AIR QUALITY CONTROL ADVISORY COUNCIL

AGENDA

September 8, 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.	**Low Emission Vehicle Program** **COMAR 26.11.34**	**Tim Shepherd**
8:40 a.m.	**Control of Portland Cement Manufacturing Plants** **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**	**Diane Franks**
8:50 a.m.	**Fiberglass Boat Manufacturing CTG** **COMAR 26.11.19.26-1**	**Randy Mosier / Husain Waheed**
9:00 a.m.	**Control of Fuel-Burning Equipment** **COMAR 26.11.09.08** **Control of NOx Emissions from Coal-Fired Electric Generating Units** **COMAR 26.11.38**	**Tad Aburn**

Briefings:

11:00 a.m.	**111 (b & d) for Power Plants**	**Diane Franks**
11:15 a.m.	**Confirm Next Meeting Dates** **December 8, 2014**	**Members**
11:20 a.m.	**Adjourn**	

Department of the Environment

Facts About...

Amendments to COMAR 26.11.34 Low Emissions Vehicle Program

August 15, 2014

Purpose of Amendments

The purpose of these amendments is to update COMAR 26.11.34.02 Incorporation by Reference to reflect the changes made to the California regulations since their last update.

Submission to EPA as Revision to Maryland's SIP

These amendments will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to Maryland's State Implementation Plan (SIP).

Background

Vehicles sold in the United States must be certified under one of two certification programs: the federal program (Tier 2) or the California program (the Clean Car Program). Section 177 of the Clean Air Act Amendments of 1990 provides states the ability to adopt the California program in lieu of the federal program as long as the adopted state program is identical to the California program and the state allows two model years lead time from adoption to implementation.

The Maryland Clean Cars Act of 2007 required the Maryland Department of the Environment (MDE) to adopt regulations implementing the California Clean Car Program (also referred to as the California Low Emissions Vehicle Program-CAL LEV) in Maryland. Maryland's implementing regulations adopted, through incorporation by reference, the applicable California regulations. The Cal LEV program is a dynamic, changing program in which many of the relevant California regulations are continuously updated. To retain California's standards, Maryland must remain consistent with their regulations, hence when California updates its regulations, Maryland must reflect these changes by amending our regulations.

The proposed changes are in effect in California as well as some of the other states that have adopted the CALEV program. The only regulatory change in this proposed action is to the ZEV portion of the regulation. It will have minimal, if any, impact on the cost or implementation of the program in Maryland. Reference updates to the incorporated by reference documents have also been included.

Sources Affected and Location

These amendments apply to automobile manufacturers that produce new motor vehicles for sale in Maryland. All vehicle types that have a gross vehicle weight rating of less than 14,000 pounds are affected.

Requirements

These amendments update Maryland's program requirements to be consistent with California's program requirements. This action is necessary since many of the California regulations that are incorporated into the Maryland regulation have been updated. These individual regulatory changes can be grouped into 3 areas:

- Adjustments to the optional Section 177 state compliance path (OCP).
- Maintain a minimum ZEV credit requirement for manufacturers for each model year.
- Amend the fast refueling definition for determining ZEV types.

These changes are described in greater detail in the Technical Support Document for this action. The biggest change that will affect Maryland is the elimination of certain credits from being used to meet the OCP requirements. Manufacturers will only be allowed to meet the requirements from credits generated by vehicles actually placed in the state, which was the original intent of the OCP as negotiated with the manufacturers.

Expected Emissions Reductions

The changes to the ZEV portion of the regulation may have a small positive impact on the benefits, as it is designed to ensure more ZEVs are actually delivered to the Section 177 States in order to comply with the OCP. The emissions impact is expected to be minimal though, as the manufacturer fleet average emission requirement remains the same.

Economic Impact on Affected Sources and the Department

Minimal additional burden or cost is expected as a result of these amendments. The changes to the OCP, and maintaining a minimum ZEV credit requirement will require manufacturers to introduce more actual ZEVs to Maryland and the other Section 177 states. However, provisions to allow pooling across states and from the east and west regions from different model years will give manufacturers greater flexibility to meet the regulatory requirements in a way that is best for their business situation.

These amendments will have no economic impact on the Department. They also will have no impact on the Motor Vehicle Administration's registration, data management, and dealer oversight activities related to this program.

Economic Impact on Consumers and Dealers

The economic impact of these amendments upon Maryland consumers is minimal as there are no significant changes to the vehicle requirements.

These amendments should have no impact on Maryland dealers. The increase in ZEVs that will result from this amendment will be minimal, and enable the dealers to provide consumers with more of the most advanced and fuel efficient technology vehicles available.

Economic Impact on Small Businesses

These amendments will have no impact on small businesses. These amendments impact the vehicle production and certification processes that are only applicable to the manufacturers of new motor vehicles.

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

No.

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 34 Low Emissions Vehicle Program

Authority: Environment Article, §§1-404, 2-102, 2-103, 2-301, 2-1102, and 2-1103, Annotated Code of Maryland

.02 Incorporation by Reference.

A. In this chapter, the following documents are incorporated by reference.

B. Documents Incorporated.

(1) ─(8) (text unchanged)

(9) Title 13, California Code of Regulations (CCR), Division 3, Chapter 1, Article 2, §1962.1 Zero-Emission Vehicle Standards for 2009 through 2017 Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, as effective **[**December 31, 2012**]** *July 10, 2014*.

(10) Title 13, California Code of Regulations (CCR), Division 3, Chapter 1, Article 2, §1962.2 Zero-Emission Vehicle Standards for 2018 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, as effective **[**December 31, 2012**]** *July 10, 2014*.

(11)─(33) (text unchanged)

(34) Title 13, California Code of Regulations (CCR), Division 3, Chapter 2, Article 2.1, §2111 Applicability, as effective **[**August 16, 2009**]** *December 8, 2010*.

(35) ─(45) (text unchanged)

(46) Title 13, California Code of Regulations (CCR), Division 3, Chapter 2, Article 2.2, §2122 General Provisions, as effective **[**January 4, 2008**]** *December 8, 2010*.

(47) ─(59) (text unchanged)

(60) Title 13, California Code of Regulations (CCR), Division 3, Chapter 2, Article 2.3, §2136 General Provisions, as effective **[**January 4, 2008**]** *December 8, 2010*.

(61) ─(64) (text unchanged)

(65) Title 13, California Code of Regulations (CCR), Division 3, Chapter 2, Article 2.4, §2141 General Provisions, as effective **[**January 4, 2008**]** *December 8, 2010*.

(66) ─(78) (text unchanged)

(79) Title 13, California Code of Regulations (CCR), Division 3, Chapter 4.4, §2235 Requirements, as effective August **[**7**]** *8*, 2012.

Robert M. Summers, Ph.D.
Secretary of the Environment

Department of the Environment

Facts About...

COMAR 26.11.30
Control of Emissions from
Portland Cement Manufacturing Plants

08/25/14

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 NOx, SOx and particulate matter that apply to Portland cement manufacturing plants into one 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.

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 NOx and SOx emission standards. The existing COMAR 26.11.06.05 establishes a concentration standard for SOx depending on the location of the plant and the date the plant was constructed. The existing COMAR 26.11.29 contains NOx emission standards and monitoring requirements for Portland cement plants. These requirements for SOx and NOx 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 NOx 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. The NESHAP procedures have been integrated into the Visible Emissions and Particulate Matter requirements of the new Chapter. 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. Integrate the 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. On July 11, 2013, EPA announced a Clean Air Act settlement with this plant as a result of violations with the Act. As a result, this plant will be investing approximately 90 million dollars to upgrade the plant. The plant will be upgrading to a pre-heater/pre-calciner kiln by September 6, 2016 and must meet a year round NOx limit of 1.8 lbs NOx/ton of clinker on a 30-day rolling average. This rate for the new kiln will be well below the proposed NOx RACT requirement.

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) “PM continuous parametric monitoring system” (CPMS) means a continuous emission monitoring system used to establish a parameter range for the purposes of demonstrating compliance.

(6) "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.

(7) “30-day rolling average emission rate” means the arithmetic average of all valid hourly emission rates of the previous 720 valid hours on a rolling basis.

.04 Visible Emission Standards.

A. The owner or operator of a cement manufacturing installation may not cause or permit the discharge of emissions which exceed the visibility standards in §B of this regulation:

B. Visibility Standards.

(1) In Areas I, II, V, and VI a person may not cause or permit the discharge of emissions from any installation or building, other than water in an uncombined form, which is greater than 20 percent opacity.

(2) In Areas III and IV a person may not cause or permit the discharge of emissions from any installation or building, other than water in an uncombined form, which is visible to human observers.

C. Opacity Compliance.

(1) The owner or operator shall demonstrate compliance by performing Method 22 monitoring methods and procedures as specified in 40 CFR part 63 - § 63.1350(f) based on the maximum 6-minute average opacity exhibited during the performance test period as established under .05C(1) of this chapter.

(2) The reviewing authority is the Department and the Administrator of the EPA unless otherwise specified in 40 CFR part 63.

.05 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.

(3) Compliance shall be demonstrated by a 3-run stack test on a 30-day rolling average.

C. PM monitoring requirements. The owner or operator of a cement manufacturing installation shall:

(1) Use a PM continuous parametric monitoring system (CPMS) to establish a site-specific operating limit corresponding to the results of the performance test demonstrating compliance with the PM limit in §B of this regulation;

(2) Conduct the performance test using Method 5 or Method 5I of 40 CFR part 60;

(3) Use the PM CPMS to demonstrate continuous compliance with this operating limit; and

(4) Repeat the performance test annually and reassess and adjust the site-specific operating limit in accordance with the results of the performance test using the procedures in 40 CFR 63 - § 63.1349(b)(1) (i) through (vi).

.06 Sulfur Compounds.

A. Sulfur Dioxide (SO_2):

(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 SO_2 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 SO_2 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.

.07 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 and C of this regulation shall be demonstrated as a 30-day rolling average.

.08 NOx 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 .07 of this chapter.

END ALL NEW MATTER

Department of the Environment

Facts About...

COMAR 26.11.19.26-1 Fiberglass Boat Manufacturing

08/18/2014

PURPOSE OF NEW REGULATION AND AMENDMENT

The new regulation COMAR 26.11.19.26-1, Control of Volatile Organic Compounds from Fiberglass Boat Manufacturing, adopts the requirements of the EPA's Control Techniques Guidelines (CTG) for this category. EPA develops CTGs as guidance on control requirements for source categories. States can follow the CTGs or adopt more restrictive standards. MDE proposes to adopt new volatile organic compound (VOC) limits, standards for application methods, and work practice requirements which are consistent with the most recent CTG recommendations applicable to fiberglass boat manufacturing. The new regulation affects manufacturers of fiberglass boats. COMAR 26.11.19.26, Control of Volatile Organic Compounds from Reinforced Plastic Manufacturing, is amended to exempt fiberglass boat manufacturing.

BACKGROUND

The EPA first published an assessment of VOC emissions from fiberglass boat manufacturing in 1990. This assessment evaluated VOC emissions from fiberglass boat manufacturing and potential control options.

The National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing, 40 CFR part 63, subpart VVVV (2001 NESHAP) were promulgated in 2001. Emission standards under the 2001 NESHAP were for organic hazardous air pollutants (HAPs) based on low-HAP resins and gel coats and low-emitting resin application technology.

California and several other states have specific regulations that control VOC emissions from fiberglass boat manufacturing operations, as part of their regulations for limiting VOC emissions from polyester resin operations.

In September 2008, the EPA published a new CTG for Fiberglass Boat Manufacturing Materials. The CTG was developed based on the 1990 VOC assessment, the 2001 NESHAP, existing state VOC emission reduction approaches, and in consideration of information obtained since the issuance of the 2001 NESHAP.

Resins containing styrene and gel coats containing both styrene and methyl methacrylate (MMA) are the main contributors of VOC emissions at fiberglass boat manufacturing facilities. The proposed standards are designed to reduce VOC emissions during fiberglass boat manufacturing operations. Not all the VOCs in the materials used are

emitted to the atmosphere, as some of the VOCs are used in cross linking reactions of polymers and are retained in the finished material. Thus, an overall reduction of VOC content in production materials reduces potential emissions from extraneous VOCs during the manufacturing process.

Cleaning activities other than surface preparation also occur at facilities engaged in fiberglass boat manufacturing. Cleaning materials are used to remove residue or other unwanted materials from equipment related to manufacturing operations such as molds and prototypes, as well as the cleaning of application equipment, transfer lines and other ancillary equipment. These cleaning materials are typically mixtures of VOC containing solvents. The proposed regulation includes emission control requirements for cleaning materials consistent with those in the CTG.

Affected Sources

The proposed regulation affects fiberglass boat manufacturers.

New Regulation and Amendment

COMAR 26.11.19.26-1 is proposed to set the following standards for a fiberglass boat manufacturing facility with actual VOC emissions of 15 pounds or more per day:

Operation	Application Method	Monomer content (percent by weight)	Total Resin VOC Content (percent by weight)
Production resin	Atomized resin application (spray)	28	33
Production resin	Nonatomized resin application	35	40
Pigmented gel coat	Atomized or nonatomized resin application	33	38
Clear gel coat	Atomized or nonatomized resin application	48	53
Tooling resin	Atomized resin application (spray)	30	35
Tooling resin	Nonatomized resin application	39	44
Tooling gel coat	Atomized or nonatomized resin application	40	45

These monomer content limits are the same as those in the 2001 NESHAP. The regulation also provides an alternative option of emission rates for monomers and non monomers and exemptions for certain specific applications.

The work practice requirements establish standards and record keeping requirements for the usage of all VOC containing materials.

COMAR 26.11.19.26 Control of Volatile Organic Compounds from Reinforced Plastic Manufacturing is amended to exempt fiberglass boat manufacturing.

Impact on Ambient Air Quality

The proposed regulation sets standards for fiberglass boat manufacturing operations. Emissions of VOCs from fiberglass boat manufacturing operations are expected to be reduced by approximately 40 percent nationally. Maryland only has one known source that may, on occasion, assemble fiberglass boats from pre-manufactured hulls and decks. The coatings industry already has products available to meet VOC standards contained in the CTG and proposed regulation. The maximum benefit from VOC reductions will be provided during the ozone season when VOCs readily combine with NOx to form the pollutant ground level ozone. Maryland VOC emission benefits will be negligible.

Economic Impact

The proposed new regulation adopts the requirements of the CTG for fiberglass boat manufacturing. EPA estimated the economic impact of this regulation on a national level. Cost effectiveness is approximately $ 4,200/ton of VOC controlled. Economic impact is expected to be minimal on Maryland sources.

Small Business

The proposed regulation affects fiberglass boat manufacturers. Economic impact on small business estimated by EPA is small for reformulated materials on a national level.

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

The proposed regulation will be submitted to the U.S. EPA for approval as a revision to Maryland's State Implementation Plan.

Are there other State or federal requirements that apply to these sources?

The amendments and proposed regulation adopt the requirements in EPA's CTG for Fiberglass Boat Manufacturing, July 2008. There are no other federal reasonably available control technology standards for this category.

Title 26

DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

26.11.19 Volatile Organic Compounds from Specific Processes

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

.26 Control of Volatile Organic Compound Emissions from Reinforced Plastic Manufacturing.

A. Applicability.

(1) This regulation applies to reinforced plastic manufacturing at a premises where the total actual VOC emissions from all reinforced plastic manufacturing including tooling, touch-up, and repair is 20 pounds or more per day.

(2) The requirements in this regulation do not apply to polyester resins used for tooling or touch-up and repair.

(3) The requirements in this regulation do not apply to any fiberglass boat manufacturing facility as defined in § .26-1B(5) of this chapter.

B. – D. (text unchanged)

ALL NEW MATTER

.26-1Control of Volatile Organic Compound Emissions from Fiberglass Boat Manufacturing

A. Applicability.

(1) This regulation applies to any fiberglass boat manufacturing facility where the total actual VOC emissions, before add-on controls, from all fiberglass boat manufacturing is 15 pounds or more per day as determined on a monthly average.

(2) VOC emissions from polyester resins, tooling resins and gel coats, ancillary parts production, touch-up, clean-up, and repair are to be included in determining VOC emissions pursuant to (A)(1) of this regulation.

B. Definitions. In this regulation, the following terms have the meanings indicated:

(1) Atomized Resin Application.

(a) "Atomized resin application" means a resin application technology in which the resin leaves the application equipment and breaks into droplets or an aerosol as it travels from the application equipment to the surface of the part.

(b) "Atomized resin application" includes, but is not limited to, resin spray guns and resin chopper spray guns.

(2) Clear Gel Coat.

(a) "Clear gel coat" means a gel coat that is clear or translucent such that underlying colors are visible.

(b) "Clear gel coat" does not include tooling gel coats used to build or repair molds.

(3) Closed Molding.

(a) "Closed molding" means any molding process that has the following characteristics:

(i) Pressure is used to distribute the resin through the reinforcing fabric placed between two mold surfaces to either saturate the fabric or fill the mold cavity; and

(ii) Clamping pressure, fluid pressure, atmospheric pressure, or vacuum pressure are applied either alone or in combination.

(b) "Closed molding" includes, but is not limited to, compression molding with sheet molding compound, infusion molding, resin injection molding (RIM), vacuum assisted resin transfer molding (VARTM), resin transfer molding (RTM), and vacuum assisted compression molding.

(c) "Closed molding" does not include:

(i) Processes in which a closed mold is used only to compact saturated fabric or remove air or excess resin from the fabric (such as in vacuum bagging); or

(ii) Open molding steps such as application of a gel coat or skin coat layer by conventional open molding prior to a closed molding process.

(4) "Fiberglass boat" means any type of vessel, other than a seaplane, that can be used for transportation on the water, in which either the hull or deck is built from a composite material consisting of a polyester resin or other thermosetting resin matrix reinforced with fiberglass (glass fibers), inert filler or other reinforcing materials such as fibers of carbon or aramid.

(5) Fiberglass Boat Manufacturing Facility.

(a) "Fiberglass boat manufacturing facility" means a facility that manufactures hulls or decks of fiberglass boats, assembles fiberglass boats from premanufactured hulls and decks, or builds molds to make hulls or decks of fiberglass boats.

(b) "Fiberglass boat manufacturing facility" does not include a facility which:

(i) Manufactures ancillary parts for fiberglass boats (such as hatches, seats, or lockers) or boat trailers; and

(ii) Does not manufacture hulls or decks of fiberglass boats, assemble fiberglass boats from premanufactured hulls and decks, or build molds for fiberglass boat hulls or decks.

(6) "Filled resin" means a resin to which an inert material has been added to change viscosity, density, shrinkage, or other physical properties.

(7) "Gel coat" means a thermosetting resin surface coating containing styrene (Chemical Abstract Service (CAS No. 100–42–5) or methyl methacrylate (CAS No. 80–62–6) that:

(a) Provides a cosmetic enhancement or improves resistance to degradation from exposure to the elements;

(b) Does not contain any reinforcing fibers; and

(c) Is applied directly to mold surfaces or to a finished laminate.

(8) "Mold" means the cavity or surface into or on which gel coat, resin, and fibers are placed and from which finished fiberglass parts take their form.

(9) "Monomer" means a low molecular weight organic compound that reacts with itself or other similar compounds to produce a polymer such as a polyester or vinylester resin.

(10) Nonatomized Resin Application.

(a) "Nonatomized resin application" means any application technology in which the resin is not broken into droplets or an aerosol as it travels from the application equipment to the surface of the part.

(b) "Nonatomized resin application" includes, but is not limited to, flowcoaters, chopper flowcoaters, pressure fed resin rollers, resin impregnators, and hand application by paint brush or paint roller.

(11) "Non-monomer" means any low molecular weight organic compound that does not react with itself or other similar compounds to produce a polymer and is assumed to be emitted fully as a VOC into the atmosphere.

(12) "Non-VOC cleanup material" means a material that:

(a) Is used to clean products, tools, process equipment, and other equipment used in the manufacture of fiberglass boats; and

(b) Either contains less than 5 percent VOC by weight or has a VOC composite vapor pressure of organic compounds not exceeding 0.74 pound per square inch.

(13) Open Molding and Gel Coat Operations.

(a) "Open molding and gel coat operation" means any process in which the reinforcing fibers and resin are placed in the mold and are open to the surrounding air while the reinforcing fibers are saturated with resin.

(b) "Open molding and gel coat operation" includes operations in which a vacuum bag or similar cover is used to compress an uncured laminate to remove air bubbles or excess resin, or to achieve a bond between a core material and a laminate.

(14) Pigmented Gel Coat.

(a) "Pigmented gel coat" means an opaque gel coat;

(b) "Pigmented gel coat" does not include tooling gel coats used to build or repair molds.

(15) Production Resin.

(a) "Production resin" means any resin used to manufacture parts for sale.

(b) "Production resin" does not include tooling resins used to build or repair molds, or assembly adhesives.

(16) "Pure, 100-percent, vinylester resin used for skin coats" means resins containing only vinylester resin and does not include any resin containing blends of vinylester and polyester resins.

(17) "Resin and gel coat mixing operation" means any operation in which a resin or gel coat is combined with additives that include, but are not limited to, fillers, promoters, or catalysts, and includes operations making putties or polyputties used to assemble parts of fiberglass boats and to fill gaps between parts.

(18) "Skin coat" means a layer of resin and fibers applied over a gel coat to protect the gel coat from being deformed by an additional laminate layer(s).

(19) "Tooling" means the production of molding tools such as shapes, matrixes, molds, or other instruments and utensils that are used during manufacturing of fiberglass boats.

(20) "Tooling resin" means, for the purposes of §C(1) of this regulation, the resin used to build or repair molds (also known as tools) or prototypes (also known as plugs) from which molds will be made.

(21) "Tooling gel coat" means, for the purposes of §C(1) of this regulation, the gel coat used to build or repair molds (also known as tools) or prototypes (also known as plugs) from which molds will be made.

(22) "Total VOC Content (percent by weight)" means the sum of the monomer content (percent by weight) determined according to §D(1) of this regulation and of the weight percent of the non-monomer VOC determined by §D(3) of this regulation.

(23) Vacuum Bagging.

(a) "Vacuum bagging" means any molding technique in which the reinforcing fabric is saturated with resin and then covered with a flexible sheet that is sealed to the edge of the mold and where a vacuum is applied under the sheet to compress the laminate, remove excess resin, or remove trapped air from the laminate during curing.

(b) "Vacuum bagging" does not include closed molding.

(24) "Vinylester resin" means a thermosetting resin containing esters of acrylic or methacrylic acids and having double-bond and ester linkage sites only at the ends of the resin molecules.

C. Requirements.

(1) A person who owns or operates a fiberglass boat manufacturing facility subject to this regulation shall:

(a) Not cause or permit the discharge into the atmosphere of any VOC from resin and gel coat operations in excess of the following standards, except as provided in §C(3) of this regulation,:

Operation	*Application Method*	*Total Monomer content (percent by weight)*	*Total VOC Content (percent by weight)*
Production resin	*Atomized resin application (spray)*	*28*	*33*
Production resin	*Nonatomized resin application*	*35*	*40*
Pigmented gel coat	*Atomized or nonatomized resin application*	*33*	*38*
Clear gel coat	*Atomized or nonatomized resin application*	*48*	*53*
Tooling resin	*Atomized resin application (spray)*	*30*	*35*
Tooling resin	*Nonatomized resin application*	*39*	*44*
Tooling gel coat	*Atomized or nonatomized resin application*	*40*	*45*

(b) Notwithstanding §C(3)(a) and (b),use nonatomizing resin application equipment when applying production resins (including skin coat resins) pursuant to §C(3)(a) and pure,100-percent vinylester resins pursuant to §C(3)(b).

(c) Not cause or permit the discharge into the atmosphere of any VOC from any resin and gel coat mixing operation unless all mixing containers with a capacity equal to or greater than 208 liters (55 gallons), including those used for on-site mixing of putties and polyputties, have a cover with no visible gaps in place at all times except when material is being manually added to or removed from the container, or when mixing or pumping equipment is being placed in or removed from the container.

(d) Only use non-VOC cleanup materials.

(2) Alternative Compliance Option.

In lieu of meeting the standards of §C(1)(a) of this regulation, a person who owns or operates a fiberglass boat manufacturing facility subject to this regulation may cause or permit the discharge into the atmosphere of any VOC from filled resins provided that such emissions do not exceed the following non-monomer VOC content and as-applied monomer VOC emission rates calculated using the equation in §D(3) of this regulation:

Type of Filled resin	*Monomer rate in kg monomer VOC per megagram of filled resin as applied*	*Non-monomer VOC content limit of unfilled resin*
Production	*46*	*5%*
Tooling	*54*	*5%*

(3) Exemptions. The standards in §C(1)(a) of this regulation do not apply to:

(a) Production resins (including skin coat resins) that meet specifications for use in military vessels or must be approved by the U.S. Coast Guard for use in the construction of lifeboats, rescue boats, and other life-saving appliances approved under 46 CFR Chapter I, Subchapter Q, or the construction of small passenger vessels as regulated by 46 CFR Chapter I, Subchapter T;

(b) Pure, 100-percent vinylester resins used for skin coats where the total quantity of such resins used is less than or equal to 5 percent by weight of all resin used at a fiberglass boat manufacturing facility on a 12-month rolling average basis, as reported in §§E(5) through (7) of this regulation; or

(c) Production and tooling resins, and pigmented, clear, and tooling gel coats, which are used for touch up and repair of parts or molds and which are used in quantities less than or equal to 1 percent by weight of all resin used at a fiberglass boat manufacturing facility on a 12-month rolling average basis, as reported in §E(1) of this regulation.

(d) Resins used in closed molding;

(e) Polyester resins used for tooling or touch-up and repair during a manufacturing process that is not fiberglass boat manufacturing;

(f) Coatings applied to fiberglass boats; and

(g) Adhesives used in the assembly of fiberglass boats.

D. Test Methods and Compliance Procedures.

(1) A person who owns or operates a fiberglass boat manufacturing facility subject to this regulation shall determine the monomer VOC content of any resin or gel coat applied at the facility using:

(a) SCAQMD Method 312-91, Determination of Percent Monomer in Polyester Resins, revised April 1996; or

(b) Manufacturer's formulation data.

(2) In the event of a conflict between the monomer VOC content of any resin or gel coat indicated by the manufacturer's formulation data and the results of a test using the method referenced in §D(1)(a), the test results shall be used for the purpose of determining compliance with this regulation.

(3) A person meeting the alternative emission rates in §C(2) shall compute the as-applied monomer VOC emission rate for the filled production resin or tooling resin, in kilograms monomer VOC per megagram of filled material, using the following equation:

$$PV_F = PV_u \text{ times } \frac{(100 - \text{Filler pct})}{100}$$

Where

PV_F is the as-applied monomer VOC emission rate for the filled production resin or tooling resin, kilograms monomer VOC per megagram of filled material.

PV_u is the monomer VOC emission rate for the neat (unfilled) resin, before filler is added, as calculated using the formulas in the table in §D(4) of this regulation.

Filler pct is the weight-percent of filler in the as-applied filled resin system.

(4) The monomer VOC emission rate for the neat (unfilled) resin, before filler is added, PV_u, shall be calculated using the formulas in the following table:

Monomer VOC Emission Rate Formulas for Open Molding and Gel Coat Operations

Material	*Application Method*	*Formula to calculate the monomer VOC emission rate*[1]
Production resin or tooling resin	*Atomized resin application*	$0.014 \times (\text{Resin VOC\%})^{2.425}$
	Atomized resin application, plus vacuum bagging with roll-out	$0.01185 \times (\text{Resin VOC\%})^{2.425}$
	Atomized resin application, plus vacuum bagging without roll-out	$0.00945 \times (\text{Resin VOC\%})^{2.425}$
	Nonatomized resin application	$0.014 \times (\text{Resin VOC\%})^{2.425}$
	Nonatomized resin application plus vacuum bagging with roll-out	$0.0110 \times (\text{Resin VOC\%})^{2.275}$
	Nonatomized resin application plus vacuum bagging without roll-out	$0.0076 \times (\text{Resin VOC\%})^{2.275}$
Pigmented gel coat, clear gel coat, tooling gel coat	*All methods*	$0.445 \times (\text{Gel coat VOC\%})^{1.675}$

[1] *Where the resin VOC% is the monomer VOC content as supplied, expressed as a weight-percent value between 0 and 100 percent.*

(5) A person meeting the alternative emission rates in §C(2) shall demonstrate the as-applied non-monomer VOC content of resins and gel coats using the test method prescribed in COMAR 26.11.19.02D(1), and for this purpose, resins and gel coats shall be considered coatings .

(6) For the purpose of demonstrating that a cleanup material is a non-VOC cleanup material, a person shall:

(a) Perform a test using the method prescribed in COMAR 26.11.19.02D(1), where the cleanup material shall be considered a coating; and.

(b) Determine the composite vapor pressure of organic- compounds in a cleanup material using the calculation prescribed in COMAR 26.11.19.02E(3).

E. Record Keeping. A person who owns or operates a fiberglass boat manufacturing facility subject to this regulation shall maintain for not less than three years, and shall make available to the Department upon request, records that provide the following information:

(1) A description of each polyester or vinylester resin material used including:

(a) The manufacturer's name;

(b) The type (e.g. production resin, production gel coat, tooling resin, tooling gel coat);

(c) The amount of each of the polyester or vinylester resin materials used;

(d) The weight (in percent) of monomer for each polyester resin materials and filler(s) used;

(e) The weight percent of VOC that is not monomer or the total weight percent of the VOC content; and

Department of the Environment

Facts About...

COMAR 26.11.38 - Control of NOx Emissions from Coal-Fired Electric Generating Units

Date: 8-28-14

Purpose of New Action

The primary purpose of this action is to establish NO_x emission standards (24-hour block and 30-day rolling averages) and additional monitoring and reporting requirements for coal-fired electric generating units in Maryland in order to satisfy the requirements of § 182 of the federal Clean Air Act, and help achieve attainment of the National Ambient Air Quality Standards for ozone.

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

This action will be submitted to the U.S. Environmental Protection Agency (EPA) for approval as part of Maryland's State Implementation Plan.

Background

In 2014, the Maryland Department of the Environment (MDE) is required to update NO_x RACT (Reasonably Available Control Technology) requirements in the Maryland SIP (State Implementation Plan) pursuant to § 182 of the federal Clean Air Act, 42 U.S.C. § 7401 *et seq.* EPA defines RACT as the lowest emissions limitation (e.g., on a part per million or pound per million Btu basis) that a particular source is capable of meeting by the application of control technology (e.g., install and operate low-NOx burners) that is reasonably available considering technological and economic feasibility. States which contain moderate (or greater) ozone nonattainment areas are required to update provisions implementing RACT. RACT SIPs are typically updated when a new ozone standard is established and a new attainment plan is being developed. Maryland's 2014 RACT SIP must address both the new 75 ppb ozone standard and peak day NO_x emissions. Current short-term limits in Maryland's approved SIP are set at levels that are not appropriate for addressing peak day NO_x emissions.

Under Maryland's Healthy Air Act (HAA), which is codified as COMAR 26.11.27 – Emission Limitations for Power Plants, ozone-season and annual emission caps were used to drive very significant emission reductions of NO_x. While all of the coal fired electric generating units (units) comply with the HAA, the annual and ozone season caps have not required all units to consistently run emission controls each day – particularly during peak times or episodic air quality events when they would be most beneficial. The HAA allowed the owner of multiple coal-fired power plants to demonstrate that the cumulative emissions from its plants complied with a system-wide cap. In this manner, the owner of multiple coal-fired power plants could choose when and where to apply emission controls within their "system" to most cost-effectively meet the NO_x caps set in the act. However, compliance with the annual and ozone season caps did not effectively limit daily NO_x emissions during certain days, allowing facilities to reduce operation of pollution control equipment when surplus cap room was available. This resulted in high (excess) NOx emissions on days where pollution controls were needed most (i.e. peak days).

In 2014, MDE evaluated the operation of post combustion controls, specifically selective catalytic reduction (SCR), at coal fired power plants in Maryland and other select states using publicly available data. Analysis of this data suggests that operation of SCRs is inconsistent. In fact, from 2007 - 2012, the average ozone season NO_x emission rates for certain units were shown to be increasing.

Based on an analysis of the operation of NO_x emission controls and the need to address peak day emissions, additional reductions from coal-fired power plants are needed to meet the new 75 ppb ozone standard. As discussed above, the HAA did not require strict compliance with unit-by-unit NOx emission limitations. Instead, electric generating facilities were allowed to meet system-wide emission caps. They did this by installing controls on the units that were most cost effective to control at the time. The new reductions proposed will come primarily from seven units that did not make significant control technology investments or improvements under the HAA and are high NO_x emitters when called upon to run — Chalk Point Unit #2; Wagner Unit #2; Crane Units #1 and #2; and Dickerson Units #1, #2, and #3. Because high electricity demand and bad ozone days are both driven by high temperatures, high emissions from these plants occur on the worst ozone days.

Sources Affected and Location

This action impacts coal fired electric generating units in Maryland, which account for over 90% of the state's power plant NO_x emissions. Affected electric generating units include: Brandon Shores (Units 1 and 2); Crane (Units 1 and 2), and Wagner (Units 2 and 3) plants; Chalk Point (Units 1 and 2), Morgantown (Units 1 and 2) and Dickerson plants (Units 1, 2 and 3); and, Warrior Run.

Requirements

This action is part of an overall strategy to significantly reduce NO_x emissions from coal fired electric generating units (EGUs) in the state, reductions by requiring owners and operators of affected EGUs to comply with certain requirements and standards in the regulation by specific dates. The requirements specified in the regulation include the following:

- No later than 45 days after the effective date of this regulation, the owner or operator of an affected unit must submit a plan (plan should summarize the data to be collected to demonstrate compliance with the requirements of the regulation) to MDE for approval that demonstrates how the unit will operate installed pollution control technology and combustion controls as required in the regulation;
- Beginning May 1, 2015, for each operating day during the ozone season, affected units must minimize NO_x emissions by operating and optimizing the use of all installed pollution control technologies and combustion controls consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the unit at all times the unit is in operation while burning any coal.
- Owners or operators of two or more units must demonstrate compliance by meeting a system-wide NO_x emission rate of 0.15 lbs/MMBtu as a 30-day rolling average during the ozone season;

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- Owners or operators of affected electric generating units must continue to meet the ozone season and annual NO_x reduction requirements in COMAR 26.11.27;
- Affected electric generating units with a fluidized bed combustor must meet a NO_x emission rate of 0.10 lbs/MMBtu as a 24-hour block average on an annual basis;
- No later than May 31, 2015, the owner or operator of the following units - C.P. Crane Units #1 and #2, Chalk Point Unit #2, Dickerson Units #1, #2, and #3 and H.A. Wagner Unit #2, must select one the following compliance options and notify MDE:

    - Install and continuously operate a selective catalytic reduction (SCR) control system at all times - not exceed a NO_x emission rate of 0.07 lbs/MMBtu, as determined on a 30-day rolling average during the ozone season no later than April 1, 2018;

    - Permanently retire the unit no later than June 1, 2018;

    - Switch fuel from coal to natural gas for the unit no later than June 1, 2018; or

    - Submit an alternative emission reduction plan for approval by the Department by May 31, 2015 that insures that starting on April 1, 2016, meet a system-wide NO_x emission rate during the ozone season or system-wide daily NO_x tonnage cap during the ozone season calculated by assuming SCR controls at C.P. Crane Units #1 and #2, Chalk Point Unit #2, Dickerson Units #1, #2, and #3 and H.A. Wagner Unit #2 operated in manner consistent with minimizing NOx emissions by operating and optimizing the use of all installed pollution control technologies and combustion controls and meeting a NO_x emission rate of 0.07 lbs/MMBtu, as determined on a 30-day rolling average during the ozone season, and operating in a manner not exceeding actual operations after 2007. Upon approval, plans will become enforceable and incorporated into the source's permit to operate.

- Owners and operators of affected units who choose the option of an alternative emissions reduction plan must submit a new plan to the Department for approval within 30 days in the event a unit that is part of the system-wide plan retires, transfers ownership, or is removed from the system; and
- The regulation includes procedures for owners and operators of affected units to demonstrate compliance with the requirements and emission rates in the regulation as well as specific reporting requirements.

Coal fired electric generating units are still subject to Maryland's Healthy Air Act under COMAR 26.11.27, as well as federal regulations. The federal Clean Air Interstate Rule (CAIR) or its replacement applies to all the units under this regulation. This new regulation will allow units to meet the tonnage caps from the state and federal rules, and likely have NOx ozone season allowances associated with CAIR to trade ---or accrue NOx ozone season allowances surplus.

Expected Emissions Reductions

Based upon calculations and emissions estimates by the Department, the regulation requirements of section .03 has an estimated NOx emissions reduction potential of 25 percent and 9 tons per day of NOx emissions from the coal-fired generating units category as compared to the average

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operating conditions of 2011 through 2013. Maryland's 2011-13 baseline emissions inventory indicates that ozone season NOx emissions from coal-fired electric generating power plants total 35.8 tons/day. The ozone season NOx emissions from coal-fired electric generating power plants has the potential to be reduced to 27 tons/day under the regulation requirements of section .03.

Meeting the proposed regulation requirements of section .04 has an estimated NOx emissions reduction potential of 48 percent and 17 tons per day of NOx emissions from the coal-fired generating units category as compared to the average operating conditions of 2011 through 2013. The ozone season NOx emissions from coal-fired electric generating power plants has the potential to be reduced to 19 tons/day under the regulation requirements of section .04.

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

I. Summary

Since all of Maryland's coal-fired electric generating units are equipped with either the best available NO_x control technology (SCR) or second best NO_x control technology (SNCR or SACR), the cost impact analysis for this proposed action is for the removal of SNCR/SACR control technologies and replacement with SCR technology.

Affected sources, specifically Raven Power and NRG, submitted cost effectiveness analysis for the conversion from existing SNCR/SACR control technology to SCR control technology for certain units. This analysis is presented in the following table:

Table 1: SCR Cost Effectiveness Calculations

	RAVEN POWER		NRG	
	Crane 1-2	**Wagner 2**	**Dickerson 1-3**	**Chalk Pt 2**
Total Capital Cost [(A)]	**$110,000,000**	**$40,000,000**	**$200,000,000**	**$122,000,000**
SCR Cost $/kW				
Annual Costs [(B)]				
Maintenance Costs	$1,000,000	$390,000	$2,000,000	$1,220,000
Reagent Cost			$848,844	$740,132
Electricity Cost			$280,868	$244,897
Catalyst Cost			$1,188,333	$865,833
Capital Recovery	$13,226,550	$4,809,655	$24,048,274	$14,669,447
Total Annual Cost	**$14,226,550**	**$5,199,655**	**$28,366,319**	**$17,740,309**
Annual NOx Emissions (Historical Averages)				
Gross Generation (MWh)	1,248,300	1,088,430		
Capacity Factor (%)	22%	22%	28%	53%
Inlet NOx Rate (lb/Mbtu)	0.261	0.306	0.255	0.300
Annual Heat Input (MMBtu)	9,689,214	3,960,792	12,126,298	14,458,839

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Inlet NOx Tons	1,265	606		1,548	2,166
Outlet NOx Rate (Lb/Mbtu)	0.07	0.07		0.07	0.07
Outlet NOx Tons	339	139		424	506
NOx Tons Removed	926	467		1,124	1,660
SCR Cost Effectiveness (Annual $/ton removed)	**$15,364**	**$11,125**		**$25,238**	**$10,689**

There will be no additional impact on the Department, other State agencies, or local governments as a result of this action.

II. Types of Economic Impact.	Revenue (R+/R-) Expenditure (E+/E-)	Magnitude
A. On issuing agency:	(E+)	Indeterminate
B. On other State agencies:	(E+)	Indeterminate
C. On local governments:	(E+)	Indeterminate
	Benefit (+) Cost (-)	Magnitude
D. On regulated industries or trade groups:		
(1) Capital Costs	(–)	$40M - $200M
(2) Annual Operating Costs	(–)	$6M - $28M
E. On other industries or trade groups:		
(1) MD Contractors	(–)	Indeterminate
(2) Electricity Rates	(–)	Indeterminate
F. Direct and indirect effects on public:		
(1) Health Benefits	(+)	Indeterminate
(2) Electricity Rates	(–)	Indeterminate

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III. Assumptions. (Identified by Impact Letter and Number from Section II.)

A. B. C. E. Commercial and consumer electricity rates are influenced by many factors. The costs associated with implementation of this action may be one factor that influences these rates, but the magnitude of that influence is difficult to quantify when added to other factors that significantly affect electric rates.

D.(1) It is difficult to determine the precise costs to regulated entities associated with implementation of this action because there can be of a number of site-specific requirements and variables associated with the cost of installation and operation of the pollution control equipment at specific plants. The affected facilities have provided cost estimates ranging from 40,000,000 to 200,000,000.

D.(2) The affected facilities have provided cost estimates ranging from $6,000,000 to $28,000,000.

F.(1) Health benefits in terms of dollars are influenced by many factors and difficult to quantify.

F.(2) Commercial and consumer electricity rates are influenced by many factors. The costs associated with implementation of this action may be one factor that influences these rates, but the magnitude of that influence is difficult to quantify when added to other factors that significantly affect electric rates.

Economic Impact on Small Businesses

The affected sources do not fit the definition of “small business”.

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

Yes. The federal Clean Air Act, 42 U.S.C. § 7401 et seq. compels the Maryland Department of the Environment to revise its regulations requiring the implementation of reasonably available control technology ("RACT") for certain sources, including coal-fired electric generating units ("EGU"). 42 U.S.C. §7511a(b)(2).

Furthermore, the Clean Air Act allows the State to enact regulations more stringent than federal law. In addition, MDE has the independent authority to regulate sources of air emissions pursuant to Title 2 of the Environment Article. Additional reductions from coal-fired electric generating units in the State are needed to meet the 2008 ozone standard of 75 ppb. To meet the State’s need for much deeper emission reductions to achieve the ozone standard, this action contains requirements for additional NO_x emissions reductions from coal-fired electric generating units.

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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

.01—.07 (text unchanged)

.08 Control of NO_x Emissions for Major Stationary Sources.

A. — B. (text unchanged)

C. Requirements for *Oil Fired or Gas/Oil Fired* Fuel-Burning Equipment with a Rated Heat Input Capacity of 250 Million Btu Per Hour or Greater.

(1) A person who owns or operates *an oil fired or gas/oil fired* fuel-burning equipment with a rated heat input capacity of 250 Million Btu per hour or greater shall equip each installation with combustion modifications or other technologies to meet the NO_x emission rates in §C(2) of this regulation.

(2) The maximum NO_x emission *rate* [rates] as pounds of NO_x per Million Btu per hour is [are:] *0.30 for oil fired or gas/oil fired units located at an electric generating facility.*

[(a) 0.45 for tangentially coal fired units located at an electric generating facility (excluding high heat release units);

(b) 0.50 for wall coal fired units located at an electric generating facility (excluding high heat release units);

(c) 0.30 for oil fired or gas/oil fired units located at an electric generating facility;

(d) 0.70 for coal fired cyclone fuel burning equipment located at an electric generating facility from May 1 through September 30 of each year and 1.5 during the period October 1 through April 30 of each year;

(e) 0.70 for a tangentially coal fired high heat release unit located at an electric generating facility;

(f) 0.80 for a wall coal fired high heat release unit located at an electric generating facility; and

(g) 0.6 for coal fired cell burners at an electric generating facility.]

(3) A person who owns or operates *oil fired or gas/oil fired* fuel burning equipment with a rated heat input capacity of 250 Million Btu per hour or greater shall install, operate, calibrate, and maintain a certified NO_x CEM or an alternative NO_x monitoring method approved by the Department and the EPA on each installation.

D. — K. (text unchanged)

.09—.11 (text unchanged)

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Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 38 Control of NOx Emissions from Coal-Fired Electric Generating Units

Authority: Environmental Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 2-1003, 10-102, 10-103, and 10-1002, Annotated Code of Maryland

ALL NEW MATTER

.01 Definitions.

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

B. Terms Defined.

(1) "Affected electric generating unit" means any one of the following coal-fired electric generating units:

(a) Brandon Shores Units 1 and 2;

(b) C.P. Crane Units 1 and 2;

(c) Chalk Point Units 1 and 2;

(d) Dickerson Units 1, 2, and 3;

(e) H.A. Wagner Units 2 and 3;

(f) Morgantown Units 1 and 2; and

(g) Warrior Run.

(2) "Operating day" means a 24-hour period beginning midnight of one day and ending the following midnight, or an alternative 24-hour period approved by the Department, during which time an installation is operating, consuming fuel, or causing emissions.

(3) "Ozone season" means the period beginning May 1 of any given year and ending September 30 of the same year.

(4) System.

(a) "System" means all affected electric generating units within the State of Maryland subject to this chapter that are owned, operated, or controlled by the same person and are located:

(i) In the same ozone nonattainment area as specified in 40 CFR Part 81; or

(ii) Outside any designated ozone nonattainment area as specified in 40 CFR 81.

(b) A system must include at least two affected electric generating units.

(5) “30-day rolling average emission rate” means a value in lbs/MMBtu calculated by:

(a) Summing the total pounds of pollutant emitted from the unit during the current operating day and the previous twenty-nine operating days;

(b) Summing the total heat input to the unit in MMBtu during the current operating day and the previous twenty-nine operating days; and

(c) Dividing the total number of pounds of pollutant emitted during the thirty operating days by the total heat input during the thirty operating days.

(6) “24-hour block average emission rate” means a value in lbs/MMBtu calculated by:

(a) Summing the total pounds of pollutant emitted from the unit during 24 hours between midnight of one day and ending the following midnight;

(b) Summing the total heat input to the unit in MMBtu during 24 hours between midnight of one day and ending the following midnight; and

(c) Dividing the total number of pounds of pollutant emitted during 24 hours between midnight of one day and ending the following midnight by the total heat input during 24 hours between midnight of one day and ending the following midnight.

.02 Applicability.

The provisions of this chapter apply to an affected electric generating unit as that term is defined in §.01B of this chapter.

.03 2015 NO_x Emission Control Requirements.

A. Daily NOx Reduction Requirements During the Ozone Season.

(1) Not later than 45 days after the effective date of this regulation, the owner or operator of an affected electric generating unit shall submit a plan to the Department for approval that demonstrates how each affected electric generating unit will operate installed pollution control technology and combustion controls to meet the requirements of §A(2) of this regulation. The plan shall summarize the data that will be collected to demonstrate compliance with §A(2).

(2) Beginning on May 1, 2015, for each operating day during the ozone season, the owner or operator of an affected electric generating unit shall minimize NOx emissions by operating and optimizing the use of all installed

pollution control technology and combustion controls consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the unit at all times the unit is in operation while burning any coal.

B. Ozone Season NOx Reduction Requirements.

(1) The owner or operator of an affected electric generating unit shall not exceed a system-wide NO_x emission rate of 0.15 lbs/MMBtu as a 30-day rolling average during the ozone season.

(2) The owner or operator of an affected electric generating unit subject to the provisions of this regulation shall continue to meet the ozone season NOx reduction requirements in COMAR 26.11.27.

C. Annual NOx Reduction Requirements. The owner or operator of an affected electric generating unit subject to the provisions of this regulation shall continue to meet the annual NOx reduction requirements in COMAR 26.11.27.

D. NOx Emission Requirements for Affected Electric Generating Units Equipped with Fluidized Bed Combustors.

(1) The owner or operator of an affected electric generating unit equipped with a fluidized bed combustor is not subject to the requirements of §§A and B(1) of this regulation.

(2) The owner or operator of an affected electric generating unit equipped with a fluidized bed combustor shall not exceed a NO_x emission rate of 0.10 lbs/MMBtu as a 24-hour block average.

.04 Additional NO_x Emission Control Requirements Beginning May 31, 2015 and April 1, 2018.

A. This regulation applies to C.P. Crane units 1 and 2, Chalk Point unit 2, Dickerson units 1, 2, and 3 and H.A. Wagner unit 2.

B. Notification to the Department. Not later than May 31, 2015, the owner or operator of the affected electric generating units subject to this regulation shall notify the Department as to which compliance option as specified in §C of this regulation shall be selected by the owner or operator of the affected electric generating unit to comply with this regulation.

C. General Requirements. The owner or operator of the affected electric generating units subject to this regulation shall choose from the following:

(1) Not later than June 1, 2018:

(a) Install and operate a selective catalytic reduction (SCR) control system; and

(b) Meet a NOx emission rate of 0.07 lbs/MMBtu, as determined on a 30-day rolling average during the ozone season;

(2) Not later than June 1, 2018, permanently retire the unit;

(3) Not later than June 1, 2018, switch fuel from coal to natural gas for the unit; or

(4) Not later than April 1, 2016, meet a system-wide NOx emission rate during the ozone season or system-wide daily NOx tonnage cap during the ozone season calculated by assuming SCR controls at C.P. Crane units 1 and 2, Chalk Point unit 2, Dickerson units 1, 2, and 3 and H.A. Wagner unit 2 operated in a manner consistent with the requirements in §§.03A(2) and .04C(1)(b) and actual operations after 2007.

D. Where the compliance option of §C(4) is selected, the owner or operator of an affected electric generating unit shall submit no later than May 31, 2015, an alternative emission reduction plan for approval by the Department that ensures compliance with the applicable limit of §C(4). Upon approval by the Department, the provisions of the alternative emission reduction plan shall be enforceable and shall be incorporated into the owner's permit to operate.

E. For affected electric generating units following compliance option §C(4) of this regulation, a new alternative emissions reduction plan shall be submitted to the Department for approval no later than thirty days should a unit that is part of the system-wide plan retire, transfer ownership, or otherwise be removed from the system.

.05 Compliance Demonstration Requirements.

A. Procedures for demonstrating compliance with §.03(A) of this chapter.

(1) An affected electric generating unit shall demonstrate, to the Department's satisfaction, compliance with §.03(A)(2) of this chapter, using the information collected and maintained in accordance with §.03(A)(1) of this chapter and any additional documentation available to and maintained by the affected electric generating unit.

(2) An affected electric generating unit shall not be required to submit a unit-specific report consistent with §A(3) of this regulation, or any other information unless otherwise requested by the Department, where the unit emits at levels that are at or below the following rates:

Affected Unit	24-Hour Block Average NOx Emissions in lbs/MMBtu
Brandon Shores	
Unit 1	0.08

Unit 2	0.08
C.P. Crane	
Unit 1	0.30
Unit 2	0.28
Chalk Point	
Unit 1 only	0.07
Unit 2 only	0.30
Units 1 and 2 combined	0.18
Dickerson	
Unit 1 only	0.24
Unit 2 only	0.24
Unit 3 only	0.24
Two or more Units combined	0.24
H.A. Wagner	
Unit 2	0.25
Unit 3	0.07
Morgantown	
Unit 1	0.07
Unit 2	0.07

(3) The owner or operator of an affected electric generating unit subject to §.03(A)(2) of this chapter shall submit a unit-specific report for each day the unit exceeds its NOx emission rate of §A(2) of this regulation, which shall include the following information for the entire operating day:

(a) Hours of operation for the unit;
(b) Hourly averages of operating temperature of installed pollution control technology;
(c) Hourly averages of heat input (MMBtu/hr);
(d) Hourly averages of output (MWh);
(e) Hourly averages of Ammonia or urea flow rates;
(f) Hourly averages of NOx emissions data (lbs/MMBtu and ppm);
(g) Malfunction data;
(h) The technical and operational reason the rate was exceeded, such as:
(i) operator error;
(ii) technical events beyond the control of the owner or operator (e.g. acts of God, malfunctions); or
(iii) dispatch requirements that mandate unplanned operation (e.g. start-ups and shut-downs, idling and operation at low voltage or low capacity);
(i) A written narrative describing any actions taken to reduce emission rates; and
(j) Other information that the Department determines is necessary to evaluate the data or to ensure that compliance is achieved.

(4) An exceedance of the emissions rate of §A(2) of this regulation which is determined by the Department to be beyond the control of the owner or operator, or to have otherwise occurred during operations which are deemed consistent with the unit's technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions, shall not be considered a violation of §.03A(2) of this chapter.

B. Procedures for demonstrating compliance with NOx emission rates of this chapter.

(1) Compliance with the NOx emission rate limitations in §§.03B(1), .03D(2), .04C(1) and .04C(4) shall be demonstrated with a continuous emission monitoring system that is installed, operated, and certified in accordance with 40 CFR Part 75.

(2) In order to calculate the 30-day rolling average emission rates of this chapter, beginning May 1, 2015 and for each subsequent May 1 of following years, data from the previous twenty-nine operating days of the preceding September shall be used.

.06 Reporting Requirements.

A. Reporting Schedule.

(1) Beginning 30 days after the first month after the effective date of this regulation, each affected electric generating unit subject to the requirements of this chapter shall submit a monthly report to the Department detailing the status of compliance with this regulation during the ozone season.

(2) Each subsequent monthly report shall be submitted to the Department not later than 30 days following the end of the calendar month during the ozone season.

B. Monthly Reports During Ozone Season. Monthly reports during the ozone season shall include:

(1) Daily pass or fail of the NOx emission rates of §.05A(2).

(2) The 30-day rolling system-wide average emission rate for each affected electric generating unit to demonstrate compliance with §.03B(1).

(3) Beginning April 1, 2018, the daily 30-day rolling average heat input calculated in lbs/MMBtu to demonstrate compliance with the requirements of Regulation .04C(1)(b) of this chapter.

(4) For an affected electric generating unit which has selected the compliance option of §.04C(4), beginning April 1, 2016 a monthly report shall also include:

(a) For affected electric generating units following the compliance option of a system-wide NOx emission rate during the ozone season , the report shall also include data, information, and calculations which demonstrate that the unit meets the NOx emission rate of 0.07 lbs/MMBtu, on a 30-day rolling average during the ozone season; or

(b) For affected electric generating units following the compliance option of a system-wide daily NOx tonnage cap during the ozone season, the report shall also include data, information, and calculations which demonstrate that the actual system-wide daily NOx emissions in tons are less than or equal to the emissions calculated by assuming SCR controls at the system's units operated in a manner consistent with the requirements in §§.03A(2) and .04C(1)(b) and actual operations after 2007.

END NEW MATTER