Commonwealth of Virginia

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MEMORANDUM

TO: Regional Directors
Regional Air Permit Managers
Regional Air Compliance Managers
Central Office Air Managers

CC: Jeffery A. Steers, Director of Central Operations

FROM: Michael G. Dowd, Director, Air and Renewable Energy Division MGD

SUBJECT: APG-200A9- Title V Air Permits Guidance Manual, Chapter 9 – Compliance Assurance Monitoring (CAM)

DATE: February 19, 2020

Purpose:

The purpose of this document is to update the existing guidance related to determining and implementing enhanced monitoring, referred to as Compliance Assurance Monitoring or CAM, pursuant to the Title V requirements of the federal Clean Air Act and Article 1 of the Commonwealth of Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution, 9VAC5 Chapter 80. The existing APG-200A - Title V Air Permits Guidance Manual was originally released in 1999 by the Virginia Department of Environmental Quality (DEQ) Office of Air Permit Programs (OAPP) and has been updated periodically.

Chapter 9 of the Title V Air Permits Guidance Manual discusses the review and application of Compliance Assurance Monitoring, or CAM, for an initial Title V permit or renewal of a Title V permit. Certain types of emission units are required to implement CAM in accordance with the federal Clean Air Act and Article 1 of the Commonwealth of Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution, 9VAC5 Chapter 80.

Each chapter and appendix of the existing Title V Air Permits Guidance Manual will be reviewed and updated as appropriate. The following updates have been made to the existing chapter:

Chapter 9:

1) Reformatted with ADA styles.
2) Revised chapter title and section headings/organization.
3) Removed definitions section for words that are otherwise defined in the Regulations (e.g., Part 64).
4) Removed discussion that properly belongs in other chapters. This language will be retained in the current version of APG-200A until the respective chapter is updated.
5) Detailed information that was applicable during initial implementation has been removed and replaced by a brief overview.

Electronic Copy:
Once effective, an electronic copy of this guidance will be available on:

- The Virginia Regulatory Town Hall under the Department of Environmental Quality (http://www.townhall.virginia.gov/L/gdocs.cfm?agencynumber=440);

Contact Information:
Please contact Patrick Corbett at 804-698-4016 or patrick.corbett@deq.virginia.gov with any questions regarding the application of this guidance.

Certification:
As required by Subsection B of § 2.2-4002.1 of the APA, the agency certifies that this guidance document conforms to the definition of a guidance document in § 2.2-4101 of the Code of Virginia.

Disclaimer:
This document is provided as guidance and, as such, sets forth standard operating procedures for the agency. However, it does not mandate any particular method nor does it prohibit any alternative method. If alternative proposals are made, such proposals should be reviewed and accepted or denied based on their technical adequacy and compliance with appropriate laws and regulations.

Chapter 9 – Compliance Assurance Monitoring (CAM)

Introduction

Compliance Assurance Monitoring (CAM) is a federally-established monitoring protocol required for major stationary sources that are required to obtain operating permits under Title V of the Clean Air Act (CAA). It was promulgated and published in the October 22, 1997 Federal Register.

The CAM regulation (40 CFR Part 64) requires owners or operators of major stationary sources to conduct monitoring that satisfies particular criteria to provide a reasonable assurance of compliance with applicable requirements under the CAA. Monitoring focuses on pollutant-specific emission units (PSEU) that rely on air pollution control equipment to achieve compliance with applicable requirements and standards or limits in air permits.

A PSEU is an emissions unit at the source that is considered separately with respect to each regulated air pollutant. There are two types of PSEUs: 1) "large" – a PSEU with a post-control potential to emit (PTE) regulated air pollutant(s) in an amount equal to or greater than 100 percent of the amount required for a source to be classified as a major source; and 2) "other" – a PSEU with a post-control PTE of regulated air pollutant(s) in an amount less than the major source threshold. A control device means equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge into the atmosphere (see definitions in 40 CFR 64.1).

In many cases a source's underlying permit(s) will contain monitoring requirements that will suffice for assessing compliance. However, if an underlying permit does not include periodic testing or monitoring for an applicable requirement(s), EPA requires the permitting authority to include periodic monitoring in the Title V permit to fill this gap.

CAM Applicability (40 CFR 64.2)

CAM applies to PSEUs at a given source that meet all of the following criteria:

- Unit is located at a major source for which a 40 CFR Part 70 Title V (TV) Permit is required;
- Unit is subject to an emission standard or limit for the applicable regulated air pollutant (or a surrogate, e.g., PM for PM10 or PM2.5);
- Unit uses a control device to achieve compliance with the emission limitation or standard; and
- Unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100% in tons per year of the major source thresholds.

Not all Title V sources will have emission units subject to CAM and some Title V sources may have multiple emission units and multiple PSEUs subject to CAM. It is important to note that one emission unit could be subject to CAM for multiple pollutants. The emission unit is considered separate with respect to each regulated air pollutant – and the term pollutant-specific emission unit (PSEU) is used to address this scenario. For example, a thermal dryer can be subject to CAM for both SO_2 and PM10 if the potential emissions from the dryer for these pollutants are equal to or greater than 100% of the amount (in tons per year) that triggers the source to be "major" and the other applicability criteria described previously are met. In this case, a CAM plan will be developed and implemented for each pollutant. If different types of control devices are used for an emission unit to control multiple pollutants, individual CAM plans will be developed and implemented for each type of control device and the specific pollutant(s) controlled.

Initially CAM did not apply to administratively complete applications received by April 20, 1998; those facilities applied CAM during the first renewal or during significant modifications if certain requirements were met.

Regulated Air Pollutants

Regulated air pollutants[1] include carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO_2), ozone, lead, PM10, PM2.5, volatile organic compounds (VOC), hazardous air pollutants (HAP), 112(r) chemicals, Class I and Class II ozone depleting substances, and all other pollutants for which new source performance standards (NSPS) have been established (including hydrogen chloride (HCl) and total reduced sulfur (which includes H_2S)). As is true for the Title V regulation, the term "regulated air pollutant" does not include PM for CAM. If an emission unit's PM PTE is major, but neither its PM10 PTE nor its PM2.5 PTE are major (and there are no other pollutants with major PTE), the emission unit is not subject to CAM. Appendix D includes further discussion on this topic of CAM applicability.

The list of HAPs can be found in Section 112 b (1) of the CAA and Section 7412 of the U.S. Code with updates to that list promulgated in 40CFR63 Subpart C. 40 CFR 68.130 contains the lists of chemicals subject to Section 112(r) of the CAA. Class I and Class II ozone depleting substances are listed at Appendices A and B, respectively, of Subpart A of 40 CFR 82.

Although both 112(r) chemicals and Class I and Class II ozone depleting substances (ODS) are regulated air pollutants, the regulations implementing 112(r) and ODS requirements do not trigger CAM. The 112(r) regulations require facilities to determine the impact of potential catastrophic releases, take steps to minimize the likelihood of such releases, and minimize the consequences of such releases should they occur. The regulations for ODSs similarly do not require control devices to minimize ongoing routine emissions. Instead, they limit usage/manufacturing of ODS, prohibit venting of ODS, require repair of "appliances" when ODS leaks are found, and require that trained technicians maintain ODS containing equipment. Also,

[1] Each of the permitting programs need to be reviewed to determine if there are different definitions for the pollutants that are regulated in that particular program. For example, PSD contains a definition for "regulated NSR pollutant" and Article 6 contains a definition for "regulated air pollutant."

as is noted in the Exemptions from CAM Rule section below, stratospheric ozone requirements are specifically exempted from CAM. Some of these substances would be regulated under other applicable requirements that would trigger CAM. For example, many of the ODS and 112(r) chemicals are also VOC, and would be regulated as such.

Exemptions from CAM Rule (40 CFR 64.2 (b))

Emission limitations are exempt from CAM when the standard contains sufficient monitoring requirements. The following emission limitations or standards are exempt:

- New Source Performance Standards (NSPS, 40CFR Part 60), State or Federal Plans implementing Emission Guidelines (40CFR Part 62) or National Emission Standards for Hazardous Air Pollutants (NESHAP (40CFR Part 61) and MACT (40CFR Part 63)) proposed after November 15, 1990;
- Stratospheric ozone protection requirements under Title IV of the CAA;
- Acid Rain Program requirements;
- Requirements that apply solely under an approved trading program that allows emission credit trading or selling;
- Requirements that cap total emissions in accordance with §70.4(b)(12) of the CAA; and
- When continuous compliance determination methods (as defined in 40 CFR 64.1 - e.g., CEMS, COMS, and PEMS) are specified in a Title V operating permit, the requirements of CAM do not apply to that specific emission standard or limit (or a surrogate thereof).

The only specifically exempted units from CAM are backup utility generators owned by a municipality as defined in 40 CFR 72.2. 40 CFR 64.2(b)(2) exempts backup utility power emissions units owned by a municipality and for which the owner or operator provides documentation in the application that:

- The unit is exempt from all Part 75 monitoring requirements;
- The unit is operated solely to provide electricity during peak demand or emergency periods; and
- The average annual emissions for the three previous years are less than 50% of the major source amount and emissions are expected to remain below the 50% level.

Monitoring Design Criteria (40 CFR 64.3)

General Criteria

The CAM rule states that units with control devices must meet certain general monitoring design criteria in order to provide reasonable assurance of compliance with emission limitations or standards for the anticipated range of operations at a PSEU. These criteria mandate the monitoring of one or more indicators of the performance of the applicable control device, associated capture system, and/or any processes significant to achieving compliance. General monitoring proposed for CAM units must include data on parameters that are indicative of the performance of the control device. These data may include one or more of the following:

- Direct measurement of emissions (see CEMS/COMS/PEMS discussion below);
- Process, capture system, and control device parameters affecting control device efficiency. One example in which process parameters would need to be monitored would be if the associated control device is not rated to handle the emissions from the process when the process is being operated outside of a certain range of parameters; and
- Records of inspection and maintenance activities.

In designing the monitoring plan to meet general and performance criteria, the owner or operator should account for at least the following site specific factors:

- Applicability of existing monitoring equipment and procedures;
- The ability of the monitoring to account for process and control device operational variability;
- The "reliability and latitude" built into the control technology; and
- The level of actual emissions compared to the emissions limitation.

If it is possible to bypass the control device, monitoring must also include a means for determining whether or not the control device is being bypassed unless specifically stated otherwise in an applicable requirement.

Performance Criteria

Data gathered must be representative of the emissions or parameters being measured.

New or modified monitoring equipment must be verified to be operating properly before the date when CAM monitoring is to be performed. Any manufacturer's requirements or recommendations for the monitoring equipment must be considered as part of this verification.

Quality assurance and quality control practices must be implemented to assure ongoing validity of the data. Again, monitoring equipment manufacturer's recommendations and requirements must be considered.

Specifications for the monitoring frequency, data collection procedures, and (if applicable) data averaging periods must be included.

Monitoring Frequency

The CAM rule specifies minimum data collection frequency for PSEUs based on their PTE:

- For "large" PSEUs: Four or more data values must be collected by the owner or operator of the source, equally spaced over each hour. The values should be averaged, as applicable. The permit writer may approve a reduced data collection frequency, if appropriate, based on information presented by the owner or operator. See 40 CFR 64.3 (b)(4)(ii) for more information regarding reduced frequency for large PSEUs.

- For "other" PSEUs: The frequency of data collection may be less than that required for the large PSEUs, however, data must be collected at least once per 24-hour period.

The monitoring frequency must be designed to obtain data at the minimum intervals above and that are based on the characteristics and typical variability of the PSEU, including the control device and associated capture system.

CEMS, PEMS, COMS

One method of assessing control performance is to monitor emission (or opacity) rates directly in order to track trends in emissions (or opacity) and document control effectiveness. This type of monitoring could include continuous emissions monitoring systems (CEMS), continuous opacity monitoring system (COMS), or predictive emissions monitoring system (PEMS).

EPA prefers continuous monitoring systems because they provide data directly in terms of the applicable emission limit or standard. As such, where continuous monitoring systems are already required by underlying regulations, emissions trading programs, judicial settlements, or through other circumstances, the CAM rule (64.3(d)(1) requires these systems be used for CAM for the applicable emissions units.

An exception to this requirement is when a COMS is used as a control device performance indicator, and both a PM10 and/or a PM2.5 and opacity standard apply. Indicator range(s) do not need to be specified for CEMS and PEMS because they provide data in units of the applicable emissions standard. However, when a COMS is used to monitor opacity as an indicator of compliance with a PM10 and/or PM2.5 standard, the indicator is not in terms of the PM10 and/or PM2.5 standard (e.g., gr/dscf); therefore an indicator range for opacity must be specified by the source that provides reasonable assurance of compliance with the PM10 and/or PM2.5limit(s).This pollutant-surrogate relationship at one emission unit will likely be completely different than that at another. It is the responsibility of the permit writer to review the CAM submittal and decide whether or not they are confident that 1) the value(s) are accurate for the control device's operating range when properly operated and maintained, and 2) the value(s) would demonstrate compliance with the applicable emission limit.

For sources that have an applicable PM10 and/or PM2.5 standard, an applicable opacity standard, and a requirement to continuously monitor opacity, it may be appropriate for the indicator range (percent opacity) and averaging time for PM10 and/or PM2.5 to be set at a lower level than the permitted opacity emission limit. For example, a source may propose using the 20 percent opacity limit from their permit as the indicator range (surrogate) for measuring PM10 from a fabric filter. As noted above, the permit writer should consider the indicator's relationship to the control device's operation and compliance with the limit. A properly maintained and operated fabric filter should not result in substantial opacity; therefore, the permit writer should consider using a lower opacity indicator range, such as 5 percent, or requiring the source to perform testing to demonstrate the high opacity is in compliance with the PM10 limit.

This COMS scenario is only applicable when a source chooses to monitor opacity as an indicator of compliance with a PM10 and/or PM2.5 standard. In cases where a COMS is required for

opacity separate from CAM, the COMS does not have to be specified as part of the CAM plan for PM10 and/or PM2.5 (like CEMS and PEMS). The owner or operator may propose other appropriate indicators (other than opacity) to satisfy CAM for PM10 and/or PM2.5.

Presumptively Acceptable CAM (40 CFR 64.4 (b))

A source can implement a monitoring plan identified by the EPA as "presumptively acceptable monitoring" to satisfy the requirements of the CAM Rule Monitoring Design Criteria, 40 CFR § 64.3. Presumptively acceptable monitoring methods are listed in 40CFR64.4(b)(1)-(5) and include monitoring for limits exempted from CAM discussed above and monitoring listed in EPA Guidance (EPA's *Technical Guidance Document: Compliance Assurance Monitoring)*. The EPA Technical Guidance Document has not been updated since 2004; do not solely rely on this document for presumptively acceptable monitoring methods via NESHAPs and NSPS rules.

In many cases the owner / operator of a source may propose presumptively acceptable monitoring to DEQ without additional permit content or justification other than an explanation of the applicability of such monitoring to the unit in question. This presumption of acceptability is rebuttable, and, if information or evidence rebutting the presumption is brought forward, the source must bear the burden of justifying that the proposed monitoring complies with Part 64.

Submittal Requirements (40 CFR 64.4)

Owners / operators must submit a plan to implement CAM to DEQ for approval. The following is an overview of what components a permit writer must be provided in a proposed CAM plan:

- Description of the indicators being monitored;
- Description of the ranges or process to set indicator ranges;
    - This description may be supplemented by engineering assessments or manufacturer's recommendations to justify the proposed indicator range (if the verification procedures or QA/QC differ from manufacturers' recommendations, a rationale for these differences should be included). The selected range for the indicator(s) need to provide a reasonable assurance of on-going compliance with the applicable emission limitation.
- Description of performance criteria for the monitoring (as specified in 40 CFR 64.3);
- Justification for the use of parameters, ranges and monitoring approach;
- Emissions test data for the control device;
- Test plan and schedule for obtaining data, if performance test data are not available; and
- An implementation plan for installing, testing, and operating the monitoring process (if applicable). The plan should be implemented as expeditiously as possible but should be completed no more than 180 days after permit approval.

In general, reference method testing is required to correlate emission levels to control device parameters. If reference test data do not exist, a test plan and schedule must be submitted unless it can be demonstrated that testing is unnecessary to establish appropriate indicator ranges. If the applicable rule does not specify conditions, the performance test must be conducted under

conditions representative of maximum emissions potential under anticipated operating conditions for the PSEU. Emission testing is not required over the entire range of potential emissions.

Where previous test data is being utilized, the source must document that no changes that would significantly affect the control system performance or the selected ranges or designated conditions have occurred since the reference method test used for justification was conducted.

If one control device is common to more than one PSEU, the owner or operator only needs to submit one CAM submittal for the control device. Subsequently, the affected PSEUs should be identified in the plan as well as any process or associated capture device conditions that must be maintained or monitored specific to those PSEUs. Similarly, if a single PSEU is controlled by multiple control devices similar in design and operation, the owner or operator may submit a CAM plan that applies to all the control devices as long as it identifies the control devices affected and any other process or associated capture device conditions that must be maintained or monitored in accordance with the CAM rule.

Timing – Submittal of CAM information (40 CFR 64.5)

The owner or operator submits the CAM plan with a Title V Permit application. For those sources with control equipment already operating under a CAM plan in an existing Title V permit, permit renewal applications must include an updated CAM plan incorporating any applicable requirements not included in previous plan. If a CAM plan is submitted with a significant modification application, the CAM documents only pertain to units affected by the modification. The submitted CAM plan is subject to revisions pending the review by the permit writer or comments from the public or EPA prior to issuance of the final permit.

Approval of the Source's Monitoring Plan (40 CFR 64.6)

In order for a CAM plan to be approved, it must include the monitoring design criteria and submittal requirements specified in 40 CFR 64.3 and 64.4 and discussed in this chapter.

DEQ permit writers will evaluate CAM submittals for completeness and adequacy. If additional information is needed or changes are required, the permit writer should contact the source in writing or by email indicating the deficiencies in the submittal. Under 9VAC5-80-80, the owner / operator is required to promptly provide additional information as requested by DEQ "to evaluate or take final action on that permit" – this includes the CAM plan.

Once the CAM plan is determined to be acceptable or is under conditional approval (see §64.6(b)), the permit writer incorporates the CAM plan into the Title V permit.

Permit Conditions (40 CFR 64.6)

The permit writer must include appropriate permit terms that reflect the CAM monitoring requirements. At a minimum, the permit writer must include the following requirements for CAM in the Title V permit:

- Indicators, monitoring methods (e.g., device, observation, etc.), and the performance requirements that satisfy §64.3(b) or (d) and discussed in this chapter;
- Description of the means by which the owner or operator will define an exceedance or excursion for purposes of responding to the event as well as reporting to DEQ;
- The obligation of the owner or operator to conduct monitoring, submit reports, maintain records, and if applicable, identify any QIP obligations;
- Description, as applicable, of the minimum data availability requirement for valid data collection for each averaging period, and, if appropriate, a minimum data availability requirement for the averaging periods in a reporting period; and
- If the proposed monitoring requires installation, testing, or final verification of operational status, the permit must include a schedule with milestones for completion of such tasks.

An excursion is a departure from the indicator range specified and an exceedance is a condition that indicates that an applicable limitation has been surpassed.

Other requirements or issues that may be applicable to the source:

- If the monitoring plan requires installation, testing, or final verification, an enforceable schedule with milestones must be included in the permit.
- Data availability requirements may be addressed in the permit.
- DEQ may condition approval on collection of additional data.
- DEQ may approve CAM either by issuance of a letter or by issuance of a permit containing the CAM plan.

If the permit writer determines that the CAM plan proposed by the owner or operator does not satisfy CAM, the permit must include monitoring, at a minimum, that meets the monitoring provisions in the federal and state Title V regulation, 40 CFR Part 70.6 and 9VAC5-80-110 E, respectively. In addition, DEQ is required to impose a compliance plan requirement in the Title V permit that directs the owner or operator to re-propose monitoring within no more than 180 days after disapproval. Ideally the permit writer and owner or operator would come to an agreement with the CAM plan prior to permit issuance and this would be a moot point. For more information on how to address this issue, see 40 CFR 64.6(e)

Implementation of CAM (40 CFR 64.7)

CAM monitoring must be implemented immediately upon issuance of the permit unless the permit specifies an implementation schedule. The source is required to maintain the monitoring system, including maintaining necessary parts for routine repairs of the monitoring equipment.

The CAM plan is required to be in effect at all times the PSEU is in operation except when the monitoring is malfunctioning, being repaired, or undergoing QA/QC activities.

If and when excursions or exceedances are detected, the source is required to restore the control device to proper operation as expeditiously as possible.

Should there be a need to revise monitoring to improve detection of excursions or exceedances (for example, if an excursion or exceedance is determined by some means other than CAM monitoring), the source is required to promptly notify the appropriate DEQ regional office and make any necessary modifications to the monitoring plan. Any changes made to the CAM plan, regardless of whether the CAM plan is in the body of the permit or an attachment would require a revision to the Title V permit. Where the changes meet the requirements for a significant modification, the revision must go through public participation.

Quality Improvement Plans (QIP) (40 CFR 64.8)

A Quality Improvement Plan (QIP) may be required where the owner / operator has failed to satisfy the general duty to properly operate and maintain an emissions unit (including the applicable control device) or the owner / operator has evidence of a failure to comply with an applicable requirement, as determined through Part 64 monitoring data and/or other appropriate information (such as inspections). 40CFR64.8 describes the use of a threshold for requiring a QIP, or ratio of excursions to "in range" monitored values of 5%, which may be used as a default in the QIP condition of a Title V permit. A QIP would include both an initial "problem investigation" phase and a "corrective action" phase.

When a QIP is required, it must include procedures for evaluating the control device performance problems. Based on the results of the evaluation, the QIP must be modified to include procedures for conducting one or more of the following:

- Improved preventive maintenance procedures
- Process operation changes
- Improvements to control methods, and/or
- Other steps as appropriate to correct control performance

More frequent or improved monitoring may also be required as a result of the QIP, but one or more of the above elements must be included.

When determined a QIP is required, it must be developed as expeditiously as possible. The owner or operator must notify DEQ if the period required to implement the improvements required in the QIP is 180 days or more after the date on which the QIP was determined to be required.

The QIP may be modified at any time after its implementation if it fails to address or find the cause of the control device problems or did not correct the problems as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

Implementing a QIP does not excuse the owner or operator from compliance with any emission limitation or standard, or any existing monitoring, testing, reporting, or recordkeeping requirement that may apply under federal, state, or local law.

Recordkeeping and Reporting (40 CFR 64.9)

Facilities subject to CAM are required to submit compliance reports with the Title V semi-annual monitoring report and promptly report deviations from permit requirements. The CAM report must include:

- Summary information on the number, duration, and cause of excursions and exceedances and corrective actions taken (if applicable);
- Summary information on the number, duration, and cause of monitor downtime incidents (if applicable); and
- A description of the actions taken to implement a QIP (as applicable). Upon completion of a QIP, the next summary report must include documentation that the plan has been completed and reduces the likelihood of similar levels of excursions or exceedances occurring.

Recordkeeping must be in compliance with 9VAC5-80-110F and the source must maintain the following data:

- Records of monitoring data;
- Monitor performance data;
- Corrective actions taken;
- QIP plan (if applicable);
- Records of any activities taken to implement a QIP; and
- Any other data required to be kept under this Part.

Records in forms other than paper are allowed if these alternative forms of recordkeeping allow for expeditious inspection and review. However, if other applicable requirements require paper records, those requirements override and paper records must be kept.

Appendix A - Examples of Virginia Title V Permits with CAM Conditions

Many examples of incorporating CAM into Virginia Title V permits can be found in CEDS. Below are three examples of approved permits from around the Commonwealth that incorporate CAM language:

1. BRRO Permit, Huber Engineered Woods, LLC. (30905). Effective date: 7/7/2016

The permit includes separate conditions for each PSEU unit under the "Process Equipment Requirements" section of the permit. In Conditions 44, 45, and 46, the permit references the attached CAM plan as "the approved monitoring plan" and that this plan will be used to monitor the control equipment for each targeted pollutant (e.g., CO, PM10, and VOC).

In a separate CAM-specific section later in the permit – "General Compliance Assurance Monitoring (CAM) Provisions", the majority of the CAM boilerplate language has been incorporated. For this particular example, Condition 125 is similar to Title V Boilerplate Condition 39, with the exception of the table. In the permit Condition 125 elaborates on 40 CFR 64.6(c), part of the CAM regulation that details how the required monitoring should be specified in the permit.

2. SWRO Permit, Russell Coal Company, LLC. (10235). Effective date: 5/6/2015

CAM is separated as a subset of the "Fuel Burning Equipment" section of the permit. The table in Condition 13 of the permit is more elaborate than that of the boilerplate CAM table. The indicators are the row headings and the information and methods used to ensure compliance are specified in the column headings. This table is effectively the CAM plan itself. Conditions 14 through 20 of the permit incorporate the remaining conditions of the CAM boilerplate.

3. SWRO Permit, Wolf Hills Energy, LLC. (11348). Effective date: 12/2/2014

CAM in this permit is not addressed as a separate section in the permit. All CAM boilerplate conditions are incorporated into the "Fuel Burning Equipment Requirements (Conditions 22-29, 34, and 38). Note: The table in Condition 22 has more specific headings than those of the boilerplate language.

Appendix B - Examples of CAM Monitoring Approach Submittals (EPA Document)

Examples of CAM submittals are available in Appendix A of EPA's *CAM Technical Guidance Document*. The examples are based on case studies of current monitoring approaches in use at actual facilities but are not necessarily the only acceptable monitoring approaches for the facility used in the example or similar facilities. An owner or operator of a similar facility may propose a different approach that satisfies 40 CFR Part 64 requirements.

Appendix C - Evaluating for CAM Applicability

It is the responsibility of the permit writer to make the determination for CAM applicability, regardless of the determination made by the owner or operator. Determining CAM applicability can be a complicated process. This Appendix is intended to help guide the permit writer to make that determination as efficiently as possible.

The following numbered statements are intended to assist the permit writer determine CAM applicability. For more information on applicability, refer to the regulation, 40 CFR 64.2 and the final rule published in the Federal Register on October 22, 1997.

The second section of the Appendix is a series of scenarios that can be used to further assist the permit writer with CAM applicability evaluations.

Is the Source Subject to CAM?

1. Determine if the source meets the definition for "major source" as defined by the Title V regulation. If not, the source will not have emission units subject to CAM.

2. If the source is determined to be a "major source", determine if emission units with control devices are subject to CAM. An emission unit is subject to CAM if it meets ALL of the applicability criteria in 40 CFR 64.2 (also listed on page 2 of this document). If no emission units at the source meet all of these criteria, then CAM is not applicable.

3. If emission units are subject, determine the regulated air pollutants being emitted by each emission unit and whether, pollutant-by-pollutant, it is a "large" PSEU, an "other" PSEU, or a PSEU not subject to CAM.

An emission unit might be major for both SO_2 and CO PTE before control and use a control device (or devices) to control emissions of both pollutants. However, if there were no applicable requirement requiring CO control while an applicable requirement required an add-on control device for SO_2, the unit would be a "large" PSEU for SO_2 and a PSEU not subject to CAM for CO. Therefore the emission unit's SO_2 controls would be subject to CAM. However, the control device for CO emissions from the unit would not be subject to CAM.

Evaluating for CAM Applicability

Scenario 1

A source with 10 emission units is determined to be "major" per the Title V regulation. The regulated air pollutant is CO and each emission unit has a PTE of 20 tons per year of CO. There are no add-on emission controls and no emission limitations on these units. Is this source subject to CAM?

We know the source is considered "major" for Title V purposes with 10 emission units with 20 tons per year PTE for CO per emission unit, or 200 tons per year. Because the PTE for each

emission unit does not exceed the major source threshold of 100 tons per year, none of the emission units are subject to CAM.

Scenario 2

A source with multiple emissions units is determined to be "major" per the Title V regulation. One of the emissions units is a boiler with uncontrolled PTE of CO, NOx, and SO_2 that exceeds major source thresholds. However, the boiler is required to have an add-on emission control device for CO, NOx, and SO_2. The post-control PTE for the three pollutants are below major source thresholds. The boiler is also classified as a minor source for both uncontrolled and post-control PTE of other regulated air pollutants, including PM10.

The other emission units at the source are identical storage tanks. VOC is the only regulated air pollutant for the tanks, and each tank is required by an applicable requirement to be controlled by an add-on emission control device. The uncontrolled PTE for each tank is 10 tons per year of VOC and the post-control PTE is 0.5 tons per year of VOC. (In the area in which the tanks are located, the major source threshold for VOC is 100 tons per year). Is the source subject to CAM?

Which emission units are subject to CAM?

> The boiler is major (pre-control) for CO, NOx, and SO_2 and meets the other criteria for CAM applicability (subject to emissions limitations and uses add-on emission controls to meet these limits). It is not subject to CAM for PM10 and the other emitted regulated air pollutants because emissions (both pre- and post-control) are below major source thresholds.
>
> The storage tanks are not subject to CAM. Although they are subject to emission limitations and are required to use add-on emission control equipment to meet these limitations, uncontrolled PTE is below the major source threshold.

Determine if the PSEU is "large" or "other."

> Identify the pollutants emitted from the emissions unit subject to CAM. In this case those pollutants are CO, NOx, and SO2. Because there are several regulated air pollutants emitted from this boiler, each PSEU must be evaluated for "large" or "other" classification. The boiler is determined to be an "other" emission unit for all three pollutants because the post-control PTE is below major source thresholds.

Scenario 3

A major source has several emissions units, one of which is a boiler. This boiler has uncontrolled PTE for CO, NOx, and SO2 that exceed the major source thresholds. Post-control PTE for NOx and SO2 are below major source thresholds. However, post-control PTE of CO remains above the major source threshold. The boiler is subject to emissions limitations for all three of these pollutants and is required to use add-on emissions controls to meet all of these limitations.

The boiler's PTE for PM10 and all other regulated air pollutants both before and after control is below major source thresholds.

The remaining emissions units at the source are multiple identical storage tanks. The regulated air pollutant from each of these tanks is VOC and each tank is required by an applicable requirement to have an add-on emissions control device. The uncontrolled PTE for each tank is 10 TPY and the post-control PTE for each tank is 0.5 TPY.

Which emission units are subject to CAM?

> The boiler is subject to CAM because the uncontrolled PTE for CO, NOx, and SO2 are above major source thresholds.
>
> The storage tanks are not subject to CAM because the uncontrolled PTE is below the major source threshold for VOC.

Determine if the PSEU is "large" or "other."

> Because uncontrolled PTE of NOx and SO2 are above major source thresholds and PTE post-control for both of these regulated air pollutants are below major source thresholds, the boiler would be considered an "other" unit under CAM for NOx and SO2. However, because post-control PTE for CO exceeds the major source threshold of 100 tons per year, the boiler is considered a "large" PSEU for CO.
>
> However the boiler is not subject to CAM for PM10 and the other emitted regulated air pollutants because the pre-control PTEs are below major source thresholds.

Appendix D – CAM Applicability to PM

(Formerly Appendix ZD in Title V Air Permits Guidance Manual, last updated December 2016)

From: Opila, MaryCate [mailto:Opila.MaryCate@epa.gov]
Sent: Thursday, September 08, 2016 10:28 AM
To: Corbett, Patrick (DEQ); Thompson, Tamera (DEQ)
Cc: Campbell, Dave
Subject: RE: CAM Discussion Summary for Tomorrow's Call with Virginia

Hi Tamera and Pat,

It was nice speaking with you and the permit managers last week. We are looking forward to more such conversations.

I wanted to follow-up about our conversation about CAM applicability to PM: we looked into this issue further and continue to agree with your interpretation that "a unit with less than major emissions of PM10 and PM2.5 would not be subject to CAM, even if emissions of PM were major." I think this goes without saying, but other regulated air pollutants would still need to be analyzed to determine if the unit would be subject to CAM for some other pollutant.

Please let Dave or me know if you would like to discuss further.

Thanks!
Mary Cate

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From: Faggert, Stanley (DEQ)
Sent: Wednesday, August 17, 2016 11:11 AM
To: Brown, Jed (DEQ); Feagins, Rob (DEQ); Corbett, Patrick (DEQ); Franklin, Wayne (DEQ); Kyle, James (DEQ); LaFratta, James (DEQ); Pandey, Janardan (DEQ); Thompson, Tamera (DEQ); Foster, Amber (DEQ); Corbett, Patrick (DEQ)
Subject: RE: CAM applicability for particulate matter

The most relevant guidance I have located (and as referenced in Jed's original email) is the attached 1995 memo where EPA clearly states that PM-10 should be used for Title V (Part 70/71) applicability and fee assessment purposes. Selected passages include:

- The EPA has recently reevaluated this finding and has concluded that its definition of regulated air pollutant under title V applies only to emissions of PM-10.

- It is EPA's current position that different indicators for particulate matter may be used as surrogate measures where appropriate for controlling ambient concentrations of PM-10 without specifically requiring such surrogates themselves to be regarded as regulated pollutants.

- The immediate consequence of this policy is that under the title V operating permits program only PM-10 is considered by EPA to be the regulated form of particulate matter for applicability and fee purposes.

- This revision of previous guidance constitutes a change only with regard to the title V operating permit program. It does not change any other interpretations or requirements that have been previously provided for implementing the Clean Air Act.

The memo does not reach a similar overt conclusion regarding PM/PM-10 applicability for Part 64 (CAM), but to me, the justification is logically transferable; i.e. if PM is not considered a regulated air pollutant under Part 70/71, then PM is also not a regulated air pollutant for Part 64 since the Part 64 definition of regulated air pollutant directly references Parts 70/71:

- *Regulated air pollutant* shall have the same meaning as provided under part 70 or 71 of this chapter.

Also, Part 64 did not exist at the time of the 1995 memo, so it would have been impossible for EPA to address CAM at that time.

However, the following discussion was included in the Part 64 final rule preamble:

- Emission Limitation or Standard Criterion. For the first criterion, the Agency notes that part 64 applies only if an applicable emission limitation or standard applies because the purpose of part 64 is to provide a reasonable assurance of compliance with such requirements. ...The Agency agrees that the rule should clearly state that part 64 applies only where a federally enforceable emission limitation or standard applies and thus has added this first criterion to the applicability determination. The Agency also notes that the applicability provisions in part 64 include a "surrogate" of a regulated air pollutant to address situations in which the emission limitation or standard is expressed in terms of a pollutant (or other surrogate) that is different from the regulated air pollutant that is being controlled. A common example would be emission limits expressed in terms of particulate matter and opacity rather than PM-10. Another example would be an emission limit expressed as a control device operating requirement rather than in terms of the applicable regulated air pollutant.

My interpretation of this language is that for Part 64, PM-10 is a regulated air pollutant, but PM and opacity are not. This seems to match the 1995 memo's regulatory construction. As Jed

describes below, 80-50 F has been included in our regulations to address Title V applicability, but our regulations just refer to Part 64 for CAM.

Based on this analysis, my proposal is that VA-DEQ should base our emission unit-specific CAM applicability determinations on PM-10 and not PM. The Title V manual would be revised to reflect this interpretation/clarification. As a partial aside, I couldn't locate any independent support for the current Title V manual's very casual treatment of PM as CAM triggering pollutant.

Example 1
An emission unit has pre-controlled PM-10 emissions of 80 tons/yr and pre-controlled PM emissions of 120 tons/yr.

This unit would not be subject to CAM for PM or PM-10 even if there is a PM emission standard and a PM control device.

Example 2
A material handling emission unit with pre-controlled PM-10 emissions of 110 tons/yr and pre-controlled PM emissions of 130 tons/yr is subject to a PM emission standard of 0.01 grains/dscf and uses a fabric filter to achieve compliance with this limit. There is no PM-10 emission standard.

This unit would be subject to CAM for PM-10: (1) the unit has pre-controlled PM-10 emissions >= 100 tons/yr; (2) the unit is "subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof)" where the "applicable regulated air pollutant" = PM-10 and the "surrogate thereof" = PM; and (3) the unit uses a control device to achieve compliance with the emission standard.