data collected pursuant to §A(2) of this regulation shall be used to demonstrate compliance with the applicable NOx emission rate in Regulation .06 of this chapter.*

END ALL NEW MATTER