Department of the Environment

TECHNICAL SUPPORT DOCUMENT

FOR

COMAR 26.11.01.01 and .10 - Continuous Opacity Monitoring Requirements and COMAR 26.11.08 – Control of Incinerators

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I. Purpose of Regulatory Action

The primary purpose of these amendments is to:

1. Clarify requirements for incinerators and Portland cement plants that demonstrate compliance with visible emissions (VE) standards through use of continuous opacity monitors (COMs);

2. Delete the applicability of the Department's Technical Memorandum 90-01 (TM) for incinerators equipped with COMs;

3. Exempt incinerators that are 1) owned or operated by a government entity and 2) used solely to destroy illegal or prohibited goods from COMAR 26.11.08 requirements.

II. Facts for Proposal

A. Background

Compliance Clarification for Sources Required to Operate COMs

In 1991, the Department adopted regulations that required certain major sources to install and operate COMs and to demonstrate compliance with opacity standards using COM data. At that time, the Department also adopted its TM that provided the methods to be used to demonstrate compliance with VE requirements using COM data. For COMs, compliance was based on achieving the applicable VE standard for a certain percentage of the source's operating time.

Through these amendments the Department will eliminate the use of the TM for COMs and develop specific requirements to replace the TM. Part II of the TM contained QA/QC procedures for COMs that has been codified in COMAR 26.11.31.

During the past several years, the EPA has adopted numerous requirements for incinerators under Clean Air Act Section 111(d). Nearly all incinerators in Maryland are subject to regulations that are based on Section 111(d) requirements. Most incinerators subject to these federal requirements are subject to 10 percent opacity. These regulations are more restrictive than the 20 percent opacity requirement contained in COMAR 26.11.08.04A(1) that applies to incinerators in the rural areas of the State. Therefore, those rural incinerators are subject to a 10 percent opacity standard when operating a COM. Under EPA Method 9 observations, the visible emission exceptions of COMAR 26.11.08.04C apply. For incinerators that are required to install and operate a COM, visible emissions may not exceed 10 percent opacity. Sources may request an alternate opacity limit for specific operating conditions based on technological limitations which will be subject to approval by MDE and EPA.

Portland cement plants located in urban areas of Maryland are subject to a 10 percent opacity standard, whereas rural cement plants are subject to a 20 percent opacity standard as specified in COMAR 26.11.30.05. Under EPA Method 9 observations, the visible emissions standards in COMAR 26.11.30.05B(1) and (2) do not apply to emissions as specified in COMAR 26.11.06.02A(2). For cement kilns that are required to install and operate a COM, visible emissions may not exceed the applicable standards as specified in COMAR 26.11.30.05B(1) and (2). Sources may request an alternate opacity limit for specific operating conditions based on technological limitations which will be subject to approval by MDE and EPA. Under COMAR 26.11.30.05, cement kilns or clinker coolers may either operate COMs or PM CPMS (particulate matter continuous parameter monitoring systems).

Incinerator Exemption

A number of law enforcement agencies, military installations and other government entities are using modified 55-gallon drums to destroy illegal drugs and trash from international flights that might cause biocontamination. The drums, commonly called cyclonic burn barrels, are equipped with fans, lids and other accessories that, when taken altogether, make these drums fit the definition of an incinerator. The Department is taking action to exempt these drums from the incinerator requirements as the federal government has also done.

Under federal New Source Performance Standards (NSPS) (40 CFR Part 60, Subpart EEEE), an incinerator unit that is owned or operated by a government agency that combusts contraband or prohibited goods is exempt from the federal requirements. The Department is incorporating this provision into the definition of incinerator so that Maryland regulations do not conflict with the federal exemption.

B. Sources Affected and Location

The amendments will affect four existing municipal waste combustors (MWCs). One MWC is located in Baltimore City, one in Frederick County, one in Harford County and one in Montgomery County.

The amendments will also affect two existing Portland cement manufacturing plants in Maryland.

C. Requirements

Amendments to COMAR 26.11.01.10 clarify requirements for incinerators and Portland cement plants that demonstrate compliance with visible emissions (VE) standards through use of continuous opacity monitors (COMs). The amendments reference appropriate regulations where VE standards are contained, establish compliance criteria for these sources, and specify use of the QA/QC procedures in COMAR 26.11.31.

MWCs located in the Baltimore/Washington areas are subject to the no visible emissions requirement contained in COMAR 26.11.08.04A(2). In these areas, compliance with the no VE requirement is demonstrated with a COM if VE are less than 10 percent opacity.

Regulation 26.11.08.04 Visible Emissions now includes requirements for incinerators equipped with COMs.

Regulation 26.11.08.07 is approved as part of Maryland's Section 111(d) Plan and is amended to clarify that the regulation applies to small MWCs.

Regulation 26.11.08.08 is approved as part of Maryland's Section111(d) Plan for large MWCs. The amendments remove the applicability of TM 90-01 and add the requirement that the QA/QC will be as in new COMAR 26.11.31.

D. Comparison to Federal Standards

All existing affected sources are subject to specific federal emission standards set forth under the federal NSPS or Clean Air Act Section 111(d). New incinerators are subject to federal NSPS found at 40 CFR Part 60. For cement plants, new particulate and monitoring procedures are contained in EPA's 2013 National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Portland Cement Manufacturing Industry.

E. Expected Emissions Reductions

These amendments clarify and streamline the regulations and are unlikely to produce emission reductions. The action establishes revised compliance procedures relating to sources that are required to operate continuous opacity monitors under COMAR 26.11.01.10 - Continuous Opacity Monitoring Requirements.

F. Estimate of Economic Impact

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

The proposed action has no economic impact.

Affected incinerators and cement plants are currently required to install and operate a COM and required to assure that valid COM data is generated. Each of the affected sources currently submit quarterly reports summarizing visible emissions exceedances. There is no impact on affected sources as a result of these amendments.

The Department's inspectors currently review COM data and conduct periodic inspections of each facility. There will be no additional impact on the Department as a result of these amendments.

II. Economic Impact on Small Businesses

The MWC located in Harford County is classified as a small business. However, the proposed action has no economic impact. Affected incinerators are currently required to install and operate a COM and required to assure that valid COM data is generated. Each of the affected sources currently submit quarterly reports summarizing visible emissions exceedances. There is no impact on affected sources as a result of these amendments.

III. Proposed Regulation

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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

.01 Definitions.

A. (text unchanged)

B. Terms Defined.

(1) — (8) (text unchanged)

(8-1) Continuous Burning.

(a) "Continuous burning" means the continuous, semi-continuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production.

(b) "Continuous burning" does not include the period when municipal solid waste is solely used to provide thermal protection of the grate or hearth.

(9) — (27) (text unchanged)

(27-1) Operating Time.

(a) "Operating time" means, for the purpose of determining compliance or non-compliance with COM requirements of this chapter for cement kilns, the actual time in hours that an affected unit operates, beginning when the raw feed is being continuously introduced into the kiln for at least 120 minutes or when the raw feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first, and ending when the introduction of raw feed to the kiln is halted.

(b) "Operating time" means, for the purpose of determining compliance or non-compliance with COM requirements of this chapter for municipal waste combustors, the actual time in hours that an affected unit operates, beginning when continuous burning of solid waste starts and ending when continuous burning of solid waste ceases.

(28) — (53) (text unchanged)

.10 Continuous Opacity Monitoring Requirements.

A. (1) — (5) (text unchanged)

(6) Sources can request for approval by the Department and EPA an alternate limit for specific operating conditions in which the technological limitations of the control equipment adversely affects the ability of the source to comply with visible emissions limits by following the recommendations at 80 FR 33980. The alternate limit will be submitted to EPA as a SIP revision and included in 40 CFR Part 52 Subpart V 52.1070(d) for Maryland Source Specific SIP revisions.

B. General Requirements for COMs.

(1) — (2) (text unchanged)

(3) A COM shall comply with the applicable requirements in 40 CFR Part 51, Appendix P, **[**Sections 3.3—3.9, **]**as amended, which is incorporated by reference.

(4) (text unchanged)

(5)The owner or operator of a cement kiln or clinker cooler that is operating a COM is subject to the following requirements:

(a) The owner or operator of a cement kiln or clinker cooler may not cause or permit the discharge of emissions which exceed the visibility standards in COMAR 26.11.30.05B.

(b) The visibility standards in COMAR 26.11.30.05B(1) and (2) do not apply to emissions as specified in COMAR 26.11.06.02A(2) during EPA reference Method 9 observations.

(c) For the purpose of demonstrating compliance with COMAR 26.11.30.05B(2) when using a COM, emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity.

(d) For the owner or operator of a cement kiln or clinker cooler that is operating a COM, compliance with visible emission standards is achieved if visible emissions do not exceed the applicable visible emission limitations in 26.11.30.05B(1) or (2) as applicable.

(e) Notwithstanding the requirements in §B(5)(a)-(d) of this regulation, the Department may determine compliance and non-compliance with the visible emission limitations by performing EPA reference Method 9 observations.

(f) The owner or operator of a cement kiln or clinker cooler that is operating a COM shall meet the quality assurance requirements under COMAR 26.11.31.

(6)The owner or operator of a municipal waste combustor that is required to install and operate a COM is subject to the following requirements:

(a) The owner or operator of a municipal waste combustor may not cause or permit the discharge of emissions which exceed the visibility standards in COMAR 26.11.08.04 as determined by EPA reference Method 9 observations.

(b) For the purpose of demonstrating compliance with COMAR 26.11.08.04 when using a COM, emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity.

(c) For the owner or operator of a municipal waste combustor that is required to install and operate a COM, compliance with visible emission standards is achieved if visible emissions do not exceed 10 percent opacity.

(d) Notwithstanding the requirements in §B(6)(a)-(c) of this regulation, the Department may determine compliance and non-compliance with the visible emission limitations by performing EPA reference Method 9 observations.

(e) The owner or operator of a municipal waste combustor that is operating a COM shall meet the quality assurance requirements under COMAR 26.11.31.

C. —— E. (text unchanged)

[F. Fuel burning equipment subject to the COM requirements in COMAR 26.11.09.05 and cement kilns subject to the COM requirements in COMAR 26.11.30 are subject to the COM requirements contained in COMAR 26.11.31.**]**

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Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 08 Control of Incinerators

Authority: Environment Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 2-406, 10-102, and 10-103, Annotated Code of Maryland

.01 Definitions.

A. (text unchanged)

B. Terms Defined.

(1) — (19) (text unchanged)

(20) Incinerator.

(a) (text unchanged)

(b) (text unchanged)

(c) "Incinerator" does not mean any unit owned or operated by a government agency to destroy illegal or prohibited goods. The exclusion does not apply to items either confiscated or incinerated by private, industrial, or commercial entities.

(21) — (61) (text unchanged)

.02 — .03 (text unchanged)

.04 Visible Emissions.

A. — C. (text unchanged)

D. The owner or operator of a municipal waste combustor that is required to install and operate a COM is subject to the requirements in COMAR 26.11.01.10.

.05 — .06 (text unchanged)

.07 Requirements for [Certain] Municipal Waste Combustors *with a Capacity of 35 tons or greater per day and less than or equal to 250 Tons Per Day.*

(text unchanged)

.08 Requirements for an Existing Large MWC with a Capacity Greater Than 250 Tons Per Day.

A. Emission Standards and General Requirements.
(1) (text unchanged)
(2) Emission Standards and General Requirements.

Pollutant or Parameter	Emission Standards for a Large MWC	Performance and Compliance Test Requirements
Carbon Monoxide*	(text unchanged)	(text unchanged)
Dioxin/Furans*	(text unchanged)	(text unchanged)
Particulate Matter*	(text unchanged)	(text unchanged)
Opacity	10 percent opacity with [CEMS] *COMs*. Averaging time is 6 minutes.	EPA Reference Method 9 and **[**CEMS**]** *COMS*. Applicable test procedures and methods as specified in 40 CFR §60.58b(c). Quality assurance and quality control requirements are as in [Technical Memorandum 90-01**]** *COMAR 26.11.31*. [In case of inconsistencies in data or conflicting data Method 9 results will determine compliance.] *Notwithstanding the requirements in COMAR 26.11.01.10B(6)(a)-(c), the Department may determine compliance and non-compliance with the visible emission limitations by performing EPA reference Method 9 observations based on a 6 minute block average.*
Cd (Cadmium)*	(text unchanged)	(text unchanged)
Pb(Lead)*	(text unchanged)	(text unchanged)
Hg (Mercury)*	(text unchanged)	(text unchanged)
SO_2 (Sulfur Dioxide)*	(text unchanged)	(text unchanged)
HCl (Hydrogen Chloride)*	(text unchanged)	(text unchanged)
NO_x (Oxides of Nitrogen)*	(text unchanged)	(text unchanged)
Load	(text unchanged)	(text unchanged)
Temperature	(text unchanged)	(text unchanged)
Fugitive Ash Emissions	(text unchanged)	(text unchanged)

* Corrected to 7 percent oxygen on dry basis. If a CO_2 monitor is selected as the dilutent monitor it must meet the requirements of 40CFR §60.58b(b)(6).

(3) (text unchanged)

B. Monitoring Requirements.
(1) A person who owns or operates an existing MWC subject to this regulation shall:
(a) Install, calibrate, operate, and maintain continuous **[**emission**]** monitors for carbon monoxide, oxygen, opacity, oxides of nitrogen, and sulfur dioxide;
(b)—(d) (text unchanged)
(2) (text unchanged)

(3) The monitors required by §B(1)(a) and (b) of this regulation shall meet the installation, certification, reporting, record-keeping, and other requirements of COMAR 26.11.01.10, *and COMAR 26.11.01.11,* performance specifications in 40 CFR Part 60, Appendix B, the quality assurance procedures in 40 CFR Part 60, Appendix F, all requirements in 40 CFR §60.58b, *COMAR 26.11.31* **[**, and the specification in the Department's Air and Radiation Management Administration Technical Memorandum 90-01, "Continuous Emission Monitoring (CEM) Policies and Procedures", which is incorporated by reference in COMAR 26.11.01.10E**]**.

(4) (text unchanged)

C. Reporting and Record-Keeping Requirements.

(1) (text unchanged)

(2) Continuous **[**emissions**]** monitoring data reduction and data availability shall be as prescribed in COMAR 26.11.01.10 *and COMAR 26.11.01.11*. If there is any inconsistency between COMAR 26.11.01.10 *and COMAR 26.11.01.11* and 40 CFR 60, the **[**requirement**]** *requirements* of 40 CFR 60 govern.

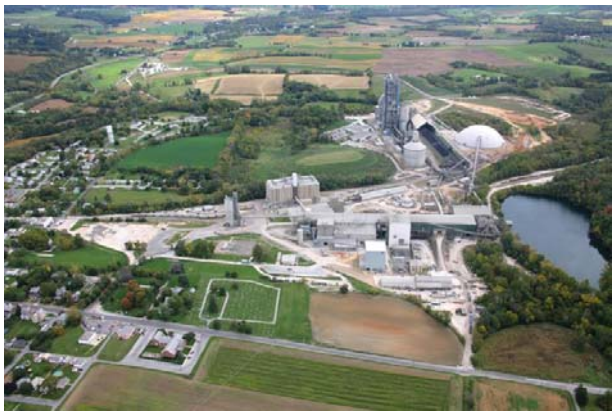
D. (text unchanged)

.08-1 — .09 (text unchanged)

IV. Maryland Portland Cement Manufacturing Plants and Incinerators

A. Cement Plants

Lehigh Cement Company, LLC



Plant profile: Lehigh Cement Company, LLC owns and operates a Portland cement manufacturing plant in Union Bridge, MD. The plant is located in both Carroll and Frederick Counties. The original plant was built in 1910. The plant was purchased by Lehigh Cement Company, a division of the Heidelberg Cement Group, in 1925 and has undergone a series of modernizations and expansions, including replacing four existing long-dry kilns with one pre-heater/pre-calciner kiln system in 2001. As of 2013, the plant was producing up to 2.3 million tons cement per year. The newest plant, modernized as a pre-calciner kiln, began production in 2001 and to date, remains the largest cement production facility in North America, incorporating some of the most modern pollution control technology available today.

Lehigh is a major source of criteria air pollutants and therefore is required to have a Part 70 (Title V) Operating Permit. The plant's total annual NOx and Particulate Matter emissions for the years 2011 through 2013 are listed below:

Year	NOx emissions (tons)	$PM_{2.5}$ emissions (tons)	PM_{10} emissions (tons)
2011	2,623	73	113
2012	2,888	77	127
2013	3,067	77	129

Holcim Cement Plant

Plant profile: Holcim Cement Plant is a Delaware corporation located in Hagerstown, Washington County, Maryland. The Hagerstown facility consists of two components, the Portland cement manufacturing plant and the quarry adjacent to the plant. The site quarries limestone, operates a limestone crushing plant, a raw mill system, a cement kiln/clinker cooler system, a finish mill system, and a packaging and shipping operation. Although cement production at this location dates back to 1903, the current long dry kiln has been in operation since 1971. The maximum annual clinker production from the kiln is 693,500 tons.

As part of a federal action, the Portland cement plant in Washington County will be upgrading the kiln to a pre-heater/pre-calciner kiln by September 6, 2016. The kiln will then be required to meet a year round NOx limit of 1.8 lbs NOx/ton of clinker on a 30-day rolling average. The 1.8 lbs NOx/ton per ton of clinker is lower than the 2.4 lbs NOx/ton of clinker in these regulations so the regulations do not have an economic impact on the Washington County facility.

Holcim is a major source of criteria air pollutants and therefore is required to have a Part 70 (Title V) Operating Permit. The plant's total annual NOx and Particulate Matter emissions for the years 2011 through 2013 are listed below:

Year	NOx emissions (tons)	$PM_{2.5}$ emissions (tons)	PM_{10} emissions (tons)
2011	1,614	138	211
2012	983	147	227
2013	1,046	147	226

B. Incinerator Plants

Covanta Montgomery

Plant profile: The Montgomery County Resource Recovery Facility (MCRRF) is operated by Covanta Montgomery, Inc. on behalf of the Northeast Maryland Waste Disposal Authority. The facility is located in Dickerson, Montgomery County, Maryland and started operation in May 1995. The MCRRF consists of three independent combustion trains and has a nominal design capacity of 1,800 tons per day (TPD) at 5,500 Btu/lb heating value of refuse. The thermal output from the facility is used to generate 63 megawatts MW of electricity. The plant uses approximately 7 to 8 MW per hour of electricity.

The emission controls consist of an ammonia injection system for control of NOx, a dry scrubber for primary acid gas control and an activated carbon injection system for mercury control in series with a baghouse for removal of particulate matter. Each unit has a furnace dry lime injection system that is capable of feeding hydrated lime directly into the combustion zone for additional acid gas control on an as needed basis.

MCRRF is a major source of criteria air pollutants and therefore is required to have a Part 70 (Title V) Operating Permit. The plant's total annual NOx and Particulate Matter emissions for the years 2011 through 2013 are listed below:

Year	NOx emissions (tons)	$PM_{2.5}$ emissions (tons)	PM_{10} emissions (tons)
2011	512	0	9
2012	479	0	0.1
2013	388	0	4

Fort Detrick

Plant profile: Fort Detrick's Solid Waste Management Plant, located along the fence line behind the National Cancer Institute-Frederick campus in Frederick County, houses four incinerators used to burn the waste from the Army's and NCI-Frederick's medical research laboratories. Two of the incinerators are dedicated to medical solid waste and two are for municipal waste. The medical solid waste incinerators, built in 1996, are rated for 2,000 pounds of waste per hour and are in the same building as the MSW incinerators, which were built in 1975.

Gas produce enter a scrubber system which cleans the exhaust air before discharging it into the atmosphere. The incinerator ash generated from the waste is buried in Fort Detrick's permitted landfill constructed with impenetrable liners and a drainage system to ensure liquids do not leak into the surrounding groundwater.

Fort Detrick is a major source of criteria air pollutants and therefore is required to have a Part 70 (Title V) Operating Permit. The plant's total annual NOx and Particulate Matter emissions for the years 2011 through 2013 are listed below:

Year	NOx emissions (tons)	$PM_{2.5}$ emissions (tons)	PM_{10} emissions (tons)
2011	29	3	6
2012	43	1	3
2013	21	29	30

Harford County Resource Recovery Facility - Harford Waste-to-Energy Facility (HWTEF)

Plant profile: The Harford County Resource Recovery Facility, also known as the Harford Waste-to-Energy Facility (HWTEF), was developed for Harford County by the Northeast Maryland Waste Disposal Authority (the Authority) and began operations in 1988. HWTEF is situated immediately outside of the Magnolia Road Gate, at the southern entrance of the Edgewood Area. The facility is owned by the Authority on behalf of Harford County and operated by Energy Recovery Operations, Inc. (EROI). The facility features four modular two-stage combustors, three boilers and one turbine generator set. The installed capacities are 360 STPD7 for MSW incineration, 165,000 lb/hr of steam recovery and 1.2 MW of power generation.

Primary pollution control equipment includes: starved air secondary combustion chambers on each combustor unit for the control of carbon monoxide emissions, and a shared pollution control system consisting of a lime spray dryer scrubber for the control of acid gases, an activated carbon injection system for the control of mercury and dioxin/furan emissions, and a baghouse for the control of particulate matter emissions.

HWTEF is a major source of criteria air pollutants and therefore is required to have a Part 70 (Title V) Operating Permit. The plant's total annual NOx and Particulate Matter emissions for the years 2011 through 2013 are listed below:

Year	NOx emissions (tons)	$PM_{2.5}$ emissions (tons)	PM_{10} emissions (tons)
2011	247	2	2
2012	280	6	6
2013	275	2	2

Wheelabrator

Plant profile: The Wheelabrator Baltimore, L.P., formerly known as Baltimore RESCO Company, L.P., is located in Baltimore and was built in 1985. It operates three large mass burn waterwall MWCs, each rated at 750 tons per day (TPD) and yielding a facility wide capacity of 2,250 TPD. The steam that is generated by the MWC's is either sold to a steam distribution system or used to produce electricity via an on-site steam turbine.

Each MWC is equipped with a urea injection selective non-catalytic reduction system to control NOx emissions; a "slaked lime" spray dryer absorber system to control acid gas emissions; an activated carbon injection system for mercury and dioxin/furan removal; and a four field electrostatic precipitator to remove particulate matter and metals from the exhaust stream. Three wet scrubbers are also used to control particulate matter from the ash handling areas. Continuous monitors are required for carbon monoxide, oxygen, opacity, oxides of nitrogen, and sulfur dioxide. The facility has pounds per hour and tons/year emission limits for carbon monoxide, oxides of nitrogen, sulfur dioxide and fluorides.

Wheelabrator is a major source of criteria air pollutants and therefore is required to have a Part 70 (Title V) Operating Permit. The plant's total annual NOx and Particulate Matter emissions for the years 2011 through 2013 are listed below:

Year	NOx emissions (tons)	$PM_{2.5}$ emissions (tons)	PM_{10} emissions (tons)
2011	1133	0	10
2012	1012	0	4
2013	1067	0	16