Department of the Environment

COMAR 26.11.30 Control of Emissions from Portland Cement Manufacturing Plants

Air Quality Control Advisory Council
May 19, 2014

Topics Covered

- Background
- Purpose
- Revised requirements
  - Opacity
  - NO_x Reasonably Available Control Technology (RACT)

Background

- Complexity of regulations has increased
  - As requirements change, working to better organize regs
  - Major sources with complex requirements in many chapters reorganized into single chapter
- SIP requirements have no expiration but sometimes the programs under which the requirements were adopted change
  - No backsliding

Earlier draft proposal

- In 2011 and 2012, proposed incorporating earlier SIP requirements for cement manufacturing into a new chapter
- Draft regulation presented to AQCAC on January 31, 2011.
  - Approved by Council
- Proposed regulations withdrawn August 23, 2013 due to unresolved comments from the September 12, 2012 public hearing
  - EPA requested amendments to Cement Plant regulation re: single exception
  - New federal NESHAP regulations created competing requirements
    - Required Particulate Matter Continuous Emission Monitors (PM CEMs) in addition to existing requirements for Continuous Opacity Monitors (COMs)

Purpose

- Combine existing requirements in COMAR 26.11.01, .06, and .29 regarding nitrogen oxides (NO_x), sulfur oxides (SO_x), particulate matter (PM) and opacity that apply to Portland cement plants into one chapter
- Replace existing Continuous Opacity Monitoring (COM) requirements
  - Demonstrate 2013 NESHAP PM Continuous Process Monitoring System (CPMS) is equivalent to SIP opacity requirements
- Revise NO_x Reasonably Available Control Technology (RACT) requirements
  - Establish new NO_x Reasonably Available Control Technology (RACT) standards based upon Ozone Transport Commission (OTC) Cement Plant Technical Support Document (TSD)

Existing Requirements for Cement Kilns

- COMAR 26.11.01.10 and 26.11.06.02 contain opacity limits and monitoring requirements for cement kilns
- COMAR 26.11.06.03 contains specific particulate matter requirements for confined sources
- 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
- COMAR 26.11.09.08 and 26.11.29 contain NO_x emission limits

RACT Revision

- EPA defines RACT as 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
  - The Clean Air Act requires the State to establish RACT for major stationary sources in ozone nonattainment areas
- Each time EPA revises the ozone standard, the state must re-evaluate RACT in light of compliance with the new standard
  - Revise
  - Re-certify

RACT Revision continued

- Revisions to the RACT SIP for the 2008 0.075 ppm ozone standard are due in 2014
  - RACT re-certifications
  - Establish new RACT requirements
    - Commitment
    - Regulation
- EPA preliminary guidance sets May 2017 as the deadline for implementation of new RACT requirements
- Draft regulation proposes new RACT limits take effect April 1, 2017

Revise Old NO_x RACT

- Repeal NO_x RACT requirements in COMAR 26.11.09.08H established prior to 1990 for Portland cement manufacturing plants
  - Current NO_x RACT rates in COMAR 26.11.29.03 are more stringent
- Establish new NO_x RACT emission standards based upon recommended control measures for cement kilns from the 2007 OTC Technical Support Document on Identification and Evaluation of Candidate Control Measures

NO_x RACT Emission Standards

in lb/ton clinker produced

Kiln Type	Existing RACT	Proposed RACT
Long-dry	5.1	3.4
Pre-calciner	2.8	2.4

Holcim Consent Order

- July 11, 2013 – EPA announced Clean Air Act settlement with Holcim cement as a result of violations of the Act
  - Holcim will invest ~ $20 million to upgrade plant
- Holcim installing a pre-heater/pre-calciner on kiln
  - Must be in operation by September 6, 2016
  - Must meet a year round NOx limit of 1.8 lbs NO_x/ton of clinker on a 30-day rolling average
- Holcim will be required to operate the new kiln well below the proposed NO_x RACT limit

Particulate Matter Requirements

- Particulate matter emission limits remain the same
  - Compliance measured through stack tests
- Opacity standards remain the same
  - Compliance measured through continuous monitoring (COMs), Method 9 and Method 22
- Recent revisions for cement manufacturing under NESHAP offers alternatives to COMs for tracking particulate emissions

NESHAP Procedure

- NESHAP procedure uses stack test data to calibrate a PM CEMs monitor
- PM CEMs monitor is then used as a Continuous Parametric Monitoring System (CPMS) for operation of particulate matter controls at the plant
  - Compliance measured against maintenance of parameters within specified range

Replace COM requirement

- MD cement kilns intend to utilize this new procedure
- Propose repeal of existing Continuous Opacity Monitoring (COM) requirements
- Continue to demonstrate compliance with opacity standards using Method 9 and Method 22
- Demonstrate equivalency of NESHAP method to current SIP method to EPA

Equivalency Determination

- Revising or eliminating SIP requirements is difficult
  - Demonstrate the revision provides equivalent or more stringent reductions called a 110 (l) demonstration
- Adopting more stringent limits or showing a control measure gets the same or more reductions is fairly straightforward
- Other cases, such as changing how a measurement is made, are more difficult and less straightforward
  - Modifying opacity requirements
  - Replacing COMs with PM CPMS

Equivalency Determination

- 110 (l) demonstrations are easier to make for an attainment area
- Technically, areas of Maryland are still nonattainment for the annual fine particulate matter ($PM_{2.5}$) standard, but by 2009 all areas of Maryland complied with the $PM_{2.5}$ NAAQS
  - Annual: 15 µg/m3
- MDE submitted redesignation requests and maintenance plans for each of these areas to EPA
- Additionally, in 2012, EPA revised the annual $PM_{2.5}$ standard to a more stringent level
  - Annual: 12 µg/m3
- All of Maryland complies with the revised $PM_{2.5}$ NAAQS and has requested a designation of attainment for the 2012 $PM_{2.5}$ NAAQS
- Once the redesignation request is approved, the long term maintenance plan provides more assurance of extended compliance with the standard and substitutions are easier to approve

Continuous Emission Monitoring

- Cement plants are required to demonstrate compliance with NO_x emission requirements using continuous emission monitoring (CEM) data as outlined in COMAR 26.11.01.11.

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