

Air Permit Reviewer Reference Guide

APDG 5241

Periodic Monitoring

Provides guidance and options for submitting periodic monitoring requirements for Federal Operating Permits

**Air Permits Division
Texas Commission on Environmental Quality
October 2008**

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Periodic Monitoring

Background

Periodic monitoring is a federal monitoring program established under Title 40 Code of Federal Regulations Part 70 (40 CFR Part 70). The regulatory requirements governing implementation of periodic monitoring in Texas are established in Title 30 Texas Administrative Code Chapter 122 (30 TAC Chapter 122), Subchapter G (Periodic Monitoring). The purpose of this guidance document is to provide a streamlined approach for implementing periodic monitoring. The use of the Periodic Monitoring Guidance Document is optional. As provided in 30 TAC § 122.600(a)(2), a periodic monitoring case-by-case determination may be submitted to the Texas Commission on Environmental Quality to satisfy the periodic monitoring requirements. As permit holders apply for Periodic Monitoring, 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 periodic monitoring. 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.

Periodic Monitoring Applicability

Periodic monitoring applies to emission units at sites that are subject to 30 TAC Chapter 122 provided that the emission unit is subject to an emission limitation or standard for an air pollutant (or surrogate thereof) in an applicable requirement, excluding those emission limitations or standards identified in 30 TAC § 122.602(b).

An emission unit requires periodic monitoring if the emission limitation or standard that the unit is subject to does not specify periodic monitoring (which may consist of recordkeeping) that is sufficient to yield reliable data from a relevant time period that is representative of the emission unit's compliance with the applicable requirement and testing, monitoring, reporting, or recordkeeping sufficient to assure compliance with the applicable requirement.

Submitting Periodic Monitoring Requirements

The permit applicant submits periodic 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 periodic monitoring. The first procedure is selecting the appropriate pre-approved periodic monitoring 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 Periodic Monitoring Options

The permit holder may choose to streamline the submittal of periodic monitoring requirements by selecting pre-approved options from this guidance document. Steps for Determining Appropriate Periodic Monitoring Option(s):

- I. Determine whether the emission unit is subject to the requirement for periodic monitoring under 30 TAC § 122.602. Identify the type of emission associated with each of the underlying standards subject to periodic monitoring. Locate that emission type in the first column of the Periodic Monitoring Guidance Document Table labeled Emission.

- II. Once the appropriate emission type has been identified, the permit holder shall select the control device (if appropriate) used to comply with the 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 a control device is not utilized to comply with an emission limitation or standard or the emission limit or standard is for fugitive emissions, the permit holder shall select the appropriate monitoring option below the shaded row titled "All Emission Units."
- III. After the appropriate option has been identified, the permit holder shall select the indicator(s) that will be monitored. A dotted line between indicators represents a combination of parameters that must be monitored together. In addition, each separate indicator or combination of indicators begins with a new number. For example, option number two for a wet scrubber specifies monitoring both pressure drop and liquid supply pressure.

Generally, any monitoring option provided for an emission limitation or standard for a particular control device will be an appropriate option. However, in some cases a particular parameter may not be appropriate because of conditions at a site. There may be unit-specific conditions that make an indicator inappropriate for a particular unit. These cases will be identified during the application and review process.

- IV. Once the indicator(s) is selected, the monitoring requirements are presented in the column titled, Periodic Monitoring Requirements, and may include the deviation limit or procedures for establishing a deviation limit, procedures or test methods to be used in collecting the monitoring data, or quality assurance and quality control requirements.
- V. The minimum frequency for collecting the monitoring data is specified in the column titled "Min Freq." as "once per day," "six times per minute." The permit holder may elect to collect monitoring data on a more frequent basis and average the data, consistent with the averaging time specified in the Periodic Monitoring Guidance Document 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.
- VI. 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 Periodic Monitoring Guidance and calculate the specified average for purposes of determining whether a deviation has occurred.
- VII. The final column in the Periodic Monitoring Options Table is titled PM Option Number. These numbers are used to define the monitoring option(s) selected. Each monitoring option has a unique index number that can be submitted in the application for periodic monitoring. To apply for periodic monitoring, complete a Form OP-MON entitled "Monitoring Requirements" and submits it to the TCEQ along with a completed Form OP-CRO1 entitled "Certification by Responsible Official."

Case-by-Case Periodic Monitoring Submittal

If the permit holder decides to submit a monitoring method that is different than those contained in the Periodic Monitoring 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:

- Detailed description and justification of the proposed monitoring method;
- If applicable, one or more indicators of control device performance;
- The deviation limit expressed as a value, a range or a condition and justification for the deviation limit;
- The proposed minimum frequency of conducting the monitoring and justification for the proposed monitoring frequency; and
- If applicable, the proposed averaging period over which discrete data points will be averaged for the purpose of determining whether a deviation has occurred

Periodic Monitoring for New Source Review (NSR) permits

Periodic monitoring applies to emission limits in 30 TAC § 116, NSR permits. These monitoring requirements may be placed into your Federal Operating Permit; however, if possible these requirements should be incorporated into your NSR permit either through an amendment or an alteration. Additionally, if PM requirements are added to the NSR permit, PM may still need to be added to the FOP for other applicable rules. Permit holders should note that PM 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 Periodic 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.

Links to Monitoring Requirements in Periodic Monitoring Options Table

Pollutant	Monitoring Type
Particulate Matter	General
	Fuel Type
	Fabric Filter
	Wet Scrubber
	Cyclone
	Electrostatic Precipitator
Volatile Organic Compounds	Monitoring Type
	General
	Vapor Collection
	Flare/Incineration
	Carbon Adsorption
	Condenser
	Absorber
	Floating roof
	Submerged fill Pipe
	Water Separator
	Degreasing
Nitrogen Oxides	Monitoring Type
	General
	Catalytic Reduction
	Selective Non-Catalytic Reduction
	Flue Gas Recirculation
	Steam/Water Injection
	Catalytic Converters
Carbon Monoxide	Monitoring Type
	General
Sulfur Dioxide	Monitoring Type
	General
	Scrubber
	Incinerator (SRU)

Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
Particulate Matter (PM)	ALL EMISSION UNITS				
	1. Visible Emissions	<p>Visible emissions observations shall be made and recorded. 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.</p> <p>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 the 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.</p>	once per week	n/a	PM-P-001
2. Opacity	<p>Opacity shall be monitored, by a certified observer, for at least one, six-minute period in accordance with Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Appendix A, Test Method 9. The deviation limit is the maximum opacity corresponding to the underlying applicable requirement. If there is no applicable or corresponding opacity limit, a maximum opacity shall be established using the most recent performance test. Any opacity readings that are above the opacity limit from the underlying applicable requirement shall be reported as a deviation.</p>	once per month	Six-minutes	PM-P-002	

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	3. Opacity	Measure and record the opacity with a continuous opacity monitoring system (COMS). The COMS shall be operated in accordance with 40 CFR § 60.13. The maximum opacity is the applicable or corresponding opacity limit. If there is no applicable or corresponding opacity limit, a maximum opacity shall be established using the most recent performance test. Any opacity readings that are above the opacity limit from the underlying applicable requirement shall be considered and reported as a deviation.	six times per minute	Six minutes	PM-P-003
<i>PM Continued</i>	COMBUSTION UNITS FUELED BY PIPELINE NATURAL GAS, LIQUID PETROLEUM GAS, OR FIELD GAS W/ < 10GR TOTAL SULFUR PER 100 CUBIC FEET				
	1. Fuel Type	Record the type of fuel used by the unit. If an alternate fuel is fired, either alone or in combination with the specified gas, for a period greater than or equal to 24 consecutive hours it shall be considered and reported as a deviation or the permit holder shall conduct an observation of the stationary vent for each such period to determine if visible emissions are observed. Any time an alternate fuel is fired for a period of greater than 7 consecutive days then visible emissions observations will be conducted no less than once per week. Documentation of all observations shall be maintained. If visible emissions are present during the firing of an alternate fuel, the permit holder shall either list this occurrence as a deviation or the permit holder may determine the opacity consistent with Test Method 9. Any opacity readings that are above the opacity limit from the underlying applicable requirement shall be reported as a deviation.	Annually or at any time an alternate fuel is used	n/a	PM-P-029
	2. Fuel Type	Record the type of fuel used by the unit. If an alternate fuel is fired, either alone or in combination with the specified gas, it shall be considered and reported as a deviation.	Annually	n/a	PM-P-030
	UNITS WITH A CONTROL DEVICE: FABRIC FILTER				
	1. Pressure Drop	Measure and record the pressure drop. Establish a minimum and maximum pressure drop using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a	PM-P-004
	2. Bag Leak Detection Signal (Analog System)	Monitor and record the bag leak detection signal. Operate bag leak detector in accordance with EPA's, Office of Air Quality Planning and Standards, Fabric Filter Bag Leak Detection Guidance (EPA-454/R-98-015). Establish a maximum signal using the Fabric Filter Bag Leak Detection Guidance. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above a maximum limit shall be considered and reported as a deviation.	four times per hour	Establish per EPA guidance (EPA-454/R-98-015)	PM-P-005

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	3. Bag Leak Detection Signal (Alarm Relay Only)	<p>Establish the system material selection and probe selection, monitoring system operation, and the quality assurance procedures per Section 4, 5 and 6 of the EPA guidance (EPA-454/R-98-015), respectively. If the alarm sounds, the permit holder shall report a deviation. As an alternative to reporting a deviation, the permit holder may determine the opacity consistent with Test Method 9, as soon as practicable but no later than 24 hours after the alarm sounds, or measure and record the pressure drop.</p> <p>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 the 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.</p> <p>If the permit holder chooses to measure and record the pressure drop, the minimum and maximum pressure drop shall be established using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.</p>	n/a* Please note that Section 5.4 of the EPA guidance (EPA-454/R-98-015) requires a monthly response test to check the operational status of the monitor.	n/a*	PM-P-006
UNITS WITH A CONTROL DEVICE: WET SCRUBBER					
	1. Pressure Drop, and:	Measure and record the pressure drop. Establish a minimum pressure drop using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-007
	Liquid Flow Rate	Measure and record the liquid flow rate. Establish a minimum liquid flow rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-008
	2. Pressure Drop, and:	Measure and record the pressure drop. Establish a minimum pressure drop using the most recent performance test, manufacturer's recommendations,	once per week	n/a*	PM-P-009

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EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.			
	Liquid Supply Pressure	Measure and record the liquid supply pressure. Establish a minimum liquid supply pressure using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-010
	3. Liquid Flow Rate and Gas Flow Rate	Measure and record the liquid flow rate and gas flow rate. Establish a minimum liquid-to-gas ratio using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-011
UNITS WITH A CONTROL DEVICE: CYCLONE					
	1. Pressure Drop	Measure and record the pressure drop. Establish a minimum pressure drop using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-012
	2. Inlet Gas Flow Rate	Measure and record the inlet gas flow rate. Establish a minimum flow rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-013
PM	UNITS WITH A CONTROL DEVICE: WET OR DRY ELECTROSTATIC PRECIPITATOR				
<i>Continued</i>	1. Secondary Voltage, and:	Measure and record the secondary voltage. Establish a minimum secondary voltage using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures... Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-014
	Secondary Current	Measure and record the secondary current. Establish a minimum and maximum secondary current using the most recent performance test, manufacturer's	once per week	n/a*	PM-P-015

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.			
	2. Secondary Voltage, and:	Measure and record the secondary voltage. Establish a minimum secondary voltage using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-016
	Spark Rate	Measure and record the spark rate. Establish a minimum and maximum spark rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-017
	3. Secondary Current, and:	Measure and record the secondary current. Establish a minimum and maximum secondary current using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-018
	Spark Rate	Measure and record the spark rate. Establish a minimum and maximum spark rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-019
	4. Primary Voltage, and:	Measure and record the primary voltage. Establish a minimum primary voltage using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-020
	Primary Current, and:	Measure and record primary current. Establish a minimum and maximum primary current using the most recent performance test, manufacturer's	once per week	n/a*	PM-P-021

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.			
	Spark Rate	Measure and record the spark rate. Establish a minimum and maximum spark rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-022
	5. Primary Voltage, and:	Measure and record the primary voltage. Establish a minimum primary voltage using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-023
	Primary Current, and:	Measure and record primary current. Establish a minimum and maximum primary current using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-024
	Secondary Current	Measure and record the secondary current. Establish a minimum and maximum secondary current using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-025
	6. Primary Voltage, and	Measure and record the primary voltage. Establish a minimum primary voltage using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-026
	Primary Current, and	Measure and record the primary current. Establish a minimum and maximum primary current shall be established using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical	once per week	n/a*	PM-P-027

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EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.			
	Secondary Voltage	Measure and record the secondary voltage. Establish a minimum secondary voltage using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-P-028
ALL EMISSION UNITS (EXCEPT FLARE AND CARBON ADSORPTION SYSTEM)					
Volatile Organic Compound (VOC)	1. VOC Concentration	Measure and record the VOC concentration using a portable analyzer to monitor VOC concentration at the outlet of the control device. 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. Establish a maximum VOC concentration using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	monthly	n/a*	PM-V-001
	2. VOC Concentration	Measure and record the concentration of organic compounds in the exhaust stream with a continuous emission monitoring system (CEMS). The CEMS shall be operated in accordance with 40 CFR § 60.13 and the Performance Specifications of 40 CFR Part 60, Appendix B). Establish a maximum VOC concentration using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	four times per hour	hourly	PM-V-002
UNITS WITH A CONTROL DEVICE: VAPOR COLLECTION SYSTEM					
VOC <i>Continued</i>	1. VOC Concentration; and	Measure and record fugitive emissions from the vapor collection system in accordance with 40 CFR Part 60, Appendix A, Method 21.	once per year	n/a	PM-V-058
	Visual Inspection	Visually inspect all components of the vapor collection system for defects, such as cracks, holes, gaps, loose connections, or broken or missing covers or other closure devices, that could result in air emissions.	once per year	n/a	PM-V-059
	UNITS WITH A CONTROL DEVICE: FLARE				
	1. Pilot Flame	Measure and record the presence of the pilot flame or maintain records of alarm events and duration of alarm events. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the	once per hour	n/a	PM-V-003

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		presence of a flame or using an alarm that uses a thermocouple or other equivalent device to detect the absence of a flame. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data which indicates the lack of a pilot flame shall be considered and reported as a deviation.			
	2. Visible Emissions	Visible emissions observations shall be made and recorded. 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. 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	PM-V-004
	3. Visible Emissions	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. For flares operated less frequently than daily, the observation shall be made for each operation. 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. 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	PM-V-053
	4. Inlet Flow Rate, and	Measure and record the inlet flow rate. Establish a maximum inlet flow rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-005

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	Net Heating Value	Calculate and record 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. 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). Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-006
UNITS WITH A CONTROL DEVICE: THERMAL INCINERATOR (DIRECT FLAME INCINERATOR/REGENERATIVE THERMAL OXIDIZER)					
	1. Combustion Temperature/ Exhaust Gas Temperature	Measure and record the combustion temperature in the combustion chamber or immediately downstream of the combustion chamber. Establish a minimum combustion temperature using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-007
VOC <i>Continued</i>	UNITS WITH A CONTROL DEVICE: VAPOR COMBUSTOR				
	1. Combustion Temperature/ Exhaust Gas Temperature	Measure and record the combustion temperature in the combustion chamber or immediately downstream of the combustion chamber. Establish a minimum combustion temperature using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-008
If the vapor combustor has been initially tested as a flare and not as a thermal incinerator then the correct index numbers are contained in UNITS WITH A CONTROL DEVICE: FLARE					
UNITS WITH A CONTROL DEVICE: CATALYTIC INCINERATOR					
	1. Catalyst Bed Inlet and Outlet Gas Temperature	Measure and record the catalyst bed temperature across the inlet to and exit of the catalyst bed. Establish a minimum temperature difference across the inlet and outlet of the catalyst bed using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-009

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
UNITS WITH A CONTROL DEVICE: STEAM GENERATING UNIT (BOILER)/ PROCESS HEATER (Design Heat Input Capacity < 44MW)					
	1. Combustion Temperature/ Exhaust Gas Temperature	Measure and record the combustion temperature in the combustion chamber or immediately downstream of the combustion chamber into which the volatile organic compound is introduced. Establish a minimum combustion temperature using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-010
UNITS WITH A CONTROL DEVICE: STEAM GENERATING UNIT (BOILER)/ PROCESS HEATER (Design Heat Input Capacity > 44MW)					
	1. Period of Operation	Monitor and record the periods of operation of the steam generating units or process heater. All periods that are not recorded shall be considered and reported as a deviation. The records must be readily available for inspection.	n/a	n/a	PM-V-011
VOC <i>Continued</i>	2. Combustion Temperature/ Exhaust Gas Temperature	Measure and record the combustion temperature in the combustion chamber or immediately downstream of the combustion chamber into which the volatile organic compound is introduced. Establish a minimum combustion temperature using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-012
UNITS WITH A CONTROL DEVICE: CARBON ADSORPTION SYSTEM (REGENERATIVE)					
	1. VOC Concentration	Measure and record the concentration of organic compounds in the exhaust stream with a continuous emission monitoring system (CEMS). The CEMS shall be operated in accordance with 40 CFR § 60.13 and the Performance Specifications of 40 CFR Part 60, Appendix B. Establish a maximum VOC concentration using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	four times per hour	hourly	PM-V-013
	2. VOC Concentration	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	once per week	n/a*	PM-V-014

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		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. 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. Any monitoring data above the maximum limit shall be considered and reported as a deviation.			
	3. Total Regeneration Stream Mass Flow, and	Measure and record, during a regeneration cycle, the total regeneration stream mass flow. Establish a minimum regeneration stream mass flow using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-015
	Carbon Bed Temperature	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 the completing the cooling cycle. Establish a maximum temperature of the carbon bed after regeneration [and after completion of any cooling cycle(s)] using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-016
	4. Total Regeneration Stream Mass Flow, and:	Measure and record, during a regeneration cycle, the total regeneration stream mass flow. Establish a minimum regeneration stream mass flow using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-054
	Carbon Bed Pressure	Measure and record, during a regeneration cycle, the carbon bed pressure for the duration of the vacuum cycle. Establish a minimum carbon bed pressure using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-055
	5. Total Regeneration	Measure and record, during a regeneration cycle, the total regeneration stream volumetric flow. Establish a minimum regeneration stream volumetric flow	once per week	n/a*	PM-V-017

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	Stream Volumetric Flow, and:	using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.			
	Carbon Bed Temperature	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 the completing the cooling cycle. Establish a maximum temperature of the carbon bed after regeneration [and after completion of any cooling cycle(s)] using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-018
	6. Total Regeneration Stream Volumetric Flow, and:	Measure and record, during a regeneration cycle, the total regeneration stream volumetric flow. Establish a minimum regeneration stream volumetric flow using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-056
	Carbon Bed Pressure	Measure and record, during a regeneration cycle, the carbon bed pressure for the duration of the vacuum cycle. Establish a minimum carbon bed pressure using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-057
UNITS WITH A CONTROL DEVICE: CARBON ADSORBER (NON-REGENERATIVE)					
	1. Carbon Replacement Interval	Monitor and record 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. Establish a maximum carbon replacement interval using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. Any data, collected for a period which exceeds the maximum carbon replacement interval shall be considered and reported as a deviation.	At each replacement of a carbon canister	n/a	PM-V-019
	2. VOC Concentration	Measure and record the VOC concentration using a portable analyzer to monitor VOC concentration at the outlet of the first or second canister, but before the inlet to the second, third, or final polishing canister of the carbon adsorption system, as appropriate. The monitoring device shall meet the requirements of 40	once per week	n/a*	PM-V-020

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		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 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 monitoring instrumentation shall be maintained and operated in accordance with manufacturer’s specifications or other written procedures. Establish a maximum VOC concentration and that the carbon adsorption system will operate without breakthrough for more than two weeks using the most recent performance test, manufacturer’s recommendations, engineering calculations, and/or historical data. If the maximum reading after the outlet of the first, second, third. Canister (but not the final canister in the series), is above the maximum limit, that canister shall be replaced and the event recorded before the next VOC reading is taken. If the canister is not replaced and the event not recorded, it shall be considered and reported as a deviation. If the VOC concentration from the final canister is above the maximum limit it shall be considered and reported as a deviation.			
	3. VOC Concentration	Measure and record the concentration of organic compounds in the exhaust stream with a continuous emission monitoring system (CEMS). The CEMS shall be operated in accordance with 40 CFR § 60.13 and the Performance Specifications of 40 CFR Part 60, Appendix B. Establish a maximum VOC concentration using the most recent performance test, manufacturer’s recommendations, engineering calculations, and/or historical data. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	four times per hour	hourly	PM-V-021
UNITS WITH A CONTROL DEVICE: CONDENSER SYSTEM					
	1. Exhaust Gas Temperature	Measure and record the outlet exhaust gas temperature from the condenser system. Establish a maximum exhaust gas temperature using the most recent performance test, manufacturer’s recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer’s specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-022
UNITS WITH A CONTROL DEVICE: ABSORBER (CAUSTIC ABSORPTION)					
VOC <i>Continued</i>	1. pH, and:	Measure and record the pH. Establish a minimum pH using the most recent performance test, manufacturer’s recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer’s specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-023

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	Liquid Flow Rate	Measure and record the liquid flow rate. Establish a minimum liquid flow rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-024
	2. pH, and:	Measure and record the pH. Establish a minimum pH using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation	once per week	n/a*	PM-V-025
	Liquid Supply Pressure	Measure and record the liquid supply pressure. Establish a minimum liquid supply pressure using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-026
	3. pH, and:	Measure and record the pH. Establish a minimum pH using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-027
	Liquid Flow Rate and Gas Flow Rate	Measure and record the liquid-to-gas ratio. Establish a minimum liquid-to-gas ratio using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-028
VOC <i>Continued</i>	UNITS WITH A CONTROL DEVICE: ABSORBER (DIRECT ABSORPTION)				
	1. Outlet Gas Temperature, and:	Measure and record the outlet gas temperature. Establish a maximum outlet gas temperature using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-029
	Liquid Flow Rate	Measure and record the liquid flow rate. Establish a minimum liquid flow rate using the most recent performance test, manufacturer's recommendations,	once per week	n/a*	PM-V-030

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.			
	2. Outlet Gas Temperature, and:	Measure and record the outlet gas temperature. Establish a maximum outlet gas temperature using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-031
	Liquid Supply Pressure	Measure and record the liquid supply pressure. Establish a minimum liquid supply pressure using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-032
	3. Outlet Gas Temperature, and:	Measure and record the outlet gas temperature. Establish a maximum outlet gas temperature using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-033
	Specific Gravity	Measure and record the specific gravity. Establish a minimum and maximum specific gravity using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit or below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-034
	4. Liquid Flow Rate, and:	Measure and record the liquid flow rate. Establish a minimum liquid flow rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-035
	Specific Gravity	Measure and record the specific gravity. Establish a minimum and maximum	once per week	n/a*	PM-V-036

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Periodic Monitoring Options Table

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		specific gravity using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit or below the minimum limit shall be considered and reported as a deviation.			
	5. Liquid Supply Pressure, and:	Measure and record the liquid supply pressure. Establish a minimum liquid supply pressure using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-037
	Specific Gravity	Measure and record the specific gravity. Establish a minimum and maximum specific gravity using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit or below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-038
	6. Liquid Flow Rate and Gas Flow Rate, and:	Measure and record the liquid-to-gas ratio. Establish a minimum liquid-to-gas ratio using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-039
	Specific Gravity	Measure and record the specific gravity. Establish a minimum and maximum specific gravity using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit or below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-V-040
VOC <i>Continued</i>	UNITS WITH A PASSIVE CONTROL DEVICE: EXTERNAL OR INTERNAL FLOATING ROOF				
	External Floating Roof	Visually inspect and record the inspection of the external floating roof to ensure: the roof is floating on the surface of the VOC and not on the leg supports, liquid has not accumulated on the external floating roof, the seals are not detached, and there are no holes or tears in the seal fabric. Any monitoring data in which the roof is not floating on the surface of the VOC, if liquid has accumulated on the external floating roof, the seals are detached, or if there are holes or tears in the seal fabric shall be considered and reported as a deviation.	annually	n/a	PM-V-041

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	Internal Floating Roof	Visually inspect and record the inspection of the internal floating roof to ensure: the roof is floating on the surface of the VOC and, liquid has not accumulated on the internal floating roof, the seals are not detached, and there are no holes or tears in the seal fabric. Any monitoring data in which the roof is not floating on the surface of the VOC, if liquid has accumulated on the internal floating roof, the seals are detached, or if there are holes or tears in the seal fabric shall be considered and reported as a deviation.	annually	n/a	PM-V-042
UNITS WITH A PASSIVE CONTROL DEVICE (SUBMERGED FILL PIPE)					
	1. Liquid Level, and:	Regardless of the location of the fill pipe, the fill pipe must be submerged at all times. Establish the depth of the highest point of the fill pipe. Soundings shall be made and recorded to determine the depth of the liquid. The soundings will be compared to the depth of the fill pipe. It shall be considered and reported as a deviation any time the liquid level falls below the fill pipe level.	at the end of each unloading operation	n/a	PM-V-043
	Structural Integrity of the Pipe	Inspect to determine the structural integrity of the fill pipe and record each time the storage vessel is emptied and degassed. If the structural integrity of the fill pipe is in question, repairs shall be made before the storage vessel is refilled. It shall be considered and reported as a deviation if the repairs are not completed prior to refilling the storage vessel.	emptied and degassed	n/a	PM-V-044
	2. Liquid Level, and:	Regardless of the location of the fill pipe, the fill pipe must be submerged at all times. Establish the depth of the highest point of the fill pipe. Monitor and record the depth of the liquid using an automated/remote sounding device or liquid level sensing alarm/monitor. It shall be considered and reported as a deviation any time the liquid level falls below the fill pipe level.	once per day*	n/a	PM-V-045
	Structural Integrity of the Pipe	Inspect to determine the structural integrity of the fill pipe and record each time the storage vessel is emptied and degassed. If the structural integrity of the fill pipe is in question, repairs shall be made before the storage vessel is refilled. It shall be considered and reported as a deviation if the repairs are not completed prior to refilling the storage vessel.	emptied and degassed	n/a	PM-V-046
	3. Liquid Level, and:	Regardless of the location of the fill pipe, the fill pipe must be submerged at all times. Establish the volume of liquid at the depth of the highest point of the fill pipe. Record the volume of liquid loaded and unloaded so that the storage vessel liquid volume is known. It shall be considered and reported as a deviation anytime the liquid volume falls below the liquid volume at the fill pipe.	at the end of each unloading operation	n/a	PM-V-047
	Structural Integrity of the Pipe	Inspect to determine the structural integrity of the fill pipe and record each time the storage vessel is emptied and degassed. If the structural integrity of the fill pipe is in question, repairs shall be made before the storage vessel is refilled. It shall be considered and reported as a deviation if the repairs are not completed prior to refilling the storage vessel.	Emptied and degassed	n/a	PM-V-048
	4. Record of Tank Construction	Keep a record of tank construction specifications (e.g. engineering drawings) that show a fill pipe that extends from the top of a tank to have a maximum clearance	n/a	n/a	PM-V-060

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Periodic Monitoring Options Table

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	Specifications, and:	of six inches (15.2 centimeters) from the bottom or, when the tank is loaded from the side, a discharge opening entirely submerged when the pipe used to withdraw liquid from the tank can no longer withdraw liquid in normal operation.			
	Structural Integrity of the Pipe	Inspect to determine the structural integrity of the fill pipe and record each time the storage vessel is emptied and degassed to ensure that it continues to meet the specifications in the above requirement. If the structural integrity of the fill pipe is in question, repairs shall be made before the storage vessel is refilled. It shall be considered and reported as a deviation if the repairs are not completed prior to refilling the storage vessel.	emptied and degassed	n/a	PM-V-061
<i>VOC Continued</i>	UNITS WITH A PASSIVE CONTROL DEVICE (VOC/WATER SEPARATOR W/ ENCLOSED COMPARTMENT)				
	1. VOC Concentration	<p>Measure and record the VOC concentration using a portable analyzer to monitor VOC concentration around the immediate area of the compartment in accordance with 40 CFR Part 60, Appendix A, Method 21. Each potential leak interface (a location where organic vapor leakage could occur) on the cover and associated closure devices shall be checked. Potential leak interfaces that are associated with covers and closure devices include, but are not limited to: the interface of the cover and its foundation mounting; the periphery of any opening on the cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure relief valve. The owner or operator may choose to adjust the detection instrument readings for the background organic concentration level. For a potential leak interface other than a seal around a shaft that passes through a cover opening, the maximum deviation limit shall be 500 ppmv. For a seal around a shaft that passes through a cover opening the maximum deviation limit shall be 10,000 ppmv.</p> <p>The monitoring instrumentation shall be maintained and operated in accordance with manufacturer's specifications or other written procedures.</p> <p>Any monitoring data greater than the maximum VOC limit indicated in the Deviation Limit above shall be considered and reported as a deviation as required by 30 TAC § 122.145(2).</p>	quarterly	n/a*	PM-V-049
	2. VOC Concentration, and:	Measure and record the VOC concentration using a portable analyzer to monitor VOC concentration around the immediate area of the compartment in accordance with 40 CFR Part 60, Appendix A, Method 21. Each potential leak interface (a location where organic vapor leakage could occur) on the cover and associated closer devices shall be checked. Potential leak interfaces that are associated with covers and closure devices include, but are not limited to: the interface of the cover and its foundation mounting; the periphery of any opening on the cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure relief valve. The owner or operator may choose to adjust	annually	n/a*	PM-V-050

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		<p>the detection instrument readings for the background organic concentration level. For a potential leak interface other than a seal around a shaft that passes through a cover opening, the maximum deviation limit shall be 500 ppmv. For a seal around a shaft that passes through a cover opening the maximum deviation limit shall be 10,000 ppmv.</p> <p>The monitoring instrumentation shall be maintained and operated in accordance with manufacturer's specifications or other written procedures.</p> <p>Any monitoring data greater than the maximum VOC limit indicated in the Deviation Limit above shall be considered and reported as a deviation as required by 30 TAC § 122.145(2).</p>			
	Visual Inspection	<p>The oil-water separator and its closure devices shall be visually inspected by the owner operator to check for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the separator wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.</p> <p>Any monitoring data that indicates a gap or crack in a sealed opening shall be considered and reported as a deviation as required by 30 TAC § 122.145(2).</p>	monthly	n/a	PM-V-051
UNITS WITHOUT A CONTROL DEVICE (COLD SOLVENT CLEANERS)					
	1. Visual Inspection	Inspect equipment and record data monthly to ensure compliance with any applicable requirements in 30 TAC § 115.412(1) (A)-(F). Any monitoring data which indicates that the cold cleaner is not in compliance with the applicable requirements of 30 TAC § 115.412(1) (A)-(F) shall be considered and reported as a deviation.	monthly	n/a	PM-V-052
Nitrogen Oxides (NOx)					
	1. NOx Concentration	Monitor and record the nitrogen oxide concentration in the exhaust stream using a portable analyzer to monitor nitrogen oxide. 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). NOx emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower hour, pounds per MMBtu, pounds per hour).	monthly	n/a*	PM-N-001
	2. NOx Concentration	Measure and record the concentration of nitrogen oxide in the exhaust stream with a continuous emission monitoring system (CEMS). In addition, monitor the oxygen or carbon dioxide content of the flue gas with a CEMS. The CEMS shall	four times per hour	one hour	PM-N-002

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		be operated in accordance with the monitoring requirements of 40 CFR § 60.13 and the performance specifications of 40 CFR Part 60, Appendix B. NOx emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower hour, pounds per MMBtu, pounds per hour).			
Nitrogen Oxides (NOx)	UNITS WITH A CONTROL DEVICE: SELECTIVE CATALYTIC REDUCTION (EXCEPT FOR RECIPROCATING ENGINES)				
	1. Inlet Gas Temperature, and:	Measure and record the inlet flue gas temperature to the catalyst bed. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-003
	Injection Nozzle Flow Rate	Measure and record the injection nozzle flow rate. Establish a minimum flow rate using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-004
	2. Inlet Gas Temperature, and:	Measure and record the inlet flue gas temperature to the catalyst bed. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-005
	Injection Nozzle Supply Pressure	Measure and record the injection nozzle supply pressure. Establish a minimum supply pressure using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-006
	3. Inlet Gas Temperature, and:	Measure and record the inlet flue gas temperature to the catalyst bed. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-007

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	Inlet Oxygen Concentration	Measure and record the oxygen concentration using a portable analyzer to monitor oxygen concentration in the inlet flue gas to the catalyst bed. Establish a minimum and a maximum oxygen concentration using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-008
	4. Injection Nozzle Flow Rate, and:	Measure and record the injection nozzle flow rate. Establish a minimum flow rate using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-009
	Inlet Oxygen Concentration	Measure and record the oxygen concentration using a portable analyzer to monitor oxygen concentration in the inlet flue gas to the catalyst bed. Establish a minimum and a maximum oxygen concentration using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-010
	5. Injection Nozzle Supply Pressure, and	Measure and record the injection nozzle supply pressure. Establish a minimum supply pressure using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-011
	Inlet Oxygen Concentration	Measure and record the oxygen concentration using a portable analyzer to monitor oxygen concentration in the inlet flue gas to the catalyst bed. Establish a minimum and a maximum oxygen concentration using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-012

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	6. Inlet Oxygen Concentration, and	Measure and record the oxygen concentration using a portable analyzer to monitor oxygen concentration in the inlet flue gas to the catalyst bed. Establish a minimum and a maximum oxygen concentration using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-013
	Catalyst Bed Pressure Drop	Measure and record the pressure drop across the catalyst bed. Establish a minimum pressure drop using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-014
	7. Inlet Gas Temperature, and:	Measure and record the inlet flue gas temperature to the catalyst bed. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-015
	Catalyst Bed Pressure Drop	Measure and record the pressure drop across the catalyst bed. Establish a minimum pressure drop using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-016
UNITS WITH A CONTROL DEVICE: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)					
	1. Exhaust Gas Temperature, and:	Monitor and record the temperature of the exhaust gas in the combustion chamber or immediately downstream of the combustion chamber. Establish a minimum and maximum exhaust temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-017
	Injection Nozzle	Measure and record the injection nozzle flow rate. Establish a minimum flow	once per week	n/a*	PM-N-018

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	Flow Rate	rate using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.			
	2. Exhaust Gas Temperature, and:	Monitor and record the temperature of the exhaust gas in the combustion chamber or immediately downstream of the combustion chamber. Establish a minimum and maximum exhaust temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-019
	Injection Nozzle Supply Pressure	Measure and record the injection nozzle supply pressure. Establish a minimum supply pressure using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-020
	3. Exhaust Gas Temperature, and:	Measure and record the temperature of the exhaust gas in the combustion chamber or immediately downstream of the combustion chamber. Establish a minimum and maximum exhaust temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-021
	Oxygen Concentration	Measure and record oxygen concentration of the exhaust gas using a portable analyzer. Establish a minimum and maximum oxygen concentration using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. 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). Any monitoring data below the minimum limit or above the maximum limit shall be	once per week	n/a*	PM-N-022

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		considered and reported as a deviation.			
<i>NOx Continued</i>	UNITS WITH A CONTROL DEVICE: FLUE GAS RECIRCULATION				
	1. Combustion Temperature/ Exhaust Gas Temperature, and:	Measure and record the temperature of the combustion chamber or the exhaust gas temperature immediately downstream of the combustion chamber. Establish a minimum and maximum combustion or exhaust temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-023
	Oxygen Concentration	Measure and record oxygen concentration of the exhaust gas using a portable analyzer. Establish a minimum and maximum oxygen concentration using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. 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). Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-024
	2. Combustion Temperature/ Exhaust Gas Temperature, and:	Measure and record the temperature of the combustion chamber or the exhaust gas temperature immediately downstream of the combustion chamber. Establish a minimum and maximum combustion or exhaust temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-025
	Fan Motor Current	Measure and record the fan motor current. Establish a minimum current using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-026
<i>NOx Continued</i>	UNITS WITH A CONTROL DEVICE: FLUE GAS RECIRCULATION (CONTINUED)				
	3. Combustion Temperature/ Exhaust Gas	Measure and record the temperature of the combustion chamber or the exhaust gas temperature immediately downstream of the combustion chamber. Establish a minimum and maximum combustion or exhaust temperature using the most	once per week	n/a*	PM-N-027

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	Temperature, and:	recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.			
	Recirculated Flue Gas Flow Rate	Measure and record the recirculated flue gas flow rate. Establish a minimum flow rate using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-028
	4. Oxygen Concentration, and:	Measure and record oxygen concentration of the exhaust gas using a portable analyzer. Establish a minimum and maximum oxygen concentration using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. 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). Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-029
	Fan Motor Current	Measure and record the fan motor current. Establish a minimum current using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-030
NOx <i>Continued</i>	UNITS WITH A CONTROL DEVICE: FLUE GAS RECIRCULATION (CONTINUED)				
	5. Oxygen Concentration, and:	Measure and record oxygen concentration of the exhaust gas using a portable analyzer. Establish a minimum and maximum oxygen concentration using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. 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). Any monitoring data below the minimum limit or above the maximum limit shall be	once per week	n/a*	PM-N-031

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		considered and reported as a deviation.			
	Recirculated Flue Gas Flow Rate	Measure and record the recirculated flue gas flow rate. Establish a minimum flow rate using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-032
CONTROL DEVICE: STEAM/WATER INJECTION SYSTEMS					
	1. Steam or water flow rate, and:	Measure and record the steam or water flow rate. Establish a minimum steam or water to fuel ratio using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-033
	Fuel Consumption	Measure and record fuel consumption. Establish a minimum steam or water to fuel ratio using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-034
<i>NOx Continued</i>	UNITS WITH A CONTROL DEVICE: CATALYTIC CONVERTERS				
	1. Fuel Consumption, and:	Measure and record fuel consumption. Establish a maximum fuel consumption limit using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-035
	NOx Concentration	Measure and record the nitrogen oxides concentration of the exhaust gas on a biennial calendar basis using the method specified in 30 TAC § 117.211(e). The maximum NOx concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxide limit associated with the emission limitation in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once every two years	n/a	PM-N-036
	2. Fuel	Measure and record fuel consumption. Establish a maximum fuel consumption	once per week	n/a*	PM-N-055

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Periodic Monitoring Options Table

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	Consumption, and:	limit using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.			
	NOx Concentration	Measure and record the nitrogen oxides concentration of the exhaust gas on a biennial calendar basis using Reference Method 7E or 20 to stack test the unit for NOx 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. The maximum NOx concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxide limit associated with the emission limitation in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once every two years	n/a	PM-N-056
	3. Fuel Consumption, and:	Measure and record fuel consumption. Establish a maximum fuel consumption limit using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-037
	NOx Concentration	Measure and record the nitrogen oxides concentration of the exhaust gas on a biennial calendar basis using the method specified in 30 TAC § 117.211(e). The maximum NOx concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxide limit associated with the emission limitation in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	every 15,000 hours of operation	n/a	PM-N-038
	4. Fuel Consumption, and:	Measure and record fuel consumption. Establish a maximum fuel consumption limit using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-057

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	NOx Concentration	Measure and record the nitrogen oxides concentration of the exhaust gas on a biennial calendar basis using Reference Method 7E or 20 to stack test the unit for NOx 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. The maximum NOx concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxide limit associated with the emission limitation in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	every 15,000 hours of operation	n/a	PM-N-058
	5. Fuel Consumption, and:	Measure and record fuel consumption. Establish a maximum fuel consumption limit using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-039
	NOx Concentration	Monitor and record the nitrogen oxide concentration in the exhaust stream using a portable analyzer to monitor nitrogen oxide. 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). NOx emissions shall be corrected/calculated in units of the underlying applicable emission limitation (grams per horsepower hour, pounds per MMBtu, pounds per hour).	once per quarter	n/a*	PM-N-040
	6. Fuel Consumption, and:	Measure and record fuel consumption. Establish a maximum fuel consumption limit using the most appropriate of the following: the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-041
	Inlet Gas Temperature	Measure and record the temperature at the inlet to the catalytic converter. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's	once per week	n/a*	PM-N-042

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.			
	7. Inlet Gas Temperature, and:	Measure and record the temperature at the inlet to the catalytic converter. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.	once per day	n/a*	PM-N-043
	NOx Concentration	Measure and record the nitrogen oxides concentration of the exhaust gas on a biennial calendar basis using the method specified in 30 TAC § 117.211(e). The maximum NOx concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxide limit associated with the emission limitation in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once every two years	n/a	PM-N-044
	8. Inlet Gas Temperature, and:	Measure and record the temperature at the inlet to the catalytic converter. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.	once per day	n/a*	PM-N-045
	NOx Concentration	Measure and record the nitrogen oxides concentration of the exhaust gas on a biennial calendar basis using Reference Method 7E or 20 to stack test the unit for NOx 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. The maximum NOx concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxide limit associated with the emission limitation in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once every two years	n/a	PM-N-046
	9. Inlet Gas	Measure and record the temperature at the inlet to the catalytic converter.	once per day	n/a*	PM-N-047

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	Temperature, and:	Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.			
	NOx Concentration	Measure and record the nitrogen oxides concentration of the exhaust gas on a biennial calendar basis using the method specified in 30 TAC § 117.211(e). The maximum NOx concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxide limit associated with the emission limitation in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	every 15,000 hours of operation	n/a	PM-N-048
	10. Inlet Gas Temperature, and:	Measure and record the temperature at the inlet to the catalytic converter. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.	once per day	n/a*	PM-N-049
	NOx Concentration	Measure and record the nitrogen oxides concentration of the exhaust gas on a biennial calendar basis using Reference Method 7E or 20 to stack test the unit for NOx 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. The maximum NOx concentration (specified in units of the underlying applicable requirement) is the corresponding nitrogen oxide limit associated with the emission limitation in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	every 15,000 hours of operation	n/a	PM-N-050
	11. Inlet Gas Temperature, and:	Measure and record the temperature at the inlet to the catalytic converter. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's	once per day	n/a*	PM-N-051

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.			
	NOx Concentration	Monitor and record the nitrogen oxide concentration in the exhaust stream using a portable analyzer to monitor nitrogen oxide. 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).	once per quarter	n/a*	PM-N-052
	12. Inlet Gas Temperature, and:	Measure and record the temperature at the inlet to the catalytic converter. Establish a minimum and maximum temperature using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-N-053
	Oxygen Concentration	Measure and record 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. Establish a minimum and maximum oxygen level (measured in millivolts or oxygen concentration) using the most appropriate of the following: the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. 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.	once per week	n/a*	PM-N-054
Carbon Monoxide (CO)	ALL EMISSION UNITS				
	1. CO Concentration	Measure and record the carbon monoxide concentration using a portable analyzer. Establish a maximum carbon monoxide concentration using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. 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). Any monitoring data below the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-C-001

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	2. CO Concentration	Measure and record the concentration of carbon monoxide in the exhaust stream of the control device with a continuous emission monitoring system (CEMS). 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. Establish a maximum carbon monoxide concentration the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	four times per hour	one hour	PM-C-002
Sulfur Dioxide (SO ₂)	ALL EMISSION UNITS SO ₂ Concentration	Measure and record the concentration of SO ₂ in the exhaust stream of the control device with a continuous emission monitoring system (CEMS). In addition, measure and record the oxygen or carbon dioxide content of the flue gas with a CEMS. The CEMS shall be operated in accordance with 40 CFR § 60.13 and the Performance Specifications of 40 CFR Part 60, Appendix B. The maximum sulfur dioxide 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. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	four times per hour	hourly	PM-S-001
SO ₂ <i>Continued</i>	ALL COMBUSTION UNITS USING PIPELINE QUALITY NATURAL GAS, COMMERCIAL PROPANE, OR FUEL OIL. NOT FOR COMBUSTION UNITS BURNING REFINERY GAS OR SOLID FUEL.				
	Sulfur Content of Fuel	Measure and record the sulfur content of the fuel. Establish a maximum sulfur concentration using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	quarterly and within 24 hours of any fuel change	n/a*	PM-S-002
	UNITS WITH A CONTROL DEVICE: SO₂ SCRUBBER				
	1. Pressure Drop, and:	Measure and record the pressure drop. Establish a minimum and maximum pressure drop using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-S-003
	Liquid Flow Rate	Measure and record the liquid flow rate. Establish a minimum liquid flow rate using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-S-004

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	2. Pressure Drop, and:	Measure and record the pressure drop. Establish a minimum and maximum pressure drop using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum or above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-S-005
	Liquid Supply Pressure	Measure and record the liquid supply pressure. Establish a minimum liquid supply pressure using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-S-006
	3. pH, and:	Measure and record the pH of the scrubber liquid. Establish a minimum pH using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation	once per week	n/a*	PM-S-007
	Liquid Flow Rate	Measure and record the liquid flow rate. Establish a minimum liquid flow rate using the most recent performance test data, the manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-S-008
	4. pH, and:	Measure and record the pH of the scrubber liquid. Establish a minimum pH using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-S-009
	Liquid Supply Pressure	Measure and record the liquid supply pressure. Establish a minimum liquid supply pressure using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-S-010
	5. pH, and:	Measure and record the pH of the scrubber liquid. Establish a minimum pH	once per week	n/a*	PM-S-011

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		using the most recent performance test data, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with the manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.			
	Liquid Flow Rate and Gas Flow Rate	Measure and record the liquid flow rate and gas flow rate. Establish a minimum liquid-to-gas ratio using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be calibrated, maintained, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-S-012
UNITS WITH A CONTROL DEVICE: INCINERATOR (SRU)					
	1. Combustion Temperature/ Exhaust Gas Temperature, and:	Measure and record the combustion temperature in the combustion chamber or immediately downstream of the combustion chamber. The minimum combustion temperature is 1200 °F (649 °C). The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.	four times per hour	daily	PM-S-013
	SO ₂ Mass Emissions in Pounds per Hour	A continuous emission monitoring system (CEMS) that measures and records 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. The maximum SO _x mass emission rate is the applicable or corresponding emission limit. Any monitoring data above the limit from the underlying applicable requirement shall be considered and reported as a deviation.	four times per hour	Hourly	PM-S-014
	2. H ₂ S Inlet Concentration, and:	Measure and record the inlet concentration of H ₂ S to determine the minimum sulfur reduction efficiency. Establish the inlet concentration of H ₂ S using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The inlet concentration shall be used to compute the sulfur feed rate as follows: Sulfur Feed Rate = 3.707*10 ⁻⁷ (Inlet Flow Rate)(H ₂ S Concentration) Sulfur Feed Rate = Long tons/day; Inlet Flow Rate = Flow rate of acid gas feed, dscf/day; H ₂ S Concentration = H ₂ S inlet concentration as measured; 3.707*10 ⁻⁷ = Conversion constant.	once per week	n/a*	PM-S-015

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		The sulfur reduction efficiency shall be computed using the sulfur feed rate and the sulfur accumulation. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum sulfur reduction efficiency shall be considered and reported as a deviation.			
	Inlet Flow Rate, and:	<p>Measure and record the inlet flow rate to determine the minimum sulfur reduction efficiency. Establish the inlet flow rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The inlet flow rate shall be used to compute the sulfur feed rate as follows:</p> <p>Sulfur Feed Rate = $3.707 \times 10^{-7}(\text{Inlet Flow Rate})(\text{H}_2\text{S Concentration})$ Sulfur Feed Rate = Long tons/day; Inlet Flow Rate = Flow rate of acid gas feed, dscf/day; H₂S Concentration = H₂S inlet concentration as measured; 3.707×10^{-7} = Conversion constant.</p> <p>The sulfur reduction efficiency shall be computed using the sulfur feed rate and the sulfur accumulation. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum sulfur reduction efficiency shall be considered and reported as a deviation.</p>	once per week	n/a*	PM-S-016
	Sulfur Accumulation, and:	<p>Measure and record the accumulation of sulfur product to determine the minimum sulfur reduction efficiency. Establish the accumulation of sulfur product by measuring and recording sulfur production or by measuring and recording the liquid level in the storage tanks.</p> <p>The sulfur reduction efficiency shall be computed using the sulfur feed rate and the sulfur accumulation as follows:</p> <p>Reduction Efficiency = $(100)(\text{Sulfur Accumulation})/(\text{Sulfur Feed Rate})$ Reduction Efficiency = Percent, %; Sulfur Accumulation = Total Sulfur, long tons, accumulated over 24 hours (day); Sulfur Feed rate = Long tons/day.</p> <p>The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum sulfur reduction efficiency shall be considered and reported as a deviation.</p>	once per week	n/a*	PM-S-017
	Combustion Temperature/ Exhaust Gas Temperature	Measure and record the combustion temperature in the combustion chamber or immediately downstream of the combustion chamber. The minimum combustion temperature is 1200 °F (649 °C). The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's	once per week	n/a*	PM-S-018

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		specifications or other written procedures. Any monitoring data below the minimum limit shall be considered and reported as a deviation.			
SO ₂ <i>Continued</i>	UNITS WITH A CONTROL DEVICE: FLARE (SRU)				
	1. H ₂ S Inlet Concentration, and:	<p>Measure and record the inlet concentration of H₂S to determine the minimum sulfur reduction efficiency. Establish the inlet concentration of H₂S using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The inlet concentration shall be used to compute the sulfur feed rate as follows:</p> <p>Sulfur Feed Rate = $3.707 \times 10^{-7}(\text{Inlet Flow Rate})(\text{H}_2\text{S Concentration})$ Sulfur Feed Rate = Long tons/day; Inlet Flow Rate = Flow rate of acid gas feed, dscf/day; H₂S Concentration = H₂S inlet concentration as measured; 3.707×10^{-7} = Conversion constant.</p> <p>The sulfur reduction efficiency shall be computed using the sulfur feed rate and the sulfur accumulation. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum sulfur reduction efficiency shall be considered and reported as a deviation.</p>	once per week	n/a*	PM-S-019
	Inlet Flow Rate, and:	<p>Measure and record the inlet flow rate to determine the minimum sulfur reduction efficiency. Establish the inlet flow rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The inlet flow rate shall be used to compute the sulfur feed rate as follows:</p> <p>Sulfur Feed Rate = $3.707 \times 10^{-7}(\text{Inlet Flow Rate})(\text{H}_2\text{S Concentration})$ Sulfur Feed Rate = Long tons/day; Inlet Flow Rate = Flow rate of acid gas feed, dscf/day; H₂S Concentration = H₂S inlet concentration as measured; 3.707×10^{-7} = Conversion constant.</p> <p>The sulfur reduction efficiency shall be computed using the sulfur feed rate and the sulfur accumulation. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum sulfur reduction efficiency shall be considered and reported as a deviation.</p>	once per week	n/a*	PM-S-020
	Sulfur Accumulation, and:	<p>Measure and record the accumulation of sulfur product to determine the minimum sulfur reduction efficiency. Establish the accumulation of sulfur product by measuring and recording sulfur production or by measuring and recording the liquid level in the storage tanks.</p>	once per week	n/a*	PM-S-021

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
		<p>The sulfur reduction efficiency shall be computed using the sulfur feed rate and the sulfur accumulation as follows:</p> <p>Reduction Efficiency = (100)(Sulfur Accumulation)/(Sulfur Feed Rate) Reduction Efficiency = Percent, %; Sulfur Accumulation = Total Sulfur, long tons, accumulated over 24 hours (day); Sulfur Feed rate = Long tons/day.</p> <p>The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum sulfur reduction efficiency shall be considered and reported as a deviation.</p>			
	Pilot Flame	Measure and record the presence of the 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. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data which indicates the lack of a pilot flame shall be considered and reported as a deviation.	once per hour	n/a	PM-S-022
Ammonia	UNITS WITH A CONTROL DEVICE: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)				
	1. Ammonia Concentration	Measure and record the ammonia concentration in exhaust gas with a portable analyzer. The ammonia concentration limit is the maximum ammonia concentration limit in the underlying applicable requirement. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	monthly	n/a*	PM-A-001
	2. Ammonia Concentration	A continuous emission monitoring system (CEMS) that measures and records the concentration of ammonia in the exhaust stream. The CEMS shall be operated in accordance with 40 CFR § 60.13 and the Performance Specifications of 40 CFR Part 60, Appendix B. The ammonia concentration limit is the maximum ammonia concentration limit in the underlying applicable requirement. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	four times per hour	hourly	PM-A-002
HCL	EMISSION UNITS: CONTROL DEVICE (EXCEPT FLARE AND CARBON ADSORPTION SYSTEM)				
	1. HCl Concentration	Measure and record the HCl concentration using a portable analyzer to monitor HCl concentration at the outlet of the control device. Establish a maximum HCl concentration using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data above the maximum limit shall be considered and reported as a deviation.	once per week	n/a*	PM-H-001
	2. HCl sorbent	A continuous emission monitoring system (CEMS) that measures and records	hourly	Daily	PM-H-002

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Periodic Monitoring Options Table

EMISSION	INDICATOR MONITORED	PERIODIC MONITORING REQUIREMENT	MIN. FREQ.	AVERAGE	PM OPTION NUMBER
	flow rate	the hourly HCl sorbent flow rate in the exhaust stream of the control device. Establish a minimum HCl sorbent flow rate using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. Any monitoring data below the minimum limit shall be considered and reported as a deviation.			
	3. Alkaline Feed Rate	Measure/calculate and record the total alkaline material delivered to the gas stream to react with the acid gases. The applicant should establish a relationship between the feed rate of the alkaline material and the emission standard by using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. Any monitoring data below the minimum alkaline material feed rate limit shall be considered and reported as a deviation.	daily total	n/a	PM-H-003
	4. Spray Dryer Outlet Temperature	Measure and record the spray dryer outlet temperature. Establish a minimum and maximum spray dryer outlet temperature using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data below the minimum limit or above the maximum limit shall be considered and reported as a deviation.	weekly	n/a	PM-H-004
Beryllium	UNITS WITHOUT A CONTROL DEVICE				
	1. Beryllium Feed Rate	Measure/calculate and record the total beryllium feed rate to the incinerator. The applicant should establish a relationship between the beryllium feed rate and the emission standard by using the most recent performance test, manufacturer's recommendations, engineering calculations, and/or historical data. Any monitoring data above the maximum beryllium feed rate limit shall be considered and reported as a deviation.	daily total	n/a	PM-B-001
Hydrogen Sulfide	UNITS WITH A CONTROL DEVICE: ACID GAS FLARE				
	Pilot Flame	Measure and record the presence of the 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. The monitoring instrumentation shall be maintained, calibrated, and operated in accordance with manufacturer's specifications or other written procedures. Any monitoring data which indicates the lack of a pilot flame shall be considered and reported as a deviation.	once per hour	daily	PM-HS-001

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