

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF)	
)	
RAVEN POWER FORT SMALL-)	
WOOD, LLC,)	
FORT SMALLWOOD COMPLEX,)	PETITION NUMBER 111-2017-3
ANNE ARUNDEL COUNTY,)	
MARYLAND)	
)	
PERMIT No. 24-003-0468)	ORDER RESPONDING TO THE
)	PETITIONERS' REQUEST THAT THE
ISSUED BY THE MARYLAND)	ADMINISTRATOR OBJECT TO
DEPARTMENT OF ENVIRONMENT)	ISSUANCE OF STATE OPERATING
)	PERMIT
)	

ORDER DENYING PETITION FOR OBJECTION TO PERMIT

I. INTRODUCTION

The U.S. Environmental Protection Agency (EPA) received a petition dated February 3, 2017, (Petition) from Chesapeake Climate Action Network, Sierra Club, Environmental Integrity Project, and Physicians for Social Responsibility, Chesapeake, Inc. (collectively, the Petitioners), pursuant to section 505(b)(2) of the Clean Air Act (CAA or Act), 42 U.S.C. § 7661d(b)(2). The Petitioners request that the EPA object to the proposed operating permit no. 24-003-0468 (the Proposed Permit or Permit) issued by the Maryland Department of the Environment (MDE) to Raven Power Fort Smallwood, LLC (Raven) for the operation of the Fort Smallwood Complex (Fort Smallwood or the Complex), in Anne Arundel County, Maryland. Fort Smallwood contains two separate electrical generation stations, the Brandon Shores plant and the Wagner plant, which collectively fire coal, natural gas, and oil. The operating permit was proposed pursuant to title V of the CAA, CAA §§501-57, 42 U.S.C. §§7661-7661f, and the Code of Maryland Regulations (COMAR) at 26.11.03.01 *et. seq.* See also 40 C.F.R. part 70 (title V implementing regulations). This type of operating permit is also referred to as a title V permit or part 70 permit.

For the reasons explained below, based on a review of the Petition and other relevant materials, including the Proposed Permit, the permit record, and relevant statutory and regulatory authorities, the EPA denies the Petition.

II. STATUTORY AND REGULATORY FRAMEWORK

A. Title V Permits

Section 502(d)(1) of the CAA, 42 U.S.C. § 7661a(d)(1), requires each state to develop and submit to the EPA an operating permit program to meet the requirements of title V of the CAA and the EPA's implementing regulations at 40 C.F.R. part 70. The EPA published a final rule on January 15, 2003, granting full approval to the state of Maryland for its title V (part 70) operating permit program. 68 Fed. Reg. 1974. This program is codified in the COMAR 26.11.03.00, *et seq.*

All major stationary sources of air pollution and certain other sources are required to apply for title V operating permits that include emission limitations and other conditions as necessary to assure compliance with applicable requirements of the CAA, including the requirements of the applicable implementation plan. CAA §§ 502(a) and 504(a), 42 U.S.C. §§ 7661a(a) and 7661c(a). The title V operating permit program generally does not impose new substantive air quality control requirements, but does require permits to contain adequate monitoring, recordkeeping, reporting, and other requirements to assure sources' compliance with applicable requirements. 57 Fed. Reg. 32250, 32251 (July 21, 1992); *see* CAA § 504(c), 42 U.S.C. § 7661c(c). One purpose of the title V program is to "enable the source, States, the EPA, and the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements." 57 Fed. Reg. 32251. Thus, the title V operating permit program is a vehicle for ensuring that air quality control requirements are appropriately applied to facility emission units and for assuring compliance with such requirements.

B. Review of Issues in a Petition

State and local permitting authorities issue title V permits pursuant to EPA-approved title V programs. Under CAA § 505(a), 42 U.S.C. § 7661d(a), and the relevant implementing regulations found at 40 C.F.R. § 70.8(a), states are required to submit each proposed title V operating permit to the EPA for review. Upon receipt of a proposed permit, the EPA has 45 days to object to final issuance of the permit if the EPA determines that the permit is not in compliance with applicable requirements of the Act. CAA § 505(b)(1), 42 U.S.C. § 7661d(b)(1); *see also* 40 C.F.R. § 70.8(c). If the EPA does not object to a permit on its own initiative, any person may petition the Administrator, within 60 days of the expiration of the EPA's 45-day review period, to object to the permit. CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d).

The petition shall be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided by the permitting authority (unless the petitioner demonstrates in the petition to the Administrator that it was impracticable to raise such objections within such period or unless the grounds for such objection arose after such period). CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d). In response to such a petition, the Act requires the Administrator to issue an objection if a petitioner demonstrates to the Administrator that a permit is not in

compliance with the requirements of the Act. CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(c)(1).¹ Under § 505(b)(2) of the Act, the burden is on the petitioner to make the required demonstration to the EPA.²

The petitioner's demonstration burden is a critical component of CAA § 505(b)(2). As courts have recognized, CAA § 505(b)(2) requires that the Administrator (i) determine whether a petition “demonstrates” that a permit is not in compliance with the requirements of the Act, which the courts describe as a “discretionary duty”; and (ii) object when such a demonstration is made, which the courts describe as a nondiscretionary duty. *Sierra Club v. Johnson*, 541 F.3d at 1265-66 (“[I]t is undeniable that CAA § 505(b)(2) also contains a discretionary component: it requires the Administrator to make a judgment of whether a petition demonstrates a permit does not comply with clean air requirements.”); *NYPIRG*, 321 F.3d at 333. Courts have also made clear that the Administrator is obligated to grant a petition to object under CAA § 505(b)(2) only if the Administrator determines that the petitioner has demonstrated that the permit is not in compliance with requirements of the Act. *Citizens Against Ruining the Environment*, 535 F.3d at 677 (stating that § 505(b)(2) “clearly obligates the Administrator to (1) determine whether the petition demonstrates noncompliance and (2) object if such a demonstration is made” (emphasis added)).³ When courts have reviewed the EPA's interpretation of the ambiguous term “demonstrates” and its determination as to whether the demonstration has been made, they have applied a deferential standard of review. *See. e.g., MacClarence*, 596 F.3d at 1130-31.⁴ Certain aspects of the petitioner's demonstration burden are discussed below; however, a more detailed discussion can be found in *In the Matter of Consolidated Environmental Management, Inc., Nucor Steel Louisiana*, Order on Petition Nos. VI-2011-06 and VI-2012-07 at 4-7 (June 19, 2013) (*Nucor II Order*).

The EPA has looked at a number of criteria in determining whether a petitioner has demonstrated noncompliance with the Act. *See generally Nucor II Order* at 7. For example, one such criterion is whether the petitioner has addressed the state or local permitting authority's decision and reasoning. The EPA expects the petitioner to address the permitting authority's final decision, and the permitting authority's final reasoning - including the Response to Comments (RTC) where these documents were available during the timeframe for filing the petition. *See MacClarence*, 596 F.3d at 1132- 33.⁵

¹ *See also New York Public Interest Research Group, Inc. v. Whitman*, 321 F.3d 316, 333 n.11 (2nd Cir. 2003) (*NYPIRG*).

² *WildEarth Guardians v. EPA*, 728 F.3d 1075, 1081-82 (10th Cir. 2013); *MacClarence v. EPA*, 596 F.3d 1123, 1130-33 (9th Cir. 2010); *Sierra Club v. EPA*, 557 F.3d 401, 406 (6th Cir. 2009); *Sierra Club v. Johnson*, 541 F.3d 1257, 1266-67 (11th Cir. 2008); *Citizens Against Ruining the Environment v. EPA*, 535 F.3d 670, 677-78 (7th Cir. 2008); *c.f. NYPIRG*, 321 F.3d at 333 n.11.

³ *See also Sierra Club v. Johnson*, 541 F.3d at 1265 (“Congress's use of the word ‘shall’ ... plainly mandates an objection whenever a petitioner demonstrates noncompliance.” (emphasis added)).

⁴ *See also Sierra Club v. Johnson*, 541 F.3d at 1265-66; *Citizens Against Ruining the Environment*, 535 F.3d at 678.

⁵ *See also e.g., In the Matter of Noranda Alumina. LLC*, Order on Petition No. VI-2011-04 at 20-21 (December 14, 2012) (denying a title V petition issue where petitioners did not respond to the state's explanation in response to comments or explain why the state erred or the permit was deficient); *In the*

Another factor the EPA has examined is whether a petitioner has provided the relevant analyses and citations to support its claims. If a petitioner has not, the EPA is left to work out the basis for petitioner's objection, contrary to Congress's express allocation of the burden of demonstration to the petitioner in CAA § 505(b)(2). *See MacClarence*, 596 F.3d at 1131 ("[T]he Administrator's requirement that [a title V petitioner] support his allegations with legal reasoning, evidence, and references is reasonable and persuasive.").⁶ Relatedly, the EPA has pointed out in numerous orders that, in particular cases, general assertions or allegations did not meet the demonstration standard. *See, e.g., In the Matter of Luminant Generation Co., Sandow 5 Generating Plant*, Order on Petition No. VI-2011-05 at 9 (January 15, 2013).⁷ Also, the failure to address a key element of a particular issue presents further grounds for the EPA to determine that a petitioner has not demonstrated a flaw in the permit. *See e.g., In the Matter of EME Homer City Generation LP and First Energy Generation Corp.* Order on Petition Nos. III-2012-06, III-2012-07, and III-2013-02 at 48 (July 30, 2014).⁸

The information that the EPA considers in making a determination whether to grant or deny a petition submitted under 40 C.F.R. § 70.8(d) on a proposed permit generally includes, but is not limited to, the administrative record for the proposed permit and the petition, including attachments to the petition. The administrative record for a particular proposed permit includes the draft and proposed permits; any permit applications that relate to the draft or proposed permits; the statement of basis for the draft and proposed permits; the permitting authority's written responses to comments, including responses to all significant comments raised during the public participation process on the draft permit; relevant supporting materials made available to the public according to 40 C.F.R. § 70.7(h)(2); and all other materials available to the permitting authority that are relevant to the permitting decision and that the permitting authority made available to the public according to § 70.7(h)(2). If a final permit and a statement of basis for the final permit are available during the agency's review of a petition on a proposed permit, those documents may also be considered as part of making a determination whether to grant or deny the petition.

Matter of Kentucky Syngas, LLC, Order on Petition No. IV-2010-9 at 41 (June 22, 2012) (denying a title V petition issue where petitioners did not acknowledge or reply to the state's response to comments or provide a particularized rationale for why the state erred or the permit was deficient); *In the Matter of Georgia Power Company*, Order on Petitions at 9- 13 (January 8, 2007) (*Georgia Power Plants Order*) (denying a title V petition issue where petitioners did not address a potential defense that the state had pointed out in the response to comments).

⁶ *See also In the Matter of Murphy Oil USA, Inc.*, Order on Petition No. VI-2011-02 at 12 (September 21, 2011) (denying a title V petition claim where petitioners did not cite any specific applicable requirement that lacked required monitoring); *In the Matter of Portland Generating Station*, Order on Petition at 7 (June 20, 2007) (*Portland Generating Station Order*).

⁷ *See also Portland Generating Station Order* at 7 ("(C)onclusory statements alone are insufficient to establish the applicability of [an applicable requirement.]); *In the Matter of BP Exploration (Alaska) Inc. Gathering Center # I*, Order on Petition Number VII-2004-02 at 8 (April 20, 2007); *Georgia Power Plants Order* at 9-13; *In the Matter of Chevron Products Co. Richmond, Calif. Facility*, Order on Petition No. IX-2004-10 at 12, 24 (March 15, 2005).

⁸ *See also In the Matter of Hu Honua Bioenergy*, Order on Petition No. IX-2011-1 at 19-20 (February 7, 2014); *Georgia Power Plants Order* at 10.

III. BACKGROUND

A. Pollutants

The Petition concerns monitoring for opacity and for particulate matter (PM or particulates). Particulate Matter refers to a mixture of solid particles and liquid droplets found in the air. The two sizes of PM that are widely monitored are PM₁₀, which includes inhalable particles with diameters that are generally 10 micrometers (μm) and smaller (by comparison, a human hair is, on average about 70 μm in diameter); and PM_{2.5}, which includes inhalable particles with diameters that are generally 2.5 μm and smaller. Clean Air Act Fine Particle Implementation Rule -- Final Rule, 79 Fed. Reg. 20586, 20586 (April 25, 2007).

PM can be emitted directly ("primary" particles) or formed in the atmosphere from chemical reactions involving primary gas emissions ("secondary" particles). Primary particles include, for example, elemental carbon from combustion sources. Secondary particles include sulfates formed from sulfur dioxide emissions and nitrates formed from nitrogen oxides released from power plants and other sources. Solid or liquid PM emissions are referred to as the "filterable" fraction of PM, and the gases are referred to as the "condensable" fraction. ROE – Particulate Matter Emissions. Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements – Final Rule, 81 Fed. Reg. 58010, 58011, 58014 (August 24, 2016).

Opacity is "the degree to which the transmission of light is reduced or the degree to which the visibility of a background as viewed through the diameter of a plume is reduced. In simpler terms, opacity, also known as visible emissions, is the obscuring power of the plume, expressed in percent.... Particles decrease light transmission by both scattering and direct absorption." "Visible Emissions Field Manual EPA Methods 9 and 22," EPA 340/1-92-004 (December 1993) at 4-5, <https://www3.epa.gov/ttnemc01/methods/VEFieldManual.pdf>. Prior to the development of direct PM monitoring, opacity limits were developed as a measureable method of limiting PM emissions.

B. The Fort Smallwood Complex

The Fort Smallwood Complex consists of two electric generating stations, Brandon Shores (Brandon) and Wagner co-located on a 456-acre site, 1005 Brandon Shores Road, in Anne Arundel County, Maryland. Raven owns and operates the Complex. Brandon, the portion of the facility at issue in the Petition, consists of two coal-fired generating units with a combined nominal generating capacity of 1370 megawatts (MW). The facility's title V permit covers, among other things, the Brandon coal-fired generating units, including the control equipment for those units, the emissions limits, and the associated monitoring requirements. It is these monitoring requirements that are at issue in the Petition.

The Proposed Permit describes the two emission units at Brandon Shores as follows:

The primary emission units at Brandon Shores are two (2) coal-fired generating units with a combined nominal generating capacity of approximately 1,370 MW. Each unit has a rated capacity of 7,128 million British thermal units per hour (MMBtu/hr). Unit #1 (MDE Registration #3-0015) was placed in commercial service in 1984, and Unit #2 (MDE Registration #3-0016) was placed in commercial service in 1991. Both units are Babcock and Wilcox (B&W) solid fossil fuel-fired (coal), dry bottom boilers with circular wall burners. No. 2 fuel oil is used for start-up and main burner ignition. Coal is transferred to the plant storage bunker via conveyor belts, after which the coal is pulverized and blown into the furnace.

Proposed Permit at 5. The Proposed Permit describes the control equipment for these two units as follows:

Unit #1 is equipped with overfire air and low nitrogen oxide (NO_x) burners. Unit #2 is equipped with low NO_x burners and BOOS (burners out of service). Currently for each unit, the flue gas is passed through hot-side electrostatic precipitators (ESPs) and selective catalytic reduction (SCR) to reduce NO_x emissions. The gas is then treated with a dry sorbent injection system for the control of sulfuric acid mist and powdered activated carbon (PAC) injection system for the control of mercury (Hg), and passed through fabric filter baghouses to collect the particulate matter (PM) emissions, followed by a flue gas desulfurization (FGD) system for the removal of sulfur dioxide (SO₂). Ash is collected from the ESP hoppers and conveyed pneumatically to storage silos from where it is loaded into trucks for final disposition.

Id. In addition, as the Proposed Permit notes, “Both units are equipped with continuous emissions monitoring systems (CEMS) for NO_x, SO₂, carbon dioxide (CO₂), Hg and PM.” *Id.*

C. Permitting History

The MDE issued the facility’s initial title V permit (permit no. 24-003-0468) on February 15, 2005. On September 30, 2014, Raven submitted a renewal application to the MDE for the Complex. The MDE published public notice of a draft renewal permit on May 19, 2016. The Petitioners submitted comments on June 17, 2016. As the Petitioners note, “MDE made several revisions to the draft permit in response to the Petitioners’ comments and provided the Petitioners with its response to comments on November 10, 2016. The MDE provided the Petitioners with the revised permit [Proposed Permit or Permit] ... on December 19, 2016.” Petition at 2 (citations omitted). The MDE submitted the proposed permit to the EPA on October 21, 2016. The MDE issued the final permit on January 1, 2017.

D. Timeliness of Petition

Pursuant to the CAA, if the EPA does not object to a proposed permit during its 45-day review period, any person may petition the Administrator within 60 days after the expiration of the 45-day period. CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2). The EPA's 45-day review period expired on December 5, 2016. Thus, any petition seeking the EPA's objection to the proposed Raven permit was due on or before February 3, 2017. The Petitioners filed their Petition on February 3, 2017; therefore, the EPA finds that the Petitioners timely filed the Petition.

IV. EPA DETERMINATIONS ON THE ISSUES RAISED BY THE PETITIONERS

The Petitioners have requested that the Administrator object to the Proposed Permit because, according to the Petitioners' contentions, the Permit does not comply with the CAA and implementing regulations at 40 C.F.R. part 70 in that the Permit fails to include adequate monitoring requirements for the limitations concerning opacity, as well as total PM and PM₁₀. For the reasons explained below, the EPA denies the Petitioners' request for an objection on all of these claims.

Claim I: Petitioners' Claims Concerning Monitoring Requirements for Opacity

The Petitioners claim that Raven's Permit "fails to include monitoring requirements sufficient to assure compliance with the visible emissions limit for units 1 and 2 at the Brandon Shores plant, and MDE failed to significantly respond to significant comments made by the Petitioners relating to these monitoring requirements." Petition at 1. We address these claims below and, in doing so, provide additional relevant background information.

Petitioners' Claims in the Petition

The Petitioners assert that the Proposed Permit's requirement for weekly or monthly visual observations in accordance with Method 9 "is insufficient to assure compliance with a visible emissions limit that must be met at all times," particularly since "Method 9 observations require ideal weather conditions and cannot be made in conditions such as at night, during rainfall, or on cloudy days." Petition at 6-7 (quoting the Petitioners' comments on the Proposed Permit, at 9). The Petitioners add that "EPA has previously found that a Title V permit record failed to sufficiently support the use of weekly Method 9 observations to assure compliance with a continuous opacity limit." *Id.* at 7 (citing *In the Matter of EME Homer City Generation L.P. Indiana County, Pennsylvania*, Order on Petitions III-2012-06, 111-2012-07, and III-2013-02 (July 30, 2014) ("*Homer City Order*") at 44; and *In the Matter of Pacificorp's Jim Bridger and Naughton Electric Utility Steam Generating Plants*, Order on Petition No. VIII-00-1 (November 16, 2000) ("*Pacificorp Order*") at 19.

As a related matter, the Petitioners claim that the MDE failed to include in the permit record a rationale for why the monitoring requirements assure compliance with the emission limits. Petition at 5. Specifically, the Petitioners assert that the MDE's response to their comments, which contains the MDE's discussion of the monitoring requirements,⁹ "does not demonstrate that weekly or monthly Method 9 observations are sufficient to assure compliance with a limit that applies at all times," with limited exceptions. The Petitioners explain that the MDE's statement that "[n]ow that PM CEMS have been demonstrated to measure accurately PM emissions, an opacity limit is no longer necessary," MDE Response to Comments at 7, simply "contends – incorrectly – that the [opacity] limit itself is unnecessary," and that contention, according to the Petitioners, is irrelevant because the opacity limit is a Maryland State Implementation Plan (SIP) requirement that applies as a legal matter to the source. The Petitioners further note that the MDE's statement does not refute the demonstration by the Petitioners in their comments that "weekly (or monthly) visible-emissions observations ... cannot assure compliance with the SIP opacity limit, which is a limit that applies at all times except for the very limited exceptions...." Petition at 7-8. In addition, the Petitioners assert that the MDE's example of the new source performance standard (NSPS) provision offering affected sources operating a PM CEMS the opportunity to comply with the rule's PM standard instead of the rule's opacity standard "is not instructive because no similar language exists in Maryland's SIP for the visible emissions limit at issue." *Id.* at 8.¹⁰ The Petitioners add, that the required "demonstration [that periodic visual

⁹ The MDE stated, in responding to the Petitioners' comment that the visual monitoring requirements do not assure compliance with an ongoing opacity limit:

It is an accepted fact that stacks which have moisture in the stack gases cannot use a COMS [continuous opacity monitoring system] to measure opacity. This is the case for the stacks for Brandon Shores Units 1 and 2.

The opacity standard in COMAR is a surrogate for the PM standard. Prior to the development of continuous particulate emission monitors, the only means of determining compliance with the PM standard was a stack test. In order to assess compliance with a PM standard on a continuous basis, a limit for opacity was established which correlates to the PM standard.

Now that PM CEMS have been demonstrated to measure accurately PM emissions, an opacity limit is no longer necessary.

MDE Response to Comments (RTC) at 7.

¹⁰ The MDE noted in the RTC that the Brandon Shores units are subject to the NSPS, under which the units are exempt from the opacity standard because they operate a PM CEMS. The NSPS is described in greater detail below. The MDE added:

The Department has revised its regulations for visible emissions for boilers in like manner to allow sources that operate a FGD scrubber which causes water vapors in the stack gases not to use a COMS. As an alternate to using a COMS, a source must perform visible emissions observations in accordance with EPA Reference Method 9 on a schedule as prescribed in an alternate monitoring plan required by the regulation. The Department's revised regulations have not been approved by the EPA into Maryland's SIP. In the draft permit, the Department under its authority of COMAR 26.11.03.06C to

observations assure compliance with an ongoing limit] is also not provided elsewhere in the Permit record.” *Id.* at 8.

Petitioners further object that “MDE failed to respond to significant comments submitted by Petitioners on [the opacity monitoring] issue.”¹¹ Petition at 4; *see id.* at 8. Specifically, they note that they had commented on the Proposed Permit that if the Brandon Shores units could not use Continuous Opacity Monitoring Systems (COMS) due to a flue gas desulfurization device (FGD), then “MDE should establish a PM limit that correlates to the SIP opacity limit and require the use of continuous monitoring using PM CEMS to assure compliance with the opacity limit. In doing so, MDE must account for the fact that opacity can indicate the presence of sulfuric acid or condensable particles, which are not measured by PM CEMS.” *Id.* at 9. Petitioners assert that “MDE did not address this option in its response and has not explained why compliance with the visible emissions limit could not be assured using this monitoring approach.” *Id.* at 9.

Proposed Permit Provisions

The Proposed Permit includes several provisions concerning visible emissions control that are relevant to this claim. In addition, the Proposed Permit includes several provisions concerning PM that, although relevant primarily for the claim concerning PM, discussed below, are also relevant for this claim concerning visible emissions. All of these provisions are quoted or summarized immediately below:¹²

Visible Emission Controls and Monitoring Requirements

With respect to the control of visible emissions, the Proposed Permit provides, in relevant part:

A. Control of Visible Emissions

1. COMAR 26.11.09.05 - Visible Emissions.

“A. Fuel Burning Equipment.

(2) Areas III and IV.¹³ In Areas III and IV, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers except that, for the purpose of demonstrating compliance using COM data,

provide sufficient monitoring to demonstrate compliance with the opacity standard proposes to require Raven to comply with the ... monitoring requirement [to employ] ... EPA Reference Method 9 [on a weekly or monthly basis]....

MDE RTC at 8.

¹¹ *See* Letter from Leah Kelly to Shannon Heafey (June 17, 2016) (Petitioners’ Comments on Proposed Permit) at 8-9. The Petitioners also noted in their comments that a Maryland state regulatory provision, COMAR 26.11.09.05C, eliminates the requirement that COMS be used to measure opacity when the plant has a flue gas desulfurization device, but added that this provision is irrelevant because it had not been approved by the EPA as part of Maryland’s SIP. *Id.*

¹² These provisions apply to the solid fossil fuel-fired generating units, which are the two Brandon Shores units, identified as FSC-BS-Unit1 and FSC-BS-Unit2. Proposed Permit at 37 (Table IV-1, section 1.0).

¹³ The facility is located in Anne Arundel County, which is in Area III. *See* COMAR 26.11.01.03.C.

emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity....

Proposed Permit at 37-38 (Table IV-1, section 1.1.A. (COMAR 26.11.09.05.A.(2)-(3)))

With respect to monitoring for the control of visible emissions, the Proposed Permit provides:

A. Control of Visible Emissions

1. COMAR 26.11.09.05C, allows for the discontinuation of a COM on fuel burning equipment that is equipped with a flue gas desulfurization device. If operation of the opacity monitor is discontinued, the regulation requires an alternative monitoring plan to be submitted to and approved by the Department which includes a schedule for monthly Method 9 visible emissions observations.

As an alternative to the COMAR 26.11.01.10 requirement to use a COM and until an alternate monitoring plan is submitted and approved: The Permittee shall perform a visible emissions observation using an EPA Reference Method 9 of the exhaust from the scrubber stack. The observation shall be performed once a week for one hour period of time. If after a six month period time, no violations of the opacity limit are observed, the frequency of observation may be reduced to once per month. At any point in time that a violation of the opacity limit is observed, the observations shall return to the weekly schedule until another six month period elapses without a violation. [**Reference: COMAR 26.11.09.05C & COMAR 26.11.01.10**]. Permit at 44-45.

Proposed Permit at 37-38 (Table IV-1, section 1.1.A.1.).

PM Emission Limits and Monitoring Requirements

The Proposed Permit provides the following requirements for the control of PM emissions, including monitoring requirements:

The permit establishes two limits for PM/PM₁₀. The first limit applies only to the filterable fraction of PM/PM₁₀, and is 0.015 lb/MMBtu (filterable) as determined by (1) the average of three stack tests, or (2) if continuous emission monitoring for particulate matter is used to demonstrate compliance, a 24-hour rolling average. The second applies to total PM/PM₁₀, including both the filterable and condensable fractions, and is 0.034 lb/MMBtu (filterable and condensable), as determined by the average of three stack tests.¹⁴

¹⁴ Proposed Permit at 38 (Table IV-1 section 1.3.B.1. (referencing COMAR 26.11.06.03C and Condition 25-Consent Decree of June 1, 2007); section 1.3.B.2 (referencing 40 C.F.R. Part 60 Subpart D); section 1.3.B.3 (referencing CPCN – Case No. 9075); *see* Petition at 9 & fn. 37 (citing Proposed Permit at 36).

As noted above, both of the Brandon Shores units are equipped with CEMS for PM (as well as for nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon dioxide (CO₂), and mercury (Hg)). Proposed Permit at 4. The Proposed Permit provides: “The Permittee shall use reasonable efforts to keep each PM CEMS operating and producing data whenever either Unit served by the PM CEMS is operating.”¹⁵

With respect to the annual stack testing requirement, the Proposed Permit provides:

The Permittee ... shall conduct annual testing using EPA Reference Methods of 40 CFR Part 60, Appendix A. The Permittee shall submit a test protocol to the Department for approval at least 30 days prior to the proposed test date. Note: The Permittee may petition the Department to use any Method 5 QC/QA testing for the PM CEMS to satisfy the requirement of the annual compliance stack test.¹⁶

PM and Opacity Provisions in the NSPS Requirements

The Proposed Permit also includes additional PM and opacity requirements, which incorporate the CAA NSPS requirements for certain fossil fuel-fired steam generators, found in 40 C.F.R. Part 60 Subpart Da. The PM requirement, noted above, generally limits each “affected facility” (*i.e.*, each of the two Brandon Shores units) to PM emissions of “43 nanograms per joule (ng/J) heat input (0.10 lb/MMBtu),” although if the unit has “a continuous emissions monitoring systems (CEMS) for measuring PM emissions [the owner or operator] can petition [EPA] ... to comply with [40 C.F.R. Part 60.42Da(a)]” in lieu of the above limit.¹⁷ The requirement for visible emissions provides that “an owner or operator of an affected facility shall not cause to be discharged into the atmosphere any gases which exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity,” except that “[a]n owner or operator of an affected facility that elects to install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) for measuring PM emissions according to the requirements of this subpart is exempt from the opacity standard specified in this paragraph (b) of this section.”¹⁸

Legal Background for Monitoring Requirements

The EPA has described the title V monitoring requirements in detail in several orders, most recently in *In the Matter of Tennessee Valley Authority, Bull Run, Clinton, Tennessee*, Order on Petition No. IV 2015 14 (November 10, 2016) (*Bull Run Order*), at 7-9. The description in the *Bull Run Order* remains relevant in this matter, and is set forth immediately below.

¹⁵ Proposed Permit at 45 (Table IV-1 section 1.3.B.1. (referencing COMAR 26.11.06.03C and Condition 25-Consent Decree of June 1, 2007)).

¹⁶ Proposed Permit at 42-43 (Table IV-1, section 1.2.B.1. (referencing COMAR 26.11.03.06C)).

¹⁷ Proposed Permit at 57 (Table IV-1a, section 1a.1.B.).

¹⁸ Proposed Permit at 56 (Table IV-1a, section 1a.1.A.).

The applicable statutory and regulatory requirements are as follows: The CAA requires that “[e]ach permit issued under [title V] shall set forth . . . monitoring . . . requirements to assure compliance with the permit terms and conditions.” § 504(c), 42 U.S.C. § 7661c(c). The EPA’s part 70 monitoring rules (40 C.F.R. §§ 70.6(a)(3)(i)(A) and (B) and 70.6(c)(1)) are designed to satisfy this statutory requirement. As the EPA stated in *In the Matter of CITGO Refining and Chemicals Co., L.P., West Plant, Corpus Christi, Tx.*, Order on Petition No. VI-2007-01 (May 28, 2009) (*CITGO Order*) at 6-7, and affirmed in *Bull Run Order*:

As a general matter, authorities must take three steps to satisfy the monitoring requirements in EPA’s part 70 regulations. First, under 40 C.F.R. § 70.6(a)(3)(i)(A), permitting authorities must ensure that monitoring requirements contained in applicable requirements are properly incorporated into the title V permit. Second, if the applicable requirement contains no periodic monitoring, permitting authorities must add “periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source’s compliance with the permit.” 40 C.F.R. § 70.6(a)(3)(i)(B). Third, if there is some periodic monitoring in the applicable requirement, but that monitoring is not sufficient to assure compliance with permit terms and conditions, permitting authorities must supplement monitoring to assure such compliance. 40 C.F.R. § 70.6(c)(1). EPA notes that periodic monitoring that meets the requirements of 40 C.F.R. § 70.6(a)(3)(i)(B) will be sufficient to satisfy the requirements of 40 C.F.R. § 70.6(c)(1) (i.e., will be sufficient to assure compliance with permit terms and conditions). In addition, in many cases, monitoring from applicable requirements will be sufficient to assure compliance with permit terms and conditions. For example[,] monitoring established consistent with EPA’s Compliance Assurance Monitoring (CAM) rule (40 C.F.R. part 64) will be sufficient to assure compliance with permit terms and conditions, thus meeting the requirements of 40 C.F.R. § 70.6(c)(1).¹⁹

As the EPA further noted in the *Bull Run Order*:

In addition, the rationale for the monitoring requirements selected by a permitting authority must be clear and documented in the permit record. 40 C.F.R. § 70.7(a)(5). The determination of whether monitoring is adequate in a particular circumstance generally is a context-specific determination, made on a case-by-case basis. The analysis should begin by assessing whether the monitoring required in the applicable requirement is sufficient to assure compliance with permit terms and conditions. Some factors that permitting authorities may consider in determining appropriate monitoring are: (1) the variability of emissions from the unit in question;

¹⁹ See also *In the Matter of Public Service of New Hampshire*, Order on Petition No. VI-2014-04 (July 28, 2015) at 14; *Homer City Order* at 45.

(2) the likelihood of a violation of the requirements; (3) whether add-on controls are being used for the unit to meet the emission limit; (4) the type of monitoring, process, maintenance, or control equipment data already available for the emission unit; and (5) the type and frequency of the monitoring requirements for similar emission units at other facilities. Other site-specific factors may also be considered. *Homer City Order* at 45; *CITGO Order* at 6-8.

The *Bull Run Order* went on to reiterate “that COMS are not appropriate for measuring opacity in facilities where the COMS are located downstream from a wet scrubber,” and quoted *Quality Assurance Requirements for Continuous Opacity Monitoring Systems at Stationary Sources*, 79 Fed. Reg. 28439, 28442 (May 16, 2014) as follows:

Opacity cannot be measured accurately in the presence of condensed water vapor. Thus, COMS opacity compliance determinations cannot be made when condensed water vapor is present, such as downstream of a wet scrubber without a reheater or at other saturated flue gas locations. Therefore, COMS must be located where condensed water vapor is not present.

The *Bull Run Order* then noted that “the EPA has also recognized a relationship between opacity and PM limits and monitoring,” and explained:

In 2009, for example, the EPA amended New Source Performance Standards (NSPS) for electric utility steam generating units and industrial-commercial-institutional steam generating units, in part, to eliminate the opacity standard and opacity monitoring requirements for facilities with a PM limit of 0.030 lb/MMBtu or less that voluntarily installed and used PM CEMS to demonstrate continuous compliance with that limit. *See* 74 Fed. Reg. 5072, 5073 (January 28, 2009) (amending, in part, 40 C.F.R. part 60, subparts D through Dc) (the NSPS Rulemaking). [In the NSPS Rulemaking,] [t]he EPA explained: “The contribution of filterable PM to opacity at these emission levels is generally negligible, and sources with mass limits at this level or less will operate with little or no visible emissions (i.e., less than 5 percent opacity). As a result, EPA believes that an opacity standard is no longer necessary for these sources since the PM mass emission rate standard is substantially tighter than the opacity standard and the mass of PM emissions will be continually monitored.”... [In the NSPS Rulemaking,] [t]he EPA also noted that, in such circumstances, visible emissions can be used as a secondary check: “In situations where the owner/operator of a facility has documented visible emissions during the initial or subsequent PM CEMS calibration testing or documented trends in PM CEMS readings that correlate to the visible emissions, the relative amount of visible emissions can still be used by the local permitting authority as a secondary check that both the PM control

device and PM CEMS are operating properly.... Owners or operators of affected facilities with some visible emissions but where the maximum 6-minute opacity reading is 5% or less will be required to conduct semi-annual Method 9 performance testing.”

EPA Response

For the following reasons, the EPA denies the Petitioners’ request for an objection on these claims.

The above description of the legal requirements makes clear that whether the monitoring requirements in a permit for a particular source are adequate to assure compliance is context-specific and depend on a multi-factor assessment concerning the source’s emissions and controls as well as its permit. The permitting authority is required to explain how the monitoring requirements assure compliance, and the rationale for the monitoring requirements selected by a permitting authority must be clear and documented in the permit record. 40 C.F.R. § 70.7(a)(5); *Bull Run Order* at 8. Petitioners who allege that monitoring requirements are not adequate carry the burden of demonstrating that inadequacy. In evaluating a petitioners’ claims, the EPA considers, as appropriate, the adequacy of the permitting authority’s rationale in the permitting record, including the response to comments (RTC) document. *Bull Run Order* at 2; *In the Matter of Wheelabrator Baltimore, LP, Baltimore Maryland*, Order on Petition (April 14, 2010) at 7-8.

Based on our review of the record, including the multiple factors identified in the *Bull Run Order* to assess the adequacy of the monitoring requirements to assure compliance, we conclude that Petitioners have not shown that the monitoring requirement for Method 9 observations for this permit for this source is inadequate to assure compliance with the opacity limit.

It is important that the Raven plant is well-controlled, through add-on controls, for PM, which is the pollutant responsible for opacity. *See Bull Run Order* at 8 (identifying, as part of a multi-factor assessment, “whether add-on controls are being used for the unit to meet the emission limit”). Specifically, the Raven plant has a baghouse for PM emissions, which controls the filterable fraction of PM, and assures that the PM limit of 0.03 lb/mmBtu is achieved. As the EPA determined in the NSPS rulemaking, as described above, “[t]he contribution of filterable PM to opacity at these emission levels is generally negligible, and sources with mass limits at this level or less will operate with little or no visible emissions (i.e., less than 5 percent opacity).” In addition, the Raven plant has a wet scrubber for SO₂ emissions, as well as low NO_x burners, ESP for NO_x, and SCR for NO_x emissions. Finally, the Raven plant is equipped with dry sorbent injection for control of sulfuric acid mist. Together, these control the condensable fraction of PM, and, thereby, further safeguard the opacity limit.

In addition, the plant has CEMS for its PM, NO_x, and SO_x emissions. *See Bull Run Order* at 8 (identifying, as another part of a multi-factor assessment, “the type of monitoring,

process, maintenance, or control equipment data already available for the emission unit”). The CEMS allow the source to continuously monitor the emissions and, thereby, promptly detect any irregularities in the control equipment. This protects the source’s ability to meet the opacity limit because assuring proper functioning of this control equipment means assuring meeting the opacity limit.

Thus, because of the control equipment and CEMs for PM, NO_x and SO_x, there is reduced likelihood of exceedances of the opacity standard and limited likelihood of significant variations in opacity. *See Bull Run Order at 7-9* (identifying, as the first part of a multi-factor assessment, “the variability of emissions from the unit in question;” and identifying as the second part, “the likelihood of a violation of the requirements”). In fact, as the EPA noted in the NSPS rulemaking described above, a source complying with a PM limit of 0.03 lb/mmBtu will operate with little or no visible emissions (i.e., less than 5 percent opacity). The permitted opacity limit is 10 percent and, therefore, the MDE reasonably indicated that meeting the PM limit, as measured by CEMS, assures meeting the opacity limit. The likelihood of exceeding the opacity limit is also reduced as the MDE has stated that the “[t]he Brandon Shores Units’ emission control systems for PM, SO₂, and NO_x are sized [sic: to] provide for overcontrol of the pollutants. The results of the stack tests and CEM data collected have shown continuous compliance with all the emissions limits.” MDE Response to Comments at 4. Petitioners have not presented any evidence to the contrary.²⁰

The weekly or monthly Method 9 observations must be evaluated in this context, in which the source’s emission controls and other monitoring equipment mean that the source has limited the potential for, and has methods to prevent, opacity violations. In this context, the periodic Method 9 observations provide a useful check on any potential opacity exceedances. The utility of Method 9 observations is accentuated because COMS – the only other method of directly monitoring opacity – are technologically infeasible for this source, as the MDE found and as Petitioners have acknowledged. For these reasons, we conclude that Petitioners have not demonstrated that weekly Method 9 observations are inadequate, or that moving to monthly observations, if weekly ones do not show any exceedance, is inadequate either. Method 9 observations are necessarily periodic. They serve as a double check on the adequacy of the PM emissions control, which is itself monitored continuously. To illustrate through an extreme case, the Petitioners’ objection would apply to even hourly Method 9 observations because they would still be periodic and thus would still not match the continuous nature of the opacity requirement.

²⁰ The Petitioners object that “[t]he Permit record does not include any support for [MDE’s] statements [concerning the sizing of the emission control systems and the compliance record]. The permitting authority’s conclusory statements that the permit limits are unlikely to be violated is not a substitute for monitoring requirements that actually assure ongoing compliance with the applicable limit.” Petition at 12, n.47. While the record would have been more robust if the MDE had included data to support its statements, the data were available to it and it made findings that appear to reflect that data; as a result, the burden of providing evidence to refute the statements falls to the Petitioners. *See* fn.2, *supra*, and accompanying text.

The Petitioners also object that Method 9 cannot be employed at night or during rainfall or cloudy days. While there may be particular periods of time when Method 9 cannot be used due to those limitations, the Petitioners have not shown that in the location of the source, those periods of time could be expected to be of such long duration as to eliminate the usefulness of Method 9. This is particularly so in light of the controls and other monitoring equipment, with the consequent limited likelihood of opacity exceedances, for this source.

As the Petitioners note, the EPA has granted several other title V petitions objecting to opacity monitoring and justifications. However, each of those cases is distinguishable because they presented different facts and circumstances. In *Pacificorp Order*, at 19-20, the EPA granted a petition objecting to a permit that required quarterly Method 9 visual evaluations instead of COMS, in part on grounds that the source was subject to CAA title IV monitoring requirements that mandated COMS. In *EME Homer City Order*, at 44, the EPA granted the petition upon finding that the state insufficiently explained the adequacy of weekly Method 9 visual observations. But in that case, the state's rationale for the opacity monitoring requirements was limited to "explaining why COMS were not required at [the source]," and the state did not attempt to explain the utility of the Method 9 observation requirement. *Id.* at 44. The EPA noted, however, that because the permit required the installation and operation of PM CEMS and the source had installed the CEMS, that it would be possible for the state to develop a rationale for why weekly Method 9 visual observations were adequate, in conjunction with the operation of PM CEMS, to assure compliance with the opacity standard. *Id.* at 44-45. In this respect, the *EME Homer City Order* is a precedent for today's action in denying this Petition on this ground.²¹

For these reasons, we find that the record demonstrates that the opacity monitoring requirements of the Permit are sufficient to assure compliance with the opacity limit, and we disagree with the Petitioners' statement to the contrary. Petition at 8.

We also find that contrary to the Petitioners' assertions, the MDE did include in the permit record an adequate rationale for why the monitoring requirements assure compliance with the opacity emission limits. *See* Petition at 5. The MDE made statements in its comment response (i) concerning the relationship of the opacity standard to the PM standard (specifically, referencing both the opacity limit's initial use as a surrogate for the PM limit, and the need, as a practical matter, for the opacity limit in light of the availability of PM CEMS); (ii) that under the NSPS standard, units that operate a PM CEMS are exempt from the opacity standard; (iii) describing the Method 9 requirements; and (iv) recognizing that COMS is not available for this source due to presence of the FGD scrubber. We read those statements together, and find that they point to the permit provisions that impose PM limits, and require the operation of add-on controls, as well as CEMS monitoring for PM. These provisions, in turn, help assure that

²¹ In *Bull Run Order*, at 11-12, the EPA granted a petition objecting to a permit that required biannual Method 9 visual evaluations because the state did not provide any rationale for why that form of monitoring was sufficient to assure compliance.

the source will comply with the opacity limit. Thus, we read these statements to recognize that the PM limits and CEMS requirements for this well-controlled and well-monitored source strongly support the source's ability to meet the opacity requirements.²² We read these statements to further indicate that in light of these provisions, and in the absence of COMS, the Method 9 observations are adequate. Thus, contrary to the Petitioners' assertions, we conclude that the MDE's response does support that the chosen monitoring requirements assure compliance with the opacity limit.²³

Finally, we disagree with the Petitioners' objection that the MDE failed to respond to a significant comment, which, according to the Petitioners, was that the MDE should have established an alternative method to assure compliance with the opacity limit. Specifically, the Petitioners assert that the MDE should establish a PM limit that correlates directly to the SIP opacity limit and require the use of PM CEMS for compliance with the opacity limit. For the reasons explained above, the MDE's statements in its RTC, read in light of the permit record, explained how the requirements in the Proposed Permit already assured compliance with the opacity limit. The Petitioners' purpose in suggesting their alternative method was to make sure that the Permit provided a method for assuring compliance with the opacity limit, which they claim the Permit did not do. Under the circumstances of this case, once the MDE determined that the permit did in fact assure compliance with the opacity limit, it became clear that the Petitioners' alternative method was not necessary, and the MDE was not required to specifically evaluate it.

Claim II: Petitioners' Claims Concerning Monitoring Requirements for PM and PM₁₀

The Petitioners claim that "the monitoring requirements of the Proposed Permit fail to assure compliance with a limit for ... PM ... and ... PM₁₀ ... for Brandon Shores units 1 and 2." We address these claims below

²² We read the MDE's observation that under the NSPS, units that operate a PM CEMS are exempt from the opacity standard to (i) highlight the underlying point that by adhering to the PM limits, as measured by the PM CEMS, the source would meet the opacity limits, and (ii) that the EPA itself has recognized (in the NSPS rulemaking) this relationship between PM and opacity. In this way, the MDE's reference to the NSPS rulemaking supports its rationale that the opacity monitoring requirements are adequate to assure compliance.

²³ More specifically, as for the MDE's statement concerning the need for the opacity limit in light of the PM CEMS requirement, it is quite evident that the MDE is well aware that the opacity limit remains a requirement, in light of the MDE's discussion of the Method 9 observational requirements to monitor the opacity limit. That statement highlights the practical relationship between the PM limit, PM CEMS, and the opacity limit. That is, that the existence of the PM limit, with CEMS, greatly facilitates determining compliance with the opacity limit. In addition, we disagree with the Petitioners' statement that the MDE's reference to the NSPS provision authorizing affected sources operating a PM CEMS to comply with the rule's PM standard instead of the rule's opacity standard "is not instructive." We read it in context to point to the EPA's recognition that PM limits, coupled with CEMS monitoring requirements, facilitate compliance with the opacity limit, and, therefore, support concluding that the Method 9 opacity monitoring is adequate.

Petitioners' Claims in the Petition

The Petitioners claim that the Proposed Permit does not require measurement of condensable PM. They explain that although “[t]he Proposed Permit requires monitoring for the total PM/PM₁₀ limit using PM CEMS and annual stack testing...[,] measurement of condensable PM is not clearly required under either method.” The Petitioners note, correctly, that “PM CEMS is incapable of measuring condensable PM.” They add that in their view –

The annual stack testing requirements of the Proposed Permit also do not require measurement of condensable PM. The Proposed Permit requires "annual [stack] testing using EPA Reference Methods of 40 CFR Part 60, Appendix A" and that a protocol for stack testing must be submitted to MDE for approval thirty days prior to the proposed test date. Measurement of condensable PM is not clearly required under these conditions. The Proposed Permit allows Raven to select a monitoring method from an appendix within EPA's regulations Appendix A to 40 CFR Part 60--that includes multiple monitoring methods, not all of which require measurement of condensable PM. There is no language in the Proposed Permit that requires Raven to select a method from Appendix A that includes measurement or calculation of condensable PM. Finally, while a protocol must be submitted to MDE for approval ahead of testing, there is nothing in the Proposed Permit that compels MDE to ensure that the protocol includes measurement of condensable PM.

Petition at 10.

The Petitioners also claim that “the monitoring required under the Proposed Permit is not sufficiently frequent to assure compliance with the synthetic minor limit for total PM/PM₁₀, which must be met at all times.”²⁴ They explain that –

annual testing is not sufficiently frequent to comply with a limit that must be met at all times. As discussed above, PM CEMS is required, but this technology is incapable of measuring the condensable fraction of total PM, and no method for supplementing the PM CEMS data to account for condensable PM is set forth in the Proposed Permit. Thus, the Proposed Permit does not assure compliance with the total PM/PM₁₀ limit because it does not assure continuous measurement of condensable PM.

Petition at 11 (footnote deleted).

²⁴The Petitioners state: “While the total synthetic minor limit for PM/PM₁₀ states that the limit is ‘as determined by the average of three stack tests’ (Proposed Permit at 36), continuous compliance is required because the limit was established to cap annual emissions from Brandon Shores below major source thresholds in order to avoid PSD requirements.” Petition at 11 n.43.

The Petitioners also claim that “MDE's response to Petitioners’ comments on this issue ... does not demonstrate that PM CEMS and annual stack testing using methods in 40 C.F.R. Part 60, Appendix A is sufficient to ensure compliance with this limit.” The Petitioners had submitted comments similar to their objection above that that Permit did not require the selection of a method in Appendix A that measures condensables. Petitioners’ Comments on Proposed Permit at 4. In their Petition, the Petitioners quote the MDE’s response as follows:

The permit requires Raven Power to conduct the annual stack tests using EPA Reference Methods of 40 CFR Part 60, Appendix A and requires Raven Power to submit a test protocol to [MDE] for approval. There is more than one possible test method in Appendix A that may be used to determine PM and PM condensables. The permit allows the flexibility for Raven Power to select the test method and have it approved by the Department prior to testing.

Petition at 11 (quoting MDE RTC at 3).

The Petitioners add that “MDE also states that ‘PM CEMS data will be used to assess compliance with the ... synthetic minor PM limit.’” *Id.* (quoting MDE RTC at 3). The Petitioners note that the MDE recognized that no method is available for continuously measuring condensable PM, and that the MDE then stated that it is taking the following steps:

MDE uses data collected from the PM CEMS for the filterable portion and data collected from continuous emissions monitors for SO₂ and NO_x to assess compliance for the condensable portion. SO₂ and NO_x emissions are the principal components of the condensables [sic] PM.

The Brandon Shores Units' emission control systems for PM, SO₂, and NO_x are sized [sic: sized to] provide for overcontrol of the pollutants. The results of the stack tests and CEM data collected have shown continuous compliance with all the emissions limits. The margin of compliance has been sufficient to provide a reasonable level of confidence that the condensable PM limits are in continuous compliance. The [synthetic minor] limits were established to set an annual cap on PM emissions ... [and] are an average number. The emissions control systems have sufficient over control capacity that a short term excursion will not cause the annual cap on PM emissions to be exceeded.

The federally enforceable portion for the permit requires annual stack tests and the use of CEMS for PM, and SO₂ and NO_x. This data provides sufficient data to assess continuous compliance with the . . . synthetic minor emission limits for filterable and condensable PM.

Petition at 12 (quoting the MDE Response to Comments at 4).

The Petitioners consider this response to be inadequate for the following reasons:

While Petitioners appreciate the time that MDE has taken to explain the approach using SO₂ and NO_x data, there are no conditions within the Proposed Permit that require, or even refer to, this method. The Proposed Permit requires monitoring for NO_x and SO₂ via CEMS, [Proposed Permit at 43, 44] but it does not require Raven to use this information in any way to determine compliance with the total PM/PM₁₀ emissions limit for Brandon Shores units 1 and 2. If Raven must evaluate its NO_x and SO₂ emissions to determine ongoing compliance with the total PM/PM₁₀ limit for Brandon Shores, the Proposed Permit must be revised to require Raven to include NO_x and SO₂ in its compliance determination for that limit. Moreover, the Proposed Permit must be revised to explain how Raven is using NO_x and SO₂ CEMS data, in conjunction with PM CEMs (and, if applicable stack test data) to determine compliance with the total PM/PM₁₀ limit. [citing *In the Matter of Yuhuang Chemical Inc. Methanol Plant, St. James Parish, Louisiana*, Order on Petition No. VI2015-03 (Aug. 31, 2016) at 18.]

Thus, MDE has failed to set forth an adequate rationale in the Permit record for its selection of monitoring requirements for the synthetic minor limit for total PM/PM₁₀ for Brandon Shores units 1 and 2.²⁵

Petition at 12-13.

Proposed Permit Provisions

The Raven title V permit provisions for PM, including PM₁₀, as well as the associated monitoring requirements, are included above, along with the opacity permit provisions.

EPA Response

For the following reasons, the EPA denies the Petitioners' request for an objection on this claim. Based on the application of a multi-factor approach to assess the adequacy of the monitoring requirements to assure compliance with the emission limit on total PM/PM₁₀, we conclude that the Petitioners have not shown that those monitoring requirements are not adequate to assure compliance with that emission limit on total PM/PM₁₀.

As noted above, the Permit imposes two limits on PM/PM₁₀. The first limit is "0.015 lb/MMBtu (filterable)." Proposed Permit at 36. This limit is "determined by (1) the average of three stack tests, or (2) if continuous emission monitoring for particulate

²⁵ The Petitioners added that "[t]he Permit record does not include any support for [MDE's] statements [concerning the sizing of the emission control systems and the compliance record]. The permitting authority's conclusory statements that the permit limits are unlikely to be violated is not a substitute for monitoring requirements that actually assure ongoing compliance with the applicable limit." Petition at 12, n.47.

matter is used to demonstrate compliance, a 24-hour rolling average.” *Id.* This limit applies only to the filterable fraction of PM and, because the plant has a CEMS for PM, it is determined on a 24-hour rolling basis. The Petitioners’ have not objected to any aspect of this limit, including the monitoring or compliance assurance requirements for it. However, as discussed below, it is relevant in assessing the Petitioners’ claims.

The second limit on PM/PM₁₀ is the subject of the Petitioners’ objections. Under this limit, total PM/PM₁₀ is limited to "0.034 lb/MMBtu (filterable and condensable)." *Id.* By its terms, this second limit applies to total PM/PM₁₀ – that is, the filterable and condensable fractions, combined – and it is “determined by the average of three stack tests." *Id.*

In applying the multi-factor test for assessing the adequacy of the monitoring, we note the following: In this plant, the pollutants that comprise total PM/PM₁₀ are well controlled through add-on controls.²⁶ Specifically, the filterable fraction of PM is controlled through an ESP and a baghouse. As noted above, the condensable fraction of PM primarily consists of sulfates, which form from SO₂ emissions; and nitrates, which form from NO_x emissions. The Permit imposes various SO₂ emissions limits,²⁷ and the plant controls SO₂ emissions through a wet scrubber. In addition, it controls the sulfuric acid mist that can result from the combination of the wet scrubber and the SCR using dry sorbent injection. Similarly, the Permit imposes various NO_x emissions limits,²⁸ and the plant controls NO_x emissions through low NO_x burners and an SCR. The MDE found that these limits, and the control equipment used to achieve them, are sufficiently stringent controls on the condensable fraction of PM, in conjunction with the emission limit for the filterable fraction of PM and its controls (the ESP and baghouse), so as to preclude exceedance of the total PM/PM₁₀ emission rate.

Moreover, the MDE has found that the plant’s emission controls for PM, SO₂, and NO_x are built to control those pollutants more than is necessary to meet the emission limits, and that in fact the plant has a history of satisfactory operation of its controls and of achieving its emission limits. By the same token, according to the MDE’s response to comment, the CEMS data have shown continuous compliance with the PM, SO₂, and NO_x emission limits, and the stack tests have shown compliance with the plant’s total PM/PM₁₀ limit.²⁹ Thus, we think that at the present time there is limited likelihood of a violation of the total PM/PM₁₀ limit.³⁰

²⁶ This point corresponds to the third factor in the test, which is “whether add-on controls are being used for the unit to meet the emission limit.”

²⁷ See Proposed Permit at 39-40 (Table IV-1, Condition C).

²⁸ See Proposed Permit at 40-42 (Table IV-1, Condition D).

²⁹ As noted above, Petitioners criticize the MDE’s statements concerning the controls and monitoring results as “conclusory,” but we take those statements at face value because Petitioners have not provided any evidence or substantive analysis to the contrary.

³⁰ This point corresponds to the first and second factors in the test, which are “the variability of emissions from the unit in question” and “the likelihood of a violation of the requirements.”

Moreover, the plant has adequate monitoring for the pollutants that comprise, or are precursors for, total PM/PM₁₀.³¹ Particulates, which include the filterable fraction of total PM/PM₁₀, as well as SO₂ and NO_x, which (after transformation into sulfates and nitrates) form the condensable fraction of total PM/PM₁₀, are all monitored through CEMS. Accordingly, any excursions can be identified and remediated promptly. In addition, the monthly or weekly opacity tests discussed above also serve as an indicator of the proper operation of PM controls.

With this context of Permit emission limits other than the PM/PM₁₀ limit, the control requirements underlying all of the emission limits, the CEMS monitoring requirements, the controls on the filterable portion of PM and the precursors to the condensable portion, and the plant's history of compliance, we turn to the Petitioners' specific claims concerning the stack test requirements for the total PM/PM₁₀ emission limits. First, the Petitioners object that the permit by its terms does not specifically require monitoring for the condensable fraction of particulates. The Petitioners are correct that there is no CEMS capable of monitoring condensables, and that only some of the stack testing monitoring methods listed in Appendix A to 40 C.F.R. Part 60 are capable of monitoring condensables. The Petitioners are also correct that the Permit provisions require the source to select a method from Appendix A, and obtain approval from the state of Maryland for that method, but do not identify any particular method from Appendix A (*i.e.*, a method for monitoring condensables) and do not explicitly require the source to use such a method. However, we find that the Permit as a whole must be construed to mandate that the source select a method of stack testing that allows for monitoring condensables. The Permit requires the source to demonstrate compliance with the total PM/PM₁₀ limit, *see* Proposed Permit at 33 (section III.9.), which includes the condensable fraction of particulates by conducting annual stack testing. While the source has options for the stack testing method it selects – as long as the State approves – the requirement for the source to certify compliance with the total PM/PM₁₀ limit, means that the stack test it selects must be one that measures condensables.³² Accordingly, the Petitioners have not demonstrated that the permit is flawed.

The Petitioners claim that the annual stack testing (which they identify as the only requirement in the Permit for monitoring the condensable fraction) is not sufficiently frequent to assure that the source complies with its total PM/PM₁₀ limit (which, as noted above, includes the condensable fraction). The Petitioners are correct that the permit explicitly identifies only annual stack testing as the method for directly monitoring the condensables fraction. However, after assessing multiple factors to determine the adequacy of the stack testing requirements to assure compliance with the total PM/PM₁₀

³¹ This point corresponds to the fourth factor in the test, which is “the type of monitoring, process, maintenance, or control equipment data already available for the emission unit.”

³² The Petitioners refer to a monitoring method that is described in an EPA regulation that is cross-referenced in Appendix A to 40 C.F.R. Part 60, Petition at 10, n. 42, but they do not clearly state an objection based on that monitoring method. In any event, if they are raising an objection concerning that monitoring method, they did not raise it in their comments on the Proposed Permit, and they have not demonstrated that it was impracticable to raise during the comment period or that the grounds for it arose after the comment period. As a result, any such objection is foreclosed. CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d).

limit, as described above, the EPA concludes that the Petitioners have not demonstrated that those requirements are inadequate. As noted above, the pollutants that are responsible for total PM/PM₁₀ (including the precursors for the condensable fraction) are well controlled through add-on controls; the MDE noted as part of its explanation that the plant has a history of achieving its emission limits, so that there is limited likelihood of a violation of the total PM/PM₁₀ limit; and the plant has adequate monitoring (*i.e.*, CEMS) for the pollutants that are responsible for total PM/PM₁₀. Within this context, the stack tests are a useful check on whether the source is meeting the PM/PM₁₀ limits. Although they are administered only once a year, that frequency is appropriately assessed in conjunction with the other provisions in the permit that address continuous compliance and the plant's track record. It should also be noted that stack tests are the only method available for directly measuring the condensable fraction of particulates. It should also be noted that the EPA has indicated approval for stack testing less frequently than annually, under certain circumstances. Specifically, the EPA has stated:

In certain circumstances, stack testing every 5 years, when used in conjunction with other more frequent monitoring techniques... could be appropriate, when viewed as a whole, where the permitting authority provides an adequate justification explaining the sufficiency of the monitoring scheme.

In the Matter of Yuhuang Chemical Inc. Methanol Plant, St. James Parish, Louisiana, Order on Petition No. VI2015-03 (Aug. 31, 2016), at 18 n.16 (emphasis and citations omitted) (*Yuhuang Order*).³³ Accordingly, the Petitioners did not demonstrate a flaw in the permit.

Petitioners claim that the MDE has failed to provide an adequate rationale explaining that the monitoring requirements assure compliance with the total PM/PM₁₀ emissions limit. Petitioners note that the MDE has stated in the record (in response to comments) that the Permit includes limits on SO₂ and NO_x; the source continuously monitors those pollutants; the monitoring has shown that the source has been in continual compliance with the limits; compliance with those limits provides “a reasonable level of confidence that” the source is continuously complying with the total PM/PM₁₀ limits; and in fact, the source's emission control technologies have the capacity for over-controlling SO₂ and NO_x, so that even short-term excursions would not jeopardize the annual cap on PM emissions.³⁴ Petitioners also object that the Permit does not contain any conditions that require the source to incorporate the SO₂ and NO_x emission limits and monitoring

³³ This point is useful for assessing the adequacy of monitoring requirements, as we have previously described as “the type and frequency of the monitoring requirements for similar emission units at other facilities.” Bull Run Order at 8.

³⁴ With respect to the Petitioners' reference to an “annual cap”: In the past, Raven agreed to keep its annual PM emissions under a certain level in order to avoid triggering Prevention of Significant Deterioration requirements. Fact Sheet at 13. The “annual cap” is not an applicable requirement that was included in the permit, but the source can meet it by adhering to the permit's PM/PM₁₀ limits. It is those PM/PM₁₀ limits that are the enforceable requirements and for which the monitoring requirements are required to assure compliance.

requirements as part of its demonstration of compliance with the total PM/PM₁₀ limit, or explain how the source could use the SO₂ and NO_x limits and monitoring requirements as part of such demonstration.

The MDE's explanation, as summarized immediately above, does identify key provisions of the Permit (including the SO₂ and NO_x emissions limits and monitoring requirements), and does explain how they, in conjunction with the source's history of compliance with the limits, support reliance on annual stack testing to assure compliance with the total PM/PM₁₀ limit.³⁵

The Petitioners state that the Permit does not include conditions that require the source to incorporate the SO₂ and NO_x emission limits and monitoring requirements as part of its demonstration of compliance with the total PM/PM₁₀ limit, or explain how the source could use the SO₂ and NO_x limits and monitoring requirements as part of such demonstration. While the Permit record and the MDE's explanation would have been more robust if the Permit had included those conditions or the MDE had provided such an explanation, under the particular facts of this case, it was not essential for the Permit to include those provisions or for the MDE to have provided such an explanation. Emissions from the source, including SO₂ and NO_x, as well as PM, are highly controlled and monitored. The MDE noted in the record that the source has been in compliance with the SO₂, NO_x, and PM (filterable) limits. The links between those emissions and total PM/PM₁₀, noted above, indicate that when the source meets those limits, it will meet the total PM/PM₁₀ limit. Moreover, the source has incentives to run those controls because if it does not, its emissions may exceed the SO₂, NO_x, or PM (filterable) limits, and thereby potentially cause violations. Under these circumstances, the MDE's rationale for the adequacy of stack tests was adequate, and the MDE did not need to impose the additional

³⁵ As noted above, the Petitioners object that the MDE does not include support in the record for its statements that the source has been in continuous compliance with its emission limits. We address this concern above.

obligations that the Petitioners suggest.³⁶ For these reasons, we do not find this objection to be persuasive.

V. CONCLUSION

For the reasons set forth above and pursuant to CAA § 505(b)(2), 42 U.S.C. 7661d(b)(2), COMAR 26.11.03.10, and 40 C.F.R. § 70.8(d), I hereby deny the Petition.

JAN 17 2018

Dated: _____



E. Scott Pruitt,
Administrator.

³⁶ The Petitioners cite *Yuhuang Order*, at 18, but the EPA's decision there does not control this case. There, the only requirement in the permit was the requirement to conduct a stack test every five years. The Petitioners commented that this was too infrequent. Neither the state agency, Louisiana Department of Environmental Quality (LDEQ), in its response to the comment, nor the permit record, addressed the frequency of the stack monitoring. Nor did the permit record indicate how the stack test information would be used to demonstrate compliance with the annual CO limit, *e.g.*, by directly measuring CO, or to establish an emission factor or other parameter. In the record, the LDEQ explained that the use of a continuous oxygen trim system would be important in determining compliance, but the permit did not require the use of such a system. Nor did the record explain how, if the use of such a system were required, its data would be used to demonstrate compliance with the annual CO limit on the boiler. In contrast, the permit for Raven requires annual stack testing based on the average of three tests, which is significantly more frequent than in *Yuhuang Order*, and the stack tests directly measure PM/PM₁₀, including condensables. Moreover, the MDE explains that the permit does require, in addition to stack testing, continuous emission monitoring of the pollutants responsible for PM/PM₁₀, including filterable PM, SO₂ and NO_x (which comprise condensable particulate matter). The record also explains that this frequency, in conjunction with other required monitoring, and coupled with the stringent emission limits on SO₂ and NO_x, assures compliance. For these reasons, the *Yuhuang Order* is distinguishable.