Air Permit Reviewer Reference Guide

APDG 5824

Compliance Assurance Monitoring

Provides guidance and options for submitting compliance assurance monitoring (CAM) requirements for Federal Operating Permits

Air Permits Division
Texas Commission on Environmental Quality
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Compliance Assurance Monitoring

Background

Compliance Assurance Monitoring (CAM) is a federal monitoring program established under Title 40 Code of Federal Regulations Part 64 (40 CFR Part 64). The CAM program was implemented under the authority of 30 TAC Chapter 122, Subchapter G to establish minimal monitoring requirements for state and federal rules that lacked sufficient monitoring, testing, and record keeping requirements to show compliance with an emission limitation or standard. The purpose of this Guidance Document is to provide monitoring options for implementing CAM. The use of the CAM Guidance Document is optional and permit holders may elect to provide a CAM determination to the Texas Commission on Environmental Quality (TCEQ) for review and approval to satisfy the requirements of 40 CFR Part 64. As permit holders apply for CAM, the executive director will review the appropriateness of any monitoring option selected, as well as any additional, site-specific requirements that may be necessary to satisfy 40 CFR Part 64. Once approved, the monitoring option will be codified in the permit holder's Federal Operating Permit (FOP) consistent with the procedures in 30 TAC Chapter 122. Additionally, permit holders of sites applicable to 30 TAC § 122 should review permits obtained through 30 TAC § 116, New Source Review (NSR) for CAM applicability. If CAM is required, an alteration request should be submitted to the TCEQ in accordance with the policy memo dated July 15, 2005. If existing CAM requirements for NSR are contained in the FOP, these requirements should be placed into the appropriate NSR permit at FOP renewal. Additionally, if CAM requirements are added to the NSR permit, CAM may still need to be added to the FOP for other applicable rules.

Permit holders should note that CAM requirements in both FOP and NSR permits, for similar or the same emission units, may differ in stringency (for example: frequency of data collection) as this Compliance Assurance Monitoring guidance contains minimal monitoring requirements to satisfy 30 TAC Chapter 122, Subchapter G. Through review, it may be determined that additional or more stringent requirements may be needed for 30 TAC Chapter 116 requirements. In addition, if a NSR permit is using a continuous opacity monitoring system (COMS), predictive emissions monitoring system (PEMS) or continuous emissions monitoring system (CEMS) to demonstrate compliance with an emission limit, the permit holder must use these monitors for CAM proposals for other applicable requirements in the FOP. See Title 40 CFR § 64.3(d)

CAM Applicability

CAM applies to emission units [excluding those identified in CAM Exemptions (next section)] at major sources that are subject to 30 TAC Chapter 122 and must meet all the following:

- The emission unit is subject to an emission limitation or standard for an air pollutant (or surrogate thereof) in an applicable requirement;
- The emission unit uses a control device to achieve compliance with the emission limitation or standard; and
- The emission unit has the pre-control device potential to emit greater than or equal to the amount in tons per year required for a site to be classified as a major source.

Applicability for CAM must be determined on a pollutant-by-pollutant basis; therefore, all of the above criteria must be satisfied for a particular pollutant for each emission unit to be subject to CAM for that pollutant.

CAM Exemptions

The CAM requirements do not apply to any of the following:

- Emission limitations or standards proposed by the EPA after November 15, 1990 under the (Federal Clean Air Act Chapter 111 (Standards of Performance for New Stationary Sources) or FCAA § 112 (Hazardous Air Pollutants);

- Emission limitations or standards under FCAA, Title IV (the Acid Rain Program);

- Emission limitations or standards under FCAA, Title VI (Stratospheric Ozone Protection);

- Emission limitations or standards that apply solely under an emissions trading program approved or promulgated by the EPA under the FCAA that allows for trading emissions;

- Emission caps that meet the requirements specified in 40 CFR § 70.4(b)(12) (State Program Submittals and Transition);

- Other emission limitations or standards specified as exempt by the EPA; or

- Other emission limitations or standards specified as exempt by the EPA; or emission limitations or standards for which an applicable requirement specifies a continuous compliance determination method, unless the applicable compliance method includes an assumed control device emission reduction factor that could be affected by the actual operation and maintenance of the control device (such as a surface coating line controlled by an incinerator for which continuous compliance is determined by calculating emissions on the basis of coating records and an assumed control device efficiency factor based on an initial performance test).

In addition, CAM requirements shall not apply to a utility unit, as defined in 40 CFR § 72.2 (Definitions), that is municipally-owned if the permit holder documents in a permit application the following:

- The utility is exempt from all monitoring requirements in 40 CFR Part 75 (Continuous Emission Monitoring) (including the appendices);

- The utility unit is operated for the sole purpose of providing electricity during periods of peak electrical demand or emergency situations, as demonstrated by historical operating data and relevant contractual obligation, and will be operated consistent with that purpose throughout the permit term; and

- The actual emissions from the utility unit, based on the average annual emissions over the last three calendar years of operation (or the total time the unit has been in operation for a unit in operation less than three years), are less than 50% of the amount in tons per year required for a site to be classified as a major source and are expected to remain so.

Submittal of CAM Requirements

The permit applicant submits CAM requirements as part of a FOP application using the TCEQ OP-MON form. The permit applicant can use one of two procedures for determining the monitoring requirements for each emission unit subject to CAM. The first procedure is selecting the appropriate pre-approved CAM option listed in this guidance document. The second procedure is submitting case-by-case monitoring requirements for review and approval. These procedures are described below in detail.

Pre-approved CAM options

To streamline the submittal of CAM requirements, the permit applicant may select a monitoring option from the CAM Guidance Document. The CAM Guidance Document is a codification of monitoring options that meet the requirements of 40 CFR Part 64 and are pre-approved, by the TCEQ, for use in FOPs. Permit holders, that choose one of the monitoring options contained in the CAM Guidance Document, may simply select an option which is appropriate for the emission unit control device combination, and supply a deviation limit with appropriate justification.

Steps for Determining Appropriate CAM Option(s):

I. The permit holder shall first identify if the emission unit is subject to CAM. If an emission unit is subject to an underlying applicable requirement and meets the CAM applicability criteria then a monitoring option appropriate for the emission unit is contained in the following CAM Monitoring Options Table. In addition, check the list of exemptions to make sure the emission unit is subject to the CAM requirements. If the emission unit meets one of the exemptions listed above then the emission unit is exempt from the monitoring requirements of CAM. If the emission unit isn't subject to an exemption then the permit holder shall proceed to identify the appropriate monitoring option in the following table.

II. The permit holder shall select the control device used to comply with the underlying emission limitation or standard. Different control devices are identified in shaded rows throughout the table. The monitoring options appropriate for each control device are listed below the shaded row identifying the control device. If multiple control devices are needed to comply with an emission limitation or standard for a unit, the permit holder shall select a monitoring option for each control device. If the permit holder is having trouble identifying the type of control device the definition of control device is contained in 30 TAC § 122.10 and 40 CFR § 64.1. The definition in 40 CFR § 64.1 describes the types of equipment that is considered a control device in accordance with the requirements of CAM. In addition, the underlying applicable requirement further defines individual types of control devices. Therefore, if the control device is installed to meet the requirements of a state regulation, the appropriate definition for that particular control device should be contained in either 30 TAC Chapter 101 (General Rules) or in the definitions contained in the underlying applicable requirement. If the underlying requirement is a federal regulation, then the federal definition for the individual control device is the most appropriate.

III. After the appropriate control device has been identified, the permit holder shall select the indicator(s) that will be monitored. Any monitoring option, appropriate for the type of control device and size of the emission unit, can be utilized to meet the CAM requirements. However, note that the emission unit may already be subject to monitoring requirements which are contained in the underlying applicable requirement. The guidance document will have a monitoring option for the permit holder to choose, that will represent the monitoring requirements from the underlying applicable requirement. Therefore, to minimize the monitoring requirements applicable to a given emission unit the permit holder may want to pick the monitoring option that coincides with the monitoring in the underlying applicable requirement.

To help clarify, the following example is provided. A stationary gas turbine is subject to 40 CFR Part 60, Subpart GG, specifically § 60.332. Title 40 CFR § 60.332 are standards for nitrogen oxides. The stationary gas turbine uses water injection to control emissions of nitrogen oxides. Therefore, the owner or operator of the stationary gas turbine is subject to the monitoring requirements contained in 40 CFR § 60.334 which state that the owner or operator shall install a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. Therefore, to minimize the amount of monitoring the permit holder will have to conduct for the stationary gas turbine, the applicant should choose the CAM monitoring option, contained in the table, for monitoring the fuel consumption and the ratio of water to fuel being fired in the turbine. However, the owner or operator has the ability to choose a different monitoring option, other than monitoring the fuel consumption and the ratio of water to fuel being fired in the turbine, to demonstrate compliance with the CAM requirements for an emission unit. Using the same example, the underlying applicable requirement requires the owner or operator of a stationary gas turbine to monitor the fuel consumption and the ratio of water to fuel being fired in the turbine. However, the permit holder chooses to monitor NOx emissions using a portable analyzer to demonstrate compliance with the CAM requirements. In this case, the owner or operator must monitor the fuel consumption and the ratio of water to fuel being fired in the turbine to demonstrate compliance with 40 CFR Part 60, Subpart GG and must monitor NOx emissions using a portable analyzer to demonstrate compliance with the CAM requirements.

The indicator(s) are located in the first column of the table. Each indicator or combination of indicators begins with a new number. For further clarification, a dotted line is placed in between multiple indicators to represent a combination of indicators that must be monitored together. For example, one of the options for a wet scrubber specifies monitoring both pressure drop and liquid flow rate. This item represents one monitoring option that has two indicators that need to be monitored. The pressure drop and liquid flow rate are separated by a dotted line to represent that the combination of pressure drop and liquid flow rate must be monitored.

IV. Once the indicator(s) is selected, the permit holder shall determine if the monitoring options for small emission units or large emission units are appropriate. A “Small” designation in the cell to the right of the indicator identifies appropriate monitoring options for small units subject to CAM. Small units are those with a pre-control device potential to emit greater than the major source thresholds, but post-control device potential to emit less than the major source thresholds. Large units are those with a pre-control device and post-control device potential to emit greater than the major source thresholds. If a designation of “Small/Large” appears in the cell to the right of the indicator, the option is appropriate for both small and large units subject to CAM. Large units should always use the monitoring options with the designation of “Small/Large.” Small units have the option of using monitoring options with either a “Small” or “Small/Large” designation.

V. After the appropriate size is determined, the remaining monitoring requirements are defined. The column “Monitoring Specifications and Procedures” may establish the calibration frequency and the accuracy requirements for the control device. This column may also specify procedures or test methods to be used in collecting the monitoring data. Therefore, this particular column will specify all the quality assurance and control procedures, verification procedures, and specifications for obtaining data that is representative of the indicator being monitored to satisfy the CAM requirements.

In addition, the deviation limit or procedures for establishing a deviation can also be found in the "Monitoring Specifications and Procedures" column. The deviation limit may be expressed as a value, a range, or a condition. Unless the deviation limit is specifically defined by the monitoring option (1500 °F), a proposed deviation limit must be submitted in the application [using the TCEQ Title V Form OP-MON entitled "Monitoring Requirements"] along with a justification for the proposed deviation limit.

For most monitoring options the Guidance Document contains procedures for establishing the deviation limit. These procedures require that a minimum and/or maximum (as appropriate) indicator value be established using a performance test, manufacturer's recommendations, engineering calculations, or historical data. However, some deviations limits are the underlying emission limitation. For example, if the permit holder chooses opacity as the indicator then the deviation limit is specified as the applicable or corresponding opacity limit. If the emission limitation or standard is an opacity limit then the deviation limit is simply that opacity limit. If opacity is selected as an indicator of a particulate matter standard, the corresponding opacity limit is the opacity limit associated with the particulate matter standard in the underlying applicable requirement. If there is no corresponding opacity limit in the underlying applicable requirement, the maximum opacity will be established using the most recent performance test.

VI. The minimum frequency for collecting the monitoring data is specified in the next column as "once per day," "four times per hour," "six times per minute." The permit holder may elect to collect monitoring data on a more frequent basis than is required by the monitoring option and average the data, consistent with the averaging time specified in the monitoring option, for purposes of determining whether a deviation has occurred. However, the additional data points must be collected on a regular basis. In no event shall data be collected and used in particular instances to avoid reporting deviations. In addition, all monitoring data shall be collected in accordance with the requirements specified in 40 CFR § 64.7(c), which states:

> Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emission unit is operating.

VII. If appropriate, an averaging time is provided in the column titled, "Average." An "n/a" in this column indicates that an averaging time is not appropriate. An "n/a*" in this column indicates that the permit holder may elect to collect monitoring data on a more frequent basis than is required by the monitoring option and calculate a daily average for purposes of determining whether a deviation has occurred.

VIII. The final column in the table is the "CAM Option Number" and is used to define the monitoring option(s) selected. Each monitoring option has a unique number that should be submitted using the TCEQ Title V Form OP-MON entitled "Monitoring Requirements."

Case-by-Case CAM submittal

If the permit holder decides to submit a monitoring method that is different than those contained in the CAM Guidance Document, it will be necessary for the permit holder to identify all the following in the application [using the TCEQ Title V Form OP-MON entitled "Monitoring Requirements"] for approval:

- One or more indicators of emission control performance for the control device and, if necessary, processes at a pollutant-specific emission unit and justification for the proposed indicator(s) in accordance with 40 CFR §§ 64.3 and 64.4;

- The deviation limit expressed as a value, a range or a condition and justification for the deviation limit in accordance with 40 CFR §§ 64.3 and 64.4;

- The proposed minimum frequency of conducting the monitoring and justification for the proposed monitoring frequency in accordance with 40 CFR §§ 64.3 and 64.4;

- The proposed averaging period over which discrete data points will be averaged for the purpose of determining whether a deviation has occurred in accordance with 40 CFR §§ 64.3 and 64.4;

- All quality assurance and quality control procedures that is adequate to ensure validity of the data. The quality assurance and quality control procedures must be consistent with the requirements of 40 CFR §§ 64.3 and 64.4;

- The verification procedures used to confirm the operational status of the monitoring system in accordance with 40 CFR §§ 64.3 and 64.4; and

- All specifications that provide for obtaining data that are representative of the emission or parameters being monitored in accordance with 40 CFR §§ 64.3 and 64.4.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ.	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ALL PARTICULATE MATTER CONTROL DEVICES					
1. Visible Emissions	Small	Visible emissions observations shall be made and recorded in accordance with the requirements specified in 40 CFR § 64.7(c). Note that to properly determine the presence of visible emissions, all sources must be in clear view of the observer. The observer shall be at least 15 feet, but not more than 0.25 miles, away from the emission source during the observation. The observer shall select a position where the sun is not directly in the observer's eyes. If the observations cannot be conducted due to weather conditions, the date, time, and specific weather conditions shall be recorded. When condensed water vapor is present within the plume, as it emerges from the emissions outlet, observations must be made beyond the point in the plume at which condensed water vapor is no longer visible. When water vapor within the plume condenses and becomes visible at a distance from the emissions outlet, the observation shall be evaluated at the outlet prior to condensation of water vapor. Deviation Limit: If visible emissions are observed, the permit holder shall report a deviation. As an alternative, the permit holder may determine the opacity, consistent with Test Method 9, as soon as practicable but no later than 24 hours after observing visible emissions. If a Test Method 9 is performed, the opacity limit is the corresponding opacity limit associated with the particulate matter standard in the underlying applicable requirement. If there is no corresponding opacity limit in the underlying applicable requirement, the maximum opacity will be established using the most recent performance test. If the result of Test Method 9 is opacity above the corresponding opacity limit (associated with the particulate matter standard in the underlying applicable requirement or as identified as a result of a previous performance test to establish the maximum opacity limit), the permit holder shall report a deviation.	once per day	n/a*	CAM-PM-001
2. Opacity	Small	Opacity shall be monitored, by a certified observer, for at least one, six-minute period each day, in accordance with Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Appendix A, Test Method 9 and 40 CFR § 64.7(c). If the observations cannot be conducted due to weather conditions, the date, time, and specific weather conditions shall be recorded. Deviation Limit: The maximum opacity is the corresponding opacity limit associated with the particulate matter standard in the underlying applicable requirement. If there is no corresponding opacity limit in the underlying applicable requirement, the maximum opacity will be established using the most recent performance test.	once per day	six-minute	CAM-PM-002

*The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on regular basis and shall not be collected and used in particular instances to avoid reporting deviations

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ.	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ALL PARTICULATE MATTER CONTROL DEVICES					
3. Opacity	Small/ Large	The COMS shall be operated in accordance with 40 CFR § 60.13. Deviation Limit: The maximum opacity is the corresponding opacity limit associated with the particulate matter standard in the underlying applicable requirement. If there is no corresponding opacity limit in the underlying applicable requirement, the maximum opacity will be established using the most recent performance test.	six times per minute	six-minute	CAM-PM-003
CONTROL DEVICE: ALL VOC CONTROL DEVICES (EXCEPT FLARES AND CARBON ADSORPTION SYSTEM)					
1. VOC Concentration	Small	Use a portable analyzer to monitor VOC concentration at the outlet of the control device. The monitoring device shall be calibrated, operated, and maintained in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated, operated, and maintained accurately. The monitoring device shall meet the requirements of 40 CFR Part 60, Appendix A, Method 21, Sections 2, 3, 4.1, 4.2, and 4.4. However, the words "leak definition" in Method 21 shall be the outlet concentration (which corresponds to the appropriate deviation limit). The calibration gas shall either be representative of the compounds to be measured or shall be methane, and shall be at a concentration associated with 125 percent of the expected organic compound concentration level for the control device outlet vent. The probe inlet of the monitoring device shall be placed at approximately the center of the control device outlet vent. The probe shall be held there for at least 5 minutes during which flow into the control device is expected to occur. The maximum reading during that period shall be used as the measurement. Deviation Limit: A maximum VOC concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-VO-001
	Small/ Large	Use a continuous emission monitoring system (CEMS) to measure and record the concentration of organic compounds in the exhaust stream of the control device. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A maximum VOC rate or concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-VO-002

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ.	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ALL NO_x CONTROL DEVICES					
1. NO_X Concentration	Small	Use a portable analyzer to monitor nitrogen oxides in the exhaust stream of the control device. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). NO_x Emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower-hour, pounds per MMBtu, pounds per hour). Deviation Limit: The maximum nitrogen oxides rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once per day	n/a*	CAM-NO-001
2. NO_X Concentration	Small/ Large	Use a continuous emission monitoring system (CEMS) to measure and record the concentration of nitrogen oxides and either oxygen or carbon dioxide in the exhaust stream of the control device. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. NO_x Emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower-hour, pounds per MMBtu, pounds per hour). Deviation Limit: The maximum nitrogen oxides rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	four times per hour	one hour	CAM-NO-002
		Use a predictive emission monitoring system (PEMS) to predict the emissions of nitrogen oxides in the units of the underlying applicable emission limitation. The PEMS shall be installed, calibrated and tested to prove model functionality, maintained, and operated in accordance with the manufacturer's specifications. In addition, monitor oxygen or carbon dioxide with either a CEMS, operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B, or a PEMS, operated in accordance with above procedures. Deviation Limit: The maximum nitrogen oxides rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	four times per hour	one hour	CAM-NO-003

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ALL SO_2 CONTROL DEVICES					
1. SO_2 Concentration	Small/ Large	Use a continuous emission monitoring system (CEMS) to measure and record sulfur dioxide emissions in the exhaust stream of the control device. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. In addition, monitor oxygen or carbon dioxide with a CEMS operated in accordance with above CEMS procedures. Deviation Limit: The maximum sulfur dioxide rate or concentration (specified in units of the underlying applicable requirement) is the corresponding sulfur dioxide limit associated with the emission limitation in the underlying applicable requirement.	four times per hour	one hour	CAM-SO-001
CONTROL DEVICE: WET SCRUBBER - PARTICULATE MATTER					
1. Pressure Drop, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-WS-001
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-WS-002

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET SCRUBBER - PARTICULATE MATTER					
2. Pressure Drop, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-WS-003
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-WS-004
3. Pressure Drop, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-WS-005

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET SCRUBBER - PARTICULATE MATTER					
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-WS-006
4. Pressure Drop, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-WS-007
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-WS-008

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET SCRUBBER - PARTICULATE MATTER					
5. Liquid Flow Rate and Gas Flow Rate	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum liquid-to-gas ratio shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-WS-009
	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum liquid-to-gas ratio shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-WS-010
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
1. Secondary Voltage, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum secondary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-001

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
Secondary Current		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum secondary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-002
2. Secondary Voltage, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum secondary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-003
Secondary Current		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum secondary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-004

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
3. Secondary Voltage, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum secondary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-005
Spark Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5% of reading. Deviation Limit: A minimum and maximum spark rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-006
4. Secondary Voltage, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum secondary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-007

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
Spark Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5% of reading. Deviation Limit: A minimum and maximum spark rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data	four times per hour	one hour	CAM-EP-008
5. Secondary Current, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum secondary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-009
Spark Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5% of reading. Deviation Limit: A minimum and maximum spark rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-010

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
6. Secondary Current, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum secondary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-011
Spark Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5% of reading. Deviation Limit: A minimum and maximum spark rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data	four times per hour	one hour	CAM-EP-012
7. Primary Voltage, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum primary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-013

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
Primary Current, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum primary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-014
Spark Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5% of reading. Deviation Limit: A minimum and maximum spark rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-015
8. Primary Voltage, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum primary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-016

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
Primary Current, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum primary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-017
Spark Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5% of reading. Deviation Limit: A minimum and maximum spark rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-018
9.Primary Voltage, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum primary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-019

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
Primary Current, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum primary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-020
Secondary Current		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum secondary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-021
10. Primary Voltage, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum primary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-022

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
Primary Current, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum primary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-023
Secondary Current		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum secondary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-024
11. Primary Voltage, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum primary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-025

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
Primary Current, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum primary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-026
Secondary Voltage		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum secondary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-EP-027
12. Primary Voltage, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum primary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-028

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR					
Primary Current, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum and maximum primary current shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-029
Secondary Voltage		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum secondary voltage shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-EP-030
CONTROL DEVICE: FABRIC FILTER					
1. Bag Leak Detection Signal	Small/ Large	Each monitoring device shall be installed, operated, calibrated, and maintained in a manner consistent with EPA, Office of Air Quality Planning and Standards, Fabric Filter Bag Leak Detection Guidance (EPA-454/R-98-015). Deviation Limit: A maximum signal shall be established using EPA's, Office of Air Quality Planning and Standards, Fabric Filter Bag Leak Detection Guidance (EPA-454/R-98-015).	four times per hour	Establish per EPA Guidance (EPA-454/R -98-015)	CAM-FF-001

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FABRIC FILTER					
2. Pressure Drop	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.5 inches water gauge pressure (± 125 pascals); or • ± 0.5% of span. Deviation Limit: A minimum and maximum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FF-002
	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.5 inches water gauge pressure (± 125 pascals); or • ± 0.5% of span. Deviation Limit: A minimum and maximum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FF-003
CONTROL DEVICE: CYCLONE					
1. Pressure Drop	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CY-001

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CYCLONE					
1. Pressure Drop	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CY-002
2. Inlet Gas Flow Rate	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum and maximum inlet gas flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CY-003
Small/	Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following ± 2% of span. Deviation Limit: A minimum and maximum inlet gas flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CY-004

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLARE					
1. Pilot Flame	Small/ Large	Monitor the presence of a flare pilot flame using a thermocouple or other equivalent device to detect the presence of a flame or using an alarm that uses a thermocouple or other equivalent device to detect the absence of a flame. Maintain records of alarm events and duration of alarm events. Each monitoring device shall be accurate to within manufacturer's recommendations. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated accurately. Deviation Limit: No pilot flame.	continuous	n/a	CAM-FL-001
2. Visible Emissions	Small	Visible emissions observations shall be made and recorded in accordance with the requirements specified in 40 CFR § 64.7(c). Note that to properly determine the presence of visible emissions, all sources must be in clear view of the observer. The observer shall be at least 15 feet, but not more than 0.25 miles, away from the emission source during the observation. The observer shall select a position where the sun is not directly in the observer's eyes. If the observations cannot be conducted due to weather conditions, the date, time, and specific weather conditions shall be recorded. When condensed water vapor is present within the plume, as it emerges from the emissions outlet, observations must be made beyond the point in the plume at which condensed water vapor is no longer visible. When water vapor within the plume condenses and becomes visible at a distance from the emissions outlet, the observation shall be evaluated at the outlet prior to condensation of water vapor. Deviation Limit: No visible emissions. If visible emissions are observed the permit holder shall either report a deviation or determine visible emissions consistent with Test Method 22 or Test Method 9.	once per day	n/a	CAM-FL-002

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLARE					
		Visible emissions observations shall be made and recorded in the flare operation log. A daily notation in the flare operation log should include the time of day and whether or not the flare had visible emissions. The flare operator shall record at least 98% of these required observations. Note that to properly determine the presence of visible emissions, all sources must be in clear view of the observer. The observer shall be at least 15 feet, but not more than 0.25 miles, away from the emission source during the observation. The observer shall select a position where the sun is not directly in the observer's eyes. Deviation Limit: No visible emissions. If visible emissions are observed the permit holder shall either report a deviation or determine visible emissions consistent with Test Method 22 or Test Method 9.	once per day	n/a	CAM-FL-003
3. Inlet Flow Rate, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A maximum inlet flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FL-004
Net Heating Value		Calculate the net heating value of the gas being combusted using the procedures and specifications of 40 CFR § 60.18(f)(3). The sample points should be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Deviation Limit: The minimum net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) for steam-assisted or air-assisted flares. The minimum net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) for non-assisted flares. The minimum net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf) for steam-assisted and non-assisted flares designed for and operated with an exit velocity equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec).	once per day	n/a*	CAM-FL-005

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLARE					
4. Inlet Flow Rate, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A maximum inlet flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FL-006
Net Heating Value		A continuous analyzer that provides the net heating value of the gas being combusted using the procedures and specifications of 40 CFR § 60.18(f)(3). The sample points should be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Deviation Limit: The minimum net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) for steam-assisted or air-assisted flares. The minimum net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) for non-assisted flares. The minimum net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf) for steam-assisted and non-assisted flares designed for and operated with an exit velocity equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec).	four times per hour	one hour	CAM-FL-007

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: THERMAL INCINERATOR (DIRECT FLAME INCINERATOR/REGENERATIVE THERMAL OXIDIZER/THERMAL OXIDIZER					
1. Combustion Temperature/ Exhaust Gas Temperature	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.75% of the temperature being measured expressed in degrees Celsius; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum combustion temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-TI-001
	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.75% of the temperature being measured expressed in degrees Celsius; or • ± 2.5degrees Celsius. Deviation Limit: A minimum combustion temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-TI-002

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: VAPOR COMBUSTOR					
1. Combustion Temperature/ Exhaust Gas Temperature	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum combustion temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-VC-001
Small/	Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum combustion temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-VC-002

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC INCINERATOR					
1. Catalyst Bed Inlet and Outlet Gas Temperature	Small	The monitoring devices should be installed in the inlet to and exit of the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.75% of the temperature being measured expressed in degrees Celsius; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum temperature difference across the inlet and outlet of the catalyst bed shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CI-001
Small/	Large	The monitoring devices should be installed in the inlet to and exit of the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.75% of the temperature being measured expressed in degrees Celsius; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum temperature difference across the inlet and outlet of the catalyst bed shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CI-002

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: STEAM GENERATING UNIT (BOILER)/PROCESS HEATER (Design Heat Input Capacity less than 44MW)					
1. Combustion Temperature/ Exhaust Gas Temperature	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber into which the volatile organic compound is introduced. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum combustion temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SG-001
	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber into which the volatile organic compound is introduced. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum combustion temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SG-002

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: STEAM GENERATING UNIT (BOILER)/PROCESS HEATER (Design Heat Input Capacity greater than or equal to 44MW)					
1. Period of Operation	Small/ Large	Monitor and record the periods of operation of the steam generating units or process heater. The records must be readily available for inspection. Deviation Limit: All periods of operation that is not recorded.	n/a	n/a	CAM-SG-003
2. Combustion Temperature/ Exhaust Gas Temperature	Small	Each monitoring device shall be calibrated and maintained at a frequency in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated and maintained properly. Deviation Limit: A minimum combustion temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SG-004
	Small/ Large	Each monitoring device shall be calibrated and maintained at a frequency in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated and maintained properly. Deviation Limit: A minimum combustion temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SG-005
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
1. Total Regeneration Stream Mass Flow, and	Small	Measure and record, during a regeneration cycle, the total regeneration stream mass flow. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 10% of span. Deviation Limit: A minimum regeneration stream mass flow shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-001

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
Carbon Bed Temperature	Small	Measure and record, during a regeneration cycle, the carbon bed temperature for the duration of the steaming cycle and to measure the actual bed temperature after regeneration and within 15 minutes of completing the cooling cycle. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.75% of the temperature being measured expressed in degrees Celsius; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum temperature of the carbon bed after regeneration [and after completion of any cooling cycle(s)] shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-002
2. Total Regeneration Stream Mass Flow, and	Small/ Large	Measure and record, during a regeneration cycle, the total regeneration stream mass flow. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 10% of span. Deviation Limit: A minimum regeneration stream mass flow shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CA-003

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
Carbon Bed Temperature	Small/ Large	Measure and record, during a regeneration cycle, the carbon bed temperature for the duration of the steaming cycle and to measure the actual bed temperature after regeneration and within 15 minutes of completing the cooling cycle. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.75% of the temperature being measured expressed in degrees Celsius; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum temperature of the carbon bed after regeneration [and after completion of any cooling cycle(s)] shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CA-004
3. Total Regeneration Stream Volumetric Flow, and	Small	Measure and record, during a regeneration cycle, the total regeneration stream volumetric flow. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 10% of span. Deviation Limit: A minimum regeneration stream volumetric flow shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-005

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
Carbon Bed Temperature	Small	Measure and record, during a regeneration cycle, the carbon bed temperature for the duration of the steaming cycle and to measure the actual bed temperature after regeneration and within 15 minutes of completing the cooling cycle. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.75% of the temperature being measured expressed in degrees Celsius; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum temperature of the carbon bed after regeneration [and after completion of any cooling cycle(s)] shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-006
4. Total Regeneration Stream Volumetric Flow, and	Small/ Large	Measure and record, during a regeneration cycle, the total regeneration stream volumetric flow. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 10% of span. Deviation Limit: A minimum regeneration stream volumetric flow shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CA-007

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
Carbon Bed Temperature	Small/ Large	Measure and record, during a regeneration cycle, the carbon bed temperature for the duration of the steaming cycle and to measure the actual bed temperature after regeneration and within 15 minutes of completing the cooling cycle. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.75% of the temperature being measured expressed in degrees Celsius; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum temperature of the carbon bed after regeneration [and after completion of any cooling cycle(s)] shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CA-008
5. Total Regeneration Stream Mass Flow, and	Small	Measure and record, during a regeneration cycle, the total regeneration stream mass flow. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 10% of span. Deviation Limit: A minimum regeneration stream mass flow shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-009

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
Carbon Bed Pressure	Small	Measure and record, during a regeneration cycle, the carbon bed pressure for the duration of the vacuum cycle. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure of the carbon bed during regeneration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-010
6. Total Regeneration Stream Mass Flow, and	Small/ Large	Measure and record, during a regeneration cycle, the total regeneration stream mass flow. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 10% of span. Deviation Limit: A minimum regeneration stream mass flow shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CA-011
Carbon Bed Pressure	Small/ Large	Measure and record, during a regeneration cycle, the carbon bed pressure for the duration of the vacuum cycle. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure of the carbon bed during regeneration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CA-012

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
7. Total Regeneration Stream Volumetric Flow, and	Small	Measure and record, during a regeneration cycle, the total regeneration stream volumetric flow. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 10% of span. Deviation Limit: A minimum regeneration stream volumetric flow shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-013
Carbon Bed Pressure	Small	Measure and record, during a regeneration cycle, the carbon bed pressure for the duration of the vacuum cycle. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure of the carbon bed during regeneration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-014
8. Total Regeneration Stream Volumetric Flow, and	Small/ Large	Measure and record, during a regeneration cycle, the total regeneration stream volumetric flow. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 10% of span. Deviation Limit: A minimum regeneration stream volumetric flow shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CA-015

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
Carbon Bed Pressure	Small/ Large	Measure and record, during a regeneration cycle, the carbon bed pressure for the duration of the vacuum cycle. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure of the carbon bed during regeneration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CA-016
9. VOC Concentration	Small	Use a portable analyzer to monitor exhaust gas VOC concentration at the outlet of the carbon adsorption system. The monitoring device shall be calibrated, operated, and maintained in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated, operated, and maintained accurately. The monitoring device shall meet the requirements of 40 CFR Part 60, Appendix A, Method 21, Sections 2, 3, 4.1, 4.2, and 4.4. However, the words "leak definition" in Method 21 shall be the outlet concentration. The calibration gas shall either be representative of the compounds to be measured or shall be methane, and shall be at a concentration associated with 125 percent of the expected organic compound concentration level for the carbon adsorber outlet vent. The probe inlet of the monitoring device shall be placed at approximately the center of the carbon adsorber outlet vent. The probe shall be held there for at least 5 minutes during which flow into the carbon adsorber is expected to occur. The maximum reading during that period shall be used as the measurement. Deviation Limit: A maximum VOC concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CA-017

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
	Small/ Large	Use a continuous emission monitoring system (CEMS) to measure and record the concentration of organic compounds in the exhaust stream of the control device. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A maximum VOC rate or concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data for the outlet of the last or final polishing canister in the series of canisters.	four times per hour	one hour	CAM-CA-018
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (NON-REGENERATIVE)					
1. Carbon Replacement Interval (Work Practice)	Small/ Large	Establish and monitor the replacement time interval of the carbon canister(s), as determined by the maximum design flow rate and organic concentration in the gas stream vented to the carbon adsorption system. Deviation Limit: A minimum carbon replacement interval shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	n/a	n/a	CAM-CA-019

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CARBON ADSORPTION SYSTEM (NON-REGENERATIVE)					
2. VOC Concentration	Small	Use a portable analyzer to monitor VOC concentration at the outlet of the first, second canister of the series of canisters but before the inlet to the second, third or final polishing canister in the series, as appropriate. Once breakthrough has been determined with the portable analyzer for the first, second canister, use the portable analyzer to monitor VOC concentration at the outlet of the last or final polishing canister in the series until the first, second canister is replaced. The monitoring device shall be calibrated, operated, and maintained in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated, operated, and maintained accurately. The monitoring device shall meet the requirements of 40 CFR Part 60, Appendix A, Method 21, Sections 2, 3, 4.1, 4.2, and 4.4. However, the words "leak definition" in Method 21 shall be the outlet concentration. The calibration gas shall either be representative of the compounds to be measured or shall be methane, and shall be at a concentration associated with 125 percent of the expected organic compound concentration level for the carbon adsorber outlet vent. The probe inlet of the monitoring device shall be placed at approximately the center of the carbon adsorber vent. The probe shall be held there for at least 5 minutes during which flow into the carbon adsorber is expected to occur. The maximum reading during that period shall be used as the measurement. Deviation Limit: A maximum VOC concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data for the outlet of the last or final polishing canister in the series of canisters.	once per day	n/a*	CAM-CA-020
	Small/ Large	Use a continuous emission monitoring system (CEMS) to measure and record the concentration of organic compounds in the exhaust stream of the control device. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the Performance Specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A maximum VOC rate or concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data for the outlet of the last or final polishing canister in the series of canisters.	four times per hour	one hour	CAM-CA-021

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CONDENSER SYSTEM					
1. Exhaust Gas Temperature	Small	The monitoring device should be installed at the condenser system outlet. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum exhaust gas temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations (GRI-GLYCalc v. 3.0 or most recent version), and/or historical data.	once per day	n/a*	CAM-CS-001
	Small/ Large	The monitoring device should be installed at the condenser system outlet. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum exhaust gas temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations (GRI-GLYCalc v. 3.0 or most recent version), and/or historical data.	four times per hour	one hour	CAM-CS-002

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (CAUSTIC ABSORPTION)					
1. pH, and	Small	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-001
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-002
2. pH, and	Small/ Large	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-003

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (CAUSTIC ABSORPTION)					
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-004
3. pH, and	Small	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-005
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-006

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (CAUSTIC ABSORPTION)					
4. pH, and	Small/ Large	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-007
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-008
5. pH, and	Small	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-009

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (CAUSTIC ABSORPTION)					
Liquid Flow Rate and Gas Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum liquid-to-gas ratio shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-010
6. pH, and	Small/ Large	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-011
Liquid Flow Rate and Gas Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum liquid-to-gas ratio shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-012

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)					
1. Outlet Gas Temperature, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum outlet gas temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-013
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-014
2. Outlet Gas Temperature, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum outlet gas temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-015

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)					
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-016 33
3. Outlet Gas Temperature, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum outlet gas temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-017
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-018

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)					
4. Outlet Gas Temperature, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum outlet gas temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-019
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-020
5. Outlet Gas Temperature, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum outlet gas temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-021

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)					
Specific Gravity		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to ± 0.02 specific gravity units. Deviation Limit: A minimum and maximum specific gravity shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-022
6. Outlet Gas Temperature, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A maximum outlet gas temperature shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-023
Specific Gravity		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to ± 0.02 specific gravity units. Deviation Limit: A minimum and maximum specific gravity shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-024

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)					
7. Liquid Flow Rate, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-025
Specific Gravity		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to ± 0.02 specific gravity units. Deviation Limit: A minimum and maximum specific gravity shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-026
8. Liquid Flow Rate, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-027

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)					
Specific Gravity		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to ± 0.02 specific gravity units. Deviation Limit: A minimum and maximum specific gravity shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-028
9. Liquid Supply Pressure, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-029
Specific Gravity		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to ± 0.02 specific gravity units. Deviation Limit: A minimum and maximum specific gravity shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-030

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)					
10. Liquid Supply Pressure, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-031
Specific Gravity		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to ± 0.02 specific gravity units. Deviation Limit: A minimum and maximum specific gravity shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-032
11. Liquid Flow Rate and Gas Flow Rate, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum liquid-to-gas ratio shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-033

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)					
Specific Gravity		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to ± 0.02 specific gravity units. Deviation Limit: A minimum and maximum specific gravity shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-AB-034
12. Liquid Flow Rate and Gas Flow Rate, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum liquid-to-gas ratio shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-035
Specific Gravity		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to ± 0.02 specific gravity units. Deviation Limit: A minimum and maximum specific gravity shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-AB-036

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
1. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-001
Injection Nozzle Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-002

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
2. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-003
Injection Nozzle Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-004

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
3. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-005
Injection Nozzle Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design supply pressure. Deviation Limit: A minimum supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-006

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
4. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-007
Injection Nozzle Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design supply pressure. Deviation Limit: A minimum supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-008

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
5. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-009
Inlet Oxygen Concentration		Use a portable analyzer to monitor oxygen concentration in the inlet flue gas to the catalyst bed. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-010

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
6. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-011
Inlet Oxygen Concentration		Use a continuous emission monitoring system (CEMS) to measure and record the inlet oxygen concentration to the catalyst bed. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-012
7. Injection Nozzle Flow Rate, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-013

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
Inlet Oxygen Concentration		Use a portable analyzer to monitor oxygen concentration in the inlet flue gas to the catalyst bed. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-014
8. Injection Nozzle Flow Rate, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-015
Inlet Oxygen Concentration		Use a continuous emission monitoring system (CEMS) to measure and record the inlet oxygen concentration to the catalyst bed. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-016

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
9. Injection Nozzle Supply Pressure, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design supply pressure. Deviation Limit: A minimum supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-017
Inlet Oxygen Concentration		Use a portable analyzer to monitor oxygen concentration in the inlet flue gas to the catalyst bed. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-018
10. Injection Nozzle Supply Pressure, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design supply pressure. Deviation Limit: A minimum supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-019

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
Inlet Oxygen Concentration		Use a continuous emission monitoring system (CEMS) to measure and record the inlet oxygen concentration to the catalyst bed. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-020
11. Catalyst Bed Pressure Drop, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum and maximum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-021
Inlet Oxygen Concentration		Use a portable analyzer to monitor oxygen concentration in the inlet flue gas to the catalyst bed. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-022

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
12. Catalyst Bed Pressure Drop, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum and maximum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-023
Inlet Oxygen Concentration		Use a continuous emission monitoring system (CEMS) to measure and record the inlet oxygen concentration to the catalyst bed. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-024
13. Catalyst Bed Pressure Drop, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum and maximum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-025

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
Inlet Gas Temperature		The monitoring device should be installed to record the inlet flue gas temperature to the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SC-026
14. Catalyst Bed Pressure Drop, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum and maximum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-027

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION					
Inlet Gas Temperature		The monitoring device should be installed to record the inlet flue gas temperature to the catalyst bed. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SC-028
CONTROL DEVICE: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)					
1. Exhaust Gas Temperature, and	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SN-001

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)					
Injection Nozzle Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SN-002
2. Exhaust Gas Temperature, and	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SN-003
Injection Nozzle Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SN-004

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)					
3. Exhaust Gas Temperature, and	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SN-005
Injection Nozzle Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design supply pressure. Deviation Limit: A minimum supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SN-006

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)					
4. Exhaust Gas Temperature, and	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SN-007
Injection Nozzle Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design supply pressure. Deviation Limit: A minimum supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SN-008

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)					
5. Exhaust Gas Temperature, and	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SN-009
Oxygen Concentration		Use a portable analyzer to monitor oxygen concentration in the exhaust stream. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SN-010
6. Exhaust Gas Temperature, and	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SN-011

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)					
Oxygen Concentration		Use a continuous emission monitoring system (CEMS) to measure and record the oxygen concentration in the exhaust stream. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SN-012
CONTROL DEVICE: FLUE GAS RECIRCULATION					
1. Combustion Temperature/ Exhaust Gas Temperature, and	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-001
Oxygen Concentration		Use a portable analyzer to monitor oxygen concentration in the exhaust stream. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-002

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLUE GAS RECIRCULATION					
2. Combustion Temperature/ Exhaust Gas Temperature, and	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-003
Oxygen Concentration		Use a continuous emission monitoring system (CEMS) to measure and record the concentration of oxygen in the exhaust stream. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-004
3. Combustion Temperature/ Exhaust Gas Temperature, and	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-005

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

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INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLUE GAS RECIRCULATION					
Fan Motor Current		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum current shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-006
4. Combustion Temperature/ Exhaust Gas Temperature, and	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-007
Fan Motor Current		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum current shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-008

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLUE GAS RECIRCULATION					
5. Combustion Temperature/ Exhaust Gas Temperature, and	Small	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-009
Recirculated Flue Gas Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-010
6. Combustion Temperature/ Exhaust Gas Temperature, and	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-011

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLUE GAS RECIRCULATION					
Recirculated Flue Gas Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-012
7. Oxygen Concentration, and	Small	Use a portable analyzer to monitor oxygen concentration in the exhaust stream. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-013
Fan Motor Current		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum current shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-014

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLUE GAS RECIRCULATION					
8. Oxygen Concentration, and	Small/ Large	Use a continuous emission monitoring system (CEMS) to measure and record the concentration of oxygen in the exhaust stream. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-015
Fan Motor Current		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1% of reading; or • ± 5% over its operating range. Deviation Limit: A minimum current shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-016
9. Oxygen Concentration, and	Small	Use a portable analyzer to monitor oxygen concentration in the exhaust stream. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-017

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: FLUE GAS RECIRCULATION					
Recirculated Flue Gas Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-FG-018
10. Oxygen Concentration, and	Small/ Large	Use a continuous emission monitoring system (CEMS) to measure and record the concentration of oxygen in the exhaust stream. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. Deviation Limit: A minimum and maximum oxygen concentration shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-019
Recirculated Flue Gas Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: A minimum flow rate shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-FG-020

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: STEAM/WATER INJECTION SYSTEMS					
1. Steam or Water Flow Rate, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A minimum water or steam to fuel consumption ratio shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SI-001
Fuel Consumption		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SI-002
2. Steam or Water Flow Rate, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A minimum water or steam to fuel consumption ratio shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SI-003
Fuel Consumption		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SI-004

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
1. Fuel Consumption, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-001
NO_x Concentration		Use method specified in 30 TAC §117.211(e)(1) and §117.211(e)(3) through (5) to stack test unit for NO_x emissions. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once every two years	n/a	CAM-CC-002
2. Fuel Consumption, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-003
NO_x Concentration		Use Reference Method 7E or 20 to stack test the unit for NO_x emissions on a biennial calendar basis. Exhaust flow rate may be determined from measured fuel flow rate and EPA Method 19. California Air Resources Board Method A-100 (adopted June 29, 1983) is an acceptable alternate to EPA test methods. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once every two years	n/a	CAM-CC-004

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
3. Fuel Consumption, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-005
NO_x Concentration		Use method specified in 30 TAC §117.211(e)(1) and §117.211(e)(3) through (5) to stack test the unit for NO_x emissions within 15,000 hours of operation after the previous emission test. Note that the conditions of 30 TAC § 117.213(g)(1)(B)(ii)(I) and (II) apply. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	Every 15,000 hours of operation	n/a	CAM-CC-006
4. Fuel Consumption, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-007
NO_x Concentration		Use Reference Method 7E or 20 to stack test the unit for NO_x emissions within 15,000 hours of operation after the previous emission test. Exhaust flow rate may be determined from measured fuel flow rate and EPA Method 19. California Air Resources Board Method A-100 (adopted June 29, 1983) is an acceptable alternate to EPA test methods. In addition, install and operate an elapsed operating time meter to record hours of operation. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	Every 15,000 hours of operation	n/a	CAM-CC-008

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
5. Fuel Consumption, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-009
NO_x Concentration		Use a portable analyzer to monitor nitrogen oxides and oxygen concentration in the exhaust stream of the control device. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). NO_x Emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower-hour, pounds per MMBtu, pounds per hour). Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once per quarter	n/a*	CAM-CC-010
6. Fuel Consumption, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-011

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
NO_x Concentration		Use a portable analyzer to monitor nitrogen oxides and oxygen concentration in the exhaust stream of the control device. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). NO_x Emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower-hour, pounds per MMBtu, pounds per hour). Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once per quarter	n/a*	CAM-CC-012
7. Fuel Consumption, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-013
Inlet Gas Temperature		The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-014

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
8. Fuel Consumption, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the fuel flow meter is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 5%. Deviation Limit: A maximum fuel consumption limit shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-015
Inlet Gas Temperature		The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-016
9. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-017

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
NO_x Concentration		Use method specified in 30 TAC § 117.211(e)(1) and §117.211(e)(3) through (5) to stack test the unit for NO_x emissions. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once every two years	n/a	CAM-CC-018
10. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-019
NO_x Concentration		Use method specified in 30 TAC §117.211(e)(1) and §117.211(e)(3) through (5) to stack test the unit for NO_x emissions. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once every two years	n/a	CAM-CC-020

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
11. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-021
NO_x Concentration		Use Reference Method 7E or 20 to stack test the unit for NO_x emissions on a biennial calendar basis. Exhaust flow rate may be determined from measured fuel flow rate and EPA Method 19. California Air Resources Board Method A-100 (adopted June 29, 1983) is an acceptable alternate to EPA test methods. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once every two years	n/a	CAM-CC-022
12. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-023

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
NO_x Concentration		Use Reference Method 7E or 20 to stack test the unit for NO_x emissions on a biennial calendar basis. Exhaust flow rate may be determined from measured fuel flow rate and EPA Method 19. California Air Resources Board Method A-100 (adopted June 29, 1983) is an acceptable alternate to EPA test methods. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once every two years	n/a	CAM-CC-024
13. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-025
NO_x Concentration		Use method specified in 30 TAC §117.211(e)(1) and §117.211(e)(3) through (5) to stack test the unit for NO_x emissions within 15,000 hours of operation after the previous emission test. Note that the conditions of 30 TAC § 117.213(g)(1)(B)(ii)(I) and (II) apply. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	Every 15,000 hours of operation	n/a	CAM-CC-026

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
14. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-027
NO_x Concentration		Use method specified in 30 TAC §117.211(e)(1) and §117.211(e)(3) through (5) to stack test the unit for NO_x emissions within 15,000 hours of operation after the previous emission test. Note that the conditions of 30 TAC § 117.213(g)(1)(B)(ii)(I) and (II) apply. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	Every 15,000 hours of operation	n/a	CAM-CC-028
15. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-029

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
NO_x Concentration		Use Reference Method 7E or 20 to stack test the unit for NO_x emissions within 15,000 hours of operation after the previous emission test. Exhaust flow rate may be determined from measured fuel flow rate and EPA Method 19. California Air Resources Board Method A-100 (adopted June 29, 1983) is an acceptable alternate to EPA test methods. In addition, install and operate an elapsed operating time meter to record hours of operation. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	Every 15,000 hours of operation	n/a	CAM-CC-030
16. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-031
NO_x Concentration		Use Reference Method 7E or 20 to stack test the unit for NO_x emissions within 15,000 hours of operation after the previous emission test. Exhaust flow rate may be determined from measured fuel flow rate and EPA Method 19. California Air Resources Board Method A-100 (adopted June 29, 1983) is an acceptable alternate to EPA test methods. In addition, install and operate an elapsed operating time meter to record hours of operation. Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	Every 15,000 hours of operation	n/a	CAM-CC-032

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
17. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	one hour	CAM-CC-033
NO_x Concentration		Use a portable analyzer to monitor nitrogen oxides and oxygen concentration in the exhaust stream of the control device. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). NO_x Emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower-hour, pounds per MMBtu, pounds per hour). Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once per quarter	n/a*	CAM-CC-034

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
18. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-035
NO_x Concentration		Use a portable analyzer to monitor nitrogen oxides and oxygen concentration in the exhaust stream of the control device. The portable analyzer shall be operated in accordance with the Environmental Protection Agency's, Office of Air Quality Planning & Standards, Emission Measurement Center Conditional Test Method - Determination of Oxygen, Carbon Monoxide, and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) [CTM-034] (September 8, 1999). NO_x Emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower-hour, pounds per MMBtu, pounds per hour). Deviation Limit: The maximum NO_x rate or concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxides limit associated with the emission limitation in the underlying applicable requirement.	once per quarter	n/a*	CAM-CC-036

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
19. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-037
Oxygen Concentration		The monitoring device shall measure the oxygen concentration of the oxygen sensor in millivolts or oxygen concentration. The oxygen sensor shall be installed in the engine exhaust at the inlet to the catalyst. The monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated accurately. Deviation Limit: A minimum and maximum oxygen level (measured in millivolts or oxygen concentration) shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-CC-038
20. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: A minimum and maximum temperature shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-039

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
22. Inlet Gas Temperature, and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: The inlet temperature remains ≥750 degrees Fahrenheit and ≤1250 degrees Fahrenheit.	four times per hour	one hour	CAM-CC-043
Oxygen Concentration		The monitoring device shall measure the oxygen concentration of the oxygen sensor in millivolts or oxygen concentration. The oxygen sensor shall be installed in the engine exhaust at the inlet to the catalyst. The monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated accurately. Deviation Limit: A minimum and maximum oxygen level (measured in millivolts or oxygen concentration) shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-CC-040
21. Inlet Gas Temperature, and	Small	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: The inlet temperature remains ≥750 degrees Fahrenheit and ≤1250 degrees Fahrenheit.	once per day	n/a*	CAM-CC-041

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: CATALYTIC CONVERTERS					
Pressure Drop		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.5 inches water gauge pressure (± 125 pascals); or • ± 0.5% of span. Deviation Limit: The pressure drop across the catalyst should not change by more than 2 inches of water at 100% load or ± 10% from the pressure drop across the catalyst measured during the initial performance test.	once per day	n/a*	CAM-CC-042
22. Inlet Gas Temperature and	Small/ Large	The monitoring device should be installed to record the inlet flue gas temperature to the catalyst. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance and shall be accurate to within one of the following: • ± 2.5 of reading; or • ± 2.5 degrees Celsius Deviation Limit: The inlet temperature remains ≥ 750 degrees Fahrenheit and ≤ 1250 degrees Fahrenheit.	Four time per hour	one hour	CAM-CC-043
Pressure Drop		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 0.5 inches water gauge pressure (± 125 pascals); or • ± 0.5% of span. Deviation Limit: The pressure drop across the catalyst should not change by more than 2 inches of water at 100% load or ± 10% from the pressure drop across the catalyst measured during the initial performance test.	four times per hour	one hour	CAM-CC-044

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SO_2 SCRUBBER					
1. Pressure Drop, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-001
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-002
2. Pressure Drop, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-003

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SO_2 SCRUBBER					
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-004
3. Pressure Drop, and	Small	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-005
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-006

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SO_2 SCRUBBER					
4. Pressure Drop, and	Small/ Large	Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 1 inch water gauge pressure (± 250 pascals); or • ± 2% of span. Deviation Limit: A minimum pressure drop shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-007
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-008
5. pH, and	Small	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-009

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SO_2 SCRUBBER					
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-010
6. pH, and	Small/ Large	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-011
Liquid Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design liquid flow rate. Deviation Limit: A minimum liquid flow rate shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-012

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SO_2 SCRUBBER					
7. pH, and	Small	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-013
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-014
8. pH, and	Small/ Large	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-015

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SO_2 SCRUBBER					
Liquid Supply Pressure		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 5% of span; or • ± 5% of design liquid supply pressure. Deviation Limit: A minimum liquid supply pressure shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-016
9. pH, and	Small	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-017
Liquid Flow Rate and Gas Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum liquid-to-gas ratio shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	once per day	n/a*	CAM-SS-018

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SO_2 SCRUBBER					
10. pH, and	Small/ Large	Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH units. Deviation Limit: A minimum pH shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-019
Liquid Flow Rate and Gas Flow Rate		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within ± 2% of span. Deviation Limit: A minimum liquid-to-gas ratio shall be established using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data.	four times per hour	one hour	CAM-SS-020

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SULFUR RECOVERY UNIT (FLARE)					
1. H_2S Inlet Concentration, and	Small	Measure the inlet concentration of H_2S using either the Tutwiler procedure in 40 CFR § 60.648, the stain tube procedures of GPA 2377-86, or a chromatographic procedure following ASTM E-260. Deviation Limit: Minimum sulfur reduction efficiency shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. Inlet concentration and flow rate shall be used to compute the sulfur feed rate as follows: Sulfur Feed Rate = $3.707X10^{-7}$(Inlet Flow Rate)(H_2S Concentration) Sulfur Feed Rate = Long tons/day. Inlet Flow Rate = Flow rate of acid gas feed, dscf/day. H_2S Concentration = H_2S concentration as measured by Tutwiler or ASTM E-260, percent by volume. $3.707X10^{-7}$ = Conversion constant. The sulfur reduction efficiency shall be computed using the sulfur feed rate and sulfur accumulation as follows: Reduction Efficiency = (100)(Sulfur Accumulation)/(Sulfur Feed Rate) Reduction Efficiency = Percent, %. Sulfur Accumulation = Total Sulfur, long tons, accumulation over 24 hours (day), long tons/day. Sulfur Feed Rate = Long tons/day.	once per day	n/a*	CAM-SR-001
Inlet Flow Rate, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: See Deviation Limit in CAM-SR-001.	once per day	n/a*	CAM-SR-002

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SULFUR RECOVERY UNIT (FLARE)					
Sulfur Accumulation, and		Measure the accumulation of sulfur product for each 24 hour period by measuring and recording sulfur production or by measuring and recording the liquid level in the storage tanks. The monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall have an accuracy of ± 2%. Deviation Limit: See Deviation Limit in CAM-SR-001.	once per day	n/a*	CAM-SR-003
Pilot Flame		The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. Each monitoring device shall be accurate to within manufacturer's recommendations. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated accurately. Deviation Limit: No pilot flame.	four times per hour	n/a	CAM-SR-004

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SULFUR RECOVERY UNIT (FLARE)					
2. H_2S Inlet Concentration, and	Small/ Large	Measure the inlet concentration of H_2S using either the Tutwiler procedure in 40 CFR § 60.648, the stain tube procedures of GPA 2377-86, or a chromatographic procedure following ASTM E-260. Deviation Limit: Minimum sulfur reduction efficiency shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. Inlet concentration and flow rate shall be used to compute the sulfur feed rate as follows: Sulfur Feed Rate = $3.707X10^{-7}$(Inlet Flow Rate)(H_2S Concentration) Sulfur Feed Rate = Long tons/day. Inlet Flow Rate = Flow rate of acid gas feed, dscf/day. H_2S Concentration = H_2S concentration as measured by Tutwiler or ASTM E-260, percent by volume. $3.707X10^{-7}$ = Conversion constant. The sulfur reduction efficiency shall be computed using the sulfur feed rate and sulfur accumulation as follows: Reduction Efficiency = (100)(Sulfur Accumulation)/(Sulfur Feed Rate) Reduction Efficiency = Percent, %. Sulfur Accumulation = Total Sulfur, long tons, accumulation over 24 hours (day), long tons/day. Sulfur Feed Rate = Long tons/day.	once per day	n/a*	CAM-SR-005
Inlet Flow Rate, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: See Deviation Limit in CAM-SR-005.	four times per hour	one hour	CAM-SR-006

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SULFUR RECOVERY UNIT (FLARE)					
Sulfur Accumulation, and		Measure the accumulation of sulfur product for each 24 hour period by measuring and recording sulfur production or by measuring and recording the liquid level in the storage tanks. The monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall have an accuracy of ± 2%. Deviation Limit: See Deviation Limit in CAM-SR-005.	once per day	n/a*	CAM-SR-007
Pilot Flame		The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. Each monitoring device shall be accurate to within manufacturer's recommendations. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated accurately. Deviation Limit: No pilot flame.	four times per hour	n/a	CAM-SR-008
CONTROL DEVICE: SULFUR RECOVERY UNIT (INCINERATOR)					
1. Combustion Temperature/ Exhaust Gas Temperature, and	Small/ Large	The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: The minimum combustion temperature is 1200 ºF (649 ºC).	four times per hour	one hour	CAM-SR-009
SO_2 Mass Emissions in Pounds per Hour		Use a continuous emission monitoring system (CEMS) to measure and record the mass emissions rate of sulfur dioxide expressed in pounds per hour in the exhaust stream of the control device. The CEMS shall be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the Performance Specifications of 40 CFR Part 60, Appendix B. Deviation Limit: The maximum SO_2 mass emission rate is the applicable or corresponding emission limit.	four times per hour	one hour	CAM-SR-010

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Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SULFUR RECOVERY UNIT (INCINERATOR)					
2. H_2S Inlet Concentration, and	Small	Measure the inlet concentration of H_2S using either the Tutwiler procedure in 40 CFR § 60.648, the stain tube procedures of GPA 2377-86, or a chromatographic procedure following ASTM E-260. Deviation Limit: Minimum sulfur reduction efficiency shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. Inlet concentration and flow rate shall be used to compute the sulfur feed rate as follows: Sulfur Feed Rate = $3.707X10^{-7}$(Inlet Flow Rate)(H_2S Concentration) Sulfur Feed Rate = Long tons/day. Inlet Flow Rate = Flow rate of acid gas feed, dscf/day. H_2S Concentration = H_2S concentration as measured by Tutwiler or ASTM E-260, percent by volume. $3.707X10^{-7}$ = Conversion constant. The sulfur reduction efficiency shall be computed using the sulfur feed rate and sulfur accumulation as follows: Reduction Efficiency = (100)(Sulfur Accumulation)/(Sulfur Feed Rate) Reduction Efficiency = Percent, %. Sulfur Accumulation = Total Sulfur, long tons, accumulation over 24 hours (day), long tons/day. Sulfur Feed Rate = Long tons/day.	once per day	n/a*	CAM-SR-011
Inlet Flow Rate, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: See Deviation Limit in CAM-SR-011.	once per day	n/a*	CAM-SR-012

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SULFUR RECOVERY UNIT (INCINERATOR)					
Sulfur Accumulation, and		Measure the accumulation of sulfur product for each 24 hour period by measuring and recording sulfur production or by measuring and recording the liquid level in the storage tanks. The monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall have an accuracy of ± 2%. Deviation Limit: See Deviation Limit in CAM-SR-011.	once per day	n/a*	CAM-SR-013
Combustion Temperature/ Exhaust Gas Temperature		The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: The minimum combustion temperature is 1200 ºF (649 ºC).	once per day	n/a*	CAM-SR-014

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SULFUR RECOVERY UNIT (INCINERATOR)					
3. H_2S Inlet Concentration, and	Small/ Large	Measure the inlet concentration of H_2S using either the Tutwiler procedure in 40 CFR § 60.648, the stain tube procedures of GPA 2377-86, or a chromatographic procedure following ASTM E-260. Deviation Limit: Minimum sulfur reduction efficiency shall be established using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. Inlet concentration and flow rate shall be used to compute the sulfur feed rate as follows: Sulfur Feed Rate = $3.707X10^{-7}$(Inlet Flow Rate)(H_2S Concentration) Sulfur Feed Rate = Long tons/day. Inlet Flow Rate = Flow rate of acid gas feed, dscf/day. H_2S Concentration = H_2S concentration as measured by Tutwiler or ASTM E-260, percent by volume. $3.707X10^{-7}$ = Conversion constant. The sulfur reduction efficiency shall be computed using the sulfur feed rate and sulfur accumulation as follows: Reduction Efficiency = (100)(Sulfur Accumulation)/(Sulfur Feed Rate) Reduction Efficiency = Percent, %. Sulfur Accumulation = Total Sulfur, long tons, accumulation over 24 hours (day), long tons/day. Sulfur Feed Rate = Long tons/day.	once per day	n/a*	CAM-SR-015
Inlet Flow Rate, and		Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of span; or • ± 5% of design flow rate. Deviation Limit: See Deviation Limit in CAM-SR-015.	four times per hour	one hour	CAM-SR-016

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.

Compliance Assurance Monitoring Options Table

INDICATOR MONITORED	SIZE	MONITORING SPECIFICATIONS AND PROCEDURES	MIN. FREQ	AVERAGE	CAM OPTION NUMBER
CONTROL DEVICE: SULFUR RECOVERY UNIT (INCINERATOR)					
Sulfur Accumulation, and		Measure the accumulation of sulfur product for each 24 hour period by measuring and recording sulfur production or by measuring and recording the liquid level in the storage tanks. The monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall have an accuracy of ± 2%. Deviation Limit: See Deviation Limit in CAM-SR-015.	once per day	n/a*	CAM-SR-017
Combustion Temperature/ Exhaust Gas Temperature		The monitoring device should be installed in the combustion chamber or immediately downstream of the combustion chamber. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent, and shall be accurate to within one of the following: • ± 2% of reading; or • ± 2.5 degrees Celsius. Deviation Limit: The minimum combustion temperature is 1200 ºF (649 ºC).	four times per hour	one hour	CAM-SR-018

The permit holder may elect to collect monitoring data on a more frequent basis than is required by this CAM Guidance Document and calculate the average as specified by the minimum frequency, whether a deviation has occurred. However, the additional data points must be collected on a regular basis and shall not be collected and used in particular instances to avoid reporting deviations.