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Title 40 —Protection of Environment

Chapter I —Environmental Protection Agency

Subchapter C —Air Programs

Part 60 —Standards of Performance for New Stationary Sources

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Subpart OOOOc Emissions Guidelines for Greenhouse Gas Emissions From Existing Crude Oil and Natural Gas Facilities

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Subpart OOOOc—Emissions Guidelines for Greenhouse Gas Emissions From Existing Crude Oil and Natural Gas Facilities

Source: 89 FR 17140, Mar. 8, 2024, unless otherwise noted.

INTRODUCTION

§ 60.5360c What is the purpose of this subpart?

This subpart establishes emission guidelines and compliance schedules for the control of greenhouse gas (GHG) emissions from designated facilities in the crude oil and natural gas source category as defined in the Model Rule at § 60.5430c, in accordance with section 111(d) of the Clean Air Act and subpart Ba of this part. The designated facilities, standards section reference and compliance dates are listed in table 1 to this subpart. To the extent any requirement of this subpart is inconsistent with the requirements of subpart A or Ba of this part, the requirements of this subpart will apply.

§ 60.5361c Which pollutants are regulated by this subpart?

- (a) **Scope.** The pollutants regulated by this subpart are greenhouse gases (GHG). The greenhouse gas standards in this subpart are in the form of a limitation on emissions of methane from designated facilities in the crude oil and natural gas source category that commenced construction, modification, or reconstruction on or before December 6, 2022.
- (b) **PSD and title V Thresholds for Greenhouse Gases.**
 - (1) For the purposes of 40 CFR 51.166(b)(49)(ii), with respect to GHG emissions from facilities, the “pollutant that is subject to any standard promulgated under section 111 of the Act” shall be considered to be the pollutant that otherwise is subject to regulation under the Act as defined in 40 CFR 51.166(b)(48) and in any State Implementation Plan (SIP) approved by the EPA that is interpreted to incorporate, or specifically incorporates, 40 CFR 51.166(b)(48).
 - (2) For the purposes of 40 CFR 52.21(b)(50)(ii), with respect to GHG emissions from facilities regulated in the plan, the “pollutant that is subject to any standard promulgated under section 111 of the Act” shall be considered to be the pollutant that otherwise is subject to regulation under the Act as defined in 40 CFR 52.21(b)(49).
 - (3) For the purposes of 40 CFR 70.2, with respect to GHG emissions from facilities regulated in the plan, the “pollutant that is subject to any standard promulgated under section 111 of the Act” shall be considered to be the pollutant that otherwise is “subject to regulation” as defined in 40 CFR 70.2.
 - (4) For the purposes of 40 CFR 71.2, with respect to GHG emissions from facilities regulated in the plan, the “pollutant that is subject to any standard promulgated under section 111 of the Act” shall be considered to be the pollutant that otherwise is “subject to regulation” as defined in 40 CFR 71.2 40 CFR.

§ 60.5362c Am I affected by this subpart?

- (a) If you are the Administrator of an air pollution control agency in a state or United States protectorate with one or more designated facilities that commenced construction, modification, or reconstruction on or before December 6, 2022, you must submit a state or Tribal plan to the U.S. Environmental Protection Agency (EPA) that implements the emission guidelines contained in this subpart. The submission of such plan shall be made in electronic format according to subpart Ba of this part.
- (b) If you are the Administrator of an air pollution control agency in a state or United States protectorate with no designated facilities for which construction commenced on or before December 6, 2022, you must submit a negative declaration letter in place of the state or Tribal plan. The submission of such negative declaration letter shall be made in electronic format according to subpart Ba of this part.
- (c) You must submit the state or Tribal plan or negative declaration letter to EPA by the date March 9, 2026.

§ 60.5363c What must I include in my state or Tribal plan?

- (a) You must include the ten items described in paragraphs (a)(1) through (10) of this section in your state or Tribal plan.
 - (1) Inventory of designated facilities. For purposes of this subpart, § 60.25a(a) does not apply.
 - (2) Inventory of emissions from designated facilities in your state. For purposes of this subpart, § 60.25a(a) does not apply.
 - (3) Compliance schedules for each designated facility or logical grouping of designated facilities.
 - (4) Standards of performance for designated facilities that are at least as stringent as the emission guidelines contained in this subpart, unless otherwise provided for under § 60.5365c. Standards for performance for designated facilities must apply at all times, including periods of startup, shutdown, and malfunction.
 - (5) Performance testing, monitoring, recordkeeping, and reporting requirements.
 - (6) Documentation of meaningful engagement on such plan or plan revisions as specified in § 60.23a(i).
 - (7) Certification that the required hearing on the state or Tribal plan was held, a list of witnesses and their organizational affiliations, if any, appearing at the hearing, and a brief written summary of each presentation or written submission as specified in § 60.23a(c) through (e).
 - (8) Provision for state progress reports to EPA.
 - (9) Identification of enforceable state mechanisms that you selected for implementing the emission guidelines of this subpart.
 - (10) Demonstration of your state's legal authority to carry out the Clean Air Act section 111(d) state or Tribal plan.
- (b) Unless superseded by this subpart, you must follow the requirements of subpart Ba of this part (Adoption and Submittal of State Plans for Designated Facilities) in your state or Tribal plan.

§ 60.5364c How do I apply to use my state standards as part of my state or Tribal plan submission?

In order for you to apply to use your state standards as part of your state or Tribal plan submission your state requirements for designated facilities must meet the standards of performance criteria specified in paragraph (a) of this section and you must provide the supporting documentation that you met those criteria as specified in paragraph (b) of this section.

- (a) You must demonstrate that the state standards of performance established for a designated facility in your state or Tribal plan meet the equivalency criteria specified in paragraphs (a)(1) through (6) of this section when compared to the designated facility presumptive standards specified in EG OOOOc.
 - (1) Designated facility,
 - (2) Designated pollutant,
 - (3) Standard type/format of standard,
 - (4) Emission reductions (considering applicability thresholds and exemptions) unless relying on § 60.5365c,
 - (5) Compliance determination method, and
 - (6) Ongoing compliance assurance requirements (e.g., monitoring, recordkeeping and reporting requirements).
- (b) You must provide the supporting documentation that you met the equivalency criteria specified in paragraph (a) of this section as specified in paragraphs (b)(1) through (3) of this section.
 - (1) Your state or Tribal plan should identify the designated facility requirements of your state program that you are submitting for approval to become federally enforceable requirements under the plan.
 - (2) You must include a detailed explanation and analysis of how the relied upon state standards are at least as stringent as the requirements of the final EG based on each of the criteria specified in paragraph (a) of this section, or comply with § 60.5365c for paragraph (a)(4) of this section.
 - (3) You must include a copy of the actual state law/regulation or document submitted for approval and incorporation into the state or Tribal plan.

§ 60.5365c How do I apply for a less stringent standard taking into consideration the remaining useful life of a designated facility and other factors?

You may apply a standard of performance to a designated facility that is less stringent than otherwise required by the emission guidelines, provided you meet the requirements specified in § 60.24a.

§ 60.5366c [Reserved]

§ 60.5367c Is there an approval process for my state or Tribal plan?

Yes. The EPA will review your state or Tribal plan according to § 60.27a.

- (a) The EPA will determine the completeness of your plan submission according to § 60.27a(g).
- (b) The EPA will act on your plan submission according to § 60.27a.

§ 60.5368c What if my state or Tribal plan is not approvable?

If you do not submit a state or Tribal plan (or a negative declaration letter) by March 9, 2026, or if EPA disapproves your state plan, EPA will develop a Federal plan according to § 60.27a(c) through (f) to implement the emission guidelines contained in this subpart.

§ 60.5369c Is there an approval process for a negative declaration letter?

No. The EPA has no formal review process for negative declaration letters. Once your negative declaration letter has been received, the EPA will place a copy in the public docket and publish a notice in the FEDERAL REGISTER. If, at a later date, a designated facility for which construction commenced on or before December 6, 2022, is found in your state, that designated facility must be subject to a state, Tribal, or Federal plan in accordance with the requirements of this subpart and subpart Ba.

§ 60.5370c What compliance schedule must I include in my state or Tribal plan?

- (a) For designated facilities that commenced construction, modification or reconstruction on or before December 6, 2022, your state or Tribal plan must include compliance schedules that require designated facilities to achieve final compliance as expeditiously as practicable after approval of the state or Tribal plan but not later than the dates specified in § 60.5360c of this subpart, as applicable to each designated facility.
- (b) The plan must include legally enforceable increments of progress to achieve compliance for each designated facility or category of facilities, as specified in §§ 60.5379c through 60.5381c.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62918, Aug. 1, 2024]

§ 60.5371c What requirements apply to revisions to my state or Tribal plan?

- (a) Any significant revision to a state or Tribal plan shall be adopted and submitted as specified in § 60.28a.
- (b) A revision of a plan, or any portion thereof, shall not be considered part of an applicable plan until approved by the Administrator in accordance with this subpart and subpart Ba of this part.

§ 60.5372c In lieu of a state or Tribal plan submittal, are there other acceptable option(s) for a state to meet its Clean Air Act section 111(d) obligations?

Yes, a state may meet its Clean Air Act section 111(d) obligations by submitting an acceptable written request for delegation of an applicable Federal plan that meets the requirements of this section. This is the only other option for a state to meet its section 111(d) obligations.

- (a) An acceptable Federal plan delegation request must include the following:
 - (1) A demonstration of adequate resources and legal authority to administer and enforce the Federal plan.
 - (2) The items under § 60.5363c(a)(1), (a)(2), and (a)(8) of this subpart.
 - (3) Certification that the hearing on the state delegation request, similar to the hearing for a state or Tribal plan submittal, was held, a list of witnesses and their organizational affiliations, if any, appearing at the hearing, and a brief written summary of each presentation or written submission.

- (4) A commitment to enter into a Memorandum of Agreement with the Regional Administrator that sets forth the terms, conditions, and effective date of the delegation and that serves as the mechanism for the transfer of authority. Additional guidance and information is given in EPA's Delegation Manual, Item 7-139, Implementation and Enforcement of 111(d)(2) and 111(d)/(2)/129 (b)(3) Federal plans.
- (b) A state with an already approved oil and natural gas designated facility Clean Air Act section 111(d) state or Tribal plan is not precluded from receiving the EPA's approval of a delegation request for any revised Federal plan, provided the requirements of paragraph (a) of this section are met, and at the time of the delegation request, the state also requests withdrawal of the EPA's previous state or Tribal plan approval.
- (c) A state's Clean Air Act section 111(d) obligations are separate from its obligations under title V of the Clean Air Act.

§ 60.5373c What authorities will not be delegated to state, local, or Tribal agencies?

The authorities that will not be delegated to state, local, or Tribal agencies are specified in paragraphs (a) through (h) of this section.

- (a) Approval of alternatives to the emission limits and standards in tables 1, 2, and 3 to this subpart and operating limits established under § 60.5412c, § 60.5415c, or § 60.5417c.
- (b) Approval of major alternatives to test methods.
- (c) Approval of major alternatives to monitoring.
- (d) Approval of major alternatives to recordkeeping and reporting.
- (e) Approval of an alternative to any electronic reporting required by this subpart.
- (f) [Reserved]
- (g) [Reserved]
- (h) Performance test and data reduction waivers under § 60.8(b).

§ 60.5374c Does this subpart directly affect designated facility owners and operators in my state?

- (a) No. This subpart does not directly affect designated facility owners and operators in your state. However, designated facility owners and operators must comply with the state or Tribal plan you develop to implement the emission guidelines contained in this subpart. States may choose to incorporate the model rule text directly in their state or Tribal plan.
- (b) If you do not submit a plan to implement and enforce the guidelines contained in this subpart by the date 24 months after promulgation of this subpart, or if EPA disapproves your plan, the EPA will implement and enforce a Federal plan, as provided in § 60.5368c of this subpart, to ensure that each designated facility within your state that commenced construction, modification or reconstruction on or before December 6, 2022, reaches compliance with all the provisions of this subpart by the dates specified in § 60.5360c of this subpart.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62918, Aug. 1, 2024]

APPLICABILITY OF STATE OR TRIBAL PLANS

§ 60.5375c What designated facilities must I address in my state or Tribal plan?

- (a) Your state or Tribal plan must address designated facilities that meet all three criteria described in paragraphs (a)(1) through (3) of this section.
 - (1) Designated facilities in your state that commenced construction, modification, or reconstruction on or before December 6, 2022.
 - (2) Designated facilities that are listed in table 1 to this subpart.
 - (3) Designated facilities not exempt under § 60.14(e).
- (b) If the owner or operator of a designated facility makes changes that meet the definition of modification after December 6, 2022, the designated facility becomes subject to subpart OOOOb of this part, and the state or Tribal plan no longer applies to that facility.
- (c) If the owner or operator of a designated facility makes physical or operational changes to a designated facility for which construction commenced on or before September 9, 2024, primarily to comply with your state or Tribal plan, subpart OOOOb of this part, does not apply to that designated facility. Such changes do not qualify as modifications under subpart OOOOb of this part.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62918, Aug. 1, 2024]

USE OF MODEL RULE

§ 60.5376c What is the “model rule” in this subpart?

- (a) The model rule is the portion of these emission guidelines (§§ 60.5385c through 60.5430c of this subpart) that includes the presumptive standards for designated facilities as well as associated measures to assure compliance including monitoring, recordkeeping, and reporting. The model rule is organized in regulation format. You must develop a state or Tribal plan that is at least as protective as the model rule, or comply with § 60.5365c. You may use the model rule language as part of your state or Tribal plan. Alternative language may be used in your state or Tribal plan if you demonstrate that the alternative language is at least as protective as the model rule contained in this subpart, or comply with § 60.5365c.
- (b) In the model rule of §§ 60.5385c through 60.5430c, “Administrator” has the meaning specified in § 60.2.

§ 60.5377c How does the model rule relate to the required elements of my state or Tribal plan?

You may use the model rule to satisfy the state or Tribal plan requirements specified in § 60.5363c(a)(3) through (a)(5).

§ 60.5378c What are the principal components of the model rule?

The model rule contains the nine major components listed in paragraphs (a) through (i) of this section.

- (a) Increments of progress toward compliance.
- (b) Operator training and qualification.
- (c) Emission limits, emission standards, and operating limits.

- (d) Initial compliance requirements.
- (e) Continuous compliance requirements.
- (f) Performance testing, monitoring, and calibration requirements.
- (g) Recordkeeping and reporting.
- (h) Definitions.
- (i) Tables.

MODEL RULE—INCREMENTS OF PROGRESS

§ 60.5379c What are my requirements for meeting increments of progress and achieving final compliance?

You must meet one increment of progress as specified in paragraph (a) of this section and you must submit the Notification of Compliance report as specified in paragraph (b) of this section.

- (a) Submit a final compliance control plan on or before 28 months after the state plan submittal deadline specified in § 60.5362c(c).
- (b) Submit a Notification of Compliance report on or before 60 days after the state plan compliance date as specified in § 60.5420c.

§ 60.5380c What if I do not meet the final control plan increment of progress compliance date?

If you fail to meet the final compliance control plan increment of progress report compliance date, you must submit a notification to the Administrator postmarked within 10 business days after the required submittal date for that increment of progress. You must inform the Administrator that you did not meet the increment, and you must continue to submit reports each subsequent calendar month until the increment of progress is met.

§ 60.5381c How do I comply with the increment of progress for submittal of a final compliance control plan?

For your final compliance control plan increment of progress report, you must satisfy the requirements specified in paragraphs (a) through (c) of this section.

- (a) Your final control plan must include the information specified paragraphs (a)(1) and (2) of this section.
 - (1) A description of the designated facilities covered under your plan.
 - (2) The emissions control methods that you plan to implement for each designated facility covered under your plan.
- (b) A company is allowed to submit one plan that covers all of the company's designated facilities in a state in lieu of submitting a plan for each designated facility.
- (c) Maintain an onsite copy of the final control plan.

MODEL RULE—APPLICABILITY

§ 60.5385c What is the purpose of this subpart?

- (a) **Scope.** This subpart establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from designated facilities in the crude oil and natural gas source category that commence construction, modification, or reconstruction on or before December 6, 2022.
- (b) **Prevention of Significant Deterioration (PSD) and title V thresholds for Greenhouse Gases.**
 - (1) For the purposes of 40 CFR 51.166(b)(49)(ii), with respect to GHG emissions from designated facilities, the "pollutant that is subject to the standard promulgated under section 111 of the Act" shall be considered the pollutant that otherwise is subject to regulation under the Act as defined in 40 CFR 51.166(b)(48) and in any State Implementation Plan (SIP) approved by the EPA that is interpreted to incorporate, or specifically incorporates, 40 CFR 51.166(b)(48).
 - (2) For the purposes of 40 CFR 52.21(b)(50)(ii), with respect to GHG emissions from designated facilities, the "pollutant that is subject to the standard promulgated under section 111 of the Act" shall be considered the pollutant that otherwise is subject to regulation under the Clean Air Act as defined in 40 CFR 52.21(b)(49).
 - (3) For the purposes of 40 CFR 70.2, with respect to GHG emissions from designated facilities, the "pollutant that is subject to any standard promulgated under section 111 of the Act" shall be considered the pollutant that otherwise is "subject to regulation" as defined in 40 CFR 70.2.
 - (4) For the purposes of 40 CFR 71.2, with respect to GHG emissions from designated facilities, the "pollutant that is subject to any standard promulgated under section 111 of the Act" shall be considered the pollutant that otherwise is "subject to regulation" as defined in 40 CFR 71.2.
- (c) **Exemption.** You are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not otherwise required by law to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a). Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart.

§ 60.5386c Am I subject to this subpart?

You are subject to the applicable provisions of this subpart if you are the owner or operator of one or more of the onshore designated facilities listed in paragraphs (a) through (h) of this section, that is located within the Crude Oil and Natural Gas source category, as defined in § 60.5430c, for which you commence construction, modification, or reconstruction on or before December 6, 2022. Facilities located inside and including the Local Distribution Company (LDC) custody transfer station are not subject to this subpart.

- (a) Each well designated facility, which is a single well drilled for the purpose of producing oil or natural gas.
- (b) Each centrifugal compressor designated facility, which is a single centrifugal compressor. A centrifugal compressor located at a well site is not a designated facility under this subpart. A centrifugal compressor located at a centralized production facility is a designated facility under this subpart.
- (c) Each reciprocating compressor designated facility, which is a single reciprocating compressor. A reciprocating compressor located at a well site is not a designated facility under this subpart. A reciprocating compressor located at a centralized production facility is a designated facility under this subpart.

(d) Each process controller designated facility, which is the collection of natural gas-driven process controllers at a well site, centralized production facility, onshore natural gas processing plant, or a compressor station. Natural gas-driven process controllers that function as emergency shutdown devices and process controllers that are not driven by natural gas are exempt from the designated facility.

(e)

(1) Each storage vessel designated facility, which is a tank battery that has the potential for methane emissions equal to or greater than 20 tpy as specified in paragraph (e)(2) of this section. A tank battery with the potential for methane emissions below 20 tpy is not a storage vessel designated facility provided the owner or operator keeps records of the potential for emissions calculation for the life of the storage vessel or until such time the tank battery becomes a storage vessel designated facility because the potential for methane emissions meets or exceeds 20 tpy.

(2) The potential for methane emissions must be calculated as the cumulative emissions from all storage vessels within the tank battery as specified by the applicable requirements in paragraphs (e)(2)(i) through (iii) of this section. The determination may take into account requirements under a legally and practicably enforceable limit in an operating permit or other requirement established under a Federal, state, local, or Tribal authority.

(i) For purposes of determining the applicability of a storage vessel tank battery as a designated facility, a legally and practicably enforceable limit must include the elements provided in paragraphs (e)(2)(i)(A) through (F) of this section.

(A) A quantitative production limit and quantitative operational limit(s) for the equipment, or quantitative operational limits for the equipment;

(B) An averaging time period for the production limit in (e)(2)(i)(A), if a production-based limit is used, that is equal to or less than 30 days;

(C) Established parametric limits for the production and/or operational limit(s) in paragraph (e)(2)(i)(A), and where a control device is used to achieve an operational limit, an initial compliance demonstration (*i.e.*, performance test) for the control device that establishes the parametric limits;

(D) Ongoing monitoring of the parametric limits in (e)(2)(i)(C) that demonstrates continuous compliance with the production and/or operational limit(s) in (e)(2)(i)(A);

(E) Recordkeeping by the owner or operator that demonstrates continuous compliance with the limit(s) in (e)(2)(i)(A) through (D); and

(F) Periodic reporting that demonstrates continuous compliance.

(ii) For each tank battery located at a well site or centralized production facility, you must determine the potential for methane emissions within 60 days after the effective date of the approved state or Tribal plan, except as provided in paragraph (e)(4)(iv) of this section. The potential for methane emissions must be calculated using a generally accepted model or calculation methodology that accounts for flashing, working, and breathing losses, based on the maximum average daily throughput to the tank battery determined for a 30-day period of production.

- (iii) For each tank battery not located at a well site or centralized production facility, including each tank battery located at a compressor station or onshore natural gas processing plant, you must determine the potential for methane emissions within 60 days after the effective date of the approved state or Tribal plan, using either method described in paragraph (e)(2)(iii)(A) or (B) of this section.
 - (A) Determine the potential for methane emissions using a generally accepted model or calculation methodology that accounts for flashing, working, and breathing losses, and based on the throughput to the tank battery established in a legally and practicably enforceable limit in an operating permit or other requirement established under a Federal, state, local, or Tribal authority; or
 - (B) Determine the potential for methane emissions using a generally accepted model or calculation methodology that accounts for flashing, working and breathing losses, based on projected maximum average daily throughput. Maximum average daily throughput is determined using a generally accepted engineering model (e.g., volumetric condensate rates from the tank battery based on the maximum gas throughput capacity of each producing facility) to project the maximum average daily throughput for the tank battery.
- (3) A storage vessel designated facility that subsequently has its potential for methane emissions decrease to less than 20 tpy shall remain a designated facility under this subpart.
- (4) For storage vessels not subject to a legally and practicably enforceable limit in an operating permit or other requirement established under Federal, state, local, or Tribal authority, any vapor from the storage vessel that is recovered and routed to a process through a vapor recovery unit designed and operated as specified in this section is not required to be included in the determination of potential for methane emissions for purposes of determining designated facility status, provided you comply with the requirements of paragraphs (e)(4)(i) through (iv) of this section.
 - (i) You meet the cover requirements specified in § 60.5411c(b).
 - (ii) You meet the closed vent system requirements specified in § 60.5411c(a)(2) through (4) and (c).
 - (iii) You must maintain records that document compliance with paragraphs (e)(4)(i) and (ii) of this section.
 - (iv) In the event of removal of apparatus that recovers and routes vapor to a process, or operation that is inconsistent with the conditions specified in paragraphs (e)(4)(i) and (ii) of this section, you must determine the storage vessel's potential for methane emissions according to this section within 30 days of such removal or operation.
- (5) The requirements of this paragraph (e)(5) apply to each storage vessel designated facility immediately upon return to service. A storage vessel designated facility or portion of a storage vessel designated facility that is reconnected to the original source of liquids remains a storage vessel designated facility subject to the same requirements that applied before being removed from service. Any storage vessel that is used to replace a storage vessel designated facility or portion of a storage vessel designated facility, or used to expand a storage vessel designated facility assumes the designated facility status of the storage vessel designated facility being replaced or expanded.
- (6) A storage vessel with a capacity greater than 100,000 gallons used to recycle water that has been passed through two stage separation is not a storage vessel designated facility.

- (f) Each process unit equipment designated facility, which is the group of all equipment within a process unit at an onshore natural gas processing plant is a designated facility. Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§ 60.5400c, 60.5401c, 60.5402c, 60.5421c, and 60.5422c if it is located at an onshore natural gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§ 60.5400c, 60.5401c, 60.5402c, 60.5421c, and 60.5422c.
- (g) Each pump designated facility, which is the collection of natural gas-driven diaphragm and piston pumps at a well site, centralized production facility, onshore natural gas processing plant, or a compressor station. Pumps that are not driven by natural gas and that are not in operation 90 days or more per calendar year are not included in the pump designated facility.
- (h) Each fugitive emissions components designated facility, which is the collection of fugitive emissions components at a well site, centralized production facility, or a compressor station.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62918, Aug. 1, 2024]

§ 60.5387c When must I comply with this subpart?

Table 1 of this subpart specifies the final compliance date.

MODEL RULE—EMISSION AND WORK PRACTICE STANDARDS

§ 60.5388c What standards apply to super-emitter events?

This section applies to super-emitter events. For purposes of this section, a super-emitter event is defined as any emissions event that is located at an oil and natural gas facility (e.g., individual well site, centralized production facility, natural gas processing plant, or compressor station) and that is detected using remote detection methods and has a quantified emission rate of 100 kg/hr of methane or greater. Upon receiving a notification of a super emitter event issued by the EPA under § 60.5371b(c) in subpart OOOOb of this part, owners or operators must take the actions listed in paragraphs (a) and (b) of this section. Within 5 calendar days of receiving a notification from the EPA of a super-emitter event, the owner or operator of an oil and natural gas facility (e.g., a well site, centralized production facility, natural gas processing plant, or compressor station) must initiate a super-emitter event investigation.

- (a) **Identification of super-emitter events.**
 - (1) If you do not own or operate an oil and natural gas facility within 50 meters from the latitude and longitude provided in the notification subject to the regulation under this subpart, report this result to the EPA under paragraph (b) of this section. Your super-emitter event investigation is deemed complete under this subpart.
 - (2) If you own or operate an oil and natural gas facility within 50 meters from the latitude and longitude provided in the notification, and there is a designated facility or associated equipment subject to this subpart onsite, you must investigate to determine the source of the super-emitter event in accordance with this paragraph (a) and report the results in accordance with paragraph (b) of this section. The investigation required by this paragraph (a)(2) of this section may include but is not limited to the actions specified below in paragraphs (a)(2)(i) through (v) of this section.

- (i) Review any maintenance activities (e.g., liquids unloading) or process activities from the designated facilities subject to regulation under this subpart, starting from the date of detection of the super-emitter event as identified in the notification, until the date of investigation, to determine if the activities indicate any potential source(s) of the super-emitter event emissions.
 - (ii) Review all monitoring data from control devices (e.g., flares) from the designated facilities subject to regulation under this subpart from the initial date of detection of the super-emitter event as identified in the notification, until the date of receiving the notification from the EPA to identify malfunctions of control devices or periods when the control devices were not in compliance with applicable requirements and that indicate a potential source of the super-emitter event emissions.
 - (iii) If you conducted a fugitive emissions survey or periodic screening event in accordance with § 60.5397c or § 60.5398c(b) between the initial date of detection of the super-emitter event as identified in the notification and the date the notification from the EPA was received, review the results of the survey to identify any potential source(s) of the super-emitter event emissions.
 - (iv) If you use conduct continuous monitoring with advanced methane detection technology in accordance with § 60.5398c(c), review the monitoring data collected on or after the initial date of detection of the super-emitter event as identified in the notification, until the date of receiving the notification from the EPA.
 - (v) Screen the entire well site, centralized production facility, or compressor station with OGI, Method 21 of appendix A-7 to this part, or an alternative test method(s) approved per § 60.5398c(d), to determine if a super-emitter event is present
- (3) If the source of the super-emitter event was found to be from fugitive emission components at a well site, centralized production facility, or compressor station subject to this subpart, you must comply with the repair requirements under § 60.5397c and the associated recordkeeping and reporting requirements under § 60.5420c(b)(8) and § 60.5420c(c)(13).
- (b) **Super-emitter event report.** You must submit the results of the super-emitter event investigation conducted under paragraph (a) of this section to the EPA in accordance with paragraph (b)(1) of this section. If the super-emitter event (i.e., emission at 100 kg/hr of methane or more) is ongoing at the time of the initial report, submit the additional information in accordance with paragraph (b)(2) of this section. You must attest to the information included in the report as specified in paragraph (b)(3) of this section.
- (1) Within 15 days of receiving a notification from the EPA under § 60.5371b(c), you must submit a report of the super-emitter event investigation conducted under paragraph (a) of this section through the Super-Emitter Program Portal, at www.epa.gov/super-emitter. You must include the applicable information in paragraphs (b)(1)(i) through (viii) of this section in the report. If you have identified a demonstrable error in the notification, the report may include a statement of the demonstrable error.
 - (i) Notification Report ID of the super-emitter event notification.
 - (ii) Identification of whether you are the owner or operator of an oil and natural gas facility that is located within 50 meters from the latitude and longitude provided in the EPA notification. If you do not own or operate an oil and natural gas facility within 50 meters from the latitude and longitude provided in the EPA notification, you are not required to report the information in paragraphs (b)(1)(iii) through (viii) of this section.

- (iii) General identification information for the facility, including, facility name, the physical address, applicable ID Number (e.g., EPA ID Number, API Well ID Number), the owner or operator or responsible official (where applicable) and their email address.
- (iv) Identification of whether there is a designated facility or associated equipment subject to regulation under this subpart at this oil and natural gas facility.
- (v) Indication of whether you were able to identify the source of the super-emitter event. If you indicate you were unable to identify the source of the super-emitter event, you must certify that all applicable investigations specified in paragraphs (a)(2)(i) through (v) of this section have been conducted for all designated facilities and associated equipment subject to regulation under this subpart that are at this oil and natural gas facility, and you have determined that the designated facilities and associated equipment are not the source of the super-emitter event. If you indicate that you were not able to identify the source of the super-emitter event, you are not required to report the information in paragraphs (b)(1)(vi) through (viii) of this section.
- (vi) The source(s) of the super-emitter event.
- (vii) Identification of whether the source of the super-emitter event is a designated facility or associated equipment subject to regulation under of this subpart. If the source of the super-emitter event is a designated facility or associated equipment subject to regulation under this subpart, identify the applicable regulation(s) under this subpart.
- (viii) Indication of whether the super-emitter event is ongoing at the time of the initial report submittal (i.e., emission at 100 kg/hr of methane or more).
 - (A) If the super-emitter event is not ongoing at the time of the initial report submittal, provide the actual (or if not known, estimated) date and time the super-emitter event ended.
 - (B) If the super-emitter event is ongoing at the time of the initial report submittal, provide a short narrative of your plan to end the super-emitter event, including the targeted end date for the efforts to be completed and the super-emitter event ended.
- (2) If the super-emitter event is ongoing at the time of the initial report submittal, within 5 business days of the date the super-emitter event ends you must update your initial report through the Super-Emitter Program Portal to provide the end date and time of the super-emitter event.
- (3) You must sign the following attestation when submitting data into the Super-Emitter Program Portal:
"I certify that the information provided in this report regarding the specified super-emitter event was prepared under my direction or supervision. I further certify that the investigations were conducted, and this report was prepared pursuant to the requirements of § 60.5371c (a) and (b). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that knowingly false statements may be punishable by fine or imprisonment."

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62918, Aug. 1, 2024]

§ 60.5390c What GHG standards apply to gas well liquids unloading operations at well designated facilities?

- (a) **General requirements.** You must comply with the requirements of this section for each gas well liquids unloading operation at your gas well designated facility as specified by paragraphs (a)(1) and (2) of this section. You have a general duty to safely maximize resource recovery and minimize releases to the atmosphere during gas well liquids unloading operations.
 - (1) If a gas well liquids unloading operation technology or technique employed does not result in venting of methane emissions to the atmosphere, you must comply with the requirements specified in paragraphs (a)(1)(i) and (ii) and (d) and (e) of this section. If an unplanned venting event occurs, you must meet the requirements specified in paragraphs (c) through (f) of this section.
 - (i) Comply with the recordkeeping requirements specified in § 60.5420c(c)(1)(i).
 - (ii) Submit the information specified in § 60.5420c(b)(1) and (2)(i) in the annual report.
 - (2) If a gas well liquids unloading operation technology or technique vents methane emissions to the atmosphere, you must comply with the requirements specified in paragraphs (b) and (c), or paragraph (g) of this section.
- (b) **Work Practice Standards.** If a gas well liquids unloading operation employs a technology or technique that vents methane emissions to the atmosphere, you must comply with the requirements in paragraphs (b)(1) through (3) and paragraphs (c) through (f) of this section.
 - (1) Employ best management practices to minimize venting of methane emissions as specified in paragraph (c) of this section for each gas well liquids unloading operation.
 - (2) Comply with the recordkeeping requirements specified in § 60.5420c(c)(1)(ii).
 - (3) Submit the information specified in § 60.5420c(b)(1) and (2)(ii) in the annual report.
- (c) **Best management practice requirements.** For each gas well liquids unloading operation complying with paragraphs (a)(2) and (b) of this section, you must develop, maintain, and follow a best management practice plan to minimize venting of methane emissions to the maximum extent possible from each gas well liquids unloading operation. This best management practice plan must meet the minimum criteria specified in paragraphs (c)(1) through (4) of this section.
 - (1) Include steps that create a differential pressure to minimize the need to vent a well to unload liquids,
 - (2) Include steps to reduce wellbore pressure as much as possible prior to opening the well to the atmosphere,
 - (3) Unload liquids through the separator where feasible, and
 - (4) Close all wellhead vents to the atmosphere and return the well to production as soon as practicable.
- (d) **Initial compliance.** You must demonstrate initial compliance with the standards that apply to well liquids unloading operations at your well designated facilities as required by § 60.5410c(a).
- (e) **Continuous compliance.** You must demonstrate continuous compliance with the standards that apply to well liquids unloading operations at your well designated facilities as required by § 60.5415c(a).
- (f) **Recordkeeping and recording.** You must perform the required notification, recordkeeping and reporting requirements as specified in § 60.5420c(b)(2) and (c)(1).

- (g) **Other compliance options.** Reduce methane emissions from well designated facilities gas wells that unload liquids by 95.0 percent by complying with the requirements specified in paragraphs (g)(1) and (2) of this section and meeting the initial and continuous compliance and recordkeeping and reporting requirements specified in paragraphs (g)(3) through (5) of this section.
- (1) You must route emissions through a closed vent system to a control device that meets the conditions specified in § 60.5412c.
 - (2) You must route emissions through a closed vent system that meets the requirements of § 60.5411c(a) and (c).
 - (3) You must demonstrate initial compliance with standards that apply to well designated facility gas well liquids unloading as required by § 60.5410c(b).
 - (4) You must demonstrate continuous compliance with standards that apply to well designated facility gas well liquids unloading as required by § 60.5415c(b).
 - (5) You must perform the reporting as required by § 60.5420c(b)(1), (2), and (10) through (12), as applicable; and the recordkeeping as required by § 60.5420c(c)(1), (7), and (9) through (12), as applicable.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62919, Aug. 1, 2024]

§ 60.5391c What GHG standards apply to associated gas wells at well designated facilities?

- (a) You must comply with either paragraph (a)(1), (2), (3), or (4) of this section for each associated gas well, except as provided in paragraphs (b), (c), and (d) of this section. You must also comply with paragraphs (f), (g), and (h) of this section.
- (1) Recover the associated gas from the separator and route the recovered gas into a gas gathering flow line or collection system to a sales line.
 - (2) Recover the associated gas from the separator and use the recovered gas as an onsite fuel source.
 - (3) Recover the associated gas from the separator and use the recovered gas for another useful purpose that a purchased fuel or raw material would serve.
 - (4) Recover the associated gas from the separator and reinject the recovered gas into the well or inject the recovered gas into another well.
- (b) If you meet one of the conditions in paragraphs (b)(1) or (2) of this section, you may route the associated gas to a control device that reduces methane emissions by at least 95.0 percent instead of complying with paragraph (a) of this section. The associated gas must be routed through a closed vent system that meets the requirements of § 60.5411c(a) and (c) and the control device must meet the conditions specified in § 60.5412c(a), (b), and (c).
- (1) If the annual methane contained in the associated gas from your oil well is 40 tons per year or less at the initial compliance date, determined in accordance with paragraph (e) of this section.
 - (2) If you demonstrate and certify that it is not feasible to comply with paragraph (a)(1), (2), (3), and (4) of this section due to technical reasons by providing a detailed analysis documenting and certifying the technical reasons for this infeasibility in accordance with paragraphs (b)(2)(i) through (iv) of this section.

- (i) In order to demonstrate that it is not feasible to comply with paragraph (a)(1), (2), (3), and (4) of this section, you must provide a detailed analysis documenting and certifying the technical reasons for this infeasibility. The demonstration must address the technical infeasibility for all options identified in (a)(1), (2), (3), and (4) of this section. Documentation of these demonstrations must be maintained in accordance with § 60.5420c(c)(2)(iv).
- (ii) This demonstration must be certified by a professional engineer or another qualified individual with expertise in the uses of associated gas. The following certification, signed and dated by the qualified professional engineer or other qualified individual shall state: "I certify that the assessment of technical and safety infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted, and this report was prepared pursuant to the requirements of § 60.5391c(b)(2). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete."
- (iii) This demonstration and certification are valid for no more than 12 months. You must re-analyze the feasibility of complying with paragraphs (a)(1), (2), (3), and (4) of this section and finalize a new demonstration and certification each year.
- (iv) Documentation of these demonstrations, along with the certifications, must be maintained in accordance with § 60.5420c(c)(2)(iv) and submitted in annual reports in accordance with § 60.5420c(b)(3).

(c) If you are complying with paragraph (a) of this section, you may temporarily route the associated gas to a flare or control device in the situations and for the durations identified in paragraphs (c)(1), (2), (3), or (4) of this section. The associated gas must be routed through a closed vent system that meets the requirements of § 60.5411c(a) and (c) and the control device must meet the conditions specified in § 60.5412c. If you are routing to a flare, you must demonstrate that the § 60.18 flare requirements are met during the period when the associated gas is routed to the flare. Records must be kept of all temporary flaring instances in accordance with § 60.5420c(c)(2) and reported in the annual report in accordance with § 60.5420c(b)(3).

- (1) For equal to or less than 24 hours during a deviation caused by malfunction causing the need to flare.
- (2) For equal to or less than 24 hours during repair, maintenance including blow downs, a bradenhead test, a packer leakage test, a production test, or commissioning.
- (3) For wells complying with paragraph (a)(1) of this section, for the duration of a temporary interruption in service from the gathering or pipeline system, or 30 days, whichever is less.
- (4) For 72 hours from the time that the associated gas does not meet pipeline specifications, or until the associated gas meets pipeline specifications, whichever is less.

(d) If you are complying with paragraph (a), (b), or (c) of this section, you may vent the associated gas in the situations and for the durations identified in paragraphs (d)(1), (2), or (3) of this section. Records must be kept of all venting instances in accordance with § 60.5420c(c)(2) and reported in the annual report in accordance with § 60.5420c(b)(3).

- (1) For up to 12 hours to protect the safety of personnel.
- (2) For up to 30 minutes during bradenhead monitoring.

(3) For up to 30 minutes during a packer leakage test.

(e) Calculate the methane content in associated gas as specified in paragraph (e)(1) of this section and comply with paragraphs (e)(2) and (e)(3) of this section.

(1) Calculate the methane content in associated gas from your oil well using the following equation

Equation 1 to Paragraph (e)(1)

Equation 1 to Paragraph (e)(1)

$$AG_{\text{methane}} = \frac{(GOR \times V \times M_{\text{methane}} \times 0.0192)}{907.2}$$

Where:

AG_{methane} = Amount of methane in associated gas from the oil well, tons methane per year

GOR = Gas to oil ratio for the well in standard cubic feet of gas per barrel of oil; oil here refers to hydrocarbon liquids produced of all API gravities. GOR is to be determined for the well using available data, an appropriate standard method published by a consensus-based standards organization which include, but are not limited to, the following: ASTM International, the American National Standards Institute (ANSI), the American Gas Association (AGA), the American Society of Mechanical Engineers (ASME), the American Petroleum Institute (API), and the North American Energy Standards Board (NAESB), or in industry standard practice.

V = Volume of oil produced in the calendar year preceding the initial compliance date, in barrels per year.

M_{methane} = mole fraction of methane in the associated gas.

0.0192 = density of methane gas at 60 °F and 14.7 psia in kilograms per cubic foot

907.2 = conversion of kilograms to tons, kilograms per ton

(2) You must maintain records of the calculation of the methane in associated gas from your oil well results in accordance with § 60.5420c(c)(2), and submit the information, as well as the background information, in the next annual report in accordance with § 60.5420c(b)(3).

(3) If a process change occurs that could increase the methane content in the associated gas, you must recalculate the methane content in accordance with paragraph (e)(1) of this section.

(f) You must demonstrate initial compliance with the standards that apply to associated gas wells at well designated facilities as required by § 60.5410c(b).

(g) You must demonstrate continuous compliance with the standards that apply to associated gas wells at well designated facilities as required by § 60.5415c(b).

(h) You must perform the recordkeeping and reporting as required by § 60.5420c(b)(1), (3), and (10) through (12), as applicable, and § 60.5420c(c)(2) and (7) and (9) through (12), as applicable.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62919, Aug. 1, 2024]

§ 60.5392c What GHG standards apply to centrifugal compressor designated facilities?

Each centrifugal compressor designated facility must comply with the GHG standards in paragraphs (a) through (d) of this section.

- (a) Each centrifugal compressor designated facility that is a wet or dry seal centrifugal compressor must comply with the GHG standards, using volumetric flow rate as a surrogate, as specified in paragraphs (a)(1) and (2) of this section. Alternatively, you have the option of complying with the GHG standards for your wet seal and dry seal centrifugal compressor by meeting the requirements specified in paragraph (a)(3), and either paragraph (a)(4) or (5) of this section.
 - (1) If you utilize a centrifugal compressor, you must comply with the GHG standards in paragraph (a)(1)(i) through (iii) of this section, and the seal repair requirements of paragraph (a)(1)(iv) of this section.
 - (i) You must conduct volumetric flow rate measurements from each wet seal centrifugal compressor (including each self-contained wet seal centrifugal compressor) vent using the methods specified in paragraph (a)(2) of this section and in accordance with the schedule specified in paragraphs (a)(1)(i)(A) and (B) of this section. The volumetric flow rate, measured in accordance with paragraph (a)(2) of this section, must not exceed 3 standard cubic feet per minute (scfm) per seal. If the individual seals are manifolded to a single open-vented line, the volumetric flow rate must not exceed the sum of the individual seals multiplied by 3 scfm. If the volumetric flow rate exceeds 3 scfm multiplied by the number of seals connected to the vent, the seals connected to the measured vent must be repaired as provided in paragraph (a)(1)(iv) of this section.
 - (A) You must conduct your first volumetric flow rate measurement from your wet seal centrifugal compressor (including self-contained wet seal centrifugal compressors) vents on or before 8,760 hours of operation 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), or on or before 8,760 hours of operation after startup, whichever date is later.
 - (B) You must conduct subsequent volumetric flow rate measurements from your wet seal centrifugal compressor (including self-contained wet seal centrifugal compressor) vents on or before 8,760 hours of operation after the previous measurement.
 - (ii) You must conduct volumetric flow rate measurements from each Alaska North Slope centrifugal compressor equipped with sour seal oil separator and capture system using the methods specified in paragraph (a)(2) of this section and in accordance with the schedule specified in paragraphs (a)(1)(ii)(A) and (B) of this section. The volumetric flow rate, measured in accordance with paragraph (a)(2) of this section, must not exceed 9 standard cubic feet per minute (scfm) per seal. If the individual seals are manifolded to a single open-vented line, the volumetric flow rate must not exceed the sum of the individual seals multiplied by 9 scfm. If the volumetric flow rate exceeds 9 scfm multiplied by the number of seals connected to the vent, the seals connected to the measured vent must be repaired as provided in paragraph (a)(1)(iv) of this section.

- (A) You must conduct your first volumetric flow rate measurement from your centrifugal compressor equipped with sour seal oil separator and capture system utilized in Alaska wet seal vent on or before 8,760 hours of operation 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), or on or before 8,760 hours of operation after startup, whichever date is later.
 - (B) You must conduct subsequent volumetric flow rate measurements from your centrifugal compressor wet seal vents on or before 8,760 hours of operation after the previous measurement.
- (iii) You must conduct volumetric flow rate vent measurements from each centrifugal compressor equipped with dry seals using the methods specified in paragraph (a)(2) of this section and in accordance with the schedule specified in paragraphs (a)(1)(iii)(A) and (B) of this section. The volumetric flow rate, measured in accordance with paragraph (a)(2) of this section, must not exceed 10 standard cubic feet per minute (scfm) per seal. If the individual seals are manifolded to a single open-vented line, the volumetric flow rate must not exceed the sum of the individual seals multiplied by 10 scfm. If the volumetric flow rate exceeds 10 scfm multiplied by the number of seals connected to the vent, the seals connected to the measured vent must be repaired as provided in paragraph (a)(1)(iv) of this section.
 - (A) You must conduct your first volumetric flow rate vent measurement from your centrifugal compressor equipped with a dry seal on or before 8,760 hours of operation 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), or on or before 8,760 hours of operation after startup, whichever date is later.
 - (B) You must conduct subsequent volumetric flow rate vent measurements from your centrifugal compressor equipped with a dry seal on or before 8,760 hours of operation after the previous measurement.
- (iv) The seal must be repaired within 90 calendar days after the date of the volumetric emissions measurement that exceeds the applicable required flow rate per seal. You must conduct follow-up volumetric flow rate measurements from seal vents using the methods specified in paragraph (a)(2) of this section within 15 days after the repair to document that the rate has been reduced to less than the applicable required flow rate per seal. If the individual seals are manifolded to a single open-ended line or vent, the volumetric flow rate must be reduced to less than the sum of the individual seals multiplied by the applicable required flow rate per seal specified in paragraph (a)(1)(i) through (iii) of this section, as applicable. Delay of repair will be allowed if the conditions in paragraphs (a)(1)(iv)(A) or (B) of this section are met.
 - (A) If the repair of the wet or dry seal is technically infeasible, would require a vent blowdown, a compressor station shutdown, or would be unsafe to repair during operation of the unit, the repair must be completed during the next scheduled compressor station shutdown for maintenance, after a scheduled vent blowdown, or within 2 years of the date of the volumetric emissions measurement that exceeds the applicable required flow rate per seal, whichever is earliest. A vent blowdown is the opening of one or more blowdown valves to depressurize major production and processing equipment, other than a storage vessel.

- (B) If the repair requires replacement of the compressor seal or a part thereof, but the replacement seal or part cannot be acquired and installed within the repair timelines specified under this section due to the condition specified in paragraph (a)(1)(iv)(B)(1) of this section, the repair must be completed in accordance with paragraph (a)(1)(iv)(B)(2) of this section and documented in accordance with § 60.5420c(c)(3)(iii)(F) through (H).
 - (1) Seal or part thereof supplies had been sufficiently stocked but are depleted at the time of the required repair.
 - (2) The required replacement seal or part must be ordered no later than 10 calendar days after the centrifugal compressor is added to the delay of repair list due to parts unavailability. The repair must be completed as soon as practicable, but no later than 30 calendar days after receipt of the replacement seal or part, unless the repair requires a compressor station shutdown. If the repair requires a compressor station shutdown, the repair must be completed in accordance with the timeframe specified in paragraph (a)(1)(iv)(A) of this section.
- (2) You must determine the volumetric flow rates from your centrifugal compressor dry or wet seal vents as specified in paragraph (a)(2)(i) or (ii) of this section.
 - (i) For each dry or wet seal centrifugal compressor in operating-mode or in standby-pressurized-mode, determine volumetric flow rate at standard conditions from each dry or wet seal vent using one of the methods specified in paragraphs (a)(2)(i)(A) through (C) of this section.
 - (A) You may choose to use any of the methods set forth in § 60.5405c(a) to screen for leaks/emissions. For the purposes of this paragraph, when using any of the methods in § 60.5405c(a), emissions are detected whenever a leak is detected according to the method. If emissions are detected using the methods set forth in § 60.5405c(a), then you must use one of the methods specified in paragraph (a)(2)(i)(B) or (C) of this section to determine the volumetric flow rate. If emissions are not detected using the methods in § 60.5405c(a), then you may assume that the volumetric flow rate is zero.
 - (B) Use a temporary or permanent flow meter according to methods set forth in § 60.5405c(b).
 - (C) Use a high-volume sampler according to the methods set forth in § 60.5405c(c).
 - (ii) For conducting measurements on manifolded groups of dry or wet seal centrifugal compressors, you must determine the volumetric flow rate from the compressor dry or wet seal as specified in paragraph (a)(2)(ii)(A) or (B) of this section.
 - (A) Measure at a single point in the manifold downstream of all dry or wet seal compressor inputs and, if practical, prior to comingling with other non-compressor emission sources.
 - (B) Determine the volumetric flow rate at standard conditions from the common stack using one of the methods specified in paragraph (a)(2)(i)(A) through (C) of this section.
- (3) As an alternative to meeting the requirements of paragraphs (a)(1) and (2) of this section for compressors with wet seals and dry seals, you have the option of reducing methane emissions from each centrifugal compressor wet seal fluid degassing system by 95.0 percent by meeting the requirements of paragraph (a)(4) of this section, or the option of routing the emissions from each centrifugal compressor wet seal fluid degassing system or dry seal system to a process by meeting the requirements of paragraph (a)(5) of this section.

- (4) If you use a control device to reduce methane emissions by 95.0 percent, you must equip the wet seal fluid degassing system with a cover that meets the requirements of § 60.5411c(b). The cover must be connected through a closed vent system that meets the requirements of § 60.5411c(a) and (c) and the closed vent system must be routed to a control device that meets the conditions specified in § 60.5412c.
- (5) If you route the emissions to a process, you must equip the wet seal fluid degassing system or dry seal system with a cover that meets the requirements of § 60.5411c(b). The cover must be connected through a closed vent system that meets the requirements of § 60.5411c(a) and (c).
- (b) You must demonstrate initial compliance with the standards that apply to centrifugal compressor designated facilities as required by § 60.5410c(c).
- (c) You must demonstrate continuous compliance with the standards that apply to centrifugal compressor designated facilities as required by § 60.5415c(c).
- (d) You must perform the reporting as required by § 60.5420c(b)(1) and (4) and (b)(10) through (12), as applicable; and the recordkeeping as required by § 60.5420c(c)(3) and (c)(7) through (12), as applicable.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62920, Aug. 1, 2024]

§ 60.5393c What GHG standards apply to reciprocating compressor designated facilities?

Each reciprocating compressor designated facility must comply with the GHG standards, using volumetric flow rate as a surrogate, in paragraphs (a) through (c) of this section, or the GHG standards in paragraph (d) of this section. You must also comply with the requirements in paragraphs (e) through (g) of this section.

- (a) The volumetric flow rate of each cylinder, measured in accordance with paragraph (b) or (c) of this section, must not exceed 2 scfm per individual cylinder. If the individual cylinders are manifolded to a single open-ended vent line, the volumetric flow rate must not exceed the sum of the individual cylinders multiplied by 2 scfm. You must conduct measurements of the volumetric flow rate in accordance with the schedule specified in paragraphs (a)(1) and (2) of this section and determine the volumetric flow rate per cylinder in accordance with paragraph (b) or (c) of this section. If the volumetric flow rate, measured in accordance with paragraph (b) or (c) of this section, for a cylinder exceeds 2 scfm per cylinder (or a combined volumetric flow rate greater than the number of compression cylinders multiplied by 2 scfm), the rod packing or packings must be repaired or replaced as provided in paragraph (a)(3) of this section.
 - (1) You must conduct your first volumetric flow rate measurements from your reciprocating compressor rod packing vent on or before 8,760 hours of operation after the effective date of an approved state or Tribal plan, on or before 8,760 hours of operation after last rod packing replacement, or on or before 8,760 hours of operation after startup, whichever date is later.
 - (2) You must conduct subsequent volumetric flow rate measurements from your reciprocating compressor rod packing vent on or before 8,760 hours of operation after the previous measurement which demonstrates compliance with the applicable volumetric flow rate of 2 scfm per cylinder (or a combined cylinder volumetric flow rate greater than the number of compression cylinders multiplied by 2 scfm), or on or before 8,760 hours of operation after last rod packing replacement, whichever date is later.

- (3) The rod packing must be repaired or replaced within 90 calendar days after the date of the volumetric emissions measurement that exceeded 2 scfm per cylinder. You must conduct follow-up volumetric flow rate measurements from compressor vents using the methods specified in paragraph (b) of this section within 15 days after the repair (or rod packing replacement) to document that the rate has been reduced to less than 2 scfm per cylinder. Delay of repair will be allowed if the conditions in paragraphs (a)(3)(i) or (ii) of this section are met.
 - (i) If the repair (or rod packing replacement) is technically infeasible, would require a vent blowdown, a compressor station shutdown, or would be unsafe to repair during operation of the unit, the repair (or rod packing replacement) must be completed during the next scheduled compressor station shutdown for maintenance, after a scheduled vent blowdown, or within 2 years of the date of the volumetric emissions measurement that exceeds the applicable required flow rate per cylinder, whichever is earliest. A vent blowdown is the opening of one or more blowdown valves to depressurize major production and processing equipment, other than a storage vessel.
 - (ii) If the repair requires replacement of the rod packing or a part, but the replacement cannot be acquired and installed within the repair timelines specified under this section due to the condition specified in paragraph (a)(3)(ii)(A) of this section, the repair must be completed in accordance with paragraph (a)(3)(ii)(B) of this section and documented in accordance with § 60.5420c(c)(4)(viii) through (x).
 - (A) Rod packing or part supplies had been sufficiently stocked but are depleted at the time of the required repair.
 - (B) The required rod packing or part replacement must be ordered no later than 10 calendar days after the reciprocating compressor is added to the delay of repair list due to parts unavailability. The repair must be completed as soon as practicable, but no later than 30 calendar days after receipt of the replacement rod packing or part, unless the repair requires a compressor station shutdown. If the repair requires a compressor station shutdown, the repair must be completed in accordance with the timeframe specified in paragraph (a)(3)(i) of this section.
- (b) You must determine the volumetric flow rate per cylinder from your reciprocating compressor as specified in paragraph (b)(1) or (2) of this section.
 - (1) For reciprocating compressor rod packing equipped with an open-ended vent line on compressors in operating or standby pressurized mode, determine the volumetric flow rate of the rod packing using one of the methods specified in paragraphs (b)(1)(i) through (iii) of this section.
 - (i) Determine the volumetric flow rate at standard conditions from the open-ended vent line using a high-volume sampler according to methods set forth in § 60.5405c(c).
 - (ii) Determine the volumetric flow rate at standard conditions from the open-ended vent line using a temporary or permanent meter, according to methods set forth in § 60.5405c(b).
 - (iii) Any of the methods set forth in § 60.5405c(a) to screen for leaks and emissions. For the purposes of this paragraph, emissions are detected whenever a leak is detected according to any of the methods in § 60.5405c(a). If emissions are detected using the methods set forth in § 60.5405c(a), then you must use one of the methods specified in paragraph (b)(1)(i) and (ii) of this section to determine the volumetric flow rate per cylinder. If emissions are not detected using the methods in § 60.5405c(a), then you may assume that the volumetric flow rate is zero.

- (2) For reciprocating compressor rod packing not equipped with an open-ended vent line on compressors in operating or standby pressurized mode, you must determine the volumetric flow rate of the rod packing using the methods specified in paragraphs (b)(2)(i) and (ii) of this section.
 - (i) You must use the methods described in § 60.5405c(a) to conduct leak detection of emissions from the rod packing case into an open distance piece, or, for compressors with a closed distance piece, you must conduct annual leak detection of emissions from the rod packing vent, distance piece vent, compressor crank case breather cap, or other vent emitting gas from the rod packing.
 - (ii) You must measure emissions found in paragraph (b)(2)(i) of this section using a meter or high-volume sampler according to methods set forth in § 60.5405c(b) or (c).
- (c) For conducting measurements on manifolded groups of reciprocating compressor designated facilities, you must determine the volumetric flow rate from reciprocating compressor rod packing vent as specified in paragraph (c)(1) and (2) of this section.
 - (1) Measure at a single point in the manifold downstream of all compressor vent inputs and, if practical, prior to comingling with other non-compressor emission sources.
 - (2) Determine the volumetric flow rate per cylinder at standard conditions from the common stack using one of the methods specified in paragraph (c)(2)(i) through (iv) of this section.
 - (i) A temporary or permanent flow meter according to the methods set forth in § 60.5405c(b).
 - (ii) A high-volume sampler according to methods set forth § 60.5405c(c).
 - (iii) An alternative method, as set forth in § 60.5405c(d).
 - (iv) Any of the methods set forth in § 60.5405c(a) to screen for emissions. For the purposes of this paragraph, emissions are detected whenever a leak is detected when using any of the methods in § 60.5405c(a). If emissions are detected using the methods set forth in § 60.5405c(a), then you must use one of the methods specified in paragraph (c)(2)(i) through (iii) of this section to determine the volumetric flow rate per cylinder. If emissions are not detected using the methods in § 60.5405c(a), then you may assume that the volumetric flow rate is zero.
- (d) As an alternative to complying with the GHG standards in paragraphs (a) through (c) of this section, owners or operators can meet the requirements specified in paragraph (d)(1), (2), or (3) of this section.
 - (1) Collect the methane emissions from your reciprocating compressor rod packing using a rod packing emissions collection system that is operated to route the rod packing emissions to a process. In order to comply with this option, you must equip the reciprocating compressor with a cover that meets the requirements of § 60.5411c(b). The cover must be connected through a closed vent system that meets the requirements of § 60.5411c(a) and (c).
 - (2) Reduce methane emissions from each rod packing emissions collection system by using a control device that reduces methane emissions by 95.0 percent. In order to comply with this option, you must equip the reciprocating compressor with a cover that meets the requirements of § 60.5411c(b). The cover must be connected through a closed vent system that meets the requirements of § 60.5411c(a) and (c) and the closed vent system must be routed to a control device that meets the conditions specified in § 60.5412c.

- (3) As an alternative to conducting the required volumetric flow rate measurements under paragraph (a) of this section, an owner or operator can choose to comply by replacing the rod packing on or before 8,760 hours of operation after the effective date of the final rule, on or before 8,760 hours of operation after the previous flow rate measurement, or on or before 8,760 hours of operation after the date of the most recent compressor rod packing replacement, whichever date is later.
- (e) You must demonstrate initial compliance with standards that apply to reciprocating compressor designated facilities as required by § 60.5410c(d).
- (f) You must demonstrate continuous compliance with standards that apply to reciprocating compressor designated facilities as required by § 60.5415c(f).
- (g) You must perform the reporting requirements as specified in § 60.5420c(b)(1) and (5) and (10) through (12), as applicable; and the recordkeeping requirements as specified in § 60.5420c(c)(4) and (7) through (12), as applicable.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62920, Aug. 1, 2024]

§ 60.5394c What GHG standards apply to process controller designated facilities?

Each process controller designated facility must comply with the GHG standards in this section.

- (a) You must design and operate each process controller designated facility with zero methane emissions to the atmosphere, except as provided in paragraph (b) of this section.
 - (1) If you comply by routing the emissions to a process, emissions must be routed to a process through a closed vent system.
 - (2) If you comply by using a self-contained natural gas-driven process controller, you must design and operate each self-contained natural gas-driven process controller with no identifiable emissions, as demonstrated by § 60.5416c(b).
- (b) For each process controller designated facility located at a site in Alaska that does not have access to electrical power, you may comply with either paragraphs (b)(1) and (2) of this section or with paragraph (b)(3) of this section, instead of complying with paragraph (a) of this section.
 - (1) With the exception of natural gas-driven continuous bleed controllers that meet the condition in paragraph (b)(1)(i) of this section and that comply with paragraph (b)(1)(ii) of this section, each natural gas-driven continuous bleed process controller in the process controller designated facility must have a bleed rate less than or equal to 6 standard cubic feet per hour (scfh).
 - (i) A natural gas-driven continuous bleed process controller with a bleed rate higher than 6 scfh may be used if the requirements of paragraph (b)(1)(ii) of this section are met.
 - (ii) You demonstrate that a natural gas-driven continuous bleed controller with a bleed rate higher than 6 scfh is required. The demonstration must be based on the specific functional need, including but not limited to response time, safety, or positive actuation.
 - (2) Each natural gas-driven intermittent vent process controller in the process controller designated facility must comply with the requirements in paragraphs (b)(2)(i) and (ii) of this section.
 - (i) Each natural gas-driven intermittent vent process controller must not emit to the atmosphere during idle periods.

- (ii) You must monitor each natural gas-driven intermittent vent process controller to ensure that it is not emitting to the atmosphere during idle periods, as specified in paragraphs (b)(2)(ii)(A) through (C) of this section.
 - (A) Monitoring must be conducted at the same frequency as specified for fugitive emissions components designated facilities located at the same type of site, as specified in § 60.5397c(g).
 - (B) You must include the monitoring of each natural gas-driven intermittent vent process controller in the monitoring plan required in § 60.5397c(b).
 - (C) When monitoring identifies emissions to the atmosphere from a natural gas-driven intermittent vent controller during idle periods, you must take corrective action by repairing or replacing the natural gas-driven intermittent vent process controller within 5 calendar days of the date the emissions to the atmosphere were detected. After the repair or replacement of a natural gas-driven intermittent vent process controller, you must re-survey the natural gas-driven intermittent vent process controller within five days to verify that it is not venting emissions during idle periods.
- (3) You must reduce methane emissions from all controllers in the process controller designated facility by 95.0 percent. You must route emissions to a control device through a closed vent system that meets the conditions specified in § 60.5412c.
- (c) If you route process controller emissions to a process or a control device, you must route the process controller designated facility emissions through a closed vent system that meets the requirements of § 60.5411c(a) and (c).
- (d) You must demonstrate initial compliance with standards that apply to process controller designated facilities as required by § 60.5410c(e).
- (e) You must demonstrate continuous compliance with standards that apply to process controller designated facilities as required by § 60.5415c(g).
- (f) You must perform the reporting as required by § 60.5420c(b)(1), (6) and (10) through (12), as applicable, and the recordkeeping as required by § 60.5420c(c)(5), (7), and (9) through (12), as applicable.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62920, Aug. 1, 2024]

§ 60.5395c What GHG standards apply to pump designated facilities?

Each pump designated facility, you must comply with the GHG standards in this section.

- (a) For each pump designated facility meeting the criteria specified in paragraphs (a)(1) or (2) of this section, you must design and operate the pump designated facility with zero methane emissions to the atmosphere. If you comply by routing the pump designated facility emissions to a process, the emissions must be routed to the process through a closed vent system.
 - (1) The pump designated facility is located at a site that has access to electrical power.
 - (2) The pump designated facility is located at a site that does not have access to electrical power and also has three or more natural gas-driven diaphragm pumps.
- (b)

- (1) For each pump designated facility located at a site that does not have access to electrical power and that also has fewer than three natural gas-driven diaphragm pumps, you must comply with paragraph (b)(2) or (3) of this section, except as provided in paragraphs (b)(4) through (8) of this section.
- (2) Emissions from the pump designated facility must be routed through a closed vent system to a process if a vapor recovery unit is onsite.
- (3) If a vapor recovery unit is not onsite, you must reduce methane emissions from the pump designated facility by 95.0 percent. You must route designated pump facility emissions through a closed vent system to a control device meeting the conditions specified in § 60.5412c.
- (4) You are not required to install an emissions control device or a vapor recovery unit, if such a unit is necessary to enable emissions to be routed to a process, solely for the purpose of complying with the requirements of paragraphs (b)(2) or (3) of this section. If no control device capable of achieving a 95.0 percent emissions reduction and no vapor recovery unit is present on site, you must comply with paragraph (b)(5) or (6) of this section, as applicable. For the purposes of this section, boilers and process heaters are not considered to be control devices.
- (5) If an emissions control device is on site but is unable to achieve a 95.0 percent emissions reduction, you must route the pump designated facility emissions through a closed vent system to that control device. You must certify that there is no vapor recovery unit on site and that there is no control device capable of achieving a 95.0 percent emissions reduction on site.
- (6) If there is no vapor recovery unit on site and no emission control device is on site, you must certify that there is no vapor recovery unit or emissions control device on site. If you subsequently install a control device or vapor recovery unit, you must meet the requirements of paragraphs (b)(6)(i) and (ii) of this section.
 - (i) You must be in compliance with the requirements of paragraphs (b)(1) through (3) of this section, as applicable, within 30 days of startup of the control device or vapor recovery unit.
 - (ii) You must maintain the records in § 60.5420c(c)(14)(ii) and (v), as applicable. You are no longer required to maintain the records in § 60.5420c(c)(14)(v) certifying that there is no vapor recovery unit or control device on site.
- (7) If an owner or operator complying with paragraph (b)(1) of this section determines, through an engineering assessment, that routing the pump designated facility emissions to a control device or to a process is technically infeasible, the requirements specified in paragraphs (b)(7)(i) through (iii) of this section must be met.
 - (i) The owner or operator must conduct the assessment of technical infeasibility in accordance with the criteria in paragraph (b)(7)(ii) of this section and have it certified by either a qualified professional engineer or an in-house engineer with expertise on the design and operation of the pump designated facility and the control device or processes at the site in accordance with paragraph (b)(7)(iii) of this section.
 - (ii) The assessment of technical infeasibility to route emissions from the pump designated facility to an existing control device or process must include, but is not limited to, safety considerations, distance from the control device or process, pressure losses and differentials in the closed vent system, and the ability of the control device or process to handle the pump designated facility emissions which are routed to them. The assessment of technical

infeasibility must be prepared under the direction or supervision of the qualified professional engineer or in-house engineer who signs the certification in accordance with paragraph (b)(7)(iii) of this section.

(iii) The following certification, signed and dated by the qualified professional engineer or in-house engineer, must state: "I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of § 60.5395c(b)(7)(ii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete."

(8) If the pump designated facility emissions are routed to a control device or process and the control device or process is subsequently removed from the location or is no longer available such that there is no option to route to a control device or process, you are no longer required to be in compliance with the requirements of paragraph (b)(2) or (3) of this section, and instead must comply with paragraph (b)(6) of this section.

(c) If you use a control device or route to a process to reduce emissions, you must route the pump designated facility emissions through a closed vent system that meets the requirements of § 60.5411c(a) and (c).

(d) You must demonstrate initial compliance with standards that apply to pump designated facilities as required by § 60.5410c(f).

(e) You must demonstrate continuous compliance with the standards that apply to pump designated facilities as required by § 60.5415c(d).

(f) You must perform the reporting as required by § 60.5420c(b)(1), (9), and (b)(10) through (12), as applicable, and the recordkeeping as required by § 60.5420c(c)(7), (c)(9) through (12), and (14), as applicable.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62920, Aug. 1, 2024]

§ 60.5396c What GHG standards apply to storage vessel designated facilities?

Each storage vessel designated facility must comply with the GHG standards in this section, except as provided in paragraph (e) of this section.

(a) **General requirements.** You must comply with the requirements of paragraphs (a)(1) and (2) of this section. After 12 consecutive months of compliance with paragraph (a)(2) of this section, you may continue to comply with paragraph (a)(2) of this section, or you may comply with paragraph (a)(3) of this section, if applicable. If you choose to meet the requirements of paragraph (a)(3) of this section, you are not required to comply with the requirements of paragraph (a)(2) of this section except as provided in paragraphs (a)(3)(i) and (ii) of this section.

(1) Determine the potential for methane emissions in accordance with § 60.5386c(e)(2).

(2) Reduce methane emissions by 95.0 percent.

(3) Maintain the uncontrolled actual methane emissions from the storage vessel designated facility at less than 14 tpy without considering control in accordance with paragraphs (a)(3)(i) and (ii) of this section. Prior to using the uncontrolled actual methane emission rates for compliance purposes, you must demonstrate that the uncontrolled actual methane emissions have remained less than 14 tpy

as determined monthly for 12 consecutive months. After such demonstration, you must determine the uncontrolled actual rolling 12-month determination methane emissions rates each month. The uncontrolled actual methane emissions must be calculated using a generally accepted model or calculation methodology which account for flashing, working, and breathing losses, and the calculations must be based on the actual average throughput, temperature, and separator pressure for the month. You may no longer comply with this paragraph and must instead comply with paragraph (a)(2) of this section if your storage vessel designated facility meets the conditions specified in paragraphs (a)(3)(i) or (ii) of this section.

- (i) If a well feeding the storage vessel designated facility undergoes fracturing or refracturing, you must comply with paragraph (a)(2) of this section as soon as liquids from the well following fracturing or refracturing are routed to the storage vessel designated facility.
- (ii) If the rolling 12-month emissions determination required in this section indicates that methane emissions increase to 14 tpy or greater from your storage vessel designated facility and the increase is not associated with fracturing or refracturing of a well feeding the storage vessel designated facility, you must comply with paragraph (a)(2) of this section within 30 days of the monthly determination.

(b) Control requirements.

- (1) Except as required in paragraph (b)(2) of this section, if you use a control device to reduce methane emissions from your storage vessel designated facility, you must meet all of the design and operational criteria specified in paragraphs (b)(1)(i) through (iv) of this section.
 - (i) Each storage vessel in the tank battery must be equipped with a cover that meets the requirements of § 60.5411c(b);
 - (ii) The storage vessels must be manifolded together with piping such that all vapors are shared among the headspaces of the storage vessels in the tank battery;
 - (iii) The tank battery must be equipped with one or more closed vent system that meets the requirements of § 60.5411c(a) and (c); and
 - (iv) The vapors collected in paragraphs (b)(1)(ii) and (iii) of this section must be routed to a control device that meets the conditions specified in § 60.5412c. As an alternative to routing the closed vent system to a control device, you may route the closed vent system to a process.
- (2) For storage vessel designated facilities that do not have flashing emissions and that are not located at well sites or centralized production facilities, you may use a floating roof to reduce emissions. If you use a floating roof to reduce emissions, you must meet the requirements of § 60.112b(a)(1) or (2) and the relevant monitoring, inspection, recordkeeping, and reporting requirements in subpart Kb of this part. You must submit a statement that you are complying with § 60.112b(a)(1) or (2) with the initial annual report specified in § 60.5420c(b)(1) and (7).

(c) Requirements for storage vessel designated facilities that are removed from service or returned to service.

If you remove a storage vessel designated facility from service or remove a portion of a storage vessel designated facility from service, you must comply with the applicable paragraphs (c)(1) through (4) of this section. A storage vessel is not a designated facility under this subpart for the period that it is removed from service.

- (1) For a storage vessel designated facility to be removed from service, you must comply with the requirements of paragraphs (c)(1)(i) and (ii) of this section.

- (i) You must completely empty and degas each storage vessel, such that each storage vessel no longer contains crude oil, condensate, produced water or intermediate hydrocarbon liquids. A storage vessel where liquid is left on walls, as bottom clingage or in pools due to floor irregularity is considered to be completely empty.
 - (ii) You must submit a notification as required in § 60.5420c(b)(7)(vii) in your next annual report, identifying each storage vessel designated facility removed from service during the reporting period and the date of its removal from service.
- (2) For a portion of a storage vessel designated facility to be removed from service, you must comply with the requirements of paragraphs (c)(2)(i) through (iv) of this section.
 - (i) You must completely empty and degas the storage vessel(s), such that the storage vessel(s) no longer contains crude oil, condensate, produced water or intermediate hydrocarbon liquids. A storage vessel where liquid is left on walls, as bottom clingage or in pools due to floor irregularity is considered to be completely empty.
 - (ii) You must disconnect the storage vessel(s) from the tank battery by isolating the storage vessel(s) from the tank battery such that the storage vessel(s) is no longer manifolded to the tank battery by liquid or vapor transfer.
 - (iii) You must submit a notification as required in § 60.5420c(b)(7)(viii) in your next annual report, identifying each storage vessel removed from service during the reporting period, the impacted storage vessel designated facility, and the date of its removal from service.
 - (iv) The remaining storage vessel(s) in the tank battery remain a storage vessel designated facility and must continue to comply with the applicable requirements of paragraphs (a) and (b) of this section.
- (3) If a storage vessel identified in paragraph (c)(1)(ii) or (c)(2)(iii) of this section is returned to service, you must determine its designated facility status as provided in § 60.5386c(e)(5).
- (4) For each storage vessel designated facility or portion of a storage vessel designated facility returned to service during the reporting period, you must submit a notification in your next annual report as required in § 60.5420c(b)(7)(viii), identifying each storage vessel designated facility or portion of a storage vessel designated facility and the date of its return to service.
- (d) **Compliance, notification, recordkeeping, and reporting.** You must comply with paragraphs (d)(1) through (3) of this section.
 - (1) You must demonstrate initial compliance with standards as required by § 60.5410c(h).
 - (2) You must demonstrate continuous compliance with standards as required by § 60.5415c(h).
 - (3) You must perform the required reporting as required by § 60.5420c(b)(1) and (7) and (b)(10) through (12), as applicable and the recordkeeping as required by § 60.5420c(c)(6) and (c)(7) through (12), as applicable.
- (e) **Exemptions.** This subpart does not apply to storage vessels subject to and controlled in accordance with the requirements for storage vessels in subpart Kb of this part, and 40 CFR part 63, subparts G, CC, HH, or WW.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62920, Aug. 1, 2024]

§ 60.5397c What GHG standards apply to fugitive emissions components designated facilities?

This section applies to fugitive emissions components designated facilities. You must comply with the requirements of paragraphs (a) through (l) of this section to reduce fugitive emissions of methane. The requirements of this section are independent of the cover and closed vent system requirements of § 60.5411c.

- (a) **General requirements.** You must monitor all fugitive emissions components in accordance with paragraphs (b) through (g) of this section. You must repair all sources of fugitive emissions in accordance with paragraph (h) of this section. You must demonstrate initial compliance in accordance with paragraph (i) of this section. You must keep records in accordance with paragraph (j) of this section and report in accordance with paragraph (k) of this section. You must meet the requirements for well closures in accordance with paragraph (l) of this section.
- (b) **Develop fugitive emissions monitoring plan.** You must develop a fugitive emissions monitoring plan that covers all fugitive emissions components designated facilities within each company-defined area in accordance with paragraphs (c) and (d) of this section.
- (c) **Fugitive emissions monitoring plan.** Your fugitive emissions monitoring plan must include the elements specified in paragraphs (c)(1) through (8) of this section, at a minimum.
 - (1) Frequency for conducting surveys. Surveys must be conducted at least as frequently as required by paragraphs (f) and (g) of this section.
 - (2) Technique for determining fugitive emissions (*i.e.*, AVO or other detection methods, Method 21 of appendix A-7 to this part; and/or OGI and meeting the requirements of paragraphs (c)(7)(i) through (vii) of this section).
 - (3) Manufacturer and model number of fugitive emissions detection equipment to be used, if applicable.
 - (4) Procedures and timeframes for identifying and repairing fugitive emissions components from which fugitive emissions are detected, including timeframes for fugitive emission components that are unsafe to repair. Your repair schedule must meet the requirements of paragraph (h) of this section at a minimum.
 - (5) Procedures and timeframes for verifying fugitive emission component repairs.
 - (6) Records that will be kept and the length of time records will be kept.
 - (7) If you are using OGI, your plan must also include the elements specified in paragraphs (c)(7)(i) through (vii) of this section.
 - (i) Verification that your OGI equipment meets the specifications of paragraphs (c)(7)(i)(A) and (B) of this section. This verification is an initial verification, and may either be performed by the facility, by the manufacturer, or by a third party. For the purposes of complying with the fugitive emissions monitoring program with OGI, fugitive emissions are defined as any visible emissions observed using OGI.
 - (A) Your OGI equipment must be capable of imaging gases in the spectral range for the compound of highest concentration in the potential fugitive emissions.
 - (B) Your OGI equipment must be capable of imaging a gas that is half methane, half propane at a concentration of 10,000 ppm at a flow rate of ≤60 g/hr from a quarter inch diameter orifice.

- (ii) Procedure for a daily verification check.
 - (iii) Procedure for determining the operator's maximum viewing distance from the equipment and how the operator will ensure that this distance is maintained.
 - (iv) Procedure for determining maximum wind speed during which monitoring can be performed and how the operator will ensure monitoring occurs only at wind speeds below this threshold.
 - (v) Procedures for conducting surveys, including the items specified in paragraphs (c)(7)(v)(A) through (C) of this section.
 - (A) How the operator will ensure an adequate thermal background is present in order to view potential fugitive emissions.
 - (B) How the operator will deal with adverse monitoring conditions, such as wind.
 - (C) How the operator will deal with interferences (e.g., steam).
 - (vi) Training and experience needed prior to performing surveys.
 - (vii) Procedures for calibration and maintenance. At a minimum, procedures must comply with those recommended by the manufacturer.
8. If you are using Method 21 of appendix A-7 to this part, your plan must also include the elements specified in paragraphs (c)(8)(i) through (iv) of this section. For the purposes of complying with the fugitive emissions monitoring program using Method 21 of appendix A-7 to this part, a fugitive emission is defined as an instrument reading of 500 ppmv or greater.
- (i) **Verification that your monitoring equipment meets the requirements specified in Section 6.0 of Method 21 of appendix A-7 to this part.** For purposes of instrument capability, the fugitive emissions definition shall be 500 ppmv or greater methane using a FID-based instrument. If you wish to use an analyzer other than a FID-based instrument, you must develop a site-specific fugitive emission definition that would be equivalent to 500 ppmv methane using a FID-based instrument (e.g., 10.6 eV PID with a specified isobutylene concentration as the fugitive emission definition would provide equivalent response to your compound of interest).
 - (ii) **Procedures for conducting surveys.** At a minimum, the procedures shall ensure that the surveys comply with the relevant sections of Method 21 of appendix A-7 to this part, including Section 8.3.1.
 - (iii) **Procedures for calibration.** The instrument must be calibrated before use each day of its use by the procedures specified in Method 21 of appendix A-7 to this part. At a minimum, you must also conduct precision tests at the interval specified in Method 21 of appendix A-7 to this part, Section 8.1.2, and a calibration drift assessment at the end of each monitoring day. The calibration drift assessment must be conducted as specified in paragraph (c)(8)(iii)(A) of this section. Corrective action for drift assessments is specified in paragraphs (c)(8)(iii)(B) and (C) of this section.
 - (A) Check the instrument using the same calibration gas that was used to calibrate the instrument before use. Follow the procedures specified in Method 21 of appendix A-7 to this part, Section 10.1, except do not adjust the meter readout to correspond to the calibration gas value. If multiple scales are used, record the instrument reading for each

scale used. Divide the arithmetic difference of the initial and post-test calibration response by the corresponding calibration gas value for each scale and multiply by 100 to express the calibration drift as a percentage.

- (B) If a calibration drift assessment shows a negative drift of more than 10 percent, then all equipment with instrument readings between the fugitive emission definition multiplied by (100 minus the percent of negative drift) divided by 100 and the fugitive emission definition that was monitored since the last calibration must be re-monitored.
- (C) If any calibration drift assessment shows a positive drift of more than 10 percent from the initial calibration value, then, at the owner/operator's discretion, all equipment with instrument readings above the fugitive emission definition and below the fugitive emission definition multiplied by (100 plus the percent of positive drift) divided by 100 monitored since the last calibration may be re-monitored.

(iv) **Procedures for monitoring yard piping (other than buried yard piping).** At a minimum, place the probe inlet at the surface of the yard piping and run the probe down the length of the piping. Connection points on the piping must be monitored following the procedures specified in Method 21 of appendix A-7 to this part.

(d) **Additional elements of fugitive emissions monitoring plan.** Each fugitive emissions monitoring plan must include the elements specified in paragraphs (d)(1) and (2) of this section, at a minimum, as applicable.

- (1) If you are using OGI, your plan must include procedures to ensure that all fugitive emissions components, except buried yard piping and associated components (e.g., connectors), are monitored during each survey. Example procedures include, but are not limited to, a sitemap with an observation path, a written narrative of where the fugitive emissions components are located and how they will be monitored, or an inventory of fugitive emissions components.
- (2) If you are using Method 21 of appendix A-7 to this part, your plan must include a list of fugitive emissions components to be monitored and method for determining the location of fugitive emissions components to be monitored in the field (e.g., tagging, identification on a process and instrumentation diagram, etc.). Your fugitive emissions monitoring plan must include the written plan developed for all of the fugitive emissions components designated as difficult-to-monitor in accordance with paragraph (g)(2) of this section, and the written plan for fugitive emissions components designated as unsafe-to-monitor in accordance with paragraph (g)(3) of this section.

(e) **Monitoring of fugitive emissions components.** Each fugitive emissions component, except buried yard piping and associated components (e.g., connectors), shall be observed or monitored for fugitive emissions during each monitoring survey.

(f) **Initial monitoring survey.** You must conduct initial monitoring surveys according to the requirements specified in paragraphs (f)(1) through (3) of this section.

- (1) At single wellhead only sites and small sites, you must conduct an initial monitoring survey using audible, visual, and olfactory (AVO), or any other detection methods (e.g., OGI), within 90 days of the startup of production, for each fugitive emissions components designated facility or by 90 days after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later.
- (2) For multi-wellhead only well sites, well sites or centralized production facilities that contain the major production and processing equipment specified in paragraphs (g)(1)(iv)(A), (B), (C), or (D) of this section, and compressor station sites, you must conduct an initial monitoring survey using OGI or

Method 21 to appendix A-7 to this part within 90 days of the effective date of your state or Tribal plan, for each fugitive emissions components designated facility, or by 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later.

- (3) Notwithstanding the deadlines, specified in paragraphs (f)(1) through (3) of this section for each fugitive emissions components designated facility located on the Alaskan North Slope, that would be subject to monitoring between September and March, you must conduct an initial monitoring survey within 6 months, or by the following June 30, whichever date is latest.

(g) **Monitoring frequency.** A monitoring survey of each fugitive emissions components designated facility must be performed as specified in paragraph (g)(1) of this section, with the exceptions noted in paragraphs (g)(2) through (4) of this section. Monitoring for fugitive emissions components designated facilities located at well sites and centralized production facilities that have wells located onsite must continue at the specified frequencies in paragraphs (g)(1)(i), (ii), (iii), (iv) and (vi) of this section until the well closure requirements of paragraph (l) of this section are completed.

- (1) A monitoring survey of the fugitive emissions components designated facilities must be conducted using the methods and at the frequencies specified in paragraphs (g)(1)(i) through (vi) of this section.

- (i) A monitoring survey of the fugitive emissions component designated facilities located at single wellhead only well sites must be conducted at least quarterly using AVO, or any other detection method after the initial survey, except as specified in paragraph (g)(1)(vi) of this section. Any indications of fugitive emissions using these methods are considered fugitive emissions that must be repaired in accordance with paragraph (h) of this section.

- (ii) A monitoring survey of the fugitive emissions component designated facilities located at small well sites must be conducted at least quarterly using AVO, or any other detection method, after the initial survey except as specified in paragraph (g)(1)(vi) of this section. Any indications of fugitive emissions using these methods are considered fugitive emissions that must be repaired in accordance with paragraph (h) of this section. At small well sites with an uncontrolled storage vessel, a visual inspection of all thief hatches and other openings on the storage vessel that are fugitive emissions components must be conducted in conjunction with the monitoring survey to ensure that they are kept closed and sealed at all times except during times of adding or removing material, inspecting or sampling material, or during required maintenance operations. If evidence of a deviation from this requirement is found, you must take corrective action. At small well sites with a separator, a visual inspection of all separator dump valves to ensure the dump valve is free of debris and not stuck in an open position must be conducted in conjunction with the monitoring survey. Any dump valve not operating as designed must be repaired.

- (iii) A monitoring survey of the fugitive emissions components designated facilities located at multi-wellhead only well sites must be conducted in accordance with paragraphs (g)(1)(iii)(A) and (B) of this section, except as specified in paragraph (g)(1)(vi) of this section.

- (A) A monitoring survey must be conducted at least quarterly using AVO, or any other detection method after the initial survey. Any indications of fugitive emissions using these methods are considered fugitive emissions that must be repaired in accordance with paragraph (h) of this section.

- (B) A monitoring survey must be conducted at least semiannually using OGI or Method 21 of appendix A-7 to this part after the initial survey. Consecutive semiannual surveys must be conducted at least 4 months apart and no more than 7 months apart.
- (iv) A monitoring survey of the fugitive emissions components designated facilities located at well sites or centralized production facilities that contain the major production and processing equipment specified in paragraphs (g)(1)(iv)(A), (B), (C), or (D) of this section must be conducted at the frequencies in paragraphs (g)(1)(iv)(E) and (F) of this section, except as specified in paragraph (g)(1)(vi) of this section.
 - (A) One or more controlled storage vessels or tank batteries.
 - (B) One or more control devices.
 - (C) One or more natural gas-driven process controllers or pumps.
 - (D) Two or more pieces of major production and processing equipment not specified in paragraphs (g)(1)(iv)(A) through (C) of this section.
 - (E) A monitoring survey must be conducted at least bimonthly using AVO, or any other detection method after the initial survey. Any indications of fugitive emissions using these methods are considered fugitive emissions that must be repaired in accordance with paragraph (h) of this section. A visual inspection of all thief hatches and other openings on storage vessels (or tank batteries) that are fugitive emissions components must be conducted in conjunction with the monitoring survey to ensure that they are kept closed and sealed at all times except during times of adding or removing material, inspecting or sampling material, or during required maintenance operations. If evidence of a deviation from this requirement is found, you must take corrective action. A visual inspection must be conducted of all separator dump valves to ensure the dump valve is free of debris and not stuck in an open position must be conducted in conjunction with the monitoring survey. Any dump valve not operating as designed must be repaired.
 - (F) A monitoring survey must be conducted at least quarterly using OGI or Method 21 of appendix A-7 to this part after the initial survey. Consecutive quarterly monitoring surveys must be conducted at least 60 calendar days apart.
- (v) A monitoring survey of the fugitive emissions components designated facility located at a compressor station must be conducted at the frequencies in paragraphs (g)(1)(v)(A) and (B) of this section, except as specified in paragraph (g)(1)(vi) of this section.
 - (A) A monitoring survey must be conducted at least monthly using AVO, or any other detection method after the initial survey. Any indications of fugitive emissions using these methods are considered fugitive emissions that must be repaired in accordance with paragraph (h) of this section.
 - (B) A monitoring survey must be conducted at least quarterly using OGI or Method 21 of appendix A-7 to this part after the initial survey. Consecutive quarterly monitoring surveys must be conducted at least 60 calendar days apart.
- (vi) A monitoring survey of the fugitive emissions components designated facility located on the Alaska North Slope must be conducted using OGI of this part or Method 21 to appendix A-7 to this part at least annually. Consecutive annual monitoring surveys must be conducted at least 9 months apart and no more than 13 months apart.

- (2) If you are using Method 21 of appendix A-7 to this part, fugitive emissions components that cannot be monitored without elevating the monitoring personnel more than 2 meters above the surface may be designated as difficult-to-monitor. Fugitive emissions components that are designated difficult-to-monitor must meet the specifications of paragraphs (g)(2)(i) through (iv) of this section.
 - (i) A written plan must be developed for all the fugitive emissions components designated difficult-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs (b), (c), and (d) of this section.
 - (ii) The plan must include the identification and location of each fugitive emissions component designated as difficult-to-monitor.
 - (iii) The plan must include an explanation of why each fugitive emissions component designated as difficult-to-monitor is difficult-to-monitor.
 - (iv) The plan must include a schedule for monitoring the difficult-to-monitor fugitive emissions components at least once per calendar year.
 - (3) If you are using Method 21 of appendix A-7 to this part, fugitive emissions components that cannot be monitored because monitoring personnel would be exposed to immediate danger while conducting a monitoring survey may be designated as unsafe-to-monitor. Fugitive emissions components that are designated unsafe-to-monitor must meet the specifications of paragraphs (g)(3)(i) through (iv) of this section.
 - (i) A written plan must be developed for all the fugitive emissions components designated unsafe-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs (b), (c), and (d) of this section.
 - (ii) The plan must include the identification and location of each fugitive emissions component designated as unsafe-to-monitor.
 - (iii) The plan must include an explanation of why each fugitive emissions component designated as unsafe-to-monitor is unsafe-to-monitor.
 - (iv) The plan must include a schedule for monitoring the fugitive emissions components designated as unsafe-to-monitor.
 - (4) The requirements of paragraphs (g)(1)(iv)(F) and (g)(1)(v)(B) of this section are waived during a quarterly monitoring period for any fugitive emissions components designated facility located within an area that has an average calendar month temperature below 0 degrees Fahrenheit for two of three consecutive calendar months of a quarterly monitoring period. The calendar month temperature average for each month within the quarterly monitoring period must be determined using historical monthly average temperatures over the previous three years as reported by a National Oceanic and Atmospheric Administration source or other source approved by the Administrator. The requirements of paragraph (g)(1)(iv) and (v) of this section shall not be waived for two consecutive quarterly monitoring periods.
- (h) **Repairs.** Each identified source of fugitive emissions shall be repaired in accordance with paragraphs (h)(1) and (2) of this section.
- (1) A first attempt at repair shall be made in accordance with paragraphs (h)(1)(i) and (ii) of this section.
 - (i) A first attempt at repair shall be made no later than 15 calendar days after detection of fugitive emissions that were identified using AVO.

- (ii) If you are complying with paragraph (g)(1)(i) through (vi) of this section using OGI or Method 21 of appendix A-7 to this part, a first attempt at repair shall be made no later than 30 calendar days after detection of the fugitive emissions.
- (2) Repair shall be completed as soon as practicable, but no later than 15 calendar days after the first attempt at repair as required in paragraph (h)(1)(i) of this section, and 30 calendar days after the first attempt at repair as required in paragraph (h)(1)(ii) of this section.
- (3) Delay of repair will be allowed if the conditions in paragraphs (h)(3)(i) or (ii) of this section are met.
 - (i) If the repair is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair must be completed during the next scheduled compressor station shutdown for maintenance, scheduled well shutdown, scheduled well shut-in, after a scheduled vent blowdown, or within 2 years of detecting the fugitive emissions, whichever is earliest. A vent blowdown is the opening of one or more blowdown valves to depressurize major production and processing equipment, other than a storage vessel.
 - (ii) If the repair requires replacement of a fugitive emissions component or a part thereof, but the replacement cannot be acquired and installed within the repair timelines specified in paragraphs (h)(1) and (2) of this section due to either of the conditions specified in paragraphs (h)(3)(ii)(A) or (B) of this section, the repair must be completed in accordance with paragraph (h)(3)(ii)(C) of this section and documented in accordance with § 60.5420c(c)(13)(v)(I).
 - (A) Valve assembly supplies had been sufficiently stocked but are depleted at the time of the required repair.
 - (B) A replacement fugitive emissions component or a part thereof requires custom fabrication.
 - (C) The required replacement must be ordered no later than 10 calendar days after the first attempt at repair. The repair must be completed as soon as practicable, but no later than 30 calendar days after receipt of the replacement component, unless the repair requires a compressor station or well shutdown. If the repair requires a compressor station or well shutdown, the repair must be completed in accordance with the timeframe specified in paragraph (h)(3)(i) of this section.
- (4) Each identified source of fugitive emissions must be resurveyed to complete repair according to the requirements of paragraphs (h)(4)(i) through (v) of this section, to ensure that there are no fugitive emissions.
 - (i) The operator may resurvey the fugitive emissions components to verify repair using either Method 21 of appendix A-7 to this part or OGI, except as specified in paragraph (h)(4)(v) of this section.
 - (ii) For each repair that cannot be made during the monitoring survey when the fugitive emissions are initially found, a digital photograph must be taken of that component, or the component must be tagged during the monitoring survey when the fugitive emissions were initially found for identification purposes and subsequent repair. The digital photograph must include the date that the photograph was taken and must clearly identify the component by location within the site (e.g., the latitude and longitude of the component or by other descriptive landmarks visible in the picture).

- (iii) Operators that use Method 21 of appendix A-7 to this part to resurvey the repaired fugitive emissions components are subject to the resurvey provisions specified in paragraphs (h)(4)(iii)(A) and (B) of this section.
 - (A) A fugitive emissions component is repaired when the Method 21 instrument indicates a concentration of less than 500 ppmv above background or when no soap bubbles are observed when the alternative screening procedures specified in section 8.3.3 of Method 21 of appendix A-7 to this part are used.
 - (B) Operators must use the Method 21 monitoring requirements specified in paragraph (c)(8)(ii) of this section or the alternative screening procedures specified in section 8.3.3 of Method 21 of appendix A-7 to this part.
- (iv) Operators that use OGI to resurvey the repaired fugitive emissions components are subject to the resurvey provisions specified in paragraphs (h)(4)(iv)(A) and (B) of this section.
 - (A) A fugitive emissions component is repaired when the OGI instrument shows no indication of visible emissions.
 - (B) Operators must use the OGI monitoring requirements specified in paragraph (c)(7) of this section.
- (v) For fugitive emissions identified using AVO detection methods, the operator may resurvey using those same methods, Method 21 of appendix A-7 to this part, or OGI. For operators that use AVO detection methods, a fugitive emissions component is repaired when there are no indications of fugitive emissions using these methods.
- (i) **Initial compliance.** You must demonstrate initial compliance with the standards that apply to fugitive emissions components designated facilities as required by § 60.5410c(i).
- (j) **Continuous compliance.** You must demonstrate continuous compliance with the standards that apply to fugitive emissions components designated facilities as required by § 60.5415c(j).
- (k) **Reporting and recordkeeping.** You must comply with the reporting requirements as specified in § 60.5420c(b)(1) and (8), and the recordkeeping requirements as specified in § 60.5420c(c)(13).
- (l) **Well closure requirements.** You must complete the requirements specified in paragraphs (l)(1) through (4) of this section.
 - (1) You must submit a well closure plan to the Administrator within 30 days of the cessation of production from all wells located at the well site as specified in § 60.5420c(a)(4)(i). The well closure plan must include, at a minimum, the information specified in paragraphs (l)(1)(i) through (iii) of this section.
 - (i) Description of the steps necessary to close all wells at the well site, including permanent plugging of all wells;
 - (ii) Description of the financial requirements and disclosure of financial assurance to complete closure; and
 - (iii) Description of the schedule for completing all activities in the well closure plan.
 - (2) You must submit a notification as specified in § 60.5420c(a)(4)(ii) of intent to close the well site to the Administrator 60 days before you begin well closure activities.

- (3) You must conduct a survey of the well site using OGI, including each closed well, after completing all well closure activities outlined in the well closure plan specified in paragraph (l)(1) of this section. If any emissions are imaged by the OGI instrument, then you must take steps to eliminate those emissions and you must resurvey the source of emissions. You must repeat steps to eliminate emissions and resurvey the source of emissions until no emissions are imaged by the OGI instrument. You must update the well closure plan specified in paragraph (l)(1) of this section to include the video of the OGI survey demonstrating closure of all wells at the site.
- (4) You must maintain the records specified in § 60.5420c(c)(13) and submit the reports specified in § 60.5420c(b)(8).

§ 60.5398c What alternative GHG standards apply to fugitive emissions components designated facilities and what inspection and monitoring requirements apply to covers and closed vent systems when using an alternative technology?

This section provides alternative GHG standards for fugitive emissions components designated facilities in § 60.5397c and alternative continuous inspection and monitoring requirements for covers and closed vent systems in § 60.5416c(a)(1)(ii) and (iii), (2)(ii) through (iv), and (3)(iii) and (iv). If you choose to use an alternative standard under this section, you must submit the notification under paragraph (a) of this section. If you choose to demonstrate compliance with the alternative GHG standards through periodic screening, you are subject to the requirements in paragraph (b) of this section. If you choose to demonstrate compliance through a continuous monitoring system, you are subject to the requirements in paragraph (c) of this section. The technology used for periodic screenings under paragraph (b) of this section or continuous monitoring under paragraph (c) of this section must be approved in accordance with § 60.5398b(d).

- (a) **Notification.** If you choose to demonstrate compliance with the alternative GHG standards in either paragraph (b) or (c) of this section, you must notify the Administrator of adoption of the alternative standards in the first annual report following implementation of the alternative standards, as specified in § 60.5424c(a). Once you have implemented the alternative standards, you must continue to comply with the alternative standards.
- (b) **Periodic screening.** You may choose to demonstrate compliance for your fugitive emissions components designated facility and compliance with continuous inspection and monitoring requirements for your covers and closed vent systems through periodic screenings using any methane measurement technology approved in accordance with § 60.5398b(d). If you choose to demonstrate compliance using periodic screenings, you must comply with the requirements in paragraphs (b)(1) through (5) of this section and comply with the recordkeeping and reporting requirements in § 60.5424c.
 - (1) You must use one or more alternative test method(s) approved per § 60.5398b(d) to conduct periodic screenings.
 - (i) The required frequencies for conducting periodic screenings are listed in tables 2 and 3 to this subpart. You must choose the appropriate frequency for conducting periodic screenings based on the minimum aggregate detection threshold of the method used to conduct the periodic screenings. You must also use tables 2 and 3 to this subpart to determine whether you must conduct an annual fugitive emissions survey using OGI, except as provided in paragraph (b)(1)(ii) of this section.
 - (ii) Use of table 2 or 3 to this subpart is based on the required frequency for conducting monitoring surveys in § 60.5397c(g)(1)(i) through (v).

- (iii) You may replace one or more individual periodic screening events required by table 2 or 3 to this subpart with an OGI survey. The OGI survey must be conducted according to the requirements outlined in § 60.5397c.
 - (iv) If you use multiple methods to conduct periodic screenings, you must conduct all periodic screenings, regardless of the method used for the individual periodic screening event, at the frequency required for the alternative test method with the highest aggregate detection threshold (e.g., if you use methods with aggregate detection thresholds of 15 kg/hr, your periodic screenings must be conducted monthly). You must also conduct an annual OGI survey if an annual OGI survey is required for the alternative test method with the highest aggregate detection threshold.
- (2) You must develop a monitoring plan that covers the collection of fugitive emissions components, covers, and closed vent systems at each site where you will use periodic screenings to demonstrate compliance. You may develop a site-specific monitoring plan, or you may include multiple sites that you own or operate in one plan. At a minimum, the monitoring plan must contain the information specified in paragraphs (b)(2)(i) through (ix) of this section.
- (i) Identification of each site that will be monitored through periodic screening, including latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five decimals of a degree using the North American Datum of 1983.
 - (ii) Identification of the alternative test method(s) approved per § 60.5398b(d) that will be used for periodic screenings and the spatial resolution (i.e., component-level, area-level, or facility-level) of the technology used for each method.
 - (iii) Identification of and contact information for the entities that will be performing the periodic screenings.
 - (iv) Required frequency for conducting periodic screenings, based on the criteria outlined in paragraph (b)(1) of this section.
 - (v) If you are required to conduct an annual OGI survey by paragraph (b)(1)(i) or (iii) of this section or you choose to replace any individual screening event with an OGI survey, your monitoring plan must also include the information required by § 60.5397c(b).
 - (vi) Procedures for conducting monitoring surveys required by paragraphs (b)(5)(ii)(A), (b)(5)(iii)(A), and (b)(5)(iv)(A) of this section. At a minimum, your monitoring plan must include the information required by § 60.5397c(c)(2), (3), (7), and (8) and § 60.5397c(d), as applicable. The provisions of § 60.5397c(d)(3) do not apply for purposes of conducting monitoring surveys required by paragraphs (b)(5)(ii) through (iv) of this section.
 - (vii) Procedures and timeframes for identifying and repairing fugitive emissions components, covers, and closed vent systems from which emissions are detected.
 - (viii) Procedures and timeframes for verifying repairs for fugitive emissions components, covers, and closed vent systems.
 - (ix) Records that will be kept and the length of time records will be kept.
- (3) You must conduct the initial screening of your site according to the timeframes specified in (b)(3)(i) and (ii) of this section.

- (i) Within 90 days of the effective date of your state or Tribal plan for each fugitive emissions components designated facility and storage vessel designated facility located at a well site.
 - (ii) No later than the final date by which the next monitoring survey required by § 60.5397c(g)(1)(i) through (v) would have been required to be conducted if you were previously complying with the requirements in § 60.5397c and § 60.5416c.
- (4) If you are required to conduct an annual OGI survey by paragraph (b)(1)(i) or (iii) of this section, you must conduct OGI surveys according to the schedule in paragraphs (b)(4)(i) through (iv) of this section.
- (i) You must conduct the initial OGI survey no later than 12 calendar months after conducting the initial screening survey in paragraph (b)(3) of this section.
 - (ii) Each subsequent OGI survey must be conducted no later than 12 calendar months after the previous OGI survey was conducted. Each identified source of fugitive emissions during the OGI survey shall be repaired in accordance with § 60.5397c(h).
 - (iii) If you replace a periodic screening event with an OGI survey or you are required to conduct a monitoring survey in accordance with paragraph (b)(5)(ii)(A) of this section prior to the date that your next OGI survey under paragraph (b)(4)(ii) of this section is due, the OGI survey conducted in lieu of the periodic screening event or the monitoring survey under paragraph (b)(5)(ii)(A) of this section can be used to fulfill the requirements of paragraph (b)(4)(ii) of this section. The next OGI survey is required to be conducted no later than 12 calendar months after the date of the survey conducted under paragraph (b)(1)(iv) or (b)(5)(ii)(A) of this section.
 - (iv) You cannot use a monitoring survey conducted under paragraph (b)(5)(iii)(A) or (b)(5)(iv)(A) of this section to fulfill the requirements of paragraph (b)(4)(ii) of this section unless the monitoring survey included all fugitive emission components at the site.
- (5) You must investigate confirmed detections of emissions from periodic screening events and repair each identified source of emissions in accordance with paragraphs (b)(5)(i) through (vi) of this section.
- (i) You must receive the results of the periodic screening no later than 5 calendar days after the screening event occurs.
 - (ii) If you use an alternative test method with a facility-level spatial resolution to conduct a periodic screening event and the results of the periodic screening event indicate a confirmed detection of emissions from a designated facility, you must take the actions listed in paragraphs (b)(5)(ii)(A) through (C) of this section.
 - (A) You must conduct a monitoring survey of all the fugitive emissions components in a designated facility using either OGI or EPA Method 21 to appendix A-7 of this part. You must follow the procedures in your monitoring plan when conducting the survey.
 - (B) You must inspect all covers and closed vent system(s) with OGI or Method 21 of appendix A-7 to this part in accordance with the requirements in § 60.5416c(b)(1) through (4), as applicable.
 - (C) You must conduct a visual inspection of all covers and closed vent systems to identify if there are any defects, as defined in § 60.5416c(a)(1)(ii), § 60.5416c(a)(2)(iii), or § 60.5416c(a)(3)(i), as applicable.

- (iii) If you use an alternative test method with an area-level spatial resolution to conduct a periodic screening event and the results of the periodic screening event indicate a confirmed detection of emissions from a designated facility, you must take the actions listed in paragraphs (b)(5)(iii)(A) and (B) of this section, as applicable.
 - (A) You must conduct a monitoring survey of all the fugitive emissions components located within a 4-meter radius of the location of the periodic screening's confirmed detection using either OGI or EPA Method 21 to appendix A-7 of this part. You must follow the procedures in your monitoring plan when conducting the survey.
 - (B) If the confirmed detection occurred in the portion of a site that contains a storage vessel or a closed vent system, you must inspect all covers and all closed vent systems that are connected to all storage vessels and closed vent systems that are within a 2-meter radius of the location of the periodic screening's confirmed detection (i.e., you must inspect the whole system that is connected to the portion of the system in the radius of the detected event, not just the portion of the system that falls within the radius of the detected event).
 - (1) You must inspect the cover(s) and closed vent system(s) with OGI or Method 21 of appendix A-7 to this part in accordance with the requirements in § 60.5416c(b)(1) through (4), as applicable.
 - (2) You must conduct a visual inspection of the closed vent system(s) and cover(s) to identify if there are any defects, as defined in § 60.5416c(a)(1)(ii), § 60.5416c(a)(2)(iii), or § 60.5416c(a)(3)(i), as applicable.
- (iv) If you use an alternative test method with a component-level spatial resolution to conduct a periodic screening event and the results of the periodic screening event indicate a confirmed detection of emissions from a designated facility, you must take the actions listed in paragraphs (b)(5)(iv)(A) and (B) of this section, as applicable.
 - (A) You must conduct a monitoring survey of all the fugitive emissions components located within a 1-meter radius of the location of the periodic screening's confirmed detection using either OGI or EPA Method 21 to appendix A-7 of this part. You must follow the procedures in your monitoring plan when conducting the survey.
 - (B) If the confirmed detection occurred in the portion of a site that contains a storage vessel or a closed vent system, you must inspect all covers and all closed vent systems that are connected to all storage vessels and closed vent systems that are within a 0.5-meter radius of the location of the periodic screening's confirmed detection (i.e., you must inspect the whole system that is connected to the portion of the system in the radius of the detected event, not just the portion of the system that falls within the radius of the detected event).
 - (1) You must inspect the cover(s) and closed vent system(s) with OGI or Method 21 of appendix A-7 to this part in accordance with the requirements in § 60.5416c(b)(1) through (4), as applicable.
 - (2) You must conduct a visual inspection of the closed vent system(s) and cover(s) to identify if there are any defects, as defined in § 60.5416c(a)(1)(ii), § 60.5416c(a)(2)(iii), or § 60.5416c(a)(3)(i), as applicable.

- (v) You must repair all sources of fugitive emissions in accordance with § 60.5397c(h) and all emissions or defects of covers and closed vent systems in accordance with § 60.5416c(b)(4), except as specified in this paragraph (b)(5)(v). Except as allowed by §§ 60.5397c(h)(3) and 60.5416c(b)(5), all repairs must be completed, including the resurvey verifying the repair, within 30 days of receiving the results of the periodic screening in paragraph (b)(5)(i) of this section.
- (vi) If the results of the periodic screening event in paragraph (b)(5)(i) of this section indicate a confirmed detection at a designated facility, and the ground-based monitoring survey and inspections required by paragraphs (b)(5)(ii) through (iv) of this section demonstrate the confirmed detection was caused by a failure of a control device used to demonstrate continuous compliance under this subpart, you must initiate an investigative analysis to determine the underlying primary and other contributing cause(s) of such failure within 24 hours of receiving the results of the monitoring survey and/or inspection. As part of the investigation, you must determine if the control device is operating in compliance with the applicable requirements of §§ 60.5415c and 60.5417c, and if not, what actions are necessary to bring the control device into compliance with those requirements as soon as possible and prevent future failures of the control device from the same underlying cause(s).
- (vii) If the results of the inspections required in paragraphs (b)(5)(ii) through (iv) of this section indicate that there is an emission or defect in your cover or closed vent system, you must perform an investigative analysis to determine the underlying primary and other contributing cause(s) of emissions from your cover or closed vent system within 5 days of completing the inspection required by paragraphs (b)(5)(ii) through (iv) of this section. The investigative analysis must include a determination as to whether the system was operated outside of the engineering design analysis and whether updates are necessary for the cover or closed vent system to prevent future emissions from the cover and closed vent system.

(6) You must maintain the records as specified in § 60.5420c(c)(3) through (c)(6), (c)(13) and (c)(14) and § 60.5424c(c).

(7) You must submit reports as specified in § 60.5424c.

(c) **Continuous Monitoring.** You may choose to demonstrate compliance for your fugitive emissions components designated facility and compliance with continuous inspection and monitoring requirements for your covers and closed vent systems through continuous monitoring using a technology approved in accordance with § 60.5398b(d). If you choose to demonstrate compliance using continuous monitoring, you must comply and develop a monitoring plan consistent with the requirements in paragraphs (c)(1) through (9) of this section and comply with the recordkeeping and reporting requirements in § 60.5424c.

(1) For the purpose of this section, continuous monitoring means the ability of a methane monitoring system to determine and record a valid methane mass emissions rate or equivalent of designated facilities at least once for every 12-hour block.

- (i) The detection threshold of the system must be such that it can detect at least 0.40 kg/hr (0.88 lb/hr) of methane.
- (ii) The health of the devices used within the continuous monitoring system must be confirmed for power and function at least twice every six-hour block.
- (iii) The continuous monitoring system must transmit all applicable valid data at least once every 24-hours. The continuous monitoring system must transmit all valid data collected, including health checks required in paragraph (c)(1)(ii) of this section.

- (iv) The continuous monitoring system must continuously collect data as specified in paragraph (c)(1) of this section, except as specified in paragraphs (c)(1)(iv)(A) through (D) of this section:
 - (A) The rolling 12-month average operational downtime of the continuous monitoring system must be less than or equal to 10 percent.
 - (B) Operational downtime of the continuous monitoring system is defined as a period of time for which any monitor fails to collect or transmit data as specified in paragraph (c)(1) of this section or any monitor is out-of-control as specified in paragraph (c)(1)(iv)(C) of this section.
 - (C) A monitor is out-of-control if it fails ongoing quality assurance checks, as specified in the alternative test method approved under § 60.5398b(d), or if the monitor output is outside of range. The beginning of the out-of-control period is defined as the time of the failure of the quality assurance check. The end of the out-of-control period is defined as the time when either the monitor passes a subsequent quality assurance check, or a new monitor is installed. The out-of-control period for a monitor outside of range starts at the time when the monitor first reads outside of range and ends when the monitor reads within range again.
 - (D) The downtime for the continuous monitoring system must be calculated each calendar month. Once 12 months of data are available, at the end of each calendar month, you must calculate the 12-month average by averaging that month with the previous 11 calendar months. You must determine the rolling 12-month average by recalculating the 12-month average at the end of each month.
- (2) You must develop a monitoring plan that covers the collection of fugitive emissions components, covers, and closed vent systems for each site where continuous monitoring will be used to demonstrate compliance. At a minimum, the monitoring plan must contain the information specified in paragraphs (c)(2)(i) through (xii) of this section.
 - (i) Identification of each site to be monitored through continuous monitoring, including latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of at least four decimals of a degree using the North American Datum of 1983.
 - (ii) Identification of the approved alternative test method(s) approved under § 60.5398b(d) used for the continuous monitoring, including the detection principle; the manufacturer, make, and model; instrument manual, if applicable; and the manufacturer's recommended maintenance schedule.
 - (iii) If the continuous monitoring system is administered through a third-party provider, contact information where the provider can be reached 24 hours a day.
 - (iv) Number and location of monitors. If the continuous monitoring system uses open path technology, you must identify the location of any reflectors used. These locations should be identified by latitude and longitude coordinates in decimal degrees to an accuracy and precision of at least five decimals of a degree using the North American Datum of 1983.
 - (v) Discussion of system calibration requirements, including but not limited to, the calibration procedures and calibration schedule for the detection systems and meteorology systems.
 - (vi) Identification of critical components and infrastructure (e.g., power, data systems) and procedures for their repairs.

- (vii) Procedures for out-of-control periods.
 - (viii) Procedures for establishing baseline emissions, including the identification of any sources with methane emissions not subject to this subpart. The procedures for establishing the baseline emissions must account for variability in the operation of the site. Operation of the site during the development of the baseline emissions must represent the site's expected annual production or throughput.
 - (ix) Procedures for determining when a fugitive emissions event is detected by the continuous monitoring technology.
 - (x) Procedures and timeframes for identifying and repairing fugitive emissions components, covers, and closed vent systems from which emissions are detected.
 - (xi) Procedures and timeframes for verifying repairs for fugitive emissions components, covers, and closed vent systems.
 - (xii) Records that will be kept and the length of time records will be kept.
- (3) You must install and begin conducting monitoring with your continuous monitoring system according to the timeframes specified in paragraphs (c)(3)(i) and (ii) of this section.
- (i) Within 120 days of the effective date of your state or Tribal plan for each fugitive emissions components designated facility and storage vessel designated facility located at a well site.
 - (ii) No later than the final date by which the next monitoring survey required by § 60.5397c(g)(1)(i) through (v) would have been required to be conducted if you were previously complying with the requirements in § 60.5397c and § 60.5416c.
- (4) You are subject to the following action-levels as specified in paragraphs (c)(4)(i) and (ii) of this section for any designated facilities located at a well site, centralized production facility, or compressor station.
- (i) For designated facilities located at a wellhead only well site, the action levels are as follows.
 - (A) The 90-day rolling average action-level is 1.2 kg/hr (2.6 lbs/hr) of methane over the site-specific baseline emissions.
 - (B) The 7-day rolling average action level is 15 kg/hr (34 lbs/hr) of methane over site-specific baseline emissions.
 - (ii) For designated facilities located at well sites with major production and processing equipment (including small well sites), centralized production facilities, and compressor stations, the action levels are as follows.
 - (A) The 90-day rolling average action-level is 1.6 kg/hr (3.6 lbs/hr) of methane over the site-specific baseline emissions.
 - (B) The rolling 7-day average action level is 21 kg/hr (46 lbs/hr) of methane over the site-specific baseline emissions.
- (5) You must establish site-specific baseline emissions upon initial installation and activation of a continuous monitoring system. You must establish the baseline emissions under the conditions outlined in paragraphs (c)(5)(i) through (iii) of this section. You must determine the baseline

emission rates according to paragraphs (c)(5)(iv) and (v) of this section. The baseline must be established initially and any time there is a major change to the processing equipment at a well site (including small well sites), centralized production facility, or compressor station.

- (i) Inspect all fugitive emissions components according to the requirements in § 60.5397c and covers and closed vent systems according to the requirements in § 60.5416c. This includes all fugitive emissions components, covers, and closed vent systems, regardless of whether they are regulated by this subpart. Repairs of any fugitive emissions, leaks, or defects found during the inspection must be completed prior to beginning the period in paragraph (c)(5)(iii) of this section.
 - (ii) Verify control devices (e.g., flares) on all affected sources are operating in compliance with the applicable requirements of §§ 60.5415c and 60.5417c. You must ensure that all control devices are operating in compliance with the applicable regulations prior to beginning the period in paragraph (c)(5)(iii) of this section. Verify that all other methane emission sources (e.g., reciprocating engines) located at the site are operating consistent with any applicable regulations. You must ensure that these sources are operating in compliance with the applicable regulations prior to beginning the period in paragraph (c)(5)(iii) of this section.
 - (iii) Using the alternative test method approved per § 60.5398b(d), record the site-level emission rate from your continuous monitoring system for 30 operating days. You must minimize any activities that are not normal, day-to-day activities during this 30 operating day period. Document any maintenance activities and the period (including the start date and time and end date and time) such activities occurred during the 30 operating day period.
 - (iv) Determine the site-specific baseline by calculating the mean emission rate (kg/hr of methane) for the 30 operating day period, less any time periods when maintenance activities were conducted.
 - (v) The site-specific baseline emission rate must be no more than 10 times the applicable 90-day action-level defined in paragraphs (c)(4)(i) and (c)(4)(ii) of this section.
- (6) Calculate the emission rate from your site according to paragraphs (c)(6)(i) through (iii) of this section. Compare the emission rate calculated in this paragraph (c)(6) to the appropriate action levels in paragraph (c)(4) of this section to determine whether you have exceeded an action level.
- (i) Each calendar day, calculate the daily average mass emission rate in kg/hr of methane from your continuous monitoring system.
 - (ii) Once the system has been operating for 7 calendar days, at the end of each calendar day calculate the 7-day average mass emission rate by averaging the mass emission rate from that day with the mass emission rate from the previous 6 calendar days. Subtract the site-specific baseline mass emission rate from the 7-day average mass emission rate when comparing the mass emission rate to the applicable action level. Determine the 7-day rolling average by recalculating the 7-day average each calendar day, less the site-specific baseline.
 - (iii) Once the system has been operating for 90 calendar days, at the end of each calendar day calculate the 90-day average mass emission rate by averaging the mass emission rate from that day with the mass emission rate from the previous 89 calendar days. Subtract the site-specific baseline emission rate from the 90-day average mass emission rate when comparing the mass emission rate to the applicable action level. Determine the 90-day rolling average by recalculating the 90-day average each calendar day, less the site-specific baseline.

- (7) Within 5 days of determining that either of your action levels in paragraph (c)(4) of this section has been exceeded, you must initiate an investigative analysis to determine the underlying primary and contributing cause(s) of such exceedance and actions to be taken to reduce the mass emission rate below the applicable action level.
 - (i) You must complete the investigative analysis and take initial steps to bring the mass emission rate below the action level no later than 5 days after determining there is an exceedance of the action level in paragraph (c)(4)(i)(B) or (c)(4)(ii)(B) of this section.
 - (ii) You must complete the investigative analysis and take initial steps to bring the mass emission rate below the action level no later than 30 days after determining there is an exceedance of the action level in paragraph (c)(4)(i)(A) or (c)(4)(ii)(A) of this section.
- (8) You must develop a mass emission rate reduction plan if you meet any of the criteria in paragraphs (c)(8)(i) through (iii) of this section. The plan must describe the action(s) completed to date to reduce the mass emission rate below the action level, additional measures that you propose to employ to reduce methane emissions below the action level, and a schedule for completion of these measures. You must submit the plan to the Administrator within 60 days of initially determining there is an exceedance of an action level in paragraph (c)(4) of this section.
 - (i) If, upon completion of the initial actions required under paragraph (c)(7) of this section, the average mass emission rate for the following 30-day period is not below the applicable action level in paragraph (c)(4)(i)(A) or (c)(4)(ii)(A) of this section. The beginning of the 30-day period starts on the calendar day following completion of the initial actions in paragraph (c)(7) of this section.
 - (ii) If, upon completion of the initial actions required under paragraph (c)(6) of this section, the average mass emission rate for the following 24-hour period is not below the applicable action level in paragraph (c)(4)(i)(B) or (c)(4)(ii)(B) of this section. The average mass emission rate will be the mass emission rate calculated according to paragraph (c)(6)(i) of this section for the calendar day following completion of the initial corrective actions in paragraph (c)(7) of this section.
 - (iii) All actions needed to reduce the average mass emission rate below the action level require more than 30 days to implement.
- (9) You must maintain the records as specified in § 60.5420c(c)(3) through (c)(6), (c)(13) and (c)(14), and § 60.5424c(e). You must submit the reports as specified in § 60.5420c(b)(1), (b)(3) through (9) and § 60.5424c.

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§ 60.5400c What GHG standards apply to process unit equipment designated facilities?

This section applies to process unit equipment designated facilities located at an onshore natural gas processing plant. You must comply with the requirements of paragraphs (a) through (l) of this section to reduce methane emissions from equipment leaks, except as provided in § 60.5402c. As an alternative to the standards in this section, you may comply with the requirements in § 60.5401c.

- a) General standards.** You must comply with the requirements in paragraphs (b) through (d) of this section for each pump in light liquid service, pressure relief device in gas/vapor service, valve in gas/vapor or light liquid service, and connector in gas/vapor or light liquid service, as applicable. You must comply with the requirements in paragraph (e) of this section for each open-ended valve or line. You must comply with the requirements in paragraph (f) of this section for each closed vent system and control device used to comply with equipment leak provisions in this section. You must comply with paragraph (g) of this section for each pump, valve, and connector in heavy liquid service and pressure relief device in light liquid or heavy liquid service. You must make repairs as specified in paragraph (h) of this section. You must demonstrate initial compliance with the standards as specified in paragraph (i) of this section. You must demonstrate continuous compliance with the standards as specified in paragraph (j) of this section. You must perform the reporting as specified in paragraph (k) of this section. You must perform the recordkeeping as required in paragraph (l) of this section.
- (1) Each piece of equipment is presumed to have the potential to emit methane unless an owner or operator demonstrates that the piece of equipment does not have the potential to emit methane. For a piece of equipment to be considered not to have the potential to emit methane, the methane content of a gaseous stream must be below detection limits using Method 18 of appendix A-6 of this part. Alternatively, if the piece of equipment is in wet gas service, you may choose to determine the methane content of the stream is below the detection limit of the methods described in ASTM E168-16(R2023), E169-16(R2022), or E260-96 (all incorporated by reference, see § 60.17).
- (2) [Reserved]
- b) Monitoring surveys.** You must monitor for leaks using OGI in accordance with appendix K to this part, unless otherwise specified in paragraphs (c) or (d) of this section.
- (1) Monitoring surveys must be conducted bimonthly.
- (2) Any emissions observed using OGI are defined as a leak.
- c) Additional requirements for pumps in light liquid service.** In addition to the requirements in paragraph (b) of this section, you must conduct weekly visual inspections of all pumps in light liquid service for indications of liquids dripping from the pump seal, except as specified in paragraphs (c)(3) and (4) of this section. If there are indications of liquids dripping from the pump seal, you must follow the procedure specified in either paragraph (c)(1) or (2) of this section.
- (1) Monitor the pump within 5 calendar days using the methods specified in § 60.5406c. A leak is detected if any emissions are observed using OGI, or if an instrument reading of 2,000 ppmv or greater is provided using Method 21 of appendix A-7 to this part.
- (2) Designate the visual indications of liquids dripping as a leak and repair the leak as specified in paragraph (h) of this section.
- (3) If any pump is equipped with a closed vent system capable of capturing and transporting any leakage from the seal or seals to a process, fuel gas system, or a control device that complies with the requirements of paragraph (f) of this section, it is exempt from the weekly inspection requirements in paragraph (c) of this section.
- (4) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirements in paragraph (c) of this section, provided that each pump is visually inspected as often as practicable and at least bimonthly.

- (d) **Additional requirements for pressure relief devices in gas/vapor service.** In addition to the requirements in paragraph (b) of this section, you must monitor each pressure relief device as specified in paragraphs (d)(1) of this section, except as specified in paragraphs (d)(2) and (d)(3) of this section.
- (1) You must monitor each pressure relief device within 5 calendar days after each pressure release to detect leaks using the methods specified in § 60.5406c. A leak is detected if any emissions are observed using OGI, or if an instrument reading of 500 ppmv or greater is provided using Method 21 of appendix A-7 to this part.
 - (2) Any pressure relief device that is located in a nonfractionating plant that is monitored only by non-plant personnel may be monitored after a pressure release the next time the monitoring personnel are onsite or within 30 calendar days after a pressure release, whichever is sooner, instead of within 5 calendar days as specified in paragraph (d)(1) of this section. No pressure relief device described in this paragraph may be allowed to operate for more than 30 calendar days after a pressure release without monitoring.
 - (3) Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in paragraph (f) of this section is exempt from the requirements of paragraph (d)(1) of this section.
- (e) **Open-ended valves or lines.** Each open-ended valve or line must be equipped with a cap, blind flange, plug, or a second valve, except as provided in paragraphs (e)(4) and (5) of this section. The cap, blind flange, plug, or second valve must seal the open end of the valve or line at all times except during operations requiring process fluid flow through the open-ended valve or line.
- (1) If evidence of a leak is found at any time by AVO, or any other detection method, a leak is detected.
 - (2) Each open-ended valve or line equipped with a second valve must be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
 - (3) When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall remain closed at all other times.
 - (4) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of this section.
 - (5) Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block-and-bleed system as specified in paragraphs (e) introductory text, (e)(2) and (3) of this section are exempt from the requirements of this section.
- (f) **Closed vent systems and control devices.** Closed vent systems used to comply with the equipment leak provisions of this section must comply with the requirements in §§ 60.5411c and 60.5416c. Control devices used to comply with the equipment leak provisions of this section must comply with the requirements in §§ 60.5412c, 60.5415c(e), and 60.5417c.
- (g) **Pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service.** If evidence of a potential leak is found at any time by AVO, or any other detection method, a leak is detected and must be repaired in accordance with paragraph (h) of this section.

- (h) **Repair requirements.** When a leak is detected, you must comply with the requirements of paragraphs (h)(1) through (5) of this section, except as provided in paragraph (h)(6) of this section.
- (1) A weatherproof and readily visible identification tag, marked with the equipment identification number, must be attached to the leaking equipment. The identification tag on equipment may be removed after it has been repaired.
 - (2) A first attempt at repair must be made as soon as practicable, but no later than 5 calendar days after the leak is detected. A first attempt at repair is not required if the leak is detected using OGI and the equipment identified as leaking would require elevating the repair personnel more than 2 meters above a support surface.
 - (i) First attempts at repair for pumps in light liquid or heavy liquid service include, but are not limited to, the practices described in paragraphs (h)(2)(i)(A) and (B) of this section, where practicable.
 - (A) Tightening the packing gland nuts.
 - (B) Ensuring that the seal flush is operating at design pressure and temperature.
 - (ii) For each valve where a leak is detected, you must comply with paragraphs (h)(2)(ii)(A) (B), (C) or (D) of this section.
 - (A) Repack the existing valve with a low-e packing.
 - (B) Replace the existing valve with a low-e valve; or
 - (C) Perform a drill and tap repair with a low-e injectable packing.
 - (D) An owner or operator is not required to utilize a low-e valve or low-e packing to replace or repack a valve if the owner or operator demonstrates that a low-e valve or low-e packing is not technically feasible. Low-e valve or low-e packing that is not suitable for its intended use is considered to be technically infeasible. Factors that may be considered in determining technical infeasibility include: retrofit requirements for installation (e.g., re-piping or space limitation), commercial unavailability for valve type, or certain instrumentation assemblies.
 - (3) Repair of leaking equipment must be completed within 15 calendar days after detection of each leak, except as provided in paragraphs (h)(4), (5) and (6) of this section.
 - (4) If the repair for visual indications of liquids dripping for pumps in light liquid service can be made by eliminating visual indications of liquids dripping, you must make the repair within 5 calendar days of detection.
 - (5) If the repair for AVO or other indication of a leak for open-ended valves or lines; pumps, valves, or connectors in heavy liquid service; or pressure relief devices in light liquid or heavy liquid service can be made by eliminating the AVO, or other indication of a potential leak, you must make the repair within 5 calendar days of detection.
 - (6) Delay of repair of equipment for which leaks have been detected is allowed if repair within 15 days is technically infeasible without a process unit shutdown or as specified in paragraphs (h)(6)(i) through (v) of this section. Repair of this equipment shall occur before the end of the next process unit shutdown. Monitoring to verify repair must occur within 15 days after startup of the process unit.

- (i) Delay of repair of equipment is allowed for equipment which is isolated from the process, and which does not have the potential to emit methane.
- (ii) Delay of repair for valves and connectors is allowed if the conditions in paragraphs (h)(6)(ii)(A) and (B) of this section are met.
 - (A) You must demonstrate that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and
 - (B) When repair procedures are conducted, the purged material is collected and destroyed or recovered in a control device complying with paragraph (f) of this section.
- (iii) Delay of repair for pumps is allowed if the conditions in paragraphs (h)(6)(iii)(A) and (B) of this section are met.
 - (A) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and
 - (B) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.
- (iv) If delay of repair is required to repack or replace the valve, you may use delay of repair. Delay of repair beyond a process unit shutdown is allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
- (v) When delay of repair is allowed for a leaking pump, valve, or connector that remains in service, the pump, valve, or connector may be considered to be repaired and no longer subject to delay of repair requirements if two consecutive bimonthly monitoring results show no leak remains.
- (i) **Initial compliance.** You must demonstrate initial compliance with the standards that apply to equipment leaks at onshore natural gas processing plants as required by § 60.5410c(g).
- (j) **Continuous compliance.** You must demonstrate continuous compliance with the standards that apply to equipment leaks at onshore natural gas processing plants as required by § 60.5415c(i).
- (k) **Reporting.** You must perform the reporting requirements as specified in § 60.5420c(b)(1) and (10) through (12), as applicable, and § 60.5422c.
- (l) **Recordkeeping.** You must perform the recordkeeping requirements as specified in § 60.5420c(c)(7) and (9) through (12), as applicable, and § 60.5421c.

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§ 60.5401c What are the alternative GHG standards for process unit equipment designated facilities?

This section provides alternative standards for process unit equipment designated facilities located at an onshore natural gas processing plant. You may choose to comply with the standards in this section instead of the requirements in § 60.5400c. For purposes of the alternative standards provided in this section, you must comply with the requirements of paragraphs (a) through (m) of this section to reduce methane emissions from equipment leaks, except as provided in § 60.5402c.

a General standards. You must comply with the requirements in paragraph (b) of this section for each pump in light liquid service. You must comply with the requirements of paragraph (c) of this section for each pressure relief device in gas/vapor service. You must comply with the requirements in paragraph (d) of this section for each open-ended valve or line. You must comply with the requirements in paragraph (e) of this section for each closed vent system and control device used to comply with equipment leak provisions in this section. You must comply with paragraph (f) of this section for each valve in gas/vapor or light liquid service. You must comply with paragraph (g) of this section for each pump, valve, and connector in heavy liquid service and pressure relief device in light liquid or heavy liquid service. You must comply with paragraph (h) of this section for each connector in gas/vapor and light liquid service. You must make repairs as specified in paragraph (i) of this section. You must demonstrate initial compliance with the standards as specified in paragraph (j) of this section. You must demonstrate continuous compliance with the standards as specified in paragraph (k) of this section. You must perform the reporting requirements as specified in paragraph (l) of this section. You must perform the recordkeeping requirements as required in paragraph (m) of this section.

(1) Each piece of equipment is presumed to have the potential to emit methane unless an owner or operator demonstrates that the piece of equipment does not have the potential to emit methane. For a piece of equipment to be considered not to have the potential to emit methane, the methane content of a gaseous stream must be below detection limits using Method 18 of appendix A-6 to this part. Alternatively, if the piece of equipment is in wet gas service, you may choose to determine the methane content of the stream is below the detection limit of the methods described in ASTM E168-16(R2023), E169-16(R2022), or E260-96 (all incorporated by reference, see § 60.17).

(2) [Reserved]

b Pumps in light liquid service. You must monitor each pump in light liquid service monthly to detect leaks by the methods specified in § 60.5406c, except as provided in paragraphs (b)(2) through (6) of this section. A leak is defined as an instrument reading of 2,000 ppmv or greater. A pump that begins operation in light liquid service after the initial startup date for the process unit must be monitored for the first time within 30 days after the end of its startup period, except for a pump that replaces a leaking pump and except as provided in paragraphs (b)(2) through (6) of this section.

(1) In addition to the requirements in paragraph (b) of this section, you must conduct weekly visual inspections of all pumps in light liquid service for indications of liquids dripping from the pump seal. If there are indications of liquids dripping from the pump seal, you must follow the procedure specified in either paragraph (b)(1)(i) or (ii) of this section.

(i) Monitor the pump within 5 days using the methods specified in § 60.5406c. A leak is defined as an instrument reading of 2,000 ppmv or greater.

(ii) Designate the visual indications of liquids dripping as a leak, and repair the leak as specified in paragraph (i) of this section.

(2) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements in paragraph (b) of this section, provided the requirements specified in paragraphs (b)(2)(i) through (v) of this section are met.

(i) Each dual mechanical seal system meets the requirements of paragraphs (b)(2)(i)(A), (B), or (C) of this section.

(A) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

- (B) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of paragraph (e) of this section; or
 - (C) Equipped with a system that purges the barrier fluid into a process stream with zero methane emissions to the atmosphere.
 - (ii) The barrier fluid system is in heavy liquid service or does not have the potential to emit methane.
 - (iii) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.
 - (iv) Each pump is checked according to the requirements in paragraph (b)(1) of this section.
 - (v) Each sensor meets the requirements in paragraphs (b)(2)(v)(A) through (C) of this section.
 - (A) Each sensor as described in paragraph (b)(2)(iii) of this section is checked daily or is equipped with an audible alarm.
 - (B) You determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
 - (C) If the sensor indicates failure of the seal system, the barrier fluid system, or both, based on the criterion established in paragraph (b)(2)(v)(B) of this section, a leak is detected.
- (3) Any pump that is designated, as described in § 60.5421c(b)(12), for no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, is exempt from the requirements of paragraphs (b), (b)(1), and (b)(2) of this section if the pump:
 - (i) Has no externally actuated shaft penetrating the pump housing;
 - (ii) Is demonstrated to be operating with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background as measured by the methods specified in § 60.5406c; and
 - (iii) Is tested for compliance with paragraph (b)(3)(ii) of this section initially upon designation, annually, and at other times requested by the Administrator.
- (4) If any pump is equipped with a closed vent system capable of capturing and transporting any leakage from the seal or seals to a process, fuel gas system, or a control device that complies with the requirements of paragraph (e) of this section, it is exempt from paragraphs (b) introductory text and (b)(1) through (3) of this section, and the repair requirements of paragraph (i) of this section.
- (5) Any pump that is designated, as described in § 60.5421c(b)(13), as an unsafe-to-monitor pump is exempt from the monitoring and inspection requirements of paragraphs (b) introductory text, (b)(1), and (b)(2)(iv) and (v) of this section if the conditions in paragraph (b)(5)(i) and (ii) are met.
 - (i) You demonstrate that the pump is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (b) of this section; and

(ii) You have a written plan that requires monitoring of the pump as frequently as practicable during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable, and you repair the equipment according to the procedures in paragraph (i) of this section if a leak is detected.

(6) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirements in paragraph (b)(1) and (b)(2)(iv) of this section, and the daily requirements of paragraph (b)(2)(v) of this section, provided that each pump is visually inspected as often as practicable and at least monthly.

(c) **Pressure relief devices in gas/vapor service.** You must monitor each pressure relief device quarterly using the methods specified in § 60.5406c. A leak is defined as an instrument reading of 500 ppmv or greater above background.

(1) In addition to the requirements in paragraph (c) of this section, after each pressure release, you must monitor each pressure relief device within 5 calendar days after each pressure release to detect leaks. A leak is detected if an instrument reading of 500 ppmv or greater is provided using the methods specified in § 60.5406c(b).

(2) Any pressure relief device that is located in a nonfractionating plant that is monitored only by non-plant personnel may be monitored after a pressure release the next time the monitoring personnel are onsite, or within 30 calendar days after a pressure release, whichever is sooner, instead of within 5 calendar days as specified in paragraph (c)(1) of this section.

(3) No pressure relief device described in paragraph (c)(2) of this section may be allowed to operate for more than 30 calendar days after a pressure release without monitoring.

(4) Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in paragraph (e) of this section is exempt from the requirements of paragraphs (c) introductory text and (c)(1) of this section.

(5) Pressure relief devices equipped with a rupture disk are exempt from the requirements of paragraphs (c)(1) and (2) of this section provided you install a new rupture disk upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in paragraph (i)(6) of this section.

(d) **Open-ended valves or lines.** Each open-ended valve or line must be equipped with a cap, blind flange, plug, or a second valve, except as provided in paragraphs (d)(4) and (5) of this section. The cap, blind flange, plug, or second valve must seal the open end of the valve or line at all times except during operations requiring process fluid flow through the open-ended valve or line.

(1) If evidence of a leak is found at any time by AVO, or any other detection method, a leak is detected and must be repaired in accordance with paragraph (i) of this section. A leak is defined as an instrument reading of 500 ppmv or greater if Method 21 of appendix A-7 to this part is used.

(2) Each open-ended valve or line equipped with a second valve must be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(3) When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall remain closed at all other times.

- (4) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of paragraphs (d), and (d)(1) through (3) of this section.
- (5) Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block-and-bleed system as specified in paragraphs (d) introductory text and (d)(2) and (3) of this section are exempt from the requirements of this section.
- (e) **Closed vent systems and control devices.** Closed vent systems used to comply with the equipment leak provisions of this section must comply with the requirements in §§ 60.5411c and 60.5416c. Control devices used to comply with the equipment leak provisions of this section must comply with the requirements in §§ 60.5412c, 60.5415c(e), and 60.5417c.
- (f) **Valves in gas/vapor and light liquid service.** You must monitor each valve in gas/vapor and in light liquid service quarterly to detect leaks by the methods specified in § 60.5406c, except as provided in paragraphs (f)(3) through (5) of this section.
 - (1) A valve that begins operation in gas/vapor service or in light liquid service after the initial startup date for the process unit must be monitored for the first time within 90 days after the end of its startup period to ensure proper installation, except for a valve that replaces a leaking valve and except as provided in paragraphs (f)(3) through (5) of this section.
 - (2) An instrument reading of 500 ppmv or greater is a leak. You must repair each leaking valve according to the requirements in paragraph (i) of this section.
 - (3) Any valve that is designated, as described in § 60.5421c(b)(12), for no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, is exempt from the monitoring requirements of paragraph (f) of this section if the valve:
 - (i) Has no externally actuating mechanism in contact with the process fluid;
 - (ii) Is operated with emissions less than 500 ppmv above background as determined by the methods specified in § 60.5406c; and
 - (iii) Is tested for compliance with paragraph (f)(3)(ii) of this section initially upon designation, annually, and at other times requested by the Administrator.
 - (4) Any valve that is designated, as described in § 60.5421c(b)(13), as an unsafe-to-monitor valve is exempt from the monitoring requirements of paragraph (f) of this section if the requirements in paragraphs (f)(4)(i) and (ii) of this section are met.
 - (i) You demonstrate that the valve is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (f) of this section; and
 - (ii) You have a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable, and you repair the equipment according to the procedures in paragraph (i) of this section if a leak is detected.
 - (5) Any valve that is designated, as described in § 60.5421c(b)(14), as a difficult-to-monitor valve is exempt from the monitoring requirements of paragraph (f) of this section if the requirements in paragraph (f)(5)(i) through (iii) of this section are met.

- (i) You demonstrate that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.
- (ii) The process unit within which the valve is located has less than 3.0 percent of its total number of valves designated as difficult-to-monitor.
- (iii) You have a written plan that requires monitoring of the at least once per calendar year.

(g) ***Pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service.*** If evidence of a potential leak is found at any time by AVO, or any other detection method, you must comply with either paragraph (g)(1) or (2) of this section.

- (1) You must monitor the equipment within 5 calendar days by the method specified in § 60.5406c and repair any leaks detected according to paragraph (i) of this section. An instrument reading of 10,000 ppmv or greater is defined as a leak.
- (2) You must designate the AVO, or other indication of a leak as a leak and repair the leak according to paragraph (i) of this section.

(h) ***Connectors in gas/vapor service and in light liquid service.*** You must initially monitor all connectors in the process unit for leaks by the later of either 12 months after the compliance date or 12 months after initial startup. If all connectors in the process unit have been monitored for leaks prior to the compliance date, no initial monitoring is required provided either no process changes have been made since the monitoring or the owner or operator can determine that the results of the monitoring, with or without adjustments, reliably demonstrate compliance despite process changes. If required to monitor because of a process change, you are required to monitor only those connectors involved in the process change.

(1) You must monitor all connectors in gas/vapor service and in light liquid service annually, except as provided in paragraph (e) of this section or paragraph (h)(2) of this section.

(2) Any connector that is designated, as described in § 60.5421c(b)(13), as an unsafe-to-monitor connector is exempt from the requirements of paragraphs (h) and (h)(1) of this section if the requirements of paragraphs (h)(2)(i) and (ii) of this section are met.

- (i) You demonstrate the connector is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraphs (h) and (h)(1) of this section; and
- (ii) You have a written plan that requires monitoring of the connector as frequently as practicable during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable, and you repair the equipment according to the procedures in paragraph (i) of this section if a leak is detected.

(3) Inaccessible, ceramic, or ceramic-line connectors.

- (i) Any connector that is inaccessible or that is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined), is exempt from the monitoring requirements of paragraphs (h) and (h)(1) of this section, from the leak repair requirements of paragraph (i) of this section, and from the recordkeeping and reporting requirements of §§ 60.5421c and 60.5422c. An inaccessible connector is one that meets any of the specifications in paragraphs (h)(3)(i)(A) through (F) of this section, as applicable.

(A) Buried.

- (B) Insulated in a manner that prevents access to the connector by a monitor probe.
 - (C) Obstructed by equipment or piping that prevents access to the connector by a monitor probe.
 - (D) Unable to be reached from a wheeled scissor-lift or hydraulic-type scaffold that would allow access to connectors up to 7.6 meters (25 feet) above the ground.
 - (E) Inaccessible because it would require elevating monitoring personnel more than 2 meters (7 feet) above a permanent support surface or would require the erection of scaffold.
 - (F) Not able to be accessed at any time in a safe manner to perform monitoring. Unsafe access includes, but is not limited to, the use of a wheeled scissor-lift on unstable or uneven terrain, the use of a motorized man-lift basket in areas where an ignition potential exists, or access would require near proximity to hazards such as electrical lines or would risk damage to equipment.
- (ii) If any inaccessible, ceramic, or ceramic-lined connector is observed by AVO, or other means to be leaking, the indications of a leak to the atmosphere by AVO or other means must be eliminated as soon as practicable.
- (4) Connectors which are part of an instrumentation systems and inaccessible, ceramic, or ceramic-lined connectors meeting the provisions of paragraph (h)(3) of this section, are not subject to the recordkeeping requirements of § 60.5421c(b)(1).
- (i) **Repair requirements.** When a leak is detected, comply with the requirements of paragraphs (i)(1) through (5) of this section, except as provided in paragraph (i)(6) of this section.
- (1) A weatherproof and readily visible identification tag, marked with the equipment identification number, must be attached to the leaking equipment. The identification tag on the equipment may be removed after it has been repaired.
- (2) A first attempt at repair must be made as soon as practicable, but no later than 5 calendar days after the leak is detected.
- (i) First attempts at repair for pumps in light liquid or heavy liquid service include, but are not limited to, the practices described in paragraphs (i)(2)(i)(A) and (B) of this section, where practicable.
- (A) Tightening the packing gland nuts.
 - (B) Ensuring that the seal flush is operating at design pressure and temperature.
- (ii) For each valve where a leak is detected, you must comply with paragraphs (i)(2)(ii)(A), (B) or (C), and (D) of this section.
- (A) Repack the existing valve with a low-e packing.
 - (B) Replace the existing valve with a low-e valve; or
 - (C) Perform a drill and tap repair with a low-e injectable packing.
 - (D) An owner or operator is not required to utilize a low-e valve or low-e packing to replace or repack a valve if the owner or operator demonstrates that a low-e valve or low-e packing is not technically feasible. Low-e valve or low-e packing that is not suitable for its intended use is considered to be technically infeasible. Factors that may be considered in

determining technical infeasibility include: retrofit requirements for installation (e.g., re-piping or space limitation), commercial unavailability for valve type, or certain instrumentation assemblies.

- (3) Repair of leaking equipment must be completed within 15 calendar days after detection of each leak, except as provided in paragraphs (i)(4), (5) and (6) of this section.
- (4) If the repair for visual indications of liquids dripping for pumps in light liquid service can be made by eliminating visual indications of liquids dripping, you must make the repair within 5 calendar days of detection.
- (5) If the repair for AVO or other indication of a leak for open-ended lines or valves; pumps, valves, or connectors in heavy liquid service; or pressure relief devices in light liquid or heavy liquid service can be made by eliminating the AVO, or other indication of a potential leak, you must make the repair within 5 calendar days of detection.
- (6) Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 calendar days is technically infeasible without a process unit shutdown or as specified in paragraphs (i)(6)(i) through (v) of this section. Repair of this equipment shall occur before the end of the next process unit shutdown. Monitoring to verify repair must occur within 15 calendar days after startup of the process unit.
 - (i) Delay of repair of equipment will be allowed for equipment which is isolated from the process, and which does not have the potential to emit methane.
 - (ii) Delay of repair for valves and connectors will be allowed if the conditions in paragraphs (i)(6)(ii)(A) and (B) are met.
 - (A) You demonstrate that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and
 - (B) When repair procedures are conducted, the purged material is collected and destroyed or recovered in a control device complying with paragraph (e) of this section.
 - (iii) Delay of repair for pumps will be allowed if the conditions in paragraphs (i)(6)(iii)(A) and (B) of this section are met.
 - (A) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and
 - (B) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.
 - (iv) If delay of repair is required to repack or replace the valve, you may use delay of repair. Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
 - (v) When delay of repair is allowed for a leaking pump, valve, or connector that remains in service, the pump, valve, or connector may be considered to be repaired and no longer subject to delay of repair requirements if two consecutive monthly monitoring results show no leak remains.

- (j) **Initial compliance.** You must demonstrate initial compliance with the standards that apply to equipment leaks at onshore natural gas processing plants as required by § 60.5410c(g).
- (k) **Continuous compliance.** You must demonstrate continuous compliance with the standards that apply to equipment leaks at onshore natural gas processing plants as required by § 60.5415c(i).
- (l) **Reporting.** You must perform the reporting requirements as specified in § 60.5420c(b)(1) and (10) through (12), as applicable, and § 60.5422c.
- (m) **Recordkeeping.** You must perform the recordkeeping requirements as specified in § 60.5420c(c)(7) and (9) through (12), as applicable, and § 60.5421c.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62923, Aug. 1, 2024]

§ 60.5402c What are the exceptions to the GHG standards for process unit equipment designated facilities?

- (a) You may comply with the following exceptions to the provisions of §§ 60.5400c(a) and 60.5401c(a), as applicable.
- (b) Pumps in light liquid service, pressure relief devices in gas/vapor service, valves in gas/vapor and light liquid service, and connectors in gas/vapor service and in light liquid service that are located at a nonfractionating plant that does not have the design capacity to process 283,200 standard cubic meters per day (scmd) (10 million standard cubic feet per day) or more of field gas may comply with the exceptions specified in paragraphs (b)(1) or (2) of this section.
 - (1) You are exempt from bimonthly OGI monitoring as required under § 60.5400c(b).
 - (2) You are exempt from the routine Method 21 of appendix A-7 to this part monitoring requirements of § 60.5401c(b), (c), (f), and (h), if complying with the alternative standards of § 60.5401c.
- (c) Pumps in light liquid service, pressure relief devices in gas/vapor service, valves in gas/vapor and light liquid service, and connectors in gas/vapor service and in light liquid service within a process unit that is located in the Alaskan North Slope are exempt from the monitoring requirements § 60.5400c(b) and (c) and § 60.5401c(b), (c), (f) and (h).
- (d) You may use the following provisions instead of § 60.5406c(d):
 - (1) Equipment is in heavy liquid service if the weight percent evaporated is 10 percent or less at 150 degrees Celsius (302 degrees Fahrenheit) as determined by ASTM D86-96 (incorporated by reference, see § 60.17).
 - (2) Equipment is in light liquid service if the weight percent evaporated is greater than 10 percent at 150 °Celsius (302 °F) as determined by ASTM D86-96 (incorporated by reference, see § 60.17).
- (e) Equipment that is in vacuum service, except connectors in gas/vapor and light liquid service, is excluded from the requirements of § 60.5400c(b) through (g), if it is identified as required in § 60.5421c(b)(15). Equipment that is in vacuum service is excluded from the requirements of § 60.5401c(b) through (g) if it is identified as required in § 60.5421c(b)(15).
- (f) Equipment that you designate as having the potential to emit methane less than 300 hr/yr is excluded from the requirements of § 60.5400c(b) through (g) and § 60.5401c(b) through (h), if it is identified as required in § 60.5421c(b)(16) and it meets any of the conditions specified in paragraphs (f)(1) through (3) of this section.

- (1) The equipment has the potential to emit methane only during startup and shutdown.
- (2) The equipment has the potential to emit methane only during process malfunctions or other emergencies.
- (3) The equipment is backup equipment that has the potential to emit methane only when the primary equipment is out of service.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62924, Aug. 1, 2024]

MODEL RULE—TEST METHODS AND PERFORMANCE TESTING

§ 60.5405_c What test methods and procedures must I use for my centrifugal compressor and reciprocating compressor designated facilities?

- (a) You must use one of the methods described in paragraphs (a)(1) and (2) of this section to screen for emissions or leaks from the reciprocating compressor rod packing when complying with § 60.5393_c(b)(1)(iii), (b)(2)(i), or (c)(2)(iv), and from the compressor dry and wet seal vents when complying with § 60.5392_c(a)(2)(i)(A).
 - (1) **Optical gas imaging instrument.** Use an optical gas imaging instrument for equipment leak detection as specified in either paragraph (a)(1)(i) or (ii) of this section. For the purposes of paragraphs (a)(1)(i) and (ii) of this section, any visible emissions observed by the optical gas imaging instrument from reciprocating rod packing or compressor dry or wet seal vent is a leak.
 - (i) **Optical gas imaging instrument as specified in appendix K of this part.** For reciprocating compressor and centrifugal compressor designated facilities with wet or dry seals located at onshore natural gas processing plants, use an optical gas imaging instrument to screen for emissions from reciprocating rod packing or centrifugal compressor dry or wet seal vent in accordance with the protocol specified in appendix K of this part.
 - (ii) **Optical gas imaging instrument as specified in § 60.5397_c of this subpart.** For reciprocating compressor and centrifugal compressor designated facilities with wet or dry seals located at centralized production facilities, compressor stations, or other location that is not an onshore natural gas processing plant, use an optical gas imaging instrument to screen for emissions from reciprocating rod packing or centrifugal compressor with wet or dry seals in accordance with the elements of § 60.5397_c(c)(7).
 - (2) **Method 21.** Use Method 21 in appendix A-7 to this part according to § 60.5406_c(b)(1) and (2). For the purposes of this section, an instrument reading of 500 ppmv above background or greater is a leak.
- (b) You must determine natural gas volumetric flow rate using a rate meter which meets the requirement in Method 2D in appendix A-1 to this part. Rate meters must be calibrated on an annual basis according to the requirements in Method 2D.
- (c) You must use a high-volume sampler to measure emissions of the reciprocating compressor rod packing or centrifugal compressor dry or wet seal vent in accordance with paragraphs (c)(1) through (7) of this section.

- (1) You must use a high-volume sampler designed to capture the entirety of the emissions from the applicable vent and measure the entire range of methane concentrations being emitted as well as the total volumetric flow at standard conditions. You must develop a standard operating procedure for this device and document these procedures in the appropriate monitoring plan. In order to get reliable results, persons using this device should be knowledgeable in its operation and the requirements in this section.
- (2) This procedure may involve hazardous materials, operations, and equipment. This procedure may not address all of the safety problems associated with its use. It is the responsibility of the user of this procedure to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to performing this procedure.
- (3) The high-volume sampler must include a methane gas sensor(s) which meets the requirements in paragraphs (c)(3)(i) through (iii) of this section.
 - (i) The methane sensor(s) must be selective to methane with minimal interference, less than 2.5 percent for the sum of responses to other compounds in the gas matrix. You must document the minimal interference through empirical testing or through data provided by the manufacturer of the sensor.
 - (ii) The methane sensor(s) must have a measurement range over the entire expected range of concentrations.
 - (iii) The methane sensor(s) must be capable of taking a measurement once every second, and the data system must be capable of recording these results for each sensor at all times during operation of the sampler.
- (4) The high-volume sampler must be designed such that it is capable of sampling sufficient volume in order to capture all emissions from the applicable vent. Your high-volume sampler must include a flow measurement sensor(s) which meets the requirements of paragraphs (c)(4)(i) and (ii) of this section.
 - (i) The flow measurement sensor must have a measurement range over the entire expected range of flow rates sampled. If needed multiple sensors may be used to capture the entire range of expected flow rates.
 - (ii) The flow measurement sensor(s) must be capable of taking a measurement once every second, and the data system must be capable of recording these results for each sensor at all times during operation of the sampler.
- (5) You must calibrate your methane sensor(s) according to the procedures in paragraphs (c)(5)(i)(A) and (B) of this section, and flow measurement sensors must be calibrated according to the procedures in paragraph (c)(5)(ii) of this section.
 - (i) For Methane sensor calibration:
 - (A) Initially and on a semi-annual basis, determine the linearity at four points through the measurement range for each methane sensor using methane gaseous calibration cylinder standards. At each point, the difference between the cylinder value and the sensor reading must be less than 5 percent of the respective calibration gas value. If the sensor does not meet this requirement, perform corrective action on the sensor, and do not use the sampler until these criteria can be met.

- Equation 1 to paragraph (c)(6)(iv)**

$$Q = V \left(\frac{\text{CH4}_S - \text{CH4}_B}{10000000} \right)$$

CH_4_s = methane sample concentration, ppmv

V = Average flow rate of the sampler, scfm

Q = Methane emission rate, scfm

(v) You must collect at least three separate one-minute measurements and determine the average leak rate. The relative percent difference of these three separate samples should be less than 10 percent.

(7) If the measured natural gas flow determined as specified in paragraph (c)(6) of this section exceeds 70.0 percent of the manufacturer's reported maximum sampling flow rate you must either use a temporary or permanent flow meter according to paragraph (b) of this section or use another method meeting the requirements in paragraph (d) of this section to determine the leak or flow rate.

(d) As an alternative to a high-volume sampler, you may use any other method that has been validated in accordance with the procedures specified in Method 301 in appendix A to 40 CFR part 63, subject to Administrator approval, as specified in § 60.8(b).

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62924, Aug. 1, 2024]

§ 60.5406c What test methods and procedures must I use for my process unit equipment designated facilities?

(a) In conducting the performance tests required in § 60.8, you must use as reference methods and procedures the test methods in appendix A to this part or other methods and procedures as specified in this section, except as provided in § 60.8(b).

(b) You must determine compliance with the standards in § 60.5401c as follows:

(1) Method 21 of appendix A-7 to this part shall be used to determine the presence of leaking sources. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21 of appendix A-7 to this part. The following calibration gases shall be used:

(i) Zero air (less than 10 ppmv of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration no more than 2,000 ppmv greater than the leak definition concentration of the equipment monitored. If the monitoring instrument's design allows for multiple calibration scales, then the lower scale shall be calibrated with a calibration gas that is no higher than 2,000 ppmv above the concentration specified as a leak, and the highest scale shall be calibrated with a calibration gas that is approximately or equal to 10,000 ppmv. If only one scale on an instrument will be used during monitoring, you need not calibrate the scales that will not be used during that day's monitoring.

(iii) Verification that your monitoring equipment meets the requirements specified in Section 6.0 of Method 21 of appendix A-7 to this part. For purposes of instrument capability, the leak definition shall be 500 ppmv or greater methane using a FID-based instrument for valves and connectors and 2,000 ppmv methane or greater for pumps. If you wish to use an analyzer other than a FID-based instrument, you must develop a site-specific leak definition that would be equivalent to 500 ppmv methane using a FID-based instrument (e.g., 10.6 eV PID with a specified isobutylene concentration as the leak definition would provide equivalent response to your compound of interest).

(2) The instrument must be calibrated before use each day of its use by the procedures specified in Method 21 of appendix A-7 to this part. At minimum, you must also conduct precision tests at the interval specified in Method 21 of appendix A-7 to this part, Section 8.1.2, and a calibration drift assessment at the end of each monitoring day. The calibration drift assessment must be conducted as specified in paragraph (b)(2)(i) of this section. Corrective action for drift assessments is specified in paragraphs (b)(2)(ii) and (iii) of this section.

(i) Check the instrument using the same calibration gas that was used to calibrate the instrument before use. Follow the procedures specified in Method 21 of appendix A-7 to this part, Section 10.1, except do not adjust the meter readout to correspond to the calibration gas value. If multiple scales are used, record the instrument reading for each scale used. Divide the arithmetic difference of the initial and post-test calibration response by the corresponding calibration gas value for each scale and multiply by 100 to express the calibration drift as a percentage.

(ii) If a calibration drift assessment shows a negative drift of more than 10 percent, then all equipment with instrument readings between the fugitive emission definition multiplied by (100 minus the percent of negative drift) divided by 100 and the fugitive emission definition that was monitored since the last calibration must be re-monitored.

(iii) If any calibration drift assessment shows a positive drift of more than 10 percent from the initial calibration value, then, at the owner/operator's discretion, all equipment with instrument readings above the fugitive emission definition and below the fugitive emission definition multiplied by (100 plus the percent of positive drift) divided by 100 monitored since the last calibration may be re-monitored.

(c) You shall determine compliance with the no detectable emission standards in § 60.5401c(b) and (f) as specified in paragraphs (c)(1) and (2) of this section.

(1) The requirements of paragraph (b) of this section shall apply.

(2) Method 21 of appendix A-7 to this part shall be used to determine the background level. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppmv for determining compliance.

(d) You shall demonstrate that a piece of equipment is in light liquid service by showing that all of the following conditions apply:

(1) The vapor pressure of one or more of the organic components is greater than 0.3 kPa at 20 °C (1.2 in. H₂O at 68 °F). Standard reference texts or ASTM D2879-83, -96, or -97 (incorporated by reference, see § 60.17) shall be used to determine the vapor pressures.

(2) The total concentration of the pure organic components having a vapor pressure greater than 0.3 kPa at 20 °C (1.2 in. H₂O at 68 °F) is equal to or greater than 20 percent by weight.

(3) The fluid is a liquid at operating conditions.

(e) Samples used in conjunction with paragraphs (d) and (e) of this section shall be representative of the process fluid that is contained in or contacts the equipment, or the gas being combusted in the flare.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62924, Aug. 1, 2024]

MODEL RULE—INITIAL COMPLIANCE REQUIREMENTS

§ 60.5410c How do I demonstrate initial compliance with the standards for each of my designated facilities?

- (a) *Gas well liquids unloading standards for well designated facility.*** To demonstrate initial compliance with the GHG standards for each gas well liquids unloading operation conducted at your well designated facility as required by § 60.5390c, you must comply with paragraphs (a)(1) through (4) of this section, as applicable.

 - (1) You must submit the initial annual report for your well designated facility as required in § 60.5420c(b)(1) and (2).
 - (2) If you comply by using a liquids unloading technology or technique that does not vent to the atmosphere according to § 60.5390c(a)(1), you must maintain the records specified in § 60.5420c(c)(1)(i).
 - (3) If you comply by using a liquids unloading technology or technique that vents to the atmosphere according to § 60.5390c(a)(2), (b) and (c), you must comply with paragraphs (a)(3)(i) and (ii) of this section.

 - (i) Employ best management practices to minimize venting of methane emissions as specified in § 60.5390c(c) for each gas well liquids unloading operation.
 - (ii) Maintain the records specified in § 60.5420c(c)(1)(ii).
 - (4) If you comply by using § 60.5390c(g), you must comply with paragraphs (b)(4)(i) through (vi) of this section.

 - (i) Reduce methane emissions by 95.0 percent or greater and as demonstrated by the requirements of § 60.5413c.
 - (ii) Install a closed vent system that meets the requirements of § 60.5411c(a) and (c) to capture all emissions and route all emissions to a control device that meets the conditions specified in § 60.5412c.
 - (iii) Conduct an initial performance test as required in § 60.5413c within 180 days after the initial gas well liquids unloading operation or install a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e), and comply with the continuous compliance requirements of § 60.5415c(e).
 - (iv) Conduct the initial inspections required in § 60.5416c(a) and (b).
 - (v) Install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) through (i), as applicable.
 - (vi) Maintain the records specified in § 60.5420c(c)(1)(iii), (c)(7), and (c)(9) through (12), as applicable and submit the reports as required by § 60.5420c(b)(10) through (12), as applicable.
 - (b) *Associated gas well standards for well designated facility.*** To demonstrate initial compliance with the GHG standards for each associated gas well as required by § 60.5391c, you must comply with paragraphs (b)(1) through (5) of this section.

- (1) If you comply with the requirements of § 60.5391c(a), you must maintain the records specified in § 60.5420c(c)(2)(i) and (ii), as applicable, and submit the information required by § 60.5420c(b)(3)(i) through (v) in your initial annual report.
- (2) If you comply with § 60.5391c(b) because you have demonstrated that annual methane emissions are 40 tons per year or less, you must document the calculation of annual methane emissions determined in accordance with § 60.5391c(e)(1) and submit them in the initial annual report as required by paragraph (b)(5) of this section, and comply with paragraphs (b)(4) of this section.
- (3) If you comply with § 60.5391c(b) because you have demonstrated that it is not feasible to comply with § 60.5391c(a)(1), (2), (3), or (4) due to technical reasons, document the initial demonstration and certification of the technical reason in accordance with § 60.5391c(b)(2), maintain the documentation in accordance with § 60.5391c(b)(2)(iv), and comply with paragraphs (b)(4) of this section. Submit this documentation in the initial annual report as required by paragraph (b)(5) of this section and comply with paragraph (b)(4) of this section.
- (4) If you comply with § 60.5391c(b) or (c), you must comply with paragraphs (b)(4)(i) through (vi) of this section.
 - (i) Reduce methane emissions by 95.0 percent or greater and as demonstrated by the requirements of § 60.5413c.
 - (ii) Install a closed vent system that meets the requirements of § 60.5411c(a) and (c) to capture the associated gas and route the captured associated gas to a control device that meets the conditions specified in § 60.5412c.
 - (iii) Conduct an initial performance test as required in § 60.5413c within 180 days after initial startup or by 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later, or install a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e) and you must comply with the continuous compliance requirements of § 60.5415c(e).
 - (iv) Conduct the initial inspections required in § 60.5416c(a) and (b).
 - (v) Install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) through (i), as applicable.
 - (vi) Maintain the records specified in § 60.5420c(c)(2)(ii) and (v) and (c)(7) and (9) through (12), as applicable.
- (5) You must submit the initial annual report for your associated gas well at a well designated facility as required in § 60.5420c(b)(1), (3), and (10) through (12), as applicable.
- (c) **Centrifugal compressor designated facility.** To demonstrate initial compliance with the GHG standards in § 60.5392c(a)(1) and (2) for your centrifugal compressors (including both wet seal centrifugal compressors and dry seal centrifugal compressors) that require volumetric flow rate measurements, you must comply with paragraphs (c)(1), (6), and (7) of this section. Alternatively, if you comply with the GHG standards for your wet seal and dry seal centrifugal compressor designated facility by reducing methane emissions from each centrifugal compressor wet seal fluid degassing system by 95.0 percent in accordance with § 60.5392c(a)(3) and (4), you must achieve initial compliance by complying with paragraphs (c)(2) through (7) of this section. If you comply with the GHG standards for your wet seal and dry seal centrifugal

compressor designated facility by routing emissions from the wet seal fluid degassing system through a closed vent system to a process in accordance with § 60.5392c(a)(5), you must achieve initial compliance by complying with paragraphs (c)(2), (4), (6), and (7) of this section.

- (1) You must maintain the volumetric flow rates for your centrifugal compressors as specified in paragraphs (c)(1)(i) through (iii) of this section, as applicable. You must conduct your initial annual volumetric measurement as required by § 60.5392c(a)(1).
 - (i) For your wet seal centrifugal compressors (including self-contained wet seal centrifugal compressors), you must maintain the volumetric flow rate at or below 3 scfm per seal.
 - (ii) For your Alaska North Slope centrifugal compressor equipped with sour seal oil separator and capture system, you must maintain the volumetric flow rate at or below 9 scfm per seal.
 - (iii) For your dry seal compressor, you must maintain the volumetric flow rate at or below 10 scfm per seal.
- (2) If you use a control device to reduce emissions to comply with § 60.5392c(a)(4) or route the emissions to a process to comply with § 60.5392c(a)(5), you must equip the wet seal fluid degassing system or dry seal system with a cover that meets the requirements of § 60.5411c(b) and route the captured vapors through a closed vent system that meets the requirements of § 60.5411c(a) and (c) and is routed to a control device or process.
- (3) If you use a control device to comply with § 60.5392c(a)(4), you must conduct an initial performance test as required in § 60.5413c within 180 days after initial startup, or by 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later, or install a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e) and you must comply with the continuous compliance requirements of § 60.5415c(e).
- (4) If you use a control device to comply with § 60.5392c(a)(4) or comply with § 60.5392c(a)(5) by routing to a process, you must conduct the initial inspections required in § 60.5416c(a) and (b).
- (5) If you use a control device to comply with § 60.5392c(a)(4), you must install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) through (i), as applicable.
- (6) You must submit the initial annual report for your centrifugal compressor designated facility as required in § 60.5420c(b)(1) and (4) and (b)(10) through (12), as applicable.
- (7) You must maintain the records as specified in § 60.5420c(c)(3) and (c)(7) through (12), as applicable.

d. **Reciprocating compressor designated facility.** To demonstrate initial compliance with the GHG standards for each reciprocating compressor designated facility as required by § 60.5393c, you must comply with paragraphs (d)(1) through (7) of this section.

- (1) If you comply with § 60.5393c(a) by maintaining volumetric flow rate at or below 2 scfm per cylinder (or a combined cylinder emission flow rate greater than the number of compression cylinders multiplied by 2 scfm) as required by § 60.5393c(a), you must maintain volumetric flow rate at or below 2 scfm and you must conduct your initial annual volumetric flow rate measurement as required by § 60.5393c(a)(1).

- (2) If you comply with § 60.5393c by collecting the methane emissions from your reciprocating compressor rod packing using a rod packing emissions collection system to a process as required by § 60.5393c(d)(1), you must equip the reciprocating compressor with a cover that meets the requirements of § 60.5411c(b), route emissions to a process through a closed vent system that meets the requirements of § 60.5411c(a) and (c), and you must conduct the initial inspections required in § 60.5416c(a) and (b).
- (3) If you comply with § 60.5393c(d) by collecting emissions from your rod packing emissions collection system by using a control device to reduce methane emissions by 95.0 percent as required by § 60.5393c(d)(2), you must equip the reciprocating compressor with a cover that meets the requirements of § 60.5411c(b), route emissions to a control device that meets the conditions specified in § 60.5412c through a closed vent system that meets the requirements of § 60.5411c(a) and (c), and you must conduct the initial inspections required in § 60.5416c(a) and (b).
- (4) If you comply with § 60.5393c(d)(2), you must conduct an initial performance test as required in § 60.5413c within 180 days after initial startup, or by 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later, or install a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e) and you must comply with the continuous compliance requirements of § 60.5415c(e).
- (5) If you comply with § 60.5393c(d)(2), you must install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) through (i), as applicable.
- (6) You must submit the initial annual report for your reciprocating compressor as required in § 60.5420c(b)(1), (5), and (10) through (12), as applicable.
- (7) You must maintain the records as specified in § 60.5420c(c)(4) and (7) through (12), as applicable.

(e) **Process controller designated facility.** To demonstrate initial compliance with GHG emission standards for your process controller designated facility, you must comply with paragraphs (e)(1) through (5) of this section, as applicable. If you change compliance methods, you must also perform the applicable compliance demonstrations of paragraphs (e)(1) through (3) of this section again for the new compliance method, note the change in compliance method in the annual report required by § 60.5420c(b)(6)(iv), and maintain the records required by paragraph (e)(1)(i) or (ii) of this section, as applicable, for the new compliance method.

- (1) For process controller designated facilities complying with the requirements of § 60.5394c(a), you must demonstrate that your process controller designated facility does not emit any methane to the atmosphere by meeting the requirements of paragraphs (e)(1)(i) and (ii) of this section.
 - (i) If you comply by routing the emissions to a process, you must meet the requirements for closed vent systems specified in paragraph (e)(3) of this section.
 - (ii) If you comply by using a self-contained natural gas-driven process controller, you must conduct an initial no identifiable emissions inspection required by § 60.5416c(b).
- (2) For each process controller designated facility located at a site in Alaska that does not have access to electrical power, you must demonstrate initial compliance with § 60.5394c(b)(1) and (2) or with § 60.5394c(b)(3), as an alternative to complying with paragraph § 60.5394c(a) by meeting the requirements specified in (e)(2)(i) through (v) of this section for each process controller, as applicable.

- (i) For each process controller in the process controller designated facility operating with a bleed rate of less than or equal to 6 scfh, you must maintain records in accordance with § 60.5420c(c)(5)(iii)(A) that demonstrate the process controller is designed and operated to achieve a bleed rate less than or equal to 6 scfh.
- (ii) For each process controller in the process controller designated facility operating with a bleed rate greater than 6 scfh, you must maintain records that demonstrate that a controller with a higher bleed rate than 6 scfh is required based on a specific functional need for that controller as specified in § 60.5420c(c)(5)(iii)(B).
- (iii) For each intermittent vent process controller in the process controller designated facility you must demonstrate that each intermittent vent controller does not emit to the atmosphere during idle periods by conducting initial monitoring in accordance with § 60.5394c(b)(2)(ii).
- (iv) For each process controller designated facility that complies by reducing methane emissions from all controllers in the process controller designated facility by 95.0 percent in accordance with § 60.5394c(b)(3), you must comply with paragraphs (e)(2)(iv)(A) through (D) of this section.
 - (A) Reduce methane emissions by 95.0 percent or greater and as demonstrated by the requirements of § 60.5413c.
 - (B) Route all process controller designated facility emissions to a control device that meets the conditions specified in § 60.5412c through a closed vent system that meets the requirements specified in paragraph (e)(3) of this section.
 - (C) Conduct an initial performance test as required in § 60.5413c within 180 days after initial startup, or by 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later, or install a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e) and you must comply with the continuous compliance requirements of § 60.5415c(e).
 - (D) Install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) through (i), as applicable.
- (3) For each closed vent system used to comply with § 60.5394c, you must meet the requirements specified in paragraphs (e)(3)(i) and (ii) of this section.
 - (i) Install a closed vent system that meets the requirements of § 60.5411c(a) and (c).
 - (ii) Conduct the initial inspections of the closed vent system and bypasses, if applicable, as required in § 60.5416c(a) and (b).
- (4) You must submit the initial annual report for your process controller designated facility as required in § 60.5420c(b)(1) and (6).
- (5) You must maintain the records as specified in § 60.5420c(c)(5).
- (f) **Pump designated facility.** To demonstrate initial compliance with the GHG standards for your pump designated facility as required by § 60.5395c, you must comply with paragraphs (f)(1) through (4) of this section, as applicable. If you change compliance methods, you must also perform the applicable compliance demonstrations of paragraphs (f)(1) and (2) of this section again for the new compliance method, note the change in compliance method in the annual report required by § 60.5420c(b)(9)(v), and maintain the records required by paragraph (f)(4) of this section for the new compliance method.

- (1) For pump designated facilities complying with the requirements of § 60.5395c(a) or (b)(2) by routing emissions to a process, you must meet the requirements specified in paragraphs (f)(1)(ii) and (iv) of this section. For pump designated facilities complying with the requirements of § 60.5395c(b)(3), you must meet the requirements specified in paragraphs (f)(1)(i) through (v) of this section.
 - (i) Reduce methane emissions by 95.0 percent or greater and as demonstrated by the requirements of § 60.5413c.
 - (ii) Install a closed vent system that meets the requirements of § 60.5411c(a) and (c) to capture all emissions from all pumps in the pump designated facility and route all emissions to a process or control device that meets the conditions specified in § 60.5412c.
 - (iii) Conduct an initial performance test as required in § 60.5413c within 180 days after initial startup, or by 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later, or install a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e), and you must comply with the continuous compliance requirements of § 60.5415c(e).
 - (iv) Conduct the initial inspections of the closed vent system and bypasses, if applicable, as required in § 60.5416c(a) and (b).
 - (v) Install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) through (i), as applicable.
- (2) Submit the certifications specified in paragraphs (f)(2)(i) through (iii) of this section, as applicable.
 - (i) The certification required by § 60.5395c(b)(3) that there is no vapor recovery unit on site and that there is a control device on site, but it does not achieve a 95.0 percent emissions reduction.
 - (ii) The certification required by § 60.5395c(b)(4) that there is no control device or process available on site.
 - (iii) The certification required by § 60.5395c(b)(7)(i) that it is technically infeasible to capture and route the pump designated facility emissions to a process or an existing control device.
- (3) You must submit the initial annual report for your pump designated facility as specified in § 60.5420c(b)(1) and (9) through (12), as applicable.
- (4) You must maintain the records for your pump designated facility as specified in § 60.5420c(c)(7) and (9) through (12), as applicable, and (c)(14).
- (g) **Process unit equipment designated facility.** To achieve initial compliance with the GHG standards for process unit equipment designated facilities as required by § 60.5400c, you must comply with paragraphs (g)(1) through (4) and (11) through (15) of this section, unless you meet and comply with the exception in § 60.5402c(b), (e), or (f) or meet the exemption in § 60.5402c(c). If you comply with the GHG standards for process unit equipment designated facilities using the alternative standards in § 60.5401c, you must comply with paragraphs (g)(5) through (15) of this section, unless you meet and comply with the exemption in § 60.5402c(b) or (c) or the exception in § 60.5402c(e) or (f).
 - (1) You must conduct monitoring for each pump in light liquid service, pressure relief device in gas/vapor service, valve in gas/vapor or light liquid service and connector in gas/vapor or light liquid service as required by § 60.5400c(b).

- (2) You must conduct monitoring as required by § 60.5400c(c) for each pump in light liquid service.
- (3) You must conduct monitoring as required by § 60.5400c(d) for each pressure relief device in gas/vapor service.
- (4) You must comply with the equipment requirements for each open-ended valve or line as required by § 60.5400c(e).
- (5) You must conduct monitoring for each pump in light liquid service as required by § 60.5401c(b).
- (6) You must conduct monitoring for each pressure relief device in gas/vapor service as required by § 60.5401c(c).
- (7) You must comply with the equipment requirements for each open-ended valve or line as required by § 60.5401c(d).
- (8) You must conduct monitoring for each valve in gas/vapor or light liquid service as required by § 60.5401c(f).
- (9) You must conduct monitoring for each pump, valve, and connector in heavy liquid service and each pressure relief device in light liquid or heavy liquid service as required by § 60.5401c(g).
- (10) You must conduct monitoring for each connector in gas/vapor or light liquid service as required by § 60.5401c(h).
- (11) For each pump equipped with a dual mechanical seal system that degasses the barrier fluid reservoir to a process or a control device, each pump which captures and transports leakage from the seal or seals to a process or a control device, or each pressure relief device which captures and transports leakage through the pressure relief device to a process or a control device, you must meet the requirements of paragraph (g)(11)(i) through (vi) of this section.
 - (i) Reduce methane emissions by 95.0 percent or greater and as demonstrated by the requirements of § 60.5413c or route to a process.
 - (ii) Install a closed vent system that meets the requirements of § 60.5411c(a) and (c) to capture all emissions from each pump equipped with a dual mechanical seal system that degasses the barrier fluid reservoir, each pump which captures and transports leakage from the seal or seals, or each pressure relief device which captures and transports leakage through the pressure relief device and route all emissions to a process or to a control device that meets the conditions specified in § 60.5412c.
 - (iii) If routing to a control device, conduct an initial performance test as required in § 60.5413c within 180 days after initial startup, or by 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later, or install a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e), and you must comply with the continuous compliance requirements of § 60.5415c(e).
 - (iv) Conduct the initial inspections of the closed vent system and bypasses, if applicable, as required in § 60.5416c(a) and (b).
 - (v) Install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) through (i), as applicable.
 - (vi) Maintain the records as required by § 60.5420c(c)(7) and (c)(9) through (12), as applicable and submit the reports as required by § 60.5420c(b)(10) through (12), as applicable.

- (12) You must tag and repair each identified leak as required in § 60.5400c(h) or § 60.5401c(i), as applicable.
- (13) You must submit the notice required by § 60.5420c(a)(2).
- (14) You must submit the initial semiannual report and subsequent semiannual report as required by § 60.5422c.
- (15) You must maintain the records specified by § 60.5421c.

(h) **Storage vessel designated facility.** To achieve initial compliance with the GHG standards for each storage vessel designated facility as required by § 60.5396c, you must comply with paragraphs (h)(1) through (9) of this section. To achieve initial compliance with the GHG standards for each storage vessel designated facility that complies by using a floating roof in accordance with § 60.5396c(b)(2), you must comply with paragraph (h)(1) and (10) of this section.

- (1) You must determine the potential for methane emissions as specified in § 60.5386c(e)(2).
- (2) You must reduce methane emissions by 95.0 percent or greater according to § 60.5396c(a) and as demonstrated by the requirements of § 60.5413c or route to a process.
- (3) If you use a control device to reduce emissions, you must equip each storage vessel in the storage vessel designated facility with a cover that meets the requirements of § 60.5411c(b), install a closed vent system that meets the requirements of § 60.5411c(a) and (c) to capture all emissions from the storage vessel designated facility, and route all emissions to a control device that meets the conditions specified in § 60.5412c. If you route emissions to a process, you must equip each storage vessel in the storage vessel affected facility with a cover that meets the requirements of § 60.5411c(b), install a closed vent system that meets the requirements of § 60.5411c(a) and (c) to capture all emissions from the storage vessel affected facility, and route all emissions to a process.
- (4) If you use a control device to reduce emissions, you must conduct an initial performance test as required in § 60.5413c within 180 days after initial startup, or within 180 days 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), whichever date is later, or install a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e), and you must comply with the continuous compliance requirements of § 60.5415c(e).
- (5) You must conduct the initial inspections of the closed vent system and bypasses, if applicable, as required in § 60.5416c(a) and (b).
- (6) You must install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) through (i), as applicable.
- (7) You must maintain the records as required by § 60.5420c(c)(7) through (12), as applicable and submit the reports as required by § 60.5420c(b)(10) through (12), as applicable.
- (8) You must submit the initial annual report for your storage vessel designated facility required by § 60.5420c(b)(1) and (7).
- (9) You must maintain the records required for your storage vessel designated facility, as specified in § 60.5420c(c)(6) for each storage vessel designated facility.

(10) For each storage vessel designated facility that complies by using a floating roof, you must meet the requirements of § 60.112b(a)(1) or (2) and the relevant monitoring, inspection, recordkeeping, and reporting requirements in subpart Kb of this part. You must submit a statement that you are complying with § 60.112b(d)(a)(1) or (2) in accordance with § 60.5396c(b)(2) with the initial annual report specified in § 60.5420c(b)(1) and (7).

(i) **Fugitive emission components designated facility.** To achieve initial compliance with the GHG standards for fugitive emissions components designated facilities as required by § 60.5397c, you must comply with paragraphs (i)(1) through (5) of this section.

(1) You must develop a fugitive emissions monitoring plan as required in § 60.5397c(b), (c), and (d).

(2) You must conduct an initial monitoring survey as required in § 60.5397c(e) and (f).

(3) You must repair each identified source of fugitive emissions for each designated facility as required in § 60.5397c(h).

(4) You must submit the initial annual report for each fugitive emissions components designated facility as required in § 60.5420c(b)(1) and (8).

(5) You must maintain the records specified in § 60.5420c(c)(13).

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62925, Aug. 1, 2024]

§ 60.5411c What additional requirements must I meet to determine initial compliance for my covers and closed vent systems?

For each cover or closed vent system at your well, centrifugal compressor, reciprocating compressor, process controller, pump, storage vessel, and process unit equipment designated facilities, you must comply with the applicable requirements of paragraphs (a) through (c) of this section.

(a) **Closed vent system requirements.**

(1) Reciprocating compressor rod packing, process controllers, and pumps. You must design the closed vent system to capture and route all gases, vapors, and fumes to a process.

(2) Associated gas wells, gas wells where liquids are being unloaded, centrifugal compressors, reciprocating compressor rod packing, process controllers in Alaska, pumps, storage vessels, and process unit equipment. You must design the closed vent system to capture and route all gases, vapors, and fumes to a process or a control device that meets the requirements specified in § 60.5412c(a) through (d) of this section. For pumps complying with § 60.5395c(b)(3), you must design the closed vent system to capture and route all gases, vapors, and fumes to a control device that meets the requirements specified in § 60.5412c(a) through (d) of this section.

(3) You must design and operate the closed vent system with no identifiable emissions as demonstrated by § 60.5416c(a) and (b).

(4) For bypass devices, you must meet the requirements specified in paragraphs (a)(4)(i) and (ii) of this section if the closed vent system contains one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the control device or being routed to a process.

(i) Except as provided in paragraph (a)(4)(ii) of this section, you must comply with either paragraph (a)(4)(i)(A) or (B) of this section for each bypass device.

(A) You must properly install, calibrate, maintain, and operate a flow indicator at the inlet to the bypass device. The flow indicator must be capable of taking periodic readings as specified in § 60.5416c(a)(4)(i) and sound an alarm, or initiate notification via remote alarm to the nearest field office, when the bypass device is open such that the stream is being, or could be, diverted away from the control device or process, and sent to the atmosphere. You must maintain records of each time the alarm is activated according to § 60.5420c(c)(9).

(B) You must secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration.

(ii) Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices are not subject to the requirements of paragraph (a)(4)(i) of this section.

(b) Cover requirements for storage vessels, centrifugal compressors, and reciprocating compressors.

(1) The cover and all openings on the cover (e.g., access hatches, sampling ports, pressure relief devices and gauge wells) shall form a continuous impermeable barrier over the entire surface area of the liquid in the storage vessel or centrifugal compressor wet seal fluid degassing system, or reciprocating compressor rod packing emissions collection system.

(2) Each cover opening shall be secured in a closed, sealed position (e.g., covered by a gasketed lid or cap) whenever material is in the unit on which the cover is installed except during those times when it is necessary to use an opening as follows:

(i) To add material to, or remove material from the unit (this includes openings necessary to equalize or balance the internal pressure of the unit following changes in the level of the material in the unit);

(ii) To inspect or sample the material in the unit;

(iii) To inspect, maintain, repair, or replace equipment located inside the unit; or

(iv) To vent liquids, gases, or fumes from the unit through a closed vent system designed and operated in accordance with the requirements of paragraph (a) of this section to a control device or to a process.

(3) Each storage vessel thief hatch shall be equipped, maintained, and operated with a weighted mechanism or equivalent, to ensure that the lid remains properly seated and sealed under normal operating conditions, including such times when working, standing/breathing, and flash emissions may be generated. You must select gasket material for the hatch based on composition of the fluid in the storage vessel and weather conditions.

(4) You must design and operate the cover with no identifiable emissions as demonstrated by § 60.5416c(a) and (b), except when operated as provided in paragraphs (b)(2)(i) through (iv) of this section.

(c) Design requirements.

(1) You must conduct an assessment that the closed vent system is of sufficient design and capacity to ensure that all gases, vapors, and fumes from the designated facility are routed to the control device or process and that the control device or process is of sufficient design and capacity to

accommodate all emissions from the designated facility. The assessment must be certified by a qualified professional engineer or an in-house engineer with expertise on the design and operation of the closed vent system in accordance with paragraphs (c)(1)(i) and (ii) of this section.

- (i) You must provide the following certification, signed and dated by a qualified professional engineer or an in-house engineer: "I certify that the closed vent system design and capacity assessment was prepared under my direction or supervision. I further certify that the closed vent system design and capacity assessment was conducted, and this report was prepared pursuant to the requirements of subpart OOOOc of this part. Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete."
- (ii) The assessment shall be prepared under the direction or supervision of a qualified professional engineer or an in-house engineer who signs the certification in paragraph (c)(1)(i) of this section.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62928, Aug. 1, 2024]

§ 60.5412c What additional requirements must I meet for determining initial compliance of my control devices?

You must meet the requirements of paragraphs (a) and (b) of this section for each control device used to comply with the emissions standards for your well, centrifugal compressor, reciprocating compressor, storage vessel, process controller, pump, or process unit equipment designated facility. If you use a carbon adsorption system as a control device to meet the requirements of paragraph (a)(2) of this section, you also must meet the requirements in paragraph (c) of this section.

- (a) Each control device used to meet the emissions reduction standard in § 60.5390c(g) for your well designated facility gas well that unloads liquids; § 60.5391c(b) or (c) for your well designated facility with associated gas; § 60.5392c(a)(4) for your centrifugal compressor designated facility; § 60.5393c(d)(2) for your reciprocating compressor designated facility; § 60.5396c(a)(2) for your storage vessel designated facility; § 60.5394c(b)(3) for your process controller designated facility in Alaska; § 60.5395c(b)(3) for your pumps designated facility; or either § 60.5400c(f) or § 60.5401c(e) for your process equipment designated facility must be installed according to paragraphs (a)(1) through (3) of this section. As an alternative to paragraphs (a)(1) through (3) of this section, you may install a control device model tested under § 60.5413c(d), which meets the criteria in § 60.5413c(d)(11) and which meets the initial and continuous compliance requirements in § 60.5413c(e).
- (1) Each enclosed combustion device (e.g., thermal vapor incinerator, catalytic vapor incinerator, boiler, or process heater) must be designed and operated in accordance with paragraph (a)(1)(i) of this section, meet one of the operating limits specified in paragraphs (a)(1)(ii) through (v) of this section, and except for boilers and process heaters meeting the requirements of paragraph (a)(1)(iii) of this section and catalytic vapor incinerators meeting the requirements of paragraph (a)(1)(v) of this section, meet the operating limits specified in paragraphs (a)(1)(vi) through (ix) of this section. Alternatively, the enclosed combustion device must meet the requirements specified in paragraph (d) of this section.

- (i) You must reduce the mass content of methane in the gases vented to the device by 95.0 percent by weight or greater or reduce the concentration of total organic compounds (TOC) in the exhaust gases at the outlet to the device to a level equal to or less than 275 ppmv as propane on a wet basis corrected to 3 percent oxygen as determined in accordance with the requirements of § 60.5413c(b), with the exceptions noted in § 60.5413c(a).
- (ii) For an enclosed combustion device for which you demonstrate during the performance test conducted under § 60.5413c(b) that combustion zone temperature is an indicator of destruction efficiency, you must operate at or above the minimum temperature established during the most recent performance test. During the performance test conducted under § 60.5413c(b), you must continuously record the temperature of the combustion zone and average the temperature for each test run. The established minimum temperature limit is the average of the test run averages.
- (iii) For an enclosed combustion device which is a boiler or process heater, you must introduce the vent stream into the flame zone of the boiler or process heater and introduce the vent stream with the primary fuel or use the vent stream as the primary fuel.
- (iv) For an enclosed combustion device other than those meeting the operating limits in paragraphs (a)(1)(ii), (iii), and (v) of this section, if the enclosed combustion device is unassisted or pressure-assisted, you must maintain the net heating value (NHV) of the gas sent to the enclosed combustion device at or above the applicable limits specified in paragraphs (a)(1)(iv)(A) and (B) of this section. If the enclosed combustion device is steam-assisted or air-assisted, you must meet the applicable limits specified in paragraphs (a)(1)(iv)(C) and (D) of this section, as appropriate.
 - (A) For enclosed combustion devices that do not use assist gas or pressure-assisted burner tips to promote mixing at the burner tip, 200 British thermal units (Btu) per standard cubic feet (Btu/scf).
 - (B) For enclosed combustion devices that use pressure-assisted burner tips to promote mixing at the burner tip, 800 Btu/scf.
 - (C) For steam-assisted and air-assisted enclosed combustion devices, maintain the combustion zone NHV (NHV_{cz}) at or above 270 Btu/scf.
 - (D) For enclosed combustion devices with perimeter assist air, maintain the NHV dilution parameter (NHV_{dil}) at or above 22 British thermal units per square foot (Btu/sqft). If the only assist air provided to the enclosed combustion control device is perimeter assist air intentionally entrained in lower and/or upper steam at the burner tip and the effective diameter is 9 inches or greater, you are only required to comply with the NHV_{cz} limit specified in paragraph (a)(1)(iv)(C) of this section.
- (v) For an enclosed combustion device which is a catalytic vapor incinerator, you must operate the catalytic vapor incinerator at or above the minimum temperature of the catalyst bed inlet and at or above the minimum temperature differential between the catalyst bed inlet and the catalyst bed outlet established in accordance with § 60.5417c(f) and as determined in your performance test conducted in accordance with § 60.5413c(b).

- (vi) Unless you have an enclosed combustion device with pressure-assisted burner tips to promote mixing at the burner tip, you must operate each enclosed combustion control device at or below the maximum inlet gas flow rate established in accordance with § 60.5417c(f) and as determined in your performance test conducted in accordance with § 60.5413c(b).
 - (vii) You must operate the combustion control device at or above the minimum inlet gas flow rate established in accordance with § 60.5417c(f).
 - (viii) You must install and operate a continuous burning pilot or combustion flame. An alert must be sent to the nearest control room whenever the pilot or combustion flame is unlit.
 - (ix) You must operate the enclosed combustion device with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period. A visible emissions test using section 11 of Method 22 of appendix A-7 to this part must be performed at least once every calendar month, separated by at least 15 days between each test. The observation period shall be 15 minutes or once the amount of time visible emissions is present has exceeded 1 minute, whichever time period is less. Alternatively, you may conduct visible emissions monitoring according to § 60.5417c(h). Devices failing the visible emissions test must follow manufacturer's repair instructions, if available, or best combustion engineering practice as outlined in the unit inspection and maintenance plan, to return the unit to compliant operation. All inspection, repair, and maintenance activities for each unit must be recorded in a maintenance and repair log and must be available for inspection. Following return to operation from maintenance or repair activity, each device must pass a Method 22 of appendix A-7 to this part visual observation as described in this paragraph or be monitored according to § 60.5417c(h).
- (2) Each vapor recovery device (e.g., carbon adsorption system or condenser) or other non-destructive control device must be designed and operated to reduce the mass content of methane in the gases vented to the device by 95.0 percent by weight or greater as determined in accordance with the requirements of § 60.5413c(b). As an alternative to the performance testing requirements of § 60.5413c(b), you may demonstrate initial compliance by conducting a design analysis for vapor recovery devices according to the requirements of § 60.5413c(c). For a condenser, you also must calculate the daily average condenser outlet temperature in accordance with § 60.5417c(e), and you must determine the condenser efficiency for the current operating day using the daily average condenser outlet temperature and the condenser performance curve established in accordance with § 60.5417c(f)(2). You must determine the average TOC emission reduction in accordance with § 60.5415c(e)(1)(ix)(D). For a carbon adsorption system, you also must comply with paragraph (c) of this section.
- (3) Each flare must be designed and operated according to the requirements specified in paragraphs (a)(3)(i) through (viii) of this section, as applicable. Alternatively, flares must meet the requirements specified in paragraph (d) of this section.
- (i) For unassisted flares, you must maintain the NHV of the vent gas sent to the flare at or above 200 Btu/scf.
 - (ii) For flares that use pressure-assisted burner tips to promote mixing at the burner tip, you must maintain the NHV of the vent gas sent to the flare at or above 800 Btu/scf.
 - (iii) For steam-assisted and air-assisted flares, you must maintain the NHV_{O_2} at or above 270 Btu/scf.

- (iv) For flares with perimeter assist air, you must maintain the NHV_{dil} at or above 22 Btu/sqft. If the only assist air provided to the flare is perimeter assist air intentionally entrained in lower and/or upper steam at the flare tip and the effective diameter is 9 inches or greater, you are not required to comply with the NHV_{dil} limit.
- (v) For flares other than pressure-assisted flares, you must determine the maximum flow rate of vent gas to the control system based on the design considerations of the designated facilities to demonstrate compliance with the flare tip velocity limits in § 60.18(b) according to § 60.5417c(d)(8)(iv). The maximum flare tip velocity limits do not apply for pressure-assisted flares.
- (vi) You must operate the flare at or above the minimum inlet gas flow rate. The minimum inlet gas flow rate is established based on manufacturer recommendations.
- (vii) You must operate the flare with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period. You must conduct the compliance determination with the visible emission limits using Method 22 of appendix A-7 to this part, or you must monitor the flare according to § 60.5417c(h).
- (viii) You must install and operate a continuous burning pilot or combustion flame. An alert must be sent to the nearest control room whenever the pilot flame is unlit.

(b) You must operate each control device installed on your well, centrifugal compressor, reciprocating compressor, storage vessel, process controller, pump, or process unit equipment designated facility in accordance with the requirements specified in paragraphs (b)(1) and (2) of this section.

(1) You must operate each control device used to comply with this subpart at all times when gases, vapors, and fumes are vented from the designated facility through the closed vent system to the control device. You may vent more than one designated facility to a control device used to comply with this subpart.

(2) For each control device monitored in accordance with the requirements of § 60.5417c(a) through (i), you must demonstrate compliance according to the requirements of § 60.5415c(e), as applicable.

(c) For each carbon adsorption system used as a control device to meet the requirements of paragraph (a)(2) of this section, you must comply with the requirements of paragraph (c)(1) of this section. If the carbon adsorption system is a regenerative-type carbon adsorption system, you also must comply with the requirements of paragraph (c)(2) of this section.

(1) You must manage the carbon in accordance with the requirements specified in paragraphs (c)(1)(i) and (ii) of this section.

(i) Following the initial startup of the control device, you must replace all carbon in the carbon adsorption system with fresh carbon on a regular, predetermined time interval that is no longer than the carbon service life established according to § 60.5413c(c)(2) or (3). You must maintain records identifying the schedule for replacement and records of each carbon replacement as required in § 60.5420c(c)(10).

(ii) You must either regenerate, reactivate, or burn the spent carbon removed from the carbon adsorption system in one of the units specified in paragraphs (c)(1)(ii)(A) through (F) of this section.

- (A) Regenerate or reactivate the spent carbon in a unit for which you have been issued a final permit under 40 CFR part 270 that implements the requirements of 40 CFR part 264, subpart X.
 - (B) Regenerate or reactivate the spent carbon in a unit equipped with an operating organic air emissions control in accordance with an emissions standard for VOC under another subpart in 40 CFR part 63 or this part.
 - (C) Burn the spent carbon in a hazardous waste incinerator for which the owner or operator complies with the requirements of 40 CFR part 63, subpart EEE, and has submitted a Notification of Compliance under 40 CFR 63.1207(j).
 - (D) Burn the spent carbon in a hazardous waste boiler or industrial furnace for which the owner or operator complies with the requirements of 40 CFR part 63, subpart EEE, and has submitted a Notification of Compliance under 40 CFR 63.1207(j).
 - (E) Burn the spent carbon in an industrial furnace for which you have been issued a final permit under 40 CFR part 270 that implements the requirements of 40 CFR part 266, subpart H.
 - (F) Burn the spent carbon in an industrial furnace that you have designed and operated in accordance with the interim status requirements of 40 CFR part 266, subpart H.
- (2) You must comply with the requirements of paragraph (c)(2)(i) through (iii) of this section for each regenerative-type carbon adsorption system.
- (i) You must measure and record the average total regeneration stream mass flow or volumetric flow during each carbon bed regeneration cycle to demonstrate compliance with the total regeneration stream flow established in accordance with § 60.5413c(c)(2).
 - (ii) You must check the mechanical connections for leakage at least every month, and you must perform a visual inspection at least every 3 months of all components of the flow continuous parameter monitoring system for physical and operational integrity and all electrical connections for oxidation and galvanic corrosion, if your continuous parameter monitoring system is not equipped with a redundant flow sensor.
 - (iii) You must measure and record the average carbon bed temperature for the duration of the carbon bed steaming cycle and measure the actual carbon bed temperature after regeneration and within 15 minutes of completing the cooling cycle. You must maintain the average carbon bed temperature above the temperature limit in established accordance with § 60.5413c(c)(2) during the carbon bed steaming cycle and below the carbon bed temperature established in accordance with § 60.5413c(c)(2) after the regeneration cycle.
- (d) To demonstrate that a flare or enclosed combustion device reduces methane in the gases vented to the device by 95.0 percent by weight or greater, as outlined in § 60.8(b), you may submit a request for an alternative test method. At a minimum, the request must follow the requirements outlined in paragraphs (d)(1) through (5) of this section.
- (1) The alternative method must be capable of demonstrating continuous compliance with a combustion efficiency of 95.0 percent or greater or it must be capable of demonstrating continuous compliance with the following metrics:
- (i) $NH_{V_{CZ}}$ of 270 Btu/scf or greater.

- (ii) NHV_{dii} of 22 Btu/sqft or greater, if the alternative test method will be used for enclosed combustion devices or flares with perimeter assist air.
- (2) The alternative method must be validated according to Method 301 in appendix A to 40 CFR part 63 for each type of control device covered by the alternative test method (e.g., air-assisted flare, unassisted enclosed combustion device) or the alternative test method must contain performance-based procedures and indicators to ensure self-validation.
- (3) At a minimum the alternative test method must provide a reading for each successive 15-minute period.
- (4) The alternative test method must be capable of documenting periods when the enclosed combustion device or flare operates with visible emissions. If the alternative test method cannot identify periods of visible emissions, you must conduct the inspections required by § 60.5417c(d)(8)(v).
- (5) If the alternative test method demonstrates compliance with the metrics specified in paragraphs (d)(1)(i) and (ii) of this section instead of demonstrating continuous compliance with 95.0 percent or greater combustion efficiency, you must still install the pilot or combustion flame monitoring system required by § 60.5417c(d)(8)(i). If the alternative test method demonstrates continuous compliance with a combustion efficiency of 95.0 percent or greater, the requirement in § 60.5417c(d)(8)(i) no longer applies.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62928, Aug. 1, 2024]

§ 60.5413c What are the performance testing procedures for control devices?

This section applies to the performance testing of control devices used to demonstrate compliance with the emissions standards for your well, centrifugal compressor, reciprocating compressor, storage vessel, process controller, pump, or process unit equipment designated facilities. You must demonstrate that a control device achieves the performance requirements of § 60.5412c(a)(1) or (2) using the performance test methods and procedures specified in this section. For condensers and carbon adsorbers, you may use a design analysis as specified in paragraph (c) of this section in lieu of complying with paragraph (b) of this section. In addition, this section contains the requirements for enclosed combustion device performance tests conducted by the manufacturer applicable to well, centrifugal compressor, reciprocating compressor, storage vessel, process controller, pump, or process unit equipment designated facilities.

- (a) **Performance test exemptions.** You are exempt from the requirements to conduct initial and periodic performance tests and design analyses if you use any of the control devices described in paragraphs (a)(1) through (6) of this section. You are exempt from the requirements to conduct an initial performance test if you use a control device described in paragraph (a)(7) of this section.
 - (1) A flare that is designed and operated in accordance with the requirements in § 60.5412c(a)(3). You must conduct the compliance determination using Method 22 of appendix A-7 to this part to determine visible emissions or monitor the flare according to § 60.5417c(h). The net heating value of the vent gas must be determined according to § 60.5417c(d)(8)(ii).
 - (2) A boiler or process heater with a design heat input capacity of 44 megawatts or greater.
 - (3) A boiler or process heater into which the vent stream is introduced with the primary fuel or is used as the primary fuel.

- (4) A boiler or process heater burning hazardous waste for which you have been issued a final permit under 40 CFR part 270 and comply with the requirements of 40 CFR part 266, subpart H; you have certified compliance with the interim status requirements of 40 CFR part 266, subpart H; you have submitted a Notification of Compliance under 40 CFR 63.1207(j) and comply with the requirements of 40 CFR part 63, subpart EEE; or you comply with 40 CFR part 63, subpart EEE, and will submit a Notification of Compliance under 40 CFR 63.1207(j) by the date specified in § 60.5420c(b)(11) for submitting the initial performance test report.
- (5) A hazardous waste incinerator for which you have submitted a Notification of Compliance under 40 CFR 63.1207(j), or for which you will submit a Notification of Compliance under 40 CFR 63.1207(j) by the date specified in § 60.5420c(b)(11) for submitting the initial performance test report, and you comply with the requirements of 40 CFR part 63, subpart EEE.
- (6) A control device for which performance test is waived in accordance with § 60.8(b).
- (7) A control device whose model can be demonstrated to meet the performance requirements of § 60.5412c(a)(1)(i) through a performance test conducted by the manufacturer, as specified in paragraph (d) of this section.

(b) **Test methods and procedures.** You must use the test methods and procedures specified in paragraphs (b)(1) through (4) of this section, as applicable, for each performance test conducted to demonstrate that a control device meets the requirements of § 60.5412c(a)(1) or (2). You must conduct the initial and periodic performance tests according to the schedule specified in paragraph (b)(5) of this section. Each performance test must consist of a minimum of 3 test runs. Each run must be at least 1 hour long.

- (1) You must use Method 1 or 1A of appendix A-1 to this part, as appropriate, to select the sampling sites. Any references to particulate mentioned in Methods 1 and 1A do not apply to this section.
 - (i) Sampling sites must be located at the inlet of the first control device and at the outlet of the final control device to determine compliance with a control device percent reduction requirement.
 - (ii) The sampling site must be located at the outlet of the combustion device to determine compliance with a TOC exhaust gas concentration limit.
- (2) You must determine the gas volumetric flow rate using Method 2, 2A, 2C, or 2D of appendix A-2 of this part, as appropriate.
- (3) To determine compliance with the control device percent reduction performance requirement in § 60.5412c(a)(1)(i) or (a)(2), you must use Method 18 of appendix A-6 to this part, Method 320 of appendix A to 40 CFR part 63, or ASTM D6348-12e1 (incorporated by reference, see § 60.17) to measure methane or Method 25A of appendix A-7 to this part to measure TOC, as propane. You must use Method 4 of appendix A-3 to this part to convert the Method 25A results to a dry basis. You must use the procedures in paragraphs (b)(3)(i) through (iii) of this section to calculate percent reduction efficiency.
 - (i) You must compute the mass rate of methane or TOC using the following equations:

Equations 1 and 2 to paragraph (b)(3)(i)

$$E_i = K_2 C_i M_p Q_i$$

$$E_o = K_2 C_o M_p Q_o$$

Where:

E_i , E_o = Mass rate of methane or TOC at the inlet and outlet of the control device, respectively, dry basis, kilograms per hour.

K_2 = Constant, 2.494×10^{-6} (parts per million) (gram-mole per standard cubic meter) (kilogram/gram) (minute/hour), where standard temperature (gram-mole per standard cubic meter) is 20° degrees Celsius.

C_i , C_o = Concentration of methane of the gas stream as measured by Method 18 of appendix A-6, Method 320 of appendix A to 40 CFR part 63, or ASTM D6348-12e1 or TOC, as propane, of the gas stream as measured by Method 25A of appendix A-7 to this part at the inlet and outlet of the control device, respectively, dry basis, parts per million by volume.

M_p = Molecular weight of methane, if using Method 18 of appendix A-6 to this part, Method 320 of appendix A to 40 CFR part 63, or ASTM D6348-12e1, 16.04 gram/gram-mole. Molecular weight of propane, if using Method 25A of appendix A-7 to this part, 44.1 gram/gram-mole.

Q_i , Q_o = Flow rate of gas stream at the inlet and outlet of the control device, respectively, dry standard cubic meter per minute.

(ii) You must calculate the percent reduction in TOC as follows:

Equation 3 to paragraph (b)(3)(ii)

$$R_{cd} = \frac{E_i - E_o}{E_i} \times 100\%$$

Where:

R_{cd} = Control efficiency of control device, percent.

E_i = Mass rate of methane or TOC at the inlet to the control device as calculated under paragraph (b)(3)(i) of this section, kilograms per hour.

E_o = Mass rate of methane or TOC at the outlet of the control device, as calculated under paragraph (b)(3)(i) of this section, kilograms per hour.

- (iii) If the vent stream entering a boiler or process heater with a design capacity less than 44 megawatts is introduced with the combustion air or as a secondary fuel, you must determine the weight-percent reduction of methane across the device by comparing the methane in all combusted vent streams and primary and secondary fuels with the methane exiting the device, respectively.
- 4. You must use Method 25A of appendix A-7 to this part to measure TOC, as propane, to determine compliance with the TOC exhaust gas concentration limit specified in § 60.5412c(a)(1)(i). You must determine the concentration in parts per million by volume on a wet basis and correct it to 3 percent oxygen. You must use the emission rate correction factor for excess air, integrated sampling and analysis procedures of Method 3A or 3B of appendix A-2 to this part, ASTM D6522-20, or ANSI/ASME PTC 19.10-1981, Part 10 (manual portion only) (both incorporated by reference, see § 60.17) to determine the oxygen concentration. The samples must be taken during the same time that the samples are taken for determining TOC concentration. You must correct the TOC concentration for percent oxygen as follows:

Equation 4 to paragraph (b)(4)

$$C_c = C_m \left(\frac{17.9}{20.9 - \%O_{2m}} \right)$$

Where:

C_c = TOC concentration, as propane, corrected to 3 percent oxygen, parts per million by volume on a wet basis.

C_m = TOC concentration, as propane, parts per million by volume on a wet basis.

$\%O_{2m}$ = Concentration of oxygen, percent by volume as measured, wet.

- 5. You must conduct performance tests according to the schedule specified in paragraphs (b)(5)(i) through (iii) of this section.
 - (i) You must conduct an initial performance test within 180 days after initial startup for your designated facility. You must submit the performance test results as required in § 60.5420c(b)(11).
 - (ii) You must conduct periodic performance tests for all control devices required to conduct initial performance tests. You must conduct the first periodic performance test no later than 60 months after the initial performance test required in paragraph (b)(5)(i) of this section. You must conduct subsequent periodic performance tests at intervals no longer than 60 months following the previous periodic performance test or whenever you desire to establish a new operating limit. If a control device is not operational at the time a performance test is due, you must conduct the performance test no later than 30 calendar days after returning the control device to service. You must submit the periodic performance test results as specified in § 60.5420c(b)(11).

- (iii) If the initial performance test was conducted by the manufacturer under paragraph (d) of this section, you must conduct the first periodic performance test no later than 60 months after initial installation and startup of the control device. You must conduct subsequent periodic performance tests at intervals no longer than 60 months following the previous periodic performance test. If a control device is not operational at the time a performance test is due, you must conduct the performance test no later than 30 calendar days after returning the control device to service. You must submit the periodic performance test results as specified in § 60.5420c(b)(11).

(c) *Control device design analysis to meet the requirements of § 60.5412c(a)(2).*

- (1) For a condenser, the design analysis must include an analysis of the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature and must establish the design outlet organic compound concentration level, design average temperature of the condenser exhaust vent stream and the design average temperatures of the coolant fluid at the condenser inlet and outlet.
- (2) For a regenerable carbon adsorption system, the design analysis shall include the vent stream composition, constituent concentrations, flow rate, relative humidity and temperature and shall establish the design exhaust vent stream organic compound concentration level, adsorption cycle time, number and capacity of carbon beds, type and working capacity of activated carbon used for the carbon beds, design total regeneration stream flow over the period of each complete carbon bed regeneration cycle, design carbon bed temperature after regeneration, design carbon bed regeneration time and design service life of the carbon.
- (3) For a nonregenerable carbon adsorption system, such as a carbon canister, the design analysis shall include the vent stream composition, constituent concentrations, flow rate, relative humidity and temperature and shall establish the design exhaust vent stream organic compound concentration level, capacity of the carbon bed, type and working capacity of activated carbon used for the carbon bed and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule. In addition, these systems shall incorporate dual carbon canisters in case of emission breakthrough occurring in one canister.
- (4) If you and the Administrator do not agree on a demonstration of control device performance using a design analysis, then you must perform a performance test in accordance with the requirements of paragraph (b) of this section to resolve the disagreement. The Administrator may choose to have an authorized representative observe the performance test.

(d) *Performance testing for combustion control devices—manufacturers' performance test.*

- (1) This paragraph (d) applies to the performance testing of a combustion control device conducted by the device manufacturer. The manufacturer must demonstrate that a specific model of control device achieves the performance requirements in paragraph (d)(11) of this section by conducting a performance test as specified in paragraphs (d)(2) through (10) of this section. You must submit a test report for each combustion control device in accordance with the requirements in paragraph (d)(12) of this section.
- (2) Performance testing must consist of three 1-hour (or longer) test runs for each of the four firing rate settings specified in paragraphs (d)(2)(i) through (iv) of this section, making a total of 12 test runs per test. Propene (propylene) gas must be used for the testing fuel. All fuel analyses must be performed by an independent third-party laboratory (not affiliated with the control device manufacturer or fuel supplier).

- (i) 90-100 percent of maximum design rate (fixed rate).
 - (ii) 70-100-70 percent (ramp up, ramp down). Begin the test at 70 percent of the maximum design rate. During the first 5 minutes, incrementally ramp the firing rate to 100 percent of the maximum design rate. Hold at 100 percent for 5 minutes. In the 10 to 15-minute time range, incrementally ramp back down to 70 percent of the maximum design rate. Repeat three more times for a total of 60 minutes of sampling.
 - (iii) 30-70-30 percent (ramp up, ramp down). Begin the test at 30 percent of the maximum design rate. During the first 5 minutes, incrementally ramp the firing rate to 70 percent of the maximum design rate. Hold at 70 percent for 5 minutes. In the 10 to 15-minute time range, incrementally ramp back down to 30 percent of the maximum design rate. Repeat three more times for a total of 60 minutes of sampling.
 - (iv) 0-30-0 percent (ramp up, ramp down). Begin the test at the minimum firing rate. During the first 5 minutes, incrementally ramp the firing rate to 30 percent of the maximum design rate. Hold at 30 percent for 5 minutes. In the 10 to 15-minute time range, incrementally ramp back down to the minimum firing rate. Repeat three more times for a total of 60 minutes of sampling.
- (3) All models employing multiple enclosures must be tested simultaneously and with all burners operational. Results must be reported for each enclosure individually and for the average of the emissions from all interconnected combustion enclosures/chambers. Control device operating data must be collected continuously throughout the performance test using an electronic Data Acquisition System. A graphic presentation or strip chart of the control device operating data and emissions test data must be included in the test report in accordance with paragraph (d)(12) of this section. Inlet fuel meter data may be manually recorded provided that all inlet fuel data readings are included in the final report.
- (4) Inlet testing must be conducted as specified in paragraphs (d)(4)(i) and (ii) of this section.
- (i) The inlet gas flow metering system must be located in accordance with Method 2A of appendix A-1 to this part (or other approved procedure) to measure inlet gas flow rate at the control device inlet location. You must position the fitting for filling fuel sample containers a minimum of eight pipe diameters upstream of any inlet gas flow monitoring meter.
 - (ii) Inlet flow rate must be determined using Method 2A of appendix A-1 to this part. Record the start and stop reading for each 60-minute THC test. Record the gas pressure and temperature at 5-minute intervals throughout each 60-minute test.
- (5) Inlet gas sampling must be conducted as specified in paragraphs (d)(5)(i) and (ii) of this section.
- (i) At the inlet gas sampling location, securely connect a fused silica-coated stainless steel evacuated canister fitted with a flow controller sufficient to fill the canister over a 3-hour period. Filling must be conducted as specified in paragraphs (d)(5)(i)(A) through (C) of this section.
 - (A) Open the canister sampling valve at the beginning of each test run and close the canister at the end of each test run.
 - (B) Fill one canister across the three test runs such that one composite fuel sample exists for each test condition.
 - (C) Label the canisters individually and record sample information on a chain of custody form.

- (ii) Analyze each inlet gas sample using the methods in paragraphs (d)(5)(ii)(A) through (C) of this section. You must include the results in the test report required by paragraph (d)(12) of this section.
 - (A) Hydrocarbon compounds containing between one and five atoms of carbon plus benzene using ASTM D1945-03(R2010) (incorporated by reference, see § 60.17).
 - (B) Hydrogen (H₂), carbon monoxide (CO), carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂) using ASTM D1945-03(R2010) (incorporated by reference, see § 60.17).
 - (C) Higher heating value using ASTM D3588-98(R2003) or ASTM D4891-89(R2006) (incorporated by reference, see § 60.17).
- (6) Outlet testing must be conducted in accordance with the criteria in paragraphs (d)(6)(i) through (v) of this section.
 - (i) Sample and flow rate must be measured in accordance with paragraphs (d)(6)(i)(A) and (B) of this section.
 - (A) The outlet sampling location must be a minimum of four equivalent stack diameters downstream from the highest peak flame or any other flow disturbance, and a minimum of one equivalent stack diameter upstream of the exit or any other flow disturbance. A minimum of two sample ports must be used.
 - (B) Flow rate must be measured using Method 1 of appendix A-1 to this part for determining flow measurement traverse point location, and Method 2 of appendix A-1 to this part for measuring duct velocity. If low flow conditions are encountered (i.e., velocity pressure differentials less than 0.05 inches of water) during the performance test, a more sensitive manometer must be used to obtain an accurate flow profile.
 - (ii) Molecular weight and excess air must be determined as specified in paragraph (d)(7) of this section.
 - (iii) Carbon monoxide must be determined as specified in paragraph (d)(8) of this section.
 - (iv) THC must be determined as specified in paragraph (d)(9) of this section.
 - (v) Visible emissions must be determined as specified in paragraph (d)(10) of this section.
- (7) Molecular weight and excess air determination must be performed as specified in paragraphs (d)(7)(i) through (iii) of this section.
 - (i) An integrated bag sample must be collected during the moisture test required by Method 4 of appendix A-3 to this part following the procedure specified in (d)(7)(i)(A) and (B) of this section. Analyze the bag sample using a gas chromatograph-thermal conductivity detector (GC-TCD) analysis meeting the criteria in paragraphs (d)(7)(i)(C) and (D) of this section.
 - (A) Collect the integrated sample throughout the entire test and collect representative volumes from each traverse location.
 - (B) Purge the sampling line with stack gas before opening the valve and beginning to fill the bag. Clearly label each bag and record sample information on a chain of custody form.
 - (C) The bag contents must be vigorously mixed prior to the gas chromatograph analysis.

- Equation 5 to paragraph (d)(9)(vi)**

$$C_{corr} = C_{meas} \left(\frac{3}{CO_{2meas}} \right)$$

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C_{meas} = The measured concentration of the pollutant.

$\text{CO}_{2\text{meas}}$ = The measured concentration of the CO_2 diluent.

3 = The corrected reference concentration of CO_2 diluent.

C_{corr} = The corrected concentration of the pollutant.

- (vii) Subtraction of methane or ethane from the THC data is not allowed in determining results.
- (10) Visible emissions must be determined using Method 22 of appendix A-7 to this part. The test must be performed continuously during each test run. A digital color photograph of the exhaust point, taken from the position of the observer and annotated with date and time, must be taken once per test run and the 12 photos included in the test report specified in paragraph (d)(12) of this section.
- (11) For performance test criteria:
 - (i) The control device model tested must meet the criteria in paragraphs (d)(11)(i)(A) through (D) of this section. These criteria must be reported in the test report required by paragraph (d)(12) of this section.
 - (A) Results from Method 22 of appendix A-7 to this part determined under paragraph (d)(10) of this section with no indication of visible emissions.
 - (B) Average results from Method 25A of appendix A-7 to this part determined under paragraph (d)(9) of this section equal to or less than 10.0 ppmvw THC as propane corrected to 3.0 percent CO_2 .
 - (C) Average CO emissions determined under paragraph (d)(8) of this section equal to or less than 10 parts ppmvd, corrected to 3.0 percent CO_2 .
 - (D) Excess air determined under paragraph (d)(7) of this section equal to or greater than 150 percent.
 - (ii) The manufacturer must determine a minimum inlet gas flow rate above which each control device model must be operated to achieve the criteria in paragraph (d)(11)(iii) of this section. The manufacturer must determine a maximum inlet gas flow rate which must not be exceeded for each control device model to achieve the criteria in paragraph (d)(11)(iii) of this section. The minimum and maximum inlet gas flow rate must be included in the test report required by paragraph (d)(12) of this section.
 - (iii) A manufacturer must demonstrate a destruction efficiency of at least 95.0 percent for THC, as propane. A control device model that demonstrates a destruction efficiency of 95.0 percent for THC, as propane, will meet the control requirement for 95.0 percent destruction of methane required under this subpart.
- (12) The owner or operator of a combustion control device model tested under this paragraph (d)(12) must submit the information listed in paragraphs (d)(12)(i) through (vi) of this section for each test run in the test report required by this section in accordance with § 60.5420c(b)(12). Owners or operators who claim that any of the performance test information being submitted is confidential business information (CBI) must submit a complete file including information claimed to be CBI to the OAQPS CBI office. The preferred method to receive CBI is for it to be transmitted electronically

using email attachments, File Transfer Protocol, or other online file sharing services. Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address oaqpscbi@epa.gov and should include clear CBI markings and be flagged to the attention of the Leader, Measurement Policy Group. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email oaqpscbi@epa.gov to request a file transfer link. If you cannot transmit the file electronically, you may send CBI information through the postal service to the following address: U.S. EPA, Attn: OAQPS Document Control Officer and Measurement Policy Group Leader, Mail Drop: C404-02, 109 T.W. Alexander Drive, P.O. Box 12055, RTP, North Carolina 27711. The mailed CBI material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope. The same file with the CBI omitted must be submitted to Oil_and_Gas_PT@EPA.GOV.

- (i) A full schematic of the control device and dimensions of the device components.
- (ii) The maximum net heating value of the device.
- (iii) The test fuel gas flow range (in both mass and volume). Include the minimum and maximum allowable inlet gas flow rate.
- (iv) The air/stream injection/assist ranges, if used.
- (v) The test conditions listed in paragraphs (d)(12)(v)(A) through (O) of this section, as applicable for the tested model.
 - (A) Fuel gas delivery pressure and temperature.
 - (B) Fuel gas moisture range.
 - (C) Purge gas usage range.
 - (D) Condensate (liquid fuel) separation range.
 - (E) Combustion zone temperature range. This is required for all devices that measure this parameter.
 - (F) Excess air range.
 - (G) Flame arrestor(s).
 - (H) Burner manifold.
 - (I) Continuous pilot flame indicator.
 - (J) Pilot flame design fuel and calculated or measured fuel usage.
 - (K) Tip velocity range.
 - (L) Momentum flux ratio.
 - (M) Exit temperature range.
 - (N) Exit flow rate.
 - (O) Wind velocity and direction.

(vi) The test report must include all calibration quality assurance/quality control data, calibration gas values, gas cylinder certification, strip charts, or other graphic presentations of the data annotated with test times and calibration values.

(e) ***Initial and continuous compliance for combustion control devices tested by the manufacturer in accordance with paragraph (d) of this section.*** This paragraph (e) applies to the demonstration of compliance for a combustion control device tested under the provisions in paragraph (d) of this section. Owners or operators must demonstrate that a control device achieves the performance criteria in paragraph (d)(11) of this section by installing a device tested under paragraph (d) of this section, complying with the criteria specified in paragraphs (e)(1) through (10) of this section, maintaining the records specified in § 60.5420c(c)(10) and submitting the report specified in § 60.5420c(b)(10)(v) and (b)(12).

- (1) The inlet gas flow rate must be equal to or greater than the minimum inlet gas flow rate and equal to or less than the maximum inlet gas flow rate specified by the manufacturer.
- (2) A pilot or combustion flame must be present at all times of operation. An alert must be sent to the nearest control room whenever the pilot or combustion flame is unlit.
- (3) Devices must be operated with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period. A visible emissions test conducted according to section 11 of Method 22 of appendix A-7 to this part must be performed at least once every calendar month, separated by at least 15 days between each test. The observation period shall be 15 minutes or once the amount of time visible emissions is present has exceeded 1 minute, whichever time period is less. Alternatively, you may conduct visible emissions monitoring according to § 60.5417c(h).
- (4) Devices failing the visible emissions test must follow manufacturer's repair instructions, if available, or best combustion engineering practice as outlined in the unit inspection and maintenance plan, to return the unit to compliant operation. All repairs and maintenance activities for each unit must be recorded in a maintenance and repair log and must be available for inspection.
- (5) Following return to operation from maintenance or repair activity, each device must pass a visual observation according to Method 22 of appendix A-7 to this part as described in paragraph (e)(3) of this section or be monitored according to § 60.5417c(h).
- (6) If the owner or operator operates a combustion control device model tested under this section, an electronic copy of the performance test results required by this section shall be submitted via email to Oil_and_Gas_PT@EPA.GOV unless the test results for that model of combustion control device are posted at the following website: <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry>.
- (7) Ensure that each enclosed combustion device is maintained in a leak free condition.
- (8) Operate each control device following the manufacturer's written operating instructions, procedures, and maintenance schedule to ensure good air pollution control practices for minimizing emissions.
- (9) Install and operate the continuous parameter monitoring systems in accordance with § 60.5417c(a) and (c) through (i).
- (10) Comply with the applicable NHV limit specified in § 60.5412c(a)(1)(iv).

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MODEL RULE—CONTINUOUS COMPLIANCE REQUIREMENTS

§ 60.5415c How do I demonstrate continuous compliance with the standards for each of my designated facilities?

- (a) Gas well liquids unloading standards for well designated facility.** For each well liquids unloading operation at your well designated facility, you must demonstrate continuous compliance with the requirements of § 60.5390c by submitting the annual report information specified in § 60.5420c(b)(1) and (2) and maintaining the records for each well liquids unloading event that vents to the atmosphere as specified in § 60.5420c(c)(1). For each gas well liquids unloading well designated facility that complies with the requirements of § 60.5390c(g), you must route emissions to a control device through a closed vent system and continuously comply with the closed vent requirements of § 60.5416c. You also must comply with the requirements specified in paragraph (e) of this section and maintain the reports in § 60.5420c(b)(10)(i) through (iv) and maintain the records in § 60.5420c(c)(7), (9), and (11).
- (b) Associated gas well standards for well designated facility.** For each associated gas well at your well designated facility, you must demonstrate continuous compliance with the requirements of § 60.5391c by submitting the reports required by § 60.5420c(b)(1) and (3) and maintaining the records specified in § 60.5420c(c)(2). For each associated gas well at your well designated facility that complies with the requirements of § 60.5391c(b) or (c), you must route emissions to a control device through a closed vent system and continuously comply with the closed vent requirements of § 60.5416c. You must also comply with the requirements specified in paragraph (e) of this section and maintain the records in paragraphs (c)(7), (9) and (11) of this section.
- (c) Centrifugal compressor designated facility.** For each centrifugal compressor designated facility complying with the volumetric flow rate measurements requirements in § 60.5392c(a)(1) and (2), you must demonstrate continuous compliance according to paragraph (c)(1) and paragraphs (c)(3) and (4) of this section. Alternatively, for each centrifugal compressor designated facility complying with § 60.5392c(a)(3) and either (a)(4) or (5) by routing emissions to a control device or to a process, you must demonstrate continuous compliance according to paragraphs (c)(2) through (4) of this section.

 - (1)** You must maintain volumetric flow rate at or below the volumetric flow rates specified in paragraphs (c)(1)(i) through (iii) of this section for your centrifugal compressor, as applicable, and you must conduct the required volumetric flow rate measurement of your dry or wet seal in accordance with § 60.5392c(a)(1) and (2) on or before 8,760 hours of operation after your last volumetric flow rate measurement which demonstrates compliance with the applicable volumetric flow rate.

 - (i)** For your wet seal centrifugal compressors (including self-contained wet seal centrifugal compressors), you must maintain the volumetric flow rate at or below 3 scfm per seal (or in the case of manifolded groups of seals, 3 scfm multiplied by the number of seals).
 - (ii)** For your Alaska North Slope centrifugal compressor equipped with sour seal oil separator and capture system, you must maintain the volumetric flow rate at or below 9 scfm per seal (or in the case of manifolded groups of wet seals, 9 scfm multiplied by the number of seals).
 - (iii)** For your dry seal compressor, you must maintain the volumetric flow rate at or below 10 scfm per seal (or in the case of manifolded groups of wet seals, 10 scfm multiplied by the number of seals).

(2) For each wet seal and dry seal centrifugal compressor designated facility complying by routing emissions to a control device or to a process, you must operate the wet seal emissions collection system and dry seal system to route emissions to a control device or a process through a closed vent system and continuously comply with the closed vent requirements of § 60.5416c. If you comply with § 60.5392c(a)(4) by using a control device, you also must comply with the requirements in paragraph (e) of this section.

(3) You must submit the annual reports as required in § 60.5420c(b)(1), (4) and (10)(i) through (iv), as applicable.

(4) You must maintain records as required in § 60.5420c(c)(3), (7) through (9) and (11), as applicable.

d) **Pump designated facility.** To demonstrate continuous compliance with the GHG standards for your pump designated facility as required by § 60.5395c, you must comply with paragraphs (d)(1) through (3) of this section.

(1) For pump designated facilities complying with the requirements of § 60.5395c(a) by routing emissions to a process and for pump designated facilities complying with the requirements of § 60.5395c(b)(2) or (3), you must continuously comply with the closed vent system requirements of § 60.5416c. If you comply with § 60.5395c(b)(3), you also must comply with the requirements in paragraph (e) of this section.

(2) You must submit the annual reports for your pump designated facility as required in § 60.5420c(b)(1) and (9) and (b)(10)(i) through (iv), as applicable.

(3) You must maintain the records for your pump designated facility as specified in § 60.5420c(c)(7), (9), (11), and (14), as applicable.

e) **Additional continuous compliance requirements for well, centrifugal compressor, reciprocating compressor, process controllers in Alaska, storage vessel, process unit equipment, or pump designated facilities.** For each associated gas well at your well designated facility, each gas well liquids unloading operation at your well designated facility, each centrifugal compressor designated facility, each reciprocating compressor designated facility, each process controller designated facility in Alaska, each storage vessel designated facility, each process unit equipment designated facility, and each pump designated facility referenced to this paragraph from paragraph (a), (b), (c)(2), (d)(1), (f)(2), (g)(2), (h)(5)(ii)(B), or (i)(12) of this section, you must also install monitoring systems as specified in § 60.5417c, demonstrate continuous compliance according to paragraph (e)(1) of this section, maintain the records in paragraph (e)(2) of this section, and comply with the reporting requirements specified in paragraph (e)(3) of this section.

(1) You must demonstrate continuous compliance with the control device performance requirements of § 60.5412c(a) using the procedures specified in paragraphs (e)(1)(i) through (viii) of this section and conducting the monitoring as required by § 60.5417c. If you use a condenser as the control device to achieve the requirements specified in § 60.5412c(a)(2), you may demonstrate compliance according to paragraph (e)(1)(ix) of this section. You may switch between compliance with paragraphs (e)(1)(i) through (viii) of this section and compliance with paragraph (e)(1)(ix) of this section only after at least 1 year of operation in compliance with the selected approach. You must provide notification of such a change in the compliance method in the next annual report, following the change. If you use an enclosed combustion device or a flare as the control device, you must also conduct the monitoring required in paragraph (e)(1)(x) of this section. If you use an enclosed combustion device or flare using an alternative test method approved under § 60.5412c(d), you must use the

procedures in paragraph (e)(1)(xi) of this section in lieu of the procedures in paragraphs (e)(1)(i) through (viii) of this section, but you must still conduct the monitoring required in paragraph (e)(1)(x) of this section.

- (i) You must operate below (or above) the site-specific maximum (or minimum) parameter value established according to the requirements of § 60.5417c(f)(1). For flares, you must operate above the limits specified in paragraphs (e)(1)(vii)(B) of this section.
- (ii) You must calculate the average of the applicable monitored parameter in accordance with § 60.5417c(e).
- (iii) Compliance with the operating parameter limit is achieved when the average of the monitoring parameter value calculated under paragraph (e)(1)(ii) of this section is either equal to or greater than the minimum parameter value or equal to or less than the maximum parameter value established under paragraph (e)(1)(i) of this section. When performance testing of a combustion control device is conducted by the device manufacturer as specified in § 60.5413c(d), compliance with the operating parameter limit is achieved when the criteria in § 60.5413c(e) are met.
- (iv) You must operate the continuous monitoring system required in § 60.5417c(a) at all times the affected source is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions and required monitoring system quality assurance or quality control activities (including, as applicable, system accuracy audits and required zero and span adjustments). A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.
- (v) You may not use data recorded during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. You must use all the data collected during all other required data collection periods to assess the operation of the control device and associated control system.
- (vi) Failure to collect required data is a deviation of the monitoring requirements.
- (vii) If you use an enclosed combustion device to meet the requirements of § 60.5412c(a)(1) and you demonstrate compliance using the test procedures specified in § 60.5413c(b), or you use a flare designed and operated in accordance with § 60.5412c(a)(3), you must comply with the applicable requirements in paragraphs (e)(1)(vii)(A) through (E) of this section.
 - (A) For each enclosed combustion device which is not a catalytic vapor incinerator and for each flare, you must comply with the requirements in paragraphs (e)(1)(vii)(A)(1) through (4) of this section.
 - (1) A pilot or combustion flame must be present at all times of operation. An alert must be sent to the nearest control room whenever the pilot or combustion flame is unlit.

- (2) Devices must be operated with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period. A visible emissions test conducted according to section 11 of Method 22 of appendix A-7 to this part, must be performed at least once every calendar month, separated by at least 15 days between each test. The observation period shall be 15 minutes or once the amount of time visible emissions is present has exceeded 1 minute, whichever time period is less. Alternatively, you may conduct visible emissions monitoring according to § 60.5417c(h).
 - (3) Devices failing the visible emissions test must follow manufacturer's repair instructions, if available, or best combustion engineering practice as outlined in the unit inspection and maintenance plan, to return the unit to compliant operation. All repairs and maintenance activities for each unit must be recorded in a maintenance and repair log and must be available for inspection.
 - (4) Following return to operation from maintenance or repair activity, each device must pass a Method 22 of appendix A-7 to this part visual observation as described in paragraph (e)(1)(vii)(D) of this section or be monitored according to § 60.5417c(h).
- (B) For flares, you must comply with the requirements in paragraphs (e)(1)(vii)(B)(1) through (6) of this section.
- (1) For unassisted flares, maintain the NHV of the gas sent to the flare at or above 200 Btu/scf.
 - (2) If you use a pressure assisted flare, maintain the NHV of gas sent to the flare at or above 800 Btu/scf.
 - (3) For steam-assisted and air-assisted flares, maintain the NHV_{cz} at or above 270 Btu/scf.
 - (4) For flares with perimeter assist air, maintain the NHV_{dil} at or above 22 Btu/sqft. If the only assist air provided to the flare is perimeter assist air intentionally entrained in lower and/or upper steam at the flare tip and the effective diameter is 9 inches or greater, you are not required to comply with the NHV_{dil} limit.
 - (5) Unless you use a pressure-assisted flare, maintain the flare tip velocity below the applicable limits in § 60.18(b).
 - (6) Maintain the total gas flow to the flare above the minimum inlet gas flow rate. The minimum inlet gas flow rate is established based on manufacturer recommendations.
- (C) For enclosed combustion devices for which, during the performance test conducted under § 60.5413c(b), the combustion zone temperature is not an indicator of destruction efficiency, you must comply with the requirements in paragraphs (e)(1)(vii)(C)(1) through (5) of this section, as applicable.
- (1) Maintain the total gas flow to the enclosed combustion device at or above the minimum inlet gas flow rate and at or below the maximum inlet flow rate for the enclosed combustion device established in accordance with § 60.5417c(f).

- (2) For unassisted enclosed combustion devices, maintain the NHV of the gas sent to the enclosed combustion device at or above 200 Btu/scf.
 - (3) For enclosed combustion devices that use pressure-assisted burner tips to promote mixing at the burner tip, maintain the NHV of the gas sent to the enclosed combustion device at or above 800 Btu/scf.
 - (4) For steam-assisted and air-assisted enclosed combustion devices, maintain the NHV_{cz} at or above 270 Btu/scf.
 - (5) For enclosed combustion devices with perimeter assist air, maintain the NHV_{dil} at or above 22 Btu/sqft. If the only assist air provided to the enclosed combustion device is perimeter assist air intentionally entrained in lower and/or upper steam at the flare tip and the effective diameter is 9 inches or greater, you are not required to comply with the NHV_{dil} limit.
- (D) For enclosed combustion devices for which, during the performance test conducted under § 60.5413c(b), the combustion zone temperature is demonstrated to be an indicator of destruction efficiency, you must comply with the requirements in paragraphs (e)(1)(vii)(D)(1) and (2) of this section.
- (1) Maintain the temperature at or above the minimum temperature established during the most recent performance test. The minimum temperature limit established during the most recent performance test is the average temperature recorded during each test run, averaged across the 3 test runs (average of the test run averages).
 - (2) Maintain the total gas flow to the enclosed combustion device at or above the minimum inlet gas flow rate and at or below the maximum inlet flow rate for the enclosed combustion device established in accordance with § 60.5417c(f).
- (E) For catalytic vapor incinerators you must operate the catalytic vapor incinerator at or above the minimum temperature of the catalyst bed inlet and at or above the minimum temperature differential between the catalyst bed inlet and the catalyst bed outlet established in accordance with § 60.5417c(f).
- (viii) If you use a carbon adsorption system as the control device to meet the requirements of § 60.5412c(a)(2), you must demonstrate compliance by the procedures in paragraphs (e)(1)(viii)(A) and (B) of this section, as applicable.
- (A) If you use a regenerative-type carbon adsorption system, you must comply with paragraphs (e)(1)(viii)(A)(1) through (4) of this section.
- (1) You must maintain the average regenerative mass flow or volumetric flow to the carbon adsorber during each bed regeneration cycle above the limit established in accordance with § 60.5413c(c)(2).
 - (2) You must maintain the average carbon bed temperature above the temperature limit established in accordance with § 60.5413c(c)(2) during the carbon bed steaming cycle and below the carbon bed temperature established in accordance with § 60.5413c(c)(2) after the regeneration cycle.

- (3) You must check the mechanical connections for leakage at least every month, and you must perform a visual inspection at least every 3 months of all components of the continuous parameter monitoring system for physical and operational integrity and all electrical connections for oxidation and galvanic corrosion if your continuous parameter monitoring system is not equipped with a redundant flow sensor.
- (4) You must replace all carbon in the carbon adsorption system with fresh carbon on a regular, predetermined time interval that is no longer than the carbon service life established according to § 60.5413_c(c)(2).
- (B) If you use a nonregenerative-type carbon adsorption system, you must replace all carbon in the control device with fresh carbon on a regular, predetermined time interval that is no longer than the carbon service life established according to § 60.5413_c(c)(3).
- (ix) If you use a condenser as the control device to achieve the percent reduction performance requirements specified in § 60.5412_c(a)(2), you must demonstrate compliance using the procedures in paragraphs (e)(1)(ix)(A) through (E) of this section.
 - (A) You must establish a site-specific condenser performance curve according to § 60.5417_c(f)(2).
 - (B) You must calculate the daily average condenser outlet temperature in accordance with § 60.5417_c(e).
 - (C) You must determine the condenser efficiency for the current operating day using the daily average condenser outlet temperature calculated under paragraph (e)(1)(ix)(B) of this section and the condenser performance curve established under paragraph (e)(1)(ix)(A) of this section.
 - (D) Except as provided in paragraphs (e)(1)(ix)(D)(1) and (2) of this section, at the end of each operating day, you must calculate the 365-day rolling average TOC emission reduction, as appropriate, from the condenser efficiencies as determined in paragraph (e)(1)(ix)(C) of this section.
 - (1) After the compliance dates specified in § 60.5387_c, if you have less than 120 days of data for determining average TOC emission reduction, you must calculate the average TOC emission reduction for the first 120 days of operation after the compliance date. You have demonstrated compliance with the overall 95.0 percent reduction requirement if the 120-day average TOC emission reduction is equal to or greater than 95.0 percent.
 - (2) After 120 days and no more than 364 days of operation after the compliance date specified in § 60.5387_c, you must calculate the average TOC emission reduction as the TOC emission reduction averaged over the number of days between the current day and the applicable compliance date. You have demonstrated compliance with the overall 95.0 percent reduction requirement if the average TOC emission reduction is equal to or greater than 95.0 percent.
 - (E) If you have data for 365 days or more of operation, you have demonstrated compliance with the TOC emission reduction if the rolling 365-day average TOC emission reduction calculated in paragraph (e)(1)(ix)(D) of this section is equal to or greater than 95.0 percent.

- (x) During each inspection conducted using an OGI camera under § 60.5397c and during each periodic screening event or each inspection conducted using an OGI camera under § 60.5398c, you must observe each enclosed combustion device and flare to determine if it is operating properly. You must determine whether there is a flame present and whether any uncontrolled emissions from the control device are visible with the OGI camera or the technique used to conduct the periodic screening event. During each inspection conducted under § 60.5397c using AVO, you must observe each enclosed combustion device and flare to determine if it is operating properly. Visually confirm that the pilot or combustion flame is lit and that the pilot or combustion flame is operating properly.
- (xi) If you use an enclosed combustion device or flare using an alternative test method approved under § 60.5412c(d), you must comply with paragraphs (e)(1)(xi)(A) through (E) of this section.
 - (A) You must maintain the combustion efficiency at or above 95.0 percent. Alternatively, if the alternative test method does not directly monitor combustion efficiency, you must comply with the applicable requirements in paragraphs (e)(1)(xi)(A)(1) and (2) of this section.
 - (1) Maintain the NHV_{O_2} at or above 270 Btu/scf.
 - (2) For flares or enclosed combustion devices with perimeter assist air, maintain the NHV_{dil} at or above 22 Btu/sqft. If the only assist air provided to the flare or enclosed combustion device is perimeter assist air intentionally entrained in lower and/or upper steam at the flare tip and the effective diameter is 9 inches or greater, you are only required to comply with the NHV_{O_2} limit specified in paragraph (e)(1)(xi)(A)(1) of this section.
 - (B) You must calculate the value of the applicable monitored metric(s) in accordance with the approved alternative test method. Compliance with the limit is achieved when the calculated values are within the range specified in paragraph (e)(1)(xi)(A) of this section.
 - (C) You must conduct monitoring using the alternative test method at all times the affected source is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions and required monitoring system quality assurance or quality control activities (including, as applicable, system accuracy audits and required zero and span adjustments). A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.
 - (D) You may not use data recorded during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report values to demonstrate compliance with the limits specified in paragraph (e)(1)(xi)(A) of this section. You must use all the data collected during all other required data collection periods to assess the operation of the control device and associated control system.
 - (E) Failure to collect required data is a deviation of the monitoring requirements.
- (2) You must maintain the records as specified in § 60.5420c(c)(10) and (12).

(3) You must comply with the reporting requirements in § 60.5420c(b)(10) through (12).

(f) **Reciprocating compressor designated facility.** For each reciprocating compressor designated facility complying with § 60.5393c(a) through (c), you must demonstrate continuous compliance according to paragraphs (f)(1), (3), (5), and (6) of this section. For each reciprocating compressor designated facility complying with § 60.5393c(d)(1) or (2), you must demonstrate continuous compliance according to paragraphs (f)(2), (5), and (6) of this section. For each reciprocating compressor affected facility complying with § 60.5393c(d)(3), you must demonstrate continuous compliance according to paragraphs (f)(3) through (6) of this section.

(1) You must maintain the volumetric flow rate at or below 2 scfm per cylinder (or at or below the combined volumetric flow rate determined by multiplying the number of cylinders by 2 scfm), and you must conduct the required volumetric flow rate measurement of your reciprocating compressor rod packing vents in accordance with § 60.5393c(b) or (c) on or before 8,760 hours of operation after your last volumetric flow rate measurement which demonstrated compliance with the applicable volumetric flow rate.

(2) You must operate the rod packing emissions collection system to route emissions to a control device or to a process through a closed vent system and continuously comply with the cover and closed vent requirements of § 60.5416c. If you comply with § 60.5393c(d) by using a control device, you also must comply with the requirements in paragraph (e) of this section.

(3) You must continuously monitor the number of hours of operation for each reciprocating compressor affected facility since initial startup, since 60 days after the state plan submittal deadline (as specified in § 60.5362c(c)), since the previous flow rate measurement, or since the date of the most recent reciprocating compressor rod packing replacement, whichever date is latest.

(4) You must replace the reciprocating compressor rod packing on or before the total number of hours of operation reaches 8,760 hours.

(5) You must submit the annual reports as required in § 60.5420c(b)(1), (5), and (b)(10)(i) through (iv), as applicable.

(6) You must maintain records as required in § 60.5420c(c)(4), (7) through (9), and (11), as applicable.

(g) **Process controller designated facility.** To demonstrate continuous compliance with GHG emission standards for your process controller designated facility as required by § 60.5394c, you must comply with the paragraphs (g)(1) through (4) of this section.

(1) You must demonstrate that your process controller designated facility does not emit any methane to the atmosphere by meeting the requirements of paragraphs (g)(1)(i) or (ii) of this section.

(i) If you comply by routing the emissions to a process, you must comply with the closed vent system inspection and monitoring requirements of § 60.5416c.

(ii) If you comply by using a self-contained natural gas-driven process controller, you must conduct the no identifiable emissions inspections required by § 60.5416c(b).

(2) For each process controller designated facility located at a site in Alaska that does not have access to electrical power, and that complies by reducing methane emissions from all controllers in the process controller designated facility by 95.0 percent in accordance with § 60.5494c(b)(3), you must comply with the closed vent requirements of § 60.5416c and the requirements in paragraph (e) of this section for the control device.

- (3) You must submit the annual report for your process controller as required in § 60.5420c(b)(1), (6), and (10) through (12), as applicable.
- (4) You must maintain the records as specified in § 60.5420c(c)(5), (7), (9), and (11) for each process controller designated facility, as applicable.
- (h) **Storage vessel designated facility.** For each storage vessel designated facility, you must demonstrate continuous compliance with the requirements of § 60.5396c according to paragraphs (h)(1) through (10) of this section, as applicable.
 - (1) For each storage vessel designated facility complying with the requirements of § 60.5396c(a)(2), you must demonstrate continuous compliance according to paragraphs (h)(5) and (h)(9) and (10) of this section.
 - (2) For each storage vessel designated facility complying with the requirements of § 60.5396c(a)(3), you must demonstrate continuous compliance according to paragraphs (h)(2)(i), (ii), or (iii) of this section, as applicable, and (h)(9) and (10) of this section.
 - (i) You must maintain the uncontrolled actual methane emissions from the storage vessel designated facility at less than 14 tpy.
 - (ii) You must comply with paragraph (h)(5) of this section as soon as liquids from the well are routed to the storage vessel designated facility following fracturing or refracturing according to the requirements of § 60.5396c(a)(3)(i).
 - (iii) You must comply with paragraph (h)(5) of this section within 30 days of the monthly determination according to the requirements of § 60.5396c(a)(3)(ii), where the monthly emissions determination indicates that methane emissions from your storage vessel designated facility increase to 14 tpy or greater and the increase is not associated with fracturing or refracturing of a well feeding the storage vessel designated facility.
 - (3) For each storage vessel designated facility or portion of a storage vessel designated facility removed from service, you must demonstrate compliance with the requirements of § 60.5396c(c)(1) or (2) by complying with paragraphs (h)(6), (7), (9), and (10) of this section.
 - (4) For each storage vessel designated facility or portion of a storage vessel designated facility returned to service, you must demonstrate compliance with the requirements of § 60.5396c(c)(3) and (4) by complying with paragraphs (h)(8) through (10) of this section.
 - (5) For each storage vessel designated facility, you must comply with paragraphs (h)(5)(i) and (ii) of this section.
 - (i) You must reduce methane emissions as specified in § 60.5396c(a)(2).
 - (ii) For each control device installed to meet the requirements of § 60.5396c(a)(2), you must demonstrate continuous compliance with the performance requirements of § 60.5412c for each storage vessel designated facility using the procedure specified in paragraph (h)(5)(ii)(A) and (B) of this section. When routing emissions to a process, you must demonstrate continuous compliance as specified in paragraph (h)(5)(ii)(A) of this section.
 - (A) You must comply with § 60.5416c for each cover and closed vent system.
 - (B) You must comply with the requirements specified in paragraph (e) of this section.

- (6) You must completely empty and degas each storage vessel, such that each storage vessel no longer contains crude oil, condensate, produced water or intermediate hydrocarbon liquids. For a portion of a storage vessel designated facility to be removed from service, you must completely empty and degas the storage vessel(s), such that the storage vessel(s) no longer contains crude oil, condensate, produced water or intermediate hydrocarbon liquids. A storage vessel where liquid is left on walls, as bottom clingage or in pools due to floor irregularity is considered to be completely empty.
- (7) You must disconnect the storage vessel(s) from the tank battery by isolating the storage vessel(s) from the tank battery such that the storage vessel(s) is no longer manifolded to the tank battery by liquid or vapor transfer.
- (8) You must determine the designated facility status of a storage vessel returned to service as provided in § 60.5386c(e)(5).
- (9) You must submit the annual reports as required by § 60.5420c(b)(1) and (7) and (b)(10)(i) through (iv).
- (10) You must maintain the records as required by § 60.5420c(c)(6) through (9) and (11), as applicable.

(i) **Process unit equipment designated facility.** For each process unit equipment designated facility, you must demonstrate continuous compliance with the requirements of § 60.5400c according to paragraphs (i)(1) through (4) and (11) through (15) of this section, unless you meet and comply with the exception in § 60.5402c(b), (e), or (f) or meet the exemption in § 60.5402c(c). Alternatively, if you comply with the GHG standards for process unit designated facilities using the standards in § 60.5401c, you must comply with paragraphs (i)(5) through (15) of this section, unless you meet the exemption in § 60.5402c(b) or (c) or the exception in § 60.5402c(e) and (f).

- (1) You must conduct monitoring for each pump in light liquid service, pressure relief device in gas/vapor service, valve in gas/vapor and light liquid service and connector in gas/vapor and light liquid service as required by § 60.5400c(b).
- (2) You must conduct monitoring as required by § 60.5400c(c) for each pump in light liquid service.
- (3) You must conduct monitoring as required by § 60.5400c(d) for each pressure relief device in gas/vapor service.
- (4) You must comply with the equipment requirements for each open-ended valve or line as required by § 60.5400c(e).
- (5) You must conduct monitoring for each pump in light liquid service as required by § 60.5401c(b).
- (6) You must conduct monitoring for each pressure relief device in gas/vapor service as required by § 60.5401c(c).
- (7) You must comply with the equipment requirements for each open-ended valve or line as required by § 60.5401c(d).
- (8) You must conduct monitoring for each valve in gas/vapor or light liquid service as required by § 60.5401c(f).
- (9) You must conduct monitoring for each pump, valve, and connector in heavy liquid service and each pressure relief device in light liquid or heavy liquid service as required by § 60.5401c(g).

- (10) You must conduct monitoring for each connector in gas/vapor or light liquid service as required by § 60.5401c(h).
 - (11) You must collect emissions and meet the closed vent system requirements as required by § 60.5416c for each pump equipped with a dual mechanical seal system that degasses the barrier fluid reservoir to a process or a control device, each pump which captures and transports leakage from the seal or seals to a process or control device, or each pressure relief device which captures and transports leakage through the pressure relief device to a process or control device.
 - (12) You must comply with the requirements specified in paragraph (e) of this section.
 - (13) You must tag and repair each identified leak as required in § 60.5400c(h) or § 60.5401c(i), as applicable.
 - (14) You must submit semiannual reports as required by § 60.5422c and the annual reports in § 60.5420c(b)(10)(i) through (iv), as applicable.
 - (15) You must maintain the records specified by § 60.5420c(c)(7), (c)(9), and (c)(11) as applicable and § 60.5421c.
- (j) **Continuous compliance.** For each fugitive emissions components designated facility, you must demonstrate continuous compliance with the requirements of § 60.5397c(a) according to paragraphs (j)(1) through (4) of this section.
- (1) You must conduct periodic monitoring surveys as required in § 60.5397c(e) and (g).
 - (2) You must repair each identified source of fugitive emissions as required in § 60.5397c(h).
 - (3) You must submit annual reports for fugitive emissions components designated facilities as required in § 60.5420c(b)(1) and (8).
 - (4) You must maintain records as specified in § 60.5420c(c)(13).

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62929, Aug. 1, 2024]

§ 60.5416c What are the initial and continuous cover and closed vent system inspection and monitoring requirements?

For each closed vent system and cover at your well, centrifugal compressor, reciprocating compressor, process controller, pump, storage vessel, and process unit equipment designated facilities, you must comply with the applicable requirements of paragraphs (a) and (b) of this section. Each self-contained natural gas process controller must comply with paragraph (b) of this section.

- (a) **Inspections for closed vent systems, covers, and bypass devices.** If you install a control device or route emissions to a process, you must inspect each closed vent system according to the procedures and schedule specified in paragraphs (a)(1) and (2) of this section, inspect each cover according to the procedures and schedule specified in paragraph (a)(3) of this section, and inspect each bypass device according to the procedures of paragraph (a)(4) of this section, except as provided in paragraphs (b)(7) and (8) of this section.

- (1) For each closed vent system joint, seam, or other connection that is permanently or semi-permanently sealed (e.g., a welded joint between two sections of hard piping or a bolted and gasketed ducting flange), you must meet the requirements specified in paragraphs (a)(1)(i) through (iii) of this section.
 - (i) Conduct an initial inspection according to the test methods and procedures specified in paragraph (b) of this section to demonstrate that the closed vent system operates with no identifiable emissions within the first 30 calendar days after routing emissions through the closed vent system.
 - (ii) Conduct annual visual inspections for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in piping; loose connections; liquid leaks; or broken or missing caps or other closure devices. You must monitor a component or connection using the test methods and procedures in paragraph (b) of this section to demonstrate that it operates with no identifiable emissions following any time the component is repaired or replaced or the connection is unsealed.
 - (iii) Conduct AVO inspections in accordance with and at the same frequency as specified for fugitive emissions components designated facilities located at the same type of site as specified in § 60.5397c(g). Process unit equipment designated facilities must conduct annual AVO inspections concurrent with the inspections required by paragraph (a)(1)(ii) of this section.
- (2) For closed vent system components other than those specified in paragraph (a)(1) of this section, you must meet the requirements of paragraphs (a)(2)(i) through (iv) of this section.
 - (i) Conduct an initial inspection according to the test methods and procedures specified in paragraph (b) of this section within the first 30 calendar days after routing emissions through the closed vent system to demonstrate that the closed vent system operates with no identifiable emissions.
 - (ii) Conduct inspections according to the test methods, procedures, and frequencies specified in paragraph (b) of this section to demonstrate that the components or connections operate with no identifiable emissions.
 - (iii) Conduct annual visual inspections for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in ductwork; loose connections; liquid leaks; or broken or missing caps or other closure devices. You must monitor a component or connection using the test methods and procedures in paragraph (b) of this section to demonstrate that it operates with no identifiable emissions following any time the component is repaired or replaced or the connection is unsealed.
 - (iv) Conduct AVO inspections in accordance with and at the same frequency as specified for fugitive emissions components designated facilities located at the same type of site, as specified in § 60.5397c(g). Process unit equipment designated facilities must conduct annual AVO inspections concurrent with the inspections required by paragraph (a)(2)(iii) of this section.
- (3) For each cover, you must meet the requirements of paragraphs (a)(3)(i) through (iv) of this section.
 - (i) Conduct the inspections specified in paragraphs (a)(3)(ii) through (iv) of this section to identify defects that could result in air emissions and to ensure the cover operates with no identifiable emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the cover, or

between the cover 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. In the case where the storage vessel is buried partially or entirely underground, you must inspect only those portions of the cover that extend to or above the ground surface, and those connections that are on such portions of the cover (e.g., fill ports, access hatches, gauge wells, etc.) and can be opened to the atmosphere.

- (ii) An initial inspection according to the test methods and procedures specified in paragraph (b) of this section, following installation of the cover to demonstrate that each cover operates with no identifiable emissions.
 - (iii) Conduct AVO inspections in accordance with and at the same frequency as specified for fugitive emissions components designated facilities located at the same type of site as specified in § 60.5397b(g). Process unit equipment designated facilities must conduct annual AVO inspections concurrent with the inspections required by paragraph (a)(1)(ii) of this section.
 - (iv) Inspections according to the test methods, procedures, and schedules specified in paragraph (b) of this section to demonstrate that each cover operates with no identifiable emissions.
- (4) For each bypass device, except as provided for in § 60.5411c(a)(4)(ii), you must meet the requirements of paragraph (a)(4)(i) or (ii) of this section.
- (i) Set the flow indicator to take a reading at least once every 15 minutes at the inlet to the bypass device that could divert the stream away from the control device and to the atmosphere.
 - (ii) If the bypass device valve installed at the inlet to the bypass device is secured in the non-diverting position using a car-seal or a lock-and-key type configuration, visually inspect the seal or closure mechanism at least once every month to verify that the valve is maintained in the non-diverting position and the vent stream is not diverted through the bypass device.
- (b) **No identifiable emissions test methods and procedures.** If you are required to conduct an inspection of a closed vent system and cover as specified in paragraph (a)(1), (2), or (3) of this section or § 60.5398c(b), you must meet the requirements of paragraphs (b)(1) through (9) of this section. You must meet the requirements of paragraphs (b)(1), (2), (4), and (9) of this section for each self-contained process controller at your process controller designated facility as specified at § 60.5394c(a)(2).
- (1) **Initial and periodic inspection.** You must conduct initial and periodic no identifiable emissions inspections as specified in paragraphs (b)(1)(i) through (iii) of this section, as applicable.
- (i) You must conduct inspections for no identifiable emissions from your closed vent systems and covers at your well, centrifugal compressor, reciprocating compressor, process controller, pump, or storage vessel designated facility, using the procedures for conducting OGI inspections in § 60.5397c(c)(7). As an alternative you may conduct inspections in accordance with Method 21 of appendix A-7 to this part. Monitoring must be conducted at the same frequency as specified for fugitive emissions components designated facilities located at the same type of site, as specified in § 60.5397c(g).
 - (ii) For closed vent systems and covers located at onshore natural gas processing plants, OGI inspections for no identifiable emissions must be conducted initially and bimonthly in accordance with appendix K to this part. As an alternative you must conduct quarterly inspections for no identifiable emissions in accordance with Method 21 of appendix A-7 to this part.

- (iii) For your self-contained process controller, you must conduct initial and quarterly inspections for no identifiable emissions using the procedures for conducting OGI inspections in § 60.5397c(c)(7). As an alternative you may conduct quarterly inspections in accordance with Method 21 of appendix A-7 to this part.
- (2) **OGI inspection.** Where OGI is used, the closed vent system, cover, or self-contained process controller is determined to operate with no identifiable emissions if no emissions are imaged during the inspection. Emissions imaged by OGI constitute a deviation of the no identifiable emissions standard until an OGI inspection conducted in accordance with this paragraph (b)(2) of this section determines that the closed vent system, cover, or self-contained process controller, as applicable, operates with no identifiable emissions.
- (3) **AVO inspection.** Where AVO inspections are required, the closed vent system or cover is determined to operate with no identifiable emissions if no emissions are detected by AVO. Emissions detected by AVO constitute a deviation of the no identifiable emissions standard until an AVO inspection determines that the closed vent system or cover operates with no identifiable emissions.
- (4) **Method 21 inspection.** Where Method 21 of appendix A-7 to this part is used for the inspection, the requirements of paragraphs (b)(4)(i) through (vii) of this section apply.
 - (i) The detection instrument must meet the performance criteria of Method 21 of appendix A-7 to this part, except that the instrument response factor criteria in section 8.1.1 of Method 21 must be for the average composition of the fluid and not for each individual organic compound in the stream.
 - (ii) You must calibrate the detection instrument before use on each day of its use by the procedures specified in Method 21 of appendix A-7 to this part.
 - (iii) Calibration gases must be as specified in paragraphs (b)(4)(iii)(A) and (B) of this section.
 - (A) Zero air (less than 10 parts per million by volume hydrocarbon in air).
 - (B) A mixture of methane in air at a concentration less than 500 ppmv.
 - (iv) You may choose to adjust or not adjust the detection instrument readings to account for the background organic concentration level. If you choose to adjust the instrument readings for the background level, you must determine the background level value according to the procedures in Method 21 of appendix A-7 to this part.
 - (v) Your detection instrument must meet the performance criteria specified in paragraphs (b)(4)(v)(A) and (B) of this section.
 - (A) Except as provided in paragraph (b)(4)(v)(B) of this section, the detection instrument must meet the performance criteria of Method 21 of appendix A-7 to this part, except the instrument response factor criteria in section 8.1.1 of Method 21 must be for the average composition of the process fluid, not each individual volatile organic compound in the stream. For process streams that contain nitrogen, air, or other inerts that are not organic hazardous air pollutants or volatile organic compounds, you must calculate the average stream response factor on an inert-free basis.

- (B) If no instrument is available that will meet the performance criteria specified in paragraph (b)(4)(v)(A) of this section, you may adjust the instrument readings by multiplying by the average response factor of the process fluid, calculated on an inert-free basis, as described in paragraph (b)(4)(v)(A) of this section.
 - (vi) You must determine if a potential leak interface operates with no identifiable emissions, as applicable, using the applicable procedure specified in paragraph (b)(4)(vi)(A) or (B) of this section.
 - (A) If you choose not to adjust the detection instrument readings for the background organic concentration level, then you must directly compare the maximum organic concentration value measured by the detection instrument to the applicable value for the potential leak interface as specified in paragraph (b)(4)(vii) of this section.
 - (B) If you choose to adjust the detection instrument readings for the background organic concentration level, you must compare the value of the arithmetic difference between the maximum organic concentration value measured by the instrument and the background organic concentration value as determined in paragraph (b)(4)(iv) of this section with the applicable value for the potential leak interface as specified in paragraph (b)(4)(vii) of this section.
 - (vii) A closed vent system, cover, or self-contained process controller is determined to operate with no identifiable emissions if the organic concentration value determined in paragraph (b)(4)(vi) of this section is less than 500 ppmv. An organic concentration value determined in paragraph (b)(4)(vi) of this section of greater than or equal to 500 ppmv constitutes a deviation of the no identifiable emissions standard until an inspection conducted in accordance with this paragraph (b)(4) of this section determines that the closed vent system, cover, or self-contained process controller, as applicable, operates with no identifiable emissions.
- (5) **Repairs.** Whenever emissions or a defect is detected, you must repair the emissions or defect as soon as practicable according to the requirements of paragraphs (b)(5)(i) through (iii) of this section, except as provided in paragraph (b)(6) of this section.
- (i) A first attempt at repair must be made no later than 5 calendar days after the emissions or defect is detected.
 - (ii) Repair must be completed no later than 30 calendar days after the emissions or defect is detected.
 - (iii) For covers, grease or another substance compatible with the gasket material must be applied to deteriorating or cracked gaskets to improve the seal while awaiting repair.
- (6) **Delay of repair.** Delay of repair of a closed vent system or cover for which emissions or defects have been detected is allowed if the repair is technically infeasible without a shutdown, or if you determine that emissions resulting from immediate repair would be greater than the emissions likely to result from delay of repair. You must complete repair of such equipment by the end of the next shutdown.
- (7) **Unsafe to inspect requirements.** You may designate any parts of the closed vent system or cover as unsafe to inspect if the requirements of paragraphs (b)(7)(i) and (ii) of this section are met. Unsafe to inspect parts are exempt from the inspection requirements of paragraphs (a)(1) through (3) of this section.

- (i) You determine that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with paragraphs (a)(1), (2), or (3) of this section.
 - (ii) You have a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
- (8) **Difficult to inspect requirements.** You may designate any parts of the closed vent system or cover as difficult to inspect if the requirements of paragraphs (b)(8)(i) and (ii) of this section are met. Difficult to inspect parts are exempt from the inspection requirements of paragraphs (a)(1) through (3) of this section.
- (i) You determine that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface.
 - (ii) You have a written plan that requires inspection of the equipment at least once every 5 years.
- (9) **Records and reports.** You must maintain records of all inspection results as specified in § 60.5420c(c)(7) through (9). You must submit the reports as specified in § 60.5420c(b)(10).

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62934, Aug. 1, 2024]

§ 60.5417c What are the continuous monitoring requirements for my control devices?

You must meet the requirements of this section to demonstrate continuous compliance for each control device used to meet emission standards for your well, centrifugal compressor, reciprocating compressor, process controller, pump, storage vessel, and process unit equipment designated facilities.

- (a) For each control device used to comply with the emission reduction standard in § 60.5391c(b) for well designated facilities, § 60.5392c(a)(3) for centrifugal compressor designated facilities, § 60.5393c(d)(2) for reciprocating compressor designated facilities, § 60.5394c(b)(3) for your process controller designated facility in Alaska, § 60.5395c(b)(1) for your pumps designated facility, § 60.5396c(a)(2) for your storage vessel designated facility, or either § 60.5400c(f) or § 60.5401c(e) for your process equipment designated facility, you must install and operate a continuous parameter monitoring system for each control device as specified in paragraphs (c) through (h) of this section, except as provided for in paragraph (b) of this section. If you install and operate a flare in accordance with § 60.5412c(a)(3), you are exempt from the requirements of paragraph (f) of this section. If you operate an enclosed combustion device or flare using an alternative test method approved under § 60.5412c(d), you must operate the control device as specified in paragraph (i) of this section instead of using the procedures specified in paragraphs (c) through (h) of this section. You must keep records and report in accordance with paragraph (j) of this section.
- (b) You are exempt from the monitoring requirements specified in paragraphs (c) through (g) of this section for the control devices listed in paragraphs (b)(1) and (2) of this section.
 - (1) A boiler or process heater in which all vent streams are introduced with the primary fuel or are used as the primary fuel.
 - (2) A boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts.
- (c) You must meet the specifications and requirements of paragraphs (c)(1) through (4) of this section.

- (1) Except for continuous parameter monitoring systems used to detect the presence of a pilot or combustion flame, each continuous parameter monitoring system must measure data values at least once every hour and record the values for each parameter as required in paragraphs (c)(1)(i) or (ii) of this section. Continuous parameter monitoring systems used to detect the presence of a pilot or combustion flame must record a reading at least once every 5 minutes.
 - (i) Each measured data value.
 - (ii) Each block average value for each 1-hour period or shorter periods calculated from all measured data values during each period.
 - (2) You must prepare a monitoring plan that covers each control device for designated facilities within each company-defined area. The monitoring plan must address the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (c)(2)(i) through (v) of this section. You must install, calibrate, operate, and maintain each continuous parameter monitoring system in accordance with the procedures in your monitoring plan. Heat sensing monitoring devices that indicate the continuous ignition of a pilot or combustion flame are exempt from the calibration, quality assurance and quality control requirements of this section.
 - (i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations.
 - (ii) Sampling interface (e.g., thermocouple) location such that the monitoring system will provide representative measurements.
 - (iii) Equipment performance checks, system accuracy audits, or other audit procedures.
 - (iv) Ongoing operation and maintenance procedures in accordance with provisions in § 60.13(b).
 - (v) Ongoing recordkeeping procedures in accordance with provisions in § 60.7(f).
 - (3) You must conduct the continuous parameter monitoring system equipment performance checks, system accuracy audits, or other audit procedures specified in the monitoring plan at least once every 12 months.
 - (4) You must conduct a performance evaluation of each continuous parameter monitoring system in accordance with the monitoring plan. Heat sensing monitoring devices that indicate the continuous ignition of a pilot or combustion flame are exempt from the calibration, quality assurance and quality control requirements of this section.
- (d) You must install, calibrate, operate, and maintain a device equipped with a continuous recorder to measure the values of operating parameters appropriate for the control device as specified in paragraphs (d)(1) through (8) of this section, as applicable. Instead of complying with the requirements in paragraphs (d)(1) through (8) of this section, you may install an organic monitoring device equipped with a continuous recorder that measures the concentration level of organic compounds in the exhaust vent stream from the control device to demonstrate compliance with the applicable performance requirement specified in § 60.5412c(a)(1). The monitor must meet the requirements of Performance Specification 8 or 9 of appendix B to this part. You must install, calibrate, and maintain the monitor according to the manufacturer's specifications and the requirements in Performance Specification 8 or 9. You may also request approval from the Administrator to monitor different operating parameters than those specified in paragraphs (d)(1) through (8) of this section in accordance with § 60.13(i).

- (1) For an enclosed combustion device that demonstrates during the performance test conducted under § 60.5413c(b) that combustion zone temperature is an accurate indicator of performance, a temperature monitoring device equipped with a continuous recorder. The monitoring device must have a minimum accuracy of ± 1 percent of the temperature being monitored in degrees Celsius, or ± 2.5 °C, whichever value is greater. You must install the temperature sensor at a location representative of the combustion zone temperature. You must also comply with the requirements of paragraphs (d)(8)(i), (iv), and (v) of this section.
- (2) For a catalytic vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device must be capable of monitoring temperature at two locations and have a minimum accuracy of ± 1 percent of the temperature being monitored in degrees Celsius, or ± 2.5 °C, whichever value is greater. You must install one temperature sensor in the vent stream at the nearest feasible point to the catalyst bed inlet, and you must install a second temperature sensor in the vent stream at the nearest feasible point to the catalyst bed outlet.
- (3) For a boiler or process heater, a temperature monitoring device equipped with a continuous recorder. The temperature monitoring device must have a minimum accuracy of ± 1 percent of the temperature being monitored in degrees Celsius, or ± 2.5 °C, whichever value is greater. You must install the temperature sensor at a location representative of the combustion zone temperature.
- (4) For a condenser, a temperature monitoring device equipped with a continuous recorder. The temperature monitoring device must have a minimum accuracy of ± 1 percent of the temperature being monitored in degrees Celsius, or ± 2.5 °C, whichever value is greater. You must install the temperature sensor at a location in the exhaust vent stream from the condenser.
- (5) For a regenerative-type carbon adsorption system, a continuous monitoring system that meets the specifications in paragraphs (d)(5)(i) and (ii) of this section. You also must monitor the design carbon service life established using a design analysis performed as specified in § 60.5413c(c)(2).
 - (i) The continuous parameter monitoring system must measure and record the average total regeneration stream mass flow or volumetric flow during each carbon bed regeneration cycle. The flow sensor must have a measurement sensitivity of 5 percent of the flow rate or 10 cubic feet per minute, whichever is greater. You must check the mechanical connections for leakage at least every month, and you must perform a visual inspection at least every 3 months of all components of the flow continuous parameter monitoring system for physical and operational integrity and all electrical connections for oxidation and galvanic corrosion if your flow continuous parameter monitoring system is not equipped with a redundant flow sensor; and
 - (ii) The continuous parameter monitoring system must measure and record the average carbon bed temperature for the duration of the carbon bed steaming cycle and measure the actual carbon bed temperature after regeneration and within 15 minutes of completing the cooling cycle. The temperature monitoring device must have a minimum accuracy of ± 1 percent of the temperature being monitored in degrees Celsius, or ± 2.5 °C, whichever value is greater.
- (6) For a nonregenerative-type carbon adsorption system, you must monitor the design carbon replacement interval established using a design analysis performed as specified in § 60.5413c(c)(3). The design carbon replacement interval must be based on the total carbon working capacity of the control device and source operating schedule.
- (7) For a combustion control device whose model is tested under § 60.5413c(d), continuous monitoring systems as specified in paragraphs (d)(8)(i) through (iv) and (vi) of this section and visible emission observations conducted as specified in paragraph (d)(8)(v) of this section.

- (8) For an enclosed combustion device, other than those listed in paragraphs (d)(1) through (3) and (7) of this section, or for a flare, continuous monitoring systems as specified in paragraphs (d)(8)(i) through (iv) of this section and visible emission observations conducted as specified in paragraph (d)(8)(v) of this section. Additionally, for enclosed combustion devices or flares that are air-assisted or steam-assisted, the continuous monitoring systems specified in paragraph (d)(8)(vi) of this section.
- (i) Continuously monitor at least once every five minutes for the presence of a pilot flame or combustion flame using a device (including, but not limited to, a thermocouple, ultraviolet beam sensor, or infrared sensor) capable of detecting that the pilot or combustion flame is present at all times. An alert must be sent to the nearest control room whenever the pilot or combustion flame is unlit. Continuous monitoring systems used for the presence of a pilot flame or combustion flame are not subject to a minimum accuracy requirement beyond being able to detect the presence or absence of a flame and are exempt from the calibration requirements of this section.
- (ii) Except as provided in this paragraph (d)(8)(ii) and paragraph (d)(8)(iii) of this section, use one of the following methods to continuously determine the NHV of the inlet gas to the enclosed combustion device or flare at standard conditions. If the only inlet gas stream to the enclosed combustion device or flare is associated gas from a well designated facility, the NHV of the inlet stream is considered to be sufficiently above the minimum required NHV for the inlet gas, and you are not required to conduct the continuous monitoring in this paragraph (d)(8)(ii) or the demonstration in paragraph (d)(8)(iii) of this section.
- (A) A calorimeter with a minimum accuracy of ± 2 percent of span.
- (B) A gas chromatograph that meets the requirements in paragraphs (d)(8)(ii)(B)(1) through (5) of this section.
- (1) You must follow the procedure in Performance Specification 9 of appendix B to this part, except that a single daily mid-level calibration check can be used (rather than triplicate analysis), the multi-point calibration can be conducted quarterly (rather than monthly), and the sampling line temperature must be maintained at a minimum temperature of 60 °C (rather than 120 °C). Calibration gas cylinders must be certified to an accuracy of 2 percent and traceable to National Institute of Standards and Technology (NIST) standards.
- (2) You must meet the accuracy requirements in Performance Specification 9 of appendix B to this part.
- (3) You must use a calibration gas or multiple gases that includes the compounds that are reasonably expected to be present in the flare gas stream. If multiple calibration gases are necessary to cover all compounds, you must calibrate the instrument on all of the gases. You may only use the compounds used to calibrate the gas chromatograph in the calculation of the vent gas NHV.
- (4) In lieu of the calibration gas described in paragraph (d)(8)(ii)(B)(3) of this section, you may use a surrogate calibration gas consisting of hydrogen and C1 through C5 normal hydrocarbons. All of the calibration gases may be combined in one cylinder. If multiple calibration gases are necessary to cover all compounds, you must calibrate the instrument on all of the gases. Use the response factor for the nearest normal

hydrocarbon (*i.e.*, n-alkane) in the calibration mixture to quantify unknown components detected in the analysis. Use the response factor for n-pentane to quantify unknown components detected in the analysis that elute after n-pentane.

5. To determine the NHV of the vent gas, determine the product of the volume fraction of the individual component in the vent gas and the net heating value of that individual component. Sum the products for all components in the vent gas to determine the NHV for the vent gas. For the net heating value of each individual component, use the net heating value at 25 °C and 1 atmosphere.
- C. A mass spectrometer that meets the requirements in paragraphs (d)(8)(ii)(C)(1) through (6) of this section.
1. You must meet applicable requirements in Performance Specification 9 of appendix B of this part for continuous monitoring system acceptance including, but not limited to, performing an initial multi-point calibration check at three concentrations following the procedure in Section 10.1. A single daily mid-level calibration check can be used (rather than triplicate analysis), the multi-point calibration can be conducted quarterly (rather than monthly), and the sampling line temperature must be maintained at a minimum temperature of 60 °C (rather than 120 °C). Calibration gas cylinders must be certified to an accuracy of 2 percent and traceable to NIST standards.
 2. The average instrument calibration error (CE) for each calibration compound at any calibration concentration must not differ by more than 10 percent from the certified cylinder gas value. The CE for each component in the calibration blend must be calculated using the following equation:

Equation 1 to paragraph (d)(8)(ii)(C)(2)

$$CE = \frac{C_m - C_a}{C_a} \times 100$$

Where:

C_m = Average instrument response (ppm).

C_a = Certified cylinder gas value (ppm).

3. You must use a calibration gas or multiple gases that includes the compounds that are reasonably expected to be present in the flare gas stream. If multiple calibration gases are necessary to cover all compounds, you must calibrate the instrument on all of the gases. You may only use the compounds used to calibrate the mass spectrometer in the calculation of the vent gas NHV.
4. In lieu of the calibration gas described in paragraph (d)(8)(ii)(C)(3) of this section, you may use a surrogate calibration gas consisting of hydrogen and C1 through C5 normal hydrocarbons. All of the calibration gases may be combined in one cylinder. If multiple calibration gases are necessary to cover all compounds, you must calibrate

the instrument on all of the gases. For unknown gas components that have similar analytical mass fragments to calibration compounds, you may report the unknowns as an increase in the overlapped calibration gas compound. For unknown compounds that produce mass fragments that do not overlap calibration compounds, you may use the response factor for the nearest molecular weight hydrocarbon in the calibration mix to quantify the unknown component. You may use the response factor for n-pentane to quantify any unknown components detected with a higher molecular weight than n-pentane.

(5) You must perform an initial calibration to identify mass fragment overlap and response factors for the target compounds.

(6) To determine the NHV of the vent gas, determine the product of the volume fraction of the individual component in the vent gas and the net heating value of that individual component. Sum the products for all components in the vent gas to determine the NHV for the vent gas. For the net heating value of each individual component, use the net heating value at 25 °C and 1 atmosphere.

(D) A grab sampling system capable of collecting an evacuated canister sample for subsequent compositional analysis at least once every eight hours. Subsequent compositional analysis of the samples must be performed according to ASTM D1945-14 (R2019) (incorporated by reference, see § 60.17). To determine the NHV of the vent gas, determine the product of the volume fraction of the individual component in the vent gas and the net heating value of that individual component. Sum the products for all components in the vent gas to determine the NHV for the vent gas. For the net heating value of each individual component, use the net heating value at 25 °C and 1 atmosphere.

(iii) For an unassisted or pressure-assisted flare or enclosed combustion device, if you demonstrate according to the methods described in paragraphs (d)(8)(iii)(A) through (F) of this section that the NHV of the inlet gas to the enclosed combustion device or flare consistently exceeds the applicable operating limit specified in § 60.5415c(e)(1)(vii)(B) or (C), continuous monitoring of the NHV is not required, but you must conduct the ongoing sampling in paragraph (d)(8)(iii)(G) of this section. For flares and enclosed combustion devices that use only perimeter assist air and do not use steam assist or premix assist air, if you demonstrate according to the methods described in paragraphs (d)(8)(iii)(A) through (F) of this section that the NHV of the inlet gas to the enclosed combustion device or flare consistently exceeds 300 Btu/scf, continuous monitoring of the NHV is not required, but you must conduct the ongoing sampling in paragraph (d)(8)(iii)(G) of this section. For an unassisted or pressure-assisted flare or enclosed combustion device, in lieu of conducting the demonstration outlined in paragraphs (d)(8)(iii)(A) through (D) of this section, you may conduct the demonstration outlined in paragraph (d)(8)(iii)(H) of this section, but you must still comply with paragraphs (d)(8)(iii)(E) through (G) of this section.

(A) Continuously monitor or collect a sample of the inlet gas to the enclosed combustion device or flare twice daily to determine the average NHV of the gas stream for 14 consecutive operating days. If you do not continuously monitor the NHV, the minimum time of collection for each individual sample be at least one hour. Consecutive samples must be separated by at least 6 hours. If inlet gas flow is intermittent such that there are

not at least 28 samples over the 14 operating day period, you must continue to collect samples of the inlet gas beyond the 14 operating day period until you collect a minimum of 28 samples.

- (B) If you collect samples twice per day, count the number of samples where the NHV value is less than 1.2 times the applicable operating limit specified in § 60.5415c(e)(1)(vii)(B) or (C), or this paragraph (d)(8)(iii) (i.e., values that are less than 240, 360, or 960 Btu/scf, as applicable) during the sample collection period in paragraph (d)(8)(iii)(A) of this section.
- (C) If you continuously sample the inlet stream for 14 days, count the number of hourly average NHV values that are less than the applicable operating limit specified in § 60.5415c(e)(1)(vii)(B) or (C), or this paragraph (d)(8)(iii) (i.e., values that are less than 200, 300, or 800 Btu/scf, as applicable), during the sample collection period in paragraph (d)(8)(iii)(A) of this section.
- (D) If there are no samples counted under paragraph (d)(8)(iii)(B) of this section or there are no hourly values counted under paragraph (d)(8)(iii)(C) of this section, the gas stream is considered to consistently exceed the applicable NHV operating limit and on-going continuous monitoring is not required.
- (E) If process operations are revised that could impact the NHV of the gas sent to the enclosed combustion device or flare, such as the removal or addition of process equipment, and at any time the Administrator requires, re-evaluation of the gas stream must be performed according to paragraphs (d)(8)(iii)(A) through (D) of this section to ensure the gas stream still consistently exceeds the applicable operating limit specified in § 60.5415c(e)(1)(vii)(B) or (C), or this paragraph (d)(8)(iii).
- (F) When collecting samples under paragraph (d)(8)(iii)(A) of this section, the owner or operator must account for any sources of inert gases that can be sent to the enclosed combustion device or flare (e.g., streams from compressors in acid gas service, streams from enhanced oil recovery facilities). The report in § 60.5420c(b)(10)(v)(I) and the records of the demonstration in § 60.5420c(c)(10)(vi) must note whether the enclosed combustion device or flare has the potential to receive inert gases, and if so, whether the sampling included periods where the highest percentage of inert gases were sent to the enclosed combustion device or flare. If the introduction of inerts is intermittent and does not occur during the initial demonstration, the introduction of inerts will be considered a revision to process operations that triggers a re-evaluation under paragraph (d)(8)(iii)(E) of this section. If conditions at the site did not allow sampling during periods where the introduction of inert gases was at the highest percentage possible, increasing the percentage of inerts will be considered a revision to process operations that triggers a re-evaluation under paragraph (d)(8)(iii)(E) of this section.
- (G) You must collect three samples of the inlet gas to the enclosed combustion device or flare at least once every 5 years. The minimum time of collection for each individual sample must be at least one hour. The samples must be taken during the period with the lowest expected NHV (i.e., the period with the highest percentage of inerts). The first set of periodic samples must be taken, or continuous monitoring commenced, no later than 60 calendar months following the last sample taken under paragraph (d)(8)(iii)(A) of this section. Subsequent periodic samples must be taken, or continuous monitoring commenced, no later than 60 calendar months following the previous sample. If any sample has an NHV value less than 1.2 times the applicable operating limit specified in §

60.5415c(e)(1)(vii)(B) or (C), or this paragraph (d)(8)(iii) (i.e., values that are less than 240, 360, or 960 Btu/scf, as applicable), you must conduct the monitoring required by paragraph (d)(8)(ii) of this section.

- (H) You may request an alternative test method under § 60.5412c(d) to demonstrate that the flare or enclosed combustion device reduces methane and VOC in the gases vented to the device by 95.0 percent by weight or greater. You must use an alternative test method that demonstrates compliance with the combustion efficiency limit; you may not use an alternative test method that demonstrates compliance with NHV_{cz} and NHV_{dii} in lieu of measuring combustion efficiency directly. You must measure data values at the frequency specified in the alternative test method and conduct the quality assurance and quality control requirements outlined in the alternative test method at the frequency outlined in the alternative test method. You must monitor the combustion efficiency of the flare continuously for 14 days. If there are no values of the combustion efficiency measured by the alternative test method that are less than 95.0 percent, the gas stream is considered to consistently exceed the applicable NHV operating limit, and you are not required to continuously monitor the NHV of the inlet gas to the flare or enclosed combustion device.
- (iv) Except as noted in paragraphs (d)(8)(iv)(A) through (E) of this section, a continuous parameter monitoring system for measuring the flow of gas to the enclosed combustion device or flare. You may use direct flow meters or other parameter monitoring systems combined with engineering calculations, such as inlet line pressure, line size, and burner nozzle dimensions, to satisfy this requirement. The monitoring instrument must have an accuracy of ± 10 percent or better at the maximum expected flow rate.
 - (A) Pressure-assisted flares and pressure-assisted enclosed combustion devices are not required to have a continuous parameter monitoring system for measuring the inlet flow of gas to the device if you install, calibrate, maintain, and operate a backpressure regulator valve calibrated to open at the minimum pressure set point corresponding to the minimum inlet gas flow rate. The set point must be consistent with manufacturer specifications for minimum flow or pressure and must be supported by an engineering evaluation. At least annually, you must confirm that the backpressure regulator valve set point is correct and consistent with the engineering evaluation and manufacturer specifications and that the valve fully closes when not in the open position.
 - (B) Unassisted flares are not required to have a continuous parameter monitoring system for measuring the inlet flow of gas to the device if you meet the conditions in paragraphs (d)(8)(iv)(B)(1) and (2) of this section.
 - (1) You must demonstrate, based on the maximum potential pressure of units manifolded to the flare and applicable engineering calculations for the manifolded closed vent system, that the maximum flow rate to the flare cannot cause the flare tip velocity to exceed 18.3 meter/second (60 feet/second). If there are changes to the process or control device that can be reasonably expected to impact the maximum flow rate to the flare, you must conduct a new demonstration to determine whether the maximum flow rate to the flare is less than 18.3 meter/second (60 feet/second).
 - (2) You must install, calibrate, maintain, and operate a backpressure regulator valve calibrated to open at the minimum pressure set point corresponding to the minimum inlet gas flow rate. The set point must be consistent with manufacturer specifications for minimum flow or pressure and must be supported by an

engineering evaluation. At least annually, you must confirm that the backpressure regulator valve set point is correct and consistent with the engineering evaluation and manufacturer specifications and that the valve fully closes when not in the open position.

- (C) Unassisted enclosed combustion devices are not required to have a continuous parameter monitoring system for measuring the inlet flow of gas to the device if you meet the conditions in paragraphs (d)(8)(iv)(C)(1) and (2) of this section.
- (1) You must demonstrate, based on the maximum potential pressure of units manifolded to the enclosed combustion device and applicable engineering calculations for the manifolded closed vent system, that the maximum flow rate to the enclosed combustion device cannot cause the maximum inlet flow rate established in accordance with paragraph (f)(1) of this section to be exceeded. If there are changes to the process or control device that can be reasonably expected to impact the maximum flow rate to the enclosed combustion device, you must conduct a new demonstration to determine whether the maximum flow rate to the enclosed combustor is less than the maximum inlet flow rate established in accordance with paragraph (f)(1) of this section.
- (2) You must install, calibrate, maintain, and operate a backpressure regulator valve calibrated to open at the minimum pressure set point corresponding to the minimum inlet gas flow rate. The set point must be consistent with manufacturer specifications for minimum flow or pressure and must be supported by an engineering evaluation. At least annually, you must confirm that the backpressure regulator valve set point is correct and consistent with the engineering evaluation and manufacturer specifications and that the valve fully closes when not in the open position.
- (D) Air-assisted flares or enclosed combustion devices that use only perimeter assist air and have no assist steam or premix assist air are not required to have a continuous parameter monitoring system for measuring the inlet flow of gas to the device or the flow of assist air if you meet the conditions in paragraphs (d)(8)(iv)(D)(1) and (2) of this section. For these flares and enclosed combustion devices, NHV_{cz} is assumed to be equal to the vent gas NHV.
- (1) You must install, calibrate, maintain, and operate a backpressure regulator valve calibrated to open at the minimum pressure set point corresponding to the minimum inlet gas flow rate. The set point must be consistent with manufacturer specifications for minimum flow or pressure and must be supported by an engineering evaluation. At least annually, you must confirm that the backpressure regulator valve set point is correct and consistent with the engineering evaluation and manufacturer specifications and that the valve fully closes when not in the open position.
- (2) You must demonstrate, based on the maximum flow rate of perimeter assist air to the enclosed combustion device or flare and applicable engineering calculations, that the NHV_{dII} can never be less than the minimum required NHV_{dII} . The demonstration must clearly document why the maximum flow rate of perimeter assist air will never exceed the rate used in the demonstration. You must use the minimum flow rate of vent gas allowed by your backpressure regulator valve and the minimum expected

value of the NHV of the inlet gas to the enclosed combustion device or flare based on previous sampling results or process knowledge of the streams sent to the enclosed combustion device or flare in your demonstration. You must update this demonstration if there are changes to the backpressure regulator valve, the backpressure regulator valve set point, or the maximum flow rate of perimeter assist air. You must also update this demonstration if any sampling results of the NHV of the inlet gas to the enclosed combustion device or flare under paragraphs (d)(8)(ii) or (iii) of this section are lower than the NHV vent gas value used in your demonstration.

- (E) Air-assisted flares or enclosed combustion devices that use only premix assist air and have no assist steam or perimeter assist air are not required to have a continuous parameter monitoring system for measuring the inlet flow of gas to the device or the flow of assist air if you meet the conditions in paragraphs (d)(8)(iv)(E)(1) and (2) of this section.
 - (1) You must install, calibrate, maintain, and operate a backpressure regulator valve calibrated to open at the minimum pressure set point corresponding to the minimum inlet gas flow rate. The set point must be consistent with manufacturer specifications for minimum flow or pressure and must be supported by an engineering evaluation. At least annually, you must confirm that the backpressure regulator valve set point is correct and consistent with the engineering evaluation and manufacturer specifications and that the valve fully closes when not in the open position.
 - (2) You must demonstrate, based on the maximum flow rate of premix assist air to the enclosed combustion device or flare and applicable engineering calculations, that the NHV_{cz} will never be less than the minimum required NHV_{cz} . The demonstration must clearly document why the maximum flow rate of premix assist air will never exceed the rate used in the demonstration. You must use the minimum flow rate of vent gas allowed by your backpressure regulator valve in and the minimum expected value of the NHV of the inlet gas to the enclosed combustion device or flare based on previous sampling results or process knowledge of the streams sent to the enclosed combustion device or flare in your demonstration. You must update this demonstration if there are changes to the backpressure regulator valve, the backpressure regulator valve set point, or the maximum flow rate of premix assist air. You must also update this demonstration if any sampling results of the NHV of the inlet gas to the enclosed combustion device or flare under paragraphs (d)(8)(ii) or (iii) of this section are lower than the NHV vent gas value used in your demonstration.
- (v) Conduct inspections monthly and at other times as requested by the Administrator to monitor for visible emissions from the combustion device using section 11 of Method 22 of appendix A to this part or conduct visible emissions monitoring according to paragraph (h) of this section. The observation period shall be 15 minutes or once the amount of time visible emissions is present has exceeded 1 minute. Devices must be operated with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period.
- (vi) If you use a flare or enclosed combustion device that is air-assisted or steam-assisted, you must also meet the following requirements.

- (A) Except as allowed by paragraph (d)(8)(iv)(E) of this section, you must monitor and calculate NHV_{CZ} as specified in § 63.670(m) of this chapter. Additionally, for flares and enclosed combustion devices that use only perimeter assist air and do not use steam assist or premix assist air, the NHV_{CZ} is equal to the vent gas NHV. When NHV_{CZ} is equal to the vent gas NHV, you are not required to continuously monitor NHV_{CZ} if you meet the requirements in paragraph (d)(8)(iii) of this section.
 - (B) Except as allowed by paragraph (d)(8)(iv)(D) of this section, for each flare using perimeter assist air, you must also monitor and calculate NHV_{dil} as specified in § 63.670(n) of this chapter. If the only assist air provided to the flare or enclosed combustion control device is perimeter assist air intentionally entrained in lower and/or upper steam at the flare tip and the effective diameter is 9 inches or greater, you are only required to comply with the NHV_{CZ} limit specified in paragraph (f)(8)(vi)(A) of this section.
 - (C) Except as allowed by paragraph (d)(8)(iv) of this section, you must monitor the flare vent gas and assist gas as specified in § 63.670(i) of this chapter.
 - (D) You must determine the flare vent gas net heating value as specified in § 63.670(l) of this chapter using one of the methods specified in paragraph (d)(8)(ii) of this section. Where the phrase "petroleum refinery" is used, for purposes of this subpart, it will refer to flares controlling an affected facility under this subpart. If you are not required to continuously monitor the NHV of the inlet gas because you have demonstrated that it consistently exceeds the applicable operating limit as provided in paragraph (d)(8)(iii) of this section, you must use the lowest net heating value measured in the sampling program in paragraph (d)(8)(iii) of this section for the calculations performed in paragraphs (d)(8)(vi)(A) and (B) of this section. You must update this value if a subsequent sampling result of the NHV of the inlet gas to the enclosed combustion device or flare under paragraph (d)(8)(iii) of this section is lower than the NHV vent gas value used in your calculations.
- (e) Calculate the value of the applicable monitored parameter in accordance with paragraphs (e)(1) through (5) of this section.
- (1) You must calculate the daily average value for condenser outlet temperature for each operating day, using the data recorded by the monitoring system. If the emissions unit operation is continuous, the operating day is a 24-hour period. If the emissions unit operation is not continuous, the operating day is the total number of hours of control device operation per 24-hour period. Valid data points must be available for 75 percent of the operating hours in an operating day to compute the daily average.
 - (2) You must use the 5-minute readings from the heat sensing devices to assess the presence of a pilot or combustion flame.
 - (3) You must use the regeneration cycle time (*i.e.*, duration of the carbon bed steaming cycle) for each regenerative-type carbon adsorption system to calculate the average parameter to compare with the maximum steam mass flow or volumetric flow during each carbon bed regeneration cycle and the maximum carbon bed temperature during the steaming cycle. The carbon bed temperature after the regeneration cycle should not be averaged; you must use the carbon bed temperature measured within 15 minutes of completing the cooling cycle to compare with the minimum carbon bed temperature after the regeneration cycle.
 - (4) You must use 15-minute blocks to calculate NHV_{CZ} and NHV_{dil} .

- (5) For all operating parameters others than those described in paragraphs (e)(1) through (4) of this section, you must calculate the 3-hour rolling average of each monitored parameter. For each operating hour, calculate the hourly value of the operating parameter from your continuous monitoring system. Average the three most recent hours of data to determine the 3-hour average. Determine the 3-hour rolling average by recalculating the 3-hour average each hour.
- (f) For each operating parameter monitor installed in accordance with the requirements of paragraph (d) of this section, you must comply with paragraph (f)(1) of this section for all control devices. When condensers are installed, you must also comply with paragraph (f)(2) of this section.
 - (1) You must establish a minimum operating parameter value or a maximum operating parameter value, as appropriate for the control device, to define the conditions at which the control device must be operated to continuously achieve the applicable performance requirements of § 60.5412c(a)(1) or (2). You must establish each minimum or maximum operating parameter value as specified in paragraphs (f)(1)(i) through (iv) of this section.
 - (i) If you conduct performance tests in accordance with the requirements of § 60.5413c(b) to demonstrate that the control device achieves the applicable performance requirements specified in § 60.5412c(a)(1) or (2), then you must establish the minimum operating parameter value or the maximum operating parameter value based on values measured during the performance test and supplemented, as necessary, by a condenser or carbon adsorption system design analysis or control device manufacturer recommendations or a combination of both. If you operate an enclosed combustion device, you must establish the maximum inlet flow rate based on values measured during the performance test and you may establish the minimum inlet flow rate based on control device manufacturer recommendations.
 - (ii) If you use a condenser or carbon adsorption system design analysis in accordance with the requirements of § 60.5413c(c) to demonstrate that the control device achieves the applicable performance requirements specified in § 60.5412c(a)(2), then you must establish the minimum operating parameter value or the maximum operating parameter value based on the design analysis and supplemented, as necessary, by the manufacturer's recommendations.
 - (iii) If you operate a control device where the performance test requirement was met under § 60.5413c(d) to demonstrate that the control device achieves the applicable performance requirements specified in § 60.5412c(a)(1), then your control device inlet gas flow rate must be equal to or greater than the minimum inlet gas flow rate and equal to or less than the maximum inlet gas flow rate determined by the manufacturer.
 - (iv) If you operate an enclosed combustion device where the combustion zone temperature is not an indicator of destruction efficiency or a control device where the performance test requirement was met under § 60.5413c(d), you must maintain the NHV of the gas sent to the enclosed combustion device, the NHV_{CZ} , and the NHV_{dII} above the applicable limits specified in § 60.5412c(a)(1)(iv)(A) through (D).
 - (2) If you use a condenser as specified in paragraph (d)(1)(v) of this section, you must establish a condenser performance curve showing the relationship between condenser outlet temperature and condenser control efficiency, according to the requirements of paragraphs (f)(2)(i) and (ii) of this section.

- (i) If you conduct a performance test in accordance with the requirements of § 60.5413c(b) to demonstrate that the condenser achieves the applicable performance requirements of § 60.5412c(a)(2), then the condenser performance curve must be based on values measured during the performance test and supplemented as necessary by control device design analysis, or control device manufacturer's recommendations, or a combination or both.
- (ii) If you use a control device design analysis in accordance with the requirements of § 60.5413c(c)(1) to demonstrate that the condenser achieves the applicable performance requirements specified in § 60.5412c(a)(2), then the condenser performance curve must be based on the condenser design analysis and supplemented, as necessary, by the control device manufacturer's recommendations.

(g) A deviation for a control device is determined to have occurred when the monitoring data or lack of monitoring data result in any one of the criteria specified in paragraphs (g)(1) through (7) of this section being met. If you monitor multiple operating parameters for the same control device during the same operating day and more than one of these operating parameters meets a deviation criterion specified in paragraphs (g)(1) through (7) of this section, then a single excursion is determined to have occurred for the control device for that operating day.

- (1) A deviation occurs when the average value of a monitored operating parameter determined in accordance with paragraph (e) of this section is less than the minimum operating parameter limit (and, if applicable, greater than the maximum operating parameter limit) established in paragraph (f)(1) of this section; for flares, when the average value of a monitored operating parameter determined in accordance with paragraph (e) of this section is above the limits specified in § 60.5415c(e)(1)(vii)(B); or when the heat sensing device indicates that there is no pilot or combustion flame present for any time period. If you use a backpressure regulator valve to maintain the inlet gas flow to an enclosed combustion device or flare above the minimum value, a deviation occurs if the annual inspection finds that the backpressure regulator valve set point is not set correctly or indicates that the backpressure regulator valve does not fully close when not in the open position.
- (2) If you are subject to § 60.5412c(a)(2), a deviation occurs when the 365-day average condenser efficiency calculated according to the requirements specified in § 60.5415c(e)(1)(ix)(D) is less than 95.0 percent.
- (3) If you are subject to § 60.5412c(a)(2) and you have less than 365 days of data, a deviation occurs when the average condenser efficiency calculated according to the procedures specified in § 60.5415c(e)(1)(ix)(D)(1) or (2) is less than 95.0 percent.
- (4) A deviation occurs when the monitoring data are not available for at least 75 percent of the operating hours in a day.
- (5) If the closed vent system contains one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the control device, a deviation occurs when the requirements of paragraph (g)(5)(i) or (ii) of this section are met.
 - (i) For each bypass line subject to § 60.5411c(a)(4)(i)(A), the flow indicator indicates that flow has been detected and that the stream has been diverted away from the control device to the atmosphere.
 - (ii) For each bypass line subject to § 60.5411c(a)(4)(i)(B), if the seal or closure mechanism has been broken, the bypass line valve position has changed, the key for the lock-and-key type lock has been checked out, or the car-seal has broken.

- (6) For a combustion control device whose model is tested under § 60.5413c(d), a deviation occurs when the conditions of paragraphs (g)(4), (g)(5), or (g)(6)(i) through (vi) of this section are met.
- (i) The hourly inlet gas flow rate is less than the minimum inlet gas flow rate or greater than the maximum inlet gas flow rate determined by the manufacturer. If you use a backpressure regulator valve to maintain the inlet gas flow above the minimum value, a deviation occurs if the annual inspection finds that the backpressure regulator valve set point is not set correctly or indicates that the backpressure regulator valve does not fully close when not in the open position.
 - (ii) Results of the monthly visible emissions test conducted under § 60.5413c(e)(3) or monitoring under paragraph (h) of this section indicate visible emissions exceed 1 minute in any 15-minute period.
 - (iii) There is no indication of the presence of a pilot or combustion flame for any 5-minute time period.
 - (iv) The control device is not maintained in a leak free condition.
 - (v) The control device is not operated in accordance with the manufacturer's written operating instructions, procedures and maintenance schedule.
 - (vi) The NHV of the vent gas, the NHV_{CZ} , or the NHV_{dil} is below the applicable limit specified in § 60.5412c(a)(1)(iv).
- (7) For an enclosed combustion device or flare subject to paragraph (d)(8) of this section, a deviation occurs when any of the conditions described by paragraphs (g)(1), (4), or (5) of this section are met or when the results of the visible emissions monitoring conducted under paragraph (d)(8)(v) or (h) of this section exceed 1 minute in any 15-minute period.
- (h) For enclosed combustion devices and flares, in lieu of conducting a visible emissions observation using Method 22 of appendix A-7 to this part, you may use a video surveillance camera to continuously monitor and record the flare flame according to the requirements in paragraphs (h)(1) through (6) of this section.
- (1) You must provide real-time high-definition video surveillance camera output (i.e., at least 720p) at a frame rate of at least 15 frames per second to the control room or other continuously manned location where the camera images may be viewed at the same resolution at any time.
 - (2) You must record at least one frame every 15 seconds with date and time stamp.
 - (3) The camera must be located at a reasonable distance above the flare flame at an angle suitable for visual emissions observations. The position of the camera should be such that the sun is not in the field of view.
 - (4) The camera must be located no more than 400 m (0.25 miles) from the emission source.
 - (5) Operators must look at the video feed at least once daily for an observation period of at least 1 minute to determine if visible emissions are present. If visible emissions are present during a daily observation, the operator must observe the video feed for 15 minutes or until the amount of time visible emissions is present has exceeded 1 minute, whichever time period is less.
 - (6) Enclosed combustion devices and flares must be operated with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period.

- (i) If you use an enclosed combustion device or flare using an alternative test method approved under § 60.5412c(d), you must comply with paragraphs (i)(1) through (6) of this section.
 - (1) You must measure data values at the frequency specified in the alternative test method.
 - (2) You must prepare a monitoring plan that covers each control device for designated facilities within each company-defined area. The monitoring plan must address the monitoring system design, data collection, and the quality assurance and quality control elements outlined in the alternative test method and in paragraphs (i)(2)(i) through (iii) of this section. You must operate and maintain each monitoring system in accordance with the procedures in your monitoring plan.
 - (i) The performance criteria and design specifications for the monitoring system equipment.
 - (ii) Location of monitoring system in relation to the monitored control device.
 - (iii) Ongoing reporting and recordkeeping procedures.
 - (3) You must conduct the quality assurance and quality control requirements outlined in the alternative test method at the frequency outlined in the alternative test method.
 - (4) If required by § 60.5412c(d)(4), you must conduct the inspections required by paragraph (d)(8)(v) of this section.
 - (5) If required by § 60.5412c(d)(5), you must install the pilot or combustion flame monitoring system required by paragraph (d)(8)(i) of this section.
 - (6) A deviation for the control device is determined to have occurred when the monitoring data or lack of monitoring data result in any one of the criteria specified in paragraphs (i)(6)(i) through (v) of this section being met.
 - (i) A deviation occurs if the combustion efficiency is less than 95.0 percent, the combustion zone NHV is less than 270 Btu/scf, or the NHV dilution parameter is less than 22 Btu/sqft.
 - (ii) A deviation occurs when the monitoring data are not available for at least 75 percent of the operating hours in a day.
 - (iii) A deviation occurs when any of the conditions described by paragraph (g)(5) of this section are met.
 - (iv) If required by paragraph (i)(4) of this section to conduct visible emissions inspections, a deviation occurs when the results of the visible emissions monitoring conducted under paragraph (d)(8)(v) or (h) of this section exceeds 1 minute in any 15-minute period.
 - (v) If required by paragraph (i)(5) of this section to install a pilot or combustion flame monitoring system, a deviation occurs when there is no indication of the presence of a pilot or combustion flame for any 5-minute period.
- (j) You must submit annual reports for control devices as required in § 60.5420c(b)(1) and (10). You must maintain records as specified in § 60.5420c(c)(10).

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62934, Aug. 1, 2024]

MODEL RULE—RECORDKEEPING AND REPORTING

§ 60.5420c What are my notification, reporting, and recordkeeping requirements?

- (a) **Notifications.** You must submit notifications according to paragraphs (a)(1) and (2) of this section if you own or operate one or more of the designated facilities specified in § 60.5386c for which you commenced construction, modification, or reconstruction on or before December 6, 2022. You must submit the notification in paragraph (a)(3) of this section if you undertake well closure activities as specified in § 60.5397c(l).
- (1) **Notification of compliance report.** For each designated facility subject to the requirements specified under this subpart, an owner or operator is required to submit a statement of compliance with the applicable requirements of this subpart on or before 60 days after the state plan compliance date. Where a designated facility's compliance status is consistent with what was specified in the final compliance plan increment of progress report, the notification of compliance report would include a statement indicating that compliance is consistent with what was specified in the designated facility's final compliance plan. Where a designated facility's compliance status differs from what was specified in the final compliance plan increment of progress report, the notification of compliance report would indicate how the designated facility's status differs from what was stated in the final compliance plan.
- (2) **Notifications.** If you own or operate a process unit equipment designated facility located at an onshore natural gas processing plant, you must submit the notifications required in §§ 60.7(a)(1), (3), and (4) and 60.15(d). If you own or operate a well, centrifugal compressor, reciprocating compressor, process controller, pump, storage vessel, collection of fugitive emissions components at a well site, or collection of fugitive emissions components at a compressor station designated facility, you are not required to submit the notifications required in §§ 60.7(a)(1), (3), and (4) and 60.15(d).
- (3) **Notification to Administrator.** An owner or operator who commences well closure activities must submit the following notices to the Administrator according to the schedule in paragraph (a)(3)(i) and (ii) of this section. The notification shall include contact information for the owner or operator; the United States Well Number; the latitude and longitude coordinates for each well at the well site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983. You must submit notifications in portable document format (PDF) following the procedures specified in paragraph (d) of this section.
- (i) You must submit a well closure plan to the Administrator within 30 days of the cessation of production from all wells located at the well site.
- (ii) You must submit a notification of the intent to close a well site 60 days before you begin well closure activities.
- (b) **Reporting requirements.** You must submit annual reports containing the information specified in paragraphs (b)(1) through (13) of this section following the procedure specified in paragraph (b)(14) of this section. You must submit performance test reports as specified in paragraph (b)(11) or (12) of this section, if applicable. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to § 60.5410c. Subsequent annual reports are due no later than the same date each year as the initial annual report. If you own or operate more than one designated facility, you may submit one report for multiple designated facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (13) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be

submitted as long as the schedule does not extend the reporting period. You must submit the information in paragraph (b)(1)(v) of this section, as applicable, for your well designated facility which undergoes a change of ownership during the reporting period, regardless of whether reporting under (b)(2) through (3) of this section is required for the well designated facility.

- (1) The general information specified in paragraphs (b)(1)(i) through (v) of this section is required for all reports.
 - (i) The company name, facility site name associated with the designated facility, U.S. Well ID or U.S. Well ID associated with the designated facility, if applicable, and address of the designated facility. If an address is not available for the site, include a description of the site location and provide the latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.
 - (ii) An identification of each designated facility being included in the annual report.
 - (iii) Beginning and ending dates of the reporting period.
 - (iv) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. If your report is submitted via CEDRI, the certifier's electronic signature during the submission process replaces the requirement in this paragraph (b)(1)(iv).
 - (v) Identification of each well designated facility for which ownership changed due to sale or transfer of ownership including the United States Well Number; the latitude and longitude coordinates of the well designated facility in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983; and the information in paragraph (b)(1)(v)(A) or (B) of this section, as applicable.
 - (A) The name and contact information, including the phone number, email address, and mailing address, of the owner or operator to which you sold or transferred ownership of the well designated facility identified in paragraph (b)(1)(v) of this section.
 - (B) The name and contact information, including the phone number, email address, and mailing address, of the owner or operator from whom you acquired the well designated facility identified in paragraph (b)(1)(v) of this section.
- (2) For each well designated facility that is subject to § 60.5390c(a)(1) or (2), your annual report is required to include the information specified in paragraphs (b)(2)(i) and (ii) of this section, as applicable.
 - (i) For each well designated facility where all gas well liquids unloading operations comply with § 60.5390c(a)(1), your annual report must include the information specified in paragraphs (b)(2)(i)(A) through (C) of this section, as applicable.
 - (A) Identification of each well designated facility (U.S. Well ID or U.S. Well ID associated with the well designated facility) that conducts a gas well liquid unloading operation during the reporting period using a method that does not vent to the atmosphere and the technology or technique used. If more than one non-venting technology or technique is used, you must identify all of the differing non-venting liquids unloading methods used during the reporting period.

- (B) Number of gas well liquids unloading operations conducted during the year where the well designated facility identified in (b)(2)(i)(A) had unplanned venting to the atmosphere and best management practices were conducted according to your best management practice plan, as required by § 60.5390c(c). If no venting events occurred, the number would be zero. Other reported information required to be submitted where unplanned venting occurs is specified in paragraphs (b)(2)(i)(B)(1) and (2) of this section.
 - (1) Log of best management practice plan steps used during the unplanned venting to minimize emissions to the maximum extent possible.
 - (2) The number of liquids unloading events during the year where deviations from your best management practice plan occurred, the date and time the deviation began, the duration of the deviation in hours, documentation of why best management practice plan steps were not followed, and what steps, in lieu of your best management practice plan steps, were followed to minimize emissions to the maximum extent possible.
- (C) The number of liquids unloading events where unplanned emissions are vented to the atmosphere during a gas well liquids unloading operation where you complied with best management practices to minimize emissions to the maximum extent possible.
- (ii) For each well designated facility where all gas well liquids unloading operations comply with § 60.5390c(b) and (c) best management practices, your annual report must include the information specified in paragraphs (b)(2)(ii)(A) through (E) of this section.
 - (A) Identification of each well designated facility that conducts a gas well liquids unloading during the reporting period.
 - (B) Number of liquids unloading events conducted during the reporting period.
 - (C) Log of best management practice plan steps used during the reporting period to minimize emissions to the maximum extent possible.
 - (D) The number of liquids unloading events during the year that best management practices were conducted according to your best management practice plan.
 - (E) The number of liquids unloading events during the year where deviations from your best management practice plan occurred, the date and time the deviation began, the duration of the deviation in hours, documentation of why best management practice plan steps were not followed, and what steps, in lieu of your best management practice plan steps, were followed to minimize emissions to the maximum extent possible.
- (3) For each associated gas well at your well designated facility that is subject to § 60.5391c, your annual report is required to include the applicable information specified in paragraphs (b)(3)(i) through (v) of this section, as applicable.
 - (i) For each associated gas well at your well designated facility that complies with § 60.5391c(a)(1), (2), (3), or (4) your annual report is required to include the information specified in paragraphs (b)(3)(i)(A) and (B) of this section.
 - (A) An identification of each existing associated gas well that complies with § 60.5391c(a)(1), (2), (3), or (4).

- (B) The information specified in paragraphs (b)(3)(i)(B)(1) through (3) of this section for each incident when the associated gas was temporarily routed to a flare or control device in accordance with § 60.5391c(c).
 - (1) The reason in § 60.5391c(c)(1), (2), (3), or (4) for each incident.
 - (2) The start date and time of each incident of routing associated gas to the flare or control device, along with the total duration in hours of each incident.
 - (3) Documentation that all CVS requirements specified in § 60.5411c(a) and (c) and all applicable flare or control device requirements specified in § 60.5412c were met during each period when the associated gas is routed to the flare or control device.
- (ii) For all instances where you temporarily vent the associated gas in accordance with § 60.5391c(d), you must report the information specified in paragraphs (b)(3)(ii)(A) through (D) of this section. This information is required to be reported if you are routinely complying with § 60.5391c(a) or § 60.5391c(b) or temporarily complying with § 60.5391c(c). In addition to this information for each incident, you must report the cumulative duration in hours of venting incidents and the cumulative VOC and methane emissions in pounds for all incidents in the calendar year.
 - (A) The reason in § 60.5391c(d)(1), (2), or (3) for each incident.
 - (B) The start date and time of each incident of venting the associated gas, along with the total duration in hours of each incident.
 - (C) The methane emissions in pounds that were emitted during each incident.
 - (D) The total duration of venting for all incidents in the year, along with the cumulative methane emissions in pounds that were emitted.
- (iii) For each associated gas well at your well designated facility that complies with the requirements of § 60.5391c(b) by routing your associated gas to a control device that reduces methane emissions by at least 95.0 percent, your annual report must include the information specified in paragraphs (b)(3)(iii)(A) through (C) of this section, and paragraph (D) or (E) of this section. The information in paragraphs (b)(3)(iii)(A) and (B) of this section is only required in the initial annual report.
 - (A) Identification of the associated gas well using the control device and the information in paragraphs (b)(10)(v) of this section.
 - (B) The information specified in paragraphs (b)(10)(i) through (iv) of this section.
 - (C) Identification of each instance when associated gas was vented and not routed to a control device that reduces methane emissions by at least 95.0 percent in accordance with paragraph (b)(3)(ii) of this section.
 - (D) For each associated gas well that complies with the requirements of § 60.5391c(b) because it has demonstrated that annual methane emissions are 40 tons per year or less, provide records of the calculation of annual methane emissions determined in accordance with § 60.5391c(e)(1).

- (E) For each associated gas well facility that complies with the requirements of § 60.5391c(b) because it has demonstrated that it is not feasible to comply with § 60.5391c(a)(1), (2), (3), or (4) due to technical reasons, provide each annual demonstration and certification of the technical reason that it is not feasible to comply with § 60.5391c(a)(1), (2), (3), and (4) in accordance with § 60.5391c(b)(2)(i), (ii), and (iii).
 - (iv) If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (b)(10)(i) and (ii) of this section, you must provide the information specified in § 60.5424c.
 - (v) For each deviation recorded as specified in paragraph (c)(2)(vi) of this section, the date and time the deviation began, the duration of the deviation in hours, and a description of the deviation. If no deviations occurred during the reporting period, you must include a statement that no deviations occurred during the reporting period.
- (4) For each centrifugal compressor that is a designated facility, the information specified in paragraphs (b)(4)(i) through (ix) of this section, as applicable.
- (i) An identification of each centrifugal compressor.
 - (ii) For each deviation that occurred during the reporting period and recorded as specified in paragraph (c)(3) of this section, the date and time the deviation began, the duration of the deviation in hours, and a description of the deviation. If no deviations occurred during the reporting period, you must include a statement that no deviations occurred during the reporting period.
 - (iii) If complying with § 60.5392c(a)(1) and (2) wet and dry seal centrifugal compressor requirements, the cumulative number of hours of operation since initial startup, since 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), or since the previous volumetric flow rate measurement, as applicable, which have elapsed prior to conducting your volumetric flow rate measurement or emissions screening.
 - (iv) A description of the method used and the results of the volumetric emissions measurement or emissions screening, as applicable.
 - (v) If required to comply with § 60.5392c(a)(5), the information specified in paragraphs (b)(10)(i) through (iv) of this section.
 - (vi) If complying with § 60.5392c(a)(4) with a control device, identification of the centrifugal compressor with the control device and the information in paragraph (b)(10)(v) of this section.
 - (vii) If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (b)(10)(i) and (ii) of this section, you must provide the information specified in § 60.5424c.
 - (viii) Number and type of seals on delay of repair and explanation for each delay of repair.
 - (ix) Date of planned shutdown(s) that occurred during the reporting period if there are any seals that have been placed on delay of repair.
- (5) For each reciprocating compressor designated facility, the information specified in paragraphs (b)(5)(i) through (vii) of this section, as applicable.

- (i) The cumulative number of hours of operation since initial startup, since 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), since the previous volumetric flow rate measurement, or since the previous reciprocating compressor rod packing replacement, as applicable, which have elapsed prior to conducting your volumetric flow rate measurement or emissions screening. Alternatively, a statement that emissions from the rod packing are being routed to a process or control device through a closed vent system.
 - (ii) If applicable, for each deviation that occurred during the reporting period and recorded as specified in paragraph (c)(4)(i) of this section, the date and time the deviation began, duration of the deviation in hours and a description of the deviation. If no deviations occurred during the reporting period, you must include a statement that no deviations occurred during the reporting period.
 - (iii) A description of the method used and the results of the volumetric flow rate measurement or emissions screening, as applicable.
 - (iv) If complying with § 60.5393c(d)(1) or (2), the information in paragraphs (b)(10)(i) through (v) of this section.
 - (v) Number and type of rod packing replacements/repairs on delay of repair and explanation for each delay of repair.
 - (vi) Date of planned shutdown(s) that occurred during the reporting period if there are any rod packing replacements/repairs that have been placed on delay of repair.
 - (vii) If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (b)(10)(i) and (ii) of this section, you must provide the information specified in § 60.5424c.
- (6) For each process controller designated facility, the information specified in paragraphs (b)(6)(i) through (iii) of this section in your initial annual report and in subsequent annual reports for each process controller designated facility that is constructed, modified, or reconstructed during the reporting period. Each annual report must contain the information specified in paragraphs (b)(6)(iv) through (x) of this section for each process controller designated facility.
- (i) An identification of each existing process controller that is driven by natural gas, as required by § 60.5394c(d), that allows traceability to the records required in paragraph (c)(5)(i) of this section.
 - (ii) For each process controller in the designated facility complying with § 60.5394c(a), you must report the information specified in paragraphs (b)(6)(ii)(A) and (B) of this section, as applicable.
 - (A) An identification of each process controller complying with § 60.5394c(a)(1) by routing the emissions to a process.
 - (B) An identification of each process controller complying with § 60.5394c(a)(2) by using a self-contained natural gas-driven process controller.
 - (iii) For each process controller designated facility located at a site in Alaska that does not have access to electrical power and that complies with § 60.5394c(b), you must report the information specified in paragraphs (b)(6)(iii)(A), (B), or (C) of this section, as applicable.

- (A) For each process controller complying with § 60.5394c(b)(1) process controller bleed rate requirements, you must report the information specified in paragraphs (b)(6)(iii)(A)(1) and (2) of this section.
 - (1) The identification of process controllers designed and operated to achieve a bleed rate less than or equal to 6 scfh.
 - (2) Where necessary to meet a functional need, the identification and demonstration of why it is necessary to use a process controller with a natural gas bleed rate greater than 6 scfh.
- (B) An identification of each intermittent vent process controller complying with the requirements in paragraph § 60.5394c(b)(2).
- (C) An identification of each process controller complying with the requirements in § 60.5394c(b) by routing emissions to a control device in accordance with § 60.5394c(b)(3).
- (iv) Identification of each process controller which changes its method of compliance during the reporting period and the applicable information specified in paragraphs (b)(6)(v) through (ix) of this section for the new method of compliance.
- (v) For each process controller in the designated facility complying with the requirements of § 60.5394c(a) by routing the emissions to a process, you must report the information specified in paragraphs (b)(10)(i) through (iv) of this section.
- (vi) For each process controller in the designated facility complying with the requirements of § 60.5394c(a) by using a self-contained natural gas-driven process controller, you must report the information specified in paragraphs (b)(6)(vi)(A) and (B) of this section.
 - (A) Dates of each inspection required under § 60.5416c(b); and
 - (B) Each defect or leak identified during each natural gas-driven-self-contained process controller system inspection, and the date of repair or date of anticipated repair if repair is delayed.
- (vii) For each process controller in the designated facility complying with the requirements of § 60.5394c(b)(2), you must report the information specified in paragraphs (b)(6)(vii)(A) and (B) of this section.
 - (A) Dates and results of the intermittent vent process controller monitoring required by § 60.5394c(b)(2)(ii).
 - (B) For each instance in which monitoring identifies emissions to the atmosphere from an intermittent vent controller during idle periods, the date of repair or replacement or the date of anticipated repair or replacement if the repair or replacement is delayed, and the date and results of the re-survey after repair or replacement.
- (viii) For each process controller designated facility complying with § 60.5394c(b)(3) by routing emissions to a control device, you must report the information specified in paragraph (b)(10) of this section.

- (ix) For each deviation that occurred during the reporting period, the date and time the deviation began, the duration of the deviation in hours, and a description of the deviation. If no deviations occurred during the reporting period, you must include a statement that no deviations occurred during the reporting period.
 - (x) If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (b)(6)(ii)(B) and (b)(10)(i) and (ii) of this section, you must provide the information specified in § 60.5424c.
- (7) For each storage vessel designated facility, the information in paragraphs (b)(7)(i) through (x) of this section.
- (i) An identification, including the location, of each existing storage vessel designated facility. The location of the storage vessel designated facility shall be in latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.
 - (ii) Documentation of the methane emission rate determination according to § 60.5386c(e)(1) for each tank battery that became a designated facility during the reporting period or is returned to service during the reporting period.
 - (iii) For each deviation that occurred during the reporting period and recorded as specified in paragraph (c)(6)(iii) of this section, the date and time the deviation began, duration of the deviation in hours and a description of the deviation. If no deviations occurred during the reporting period, you must include a statement that no deviations occurred during the reporting period.
 - (iv) For each storage vessel designated facility complying with § 60.5396c(a)(2) with a control device, report the identification of the storage vessel designated facility with the control device and the information in paragraph (b)(10)(v) of this section.
 - (v) If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (b)(10)(i) and (ii) of this section, you must provide the information specified in § 60.5424c.
 - (vi) If required to comply with § 60.5396c(b)(1), the information in paragraphs (b)(10)(i) through (iv) of this section.
 - (vii) You must identify each storage vessel designated facility that is removed from service during the reporting period as specified in § 60.5396c(c)(1)(ii), including the date the storage vessel designated facility was removed from service. You must identify each storage vessel that that is removed from service from a storage vessel designated facility during the reporting period as specified in § 60.5396c(c)(2)(iii), including identifying the impacted storage vessel designated facility and the date each storage vessel was removed from service.
 - (viii) You must identify each storage vessel designated facility or portion of a storage vessel designated facility returned to service during the reporting period as specified in § 60.5396c(c)(4), including the date the storage vessel designated facility or portion of a storage vessel designated facility was returned to service.
 - (ix) You must identify each storage vessel designated facility that no longer complies with § 60.5396c(a)(3) and instead complies with § 60.5396c(a)(2). You must identify whether the change in the method of compliance was due to fracturing or refracturing or whether the

change was due to an increase in the monthly emissions determination. If the change was due to an increase in the monthly emissions determination, you must provide documentation of the emissions rate. You must identify the date that you complied with § 60.5396c(a)(2) and must submit the information in (b)(7)(iii) through (vii) of this section.

(x) You must submit a statement that you are complying with § 60.112b(a)(1) or (2), if applicable, in your initial annual report.

(8) For the fugitive emissions components designated facility, report the information specified in paragraphs (b)(8)(i) through (iv) of this section, as applicable.

(i)

(A) Designation of the type of site (i.e., well site, centralized production facility, or compressor station) at which the fugitive emissions components designated facility is located.

(B) For the fugitive emissions components designated facility at a well site or centralized production facility that became a designated facility during the reporting period, you must include the date of the startup of production or the date of the first day of production after modification. For the fugitive emissions components designated facility at a compressor station that became a designated facility during the reporting period, you must include the date of startup or the date of modification.

(C) For the fugitive emissions components designated facility at a well site, you must specify what type of well site it is (i.e., single wellhead only well site, small wellsite, multi-wellhead only well site, or a well site with major production and processing equipment).

(D) For the fugitive emissions components designated facility at a well site where during the reporting period you complete the removal of all major production and processing equipment such that the well site contains only one or more wellheads, you must include the date of the change to status as a wellhead only well site.

(E) For the fugitive emissions components designated facility at a well site where you previously reported under paragraph (b)(8)(i)(D) of this section the removal of all major production and processing equipment and during the reporting period major production and processing equipment is added back to the well site, the date that the first piece of major production and processing equipment is added back to the well site.

(F) For the fugitive emissions components designated facility at a well site where during the reporting period you undertake well closure requirements, the date of the cessation of production from all wells at the well site, the date you began well closure activities at the well site, and the dates of the notifications submitted in accordance with paragraph (a)(3) of this section.

(ii) For each fugitive emissions monitoring survey performed during the annual reporting period, the information specified in paragraphs (b)(8)(ii)(A) through (G) of this section.

(A) Date of the survey.

(B) Monitoring instrument or, if the survey was conducted by visual, audible, or olfactory methods, notation that AVO was used.

- (C) Any deviations from the monitoring plan elements under § 60.5397c(c)(1), (2), (7), and (8) or (d) or a statement that there were no deviations from these elements of the monitoring plan.
 - (D) Number and type of components for which fugitive emissions were detected.
 - (E) Number and type of fugitive emissions components that were not repaired as required in § 60.5397c(h).
 - (F) Number and type of fugitive emission components (including designation as difficult-to-monitor or unsafe-to-monitor, if applicable) on delay of repair and explanation for each delay of repair.
 - (G) Date of planned shutdown(s) that occurred during the reporting period if there are any components that have been placed on delay of repair.
- (iii) For well closure activities which occurred during the reporting period, the information in paragraphs (b)(8)(iii)(A) and (B) of this section.
- (A) A status report with dates for the well closure activities schedule developed in the well closure plan. If all steps in the well closure plan are completed in the reporting period, the date that all activities are completed.
 - (B) If an OGI survey is conducted during the reporting period, the information in paragraphs (b)(8)(iii)(B)(1) through (3) of this section.
 - (1) Date of the OGI survey.
 - (2) Monitoring instrument used.
 - (3) A statement that no fugitive emissions were found, or if fugitive emissions were found, a description of the steps taken to eliminate those emissions, the date of the resurvey, the results of the resurvey, and the date of the final resurvey which detected no emissions.
- (iv) If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (b)(10)(i) and (ii) of this section, you must provide the information specified in § 60.5424c.
- (9) For each pump designated facility, the information specified in paragraphs (b)(9)(i) through (iv) of this section in your initial annual report. Each annual report must contain the information specified in paragraphs (b)(9)(v) through (ix) of this section for each pump designated facility.
- (i) The identification of each of your pumps that are driven by natural gas, as required by § 60.5395c(a) that allows traceability to the records required by paragraph (c)(14)(i) of this section.
 - (ii) For each pump designated facility for which there is a control device on site but it does not achieve a 95.0 percent emissions reduction, the certification that there is a control device available on site but it does not achieve a 95.0 percent emissions reduction required under § 60.5395c(b)(5). You must also report the emissions reduction percentage the control device is designed to achieve.

- (iii) For each pump designated facility for which there is no control device or vapor recovery unit on site, the certification required under § 60.5395c(b)(6) that there is no control device or vapor recovery unit on site.
- (iv) For each pump designated facility for which it is technically infeasible to route the emissions to a process or control device, the certification of technical infeasibility required under § 60.5395c(b)(7).
- (v) For any pump designated facility which has previously reported as required under paragraphs (b)(9)(i) through (iv) of this section and for which a change in the reported condition has occurred during the reporting period, provide the identification of the pump designated facility and the date that the pump designated facility meets one of the change conditions described in paragraphs (b)(9)(v)(A) through (C) of this section.
 - (A) If you install a control device or vapor recovery unit, you must report that a control device or vapor recovery unit has been added to the site and that the pump designated facility now is required to comply with § 60.5395c(b)(1) or (3), as applicable.
 - (B) If your pump designated facility previously complied with § 60.5395c(b)(1) or (3), as applicable, by routing emissions to a process or a control device and the process or control device is subsequently removed from the site or is no longer available such that there is no ability to route the emissions to a process or control device at the location, or that it is not technically feasible to capture and route the emissions to another control device or process located on site, report that you are no longer complying with the applicable requirements of § 60.5395c(b)(1) or (3) and submit the information provided in paragraphs (b)(9)(v)(B)(1) or (2) of this section.
 - (1) Certification that there is no control device or vapor recovery unit on site.
 - (2) Certification of the engineering assessment that it is technically infeasible to capture and route the emissions to another control device or process located on site.
 - (C) If any pump affected facility or individual natural gas-driven pump changes its method of compliance during the reporting period other than for the reasons specified in paragraphs (b)(9)(v)(A) and (B) of this section, identify the new compliance method for each natural gas-driven pump within the affected facility which changes its method of compliance during the reporting period and provide the applicable information specified in paragraphs (b)(9)(ii) through (iv) and (vi) through (viii) of this section for the new method of compliance.
- (vi) For each pump designated facility complying with the requirements of § 60.5395c(a) or (b)(2) by routing the emissions to a process, you must report the information specified in paragraphs (b)(10)(i) through (iv) of this section.
- (vii) For each pump designated facility complying with the requirements of § 60.5395c(b)(3) by routing the emissions to a control device, you must report the information required under paragraph (b)(10) of this section.
- (viii) For each deviation that occurred during the reporting period, the date and time the deviation began, the duration of the deviation in hours, and a description of the deviation. If no deviations occurred during the reporting period, you must include a statement that no deviations occurred during the reporting period.

- (ix) If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (b)(10)(i) and (ii) of this section, you must provide the information specified in § 60.5424c.
- (10) For each well, centrifugal compressor, reciprocating compressor, storage vessel, process controller, pump, or process unit equipment designated facility which uses a closed vent system routed to a control device to meet the emissions reduction standard, you must submit the information in paragraphs (b)(10)(i) through (v) of this section. For each centrifugal compressor, reciprocating compressor, process controller, pump, storage vessel, or process unit equipment which uses a closed vent system to route to a process, you must submit the information in paragraphs (b)(10)(i) through (iv) of this section. For each centrifugal compressor, reciprocating compressor, and storage vessel equipped with a cover, you must submit the information in paragraphs (b)(10)(i) and (ii).
 - (i) Dates of each inspection required under § 60.5416c(a) and (b).
 - (ii) Each defect or emissions identified during each inspection and the date of repair or the date of anticipated repair if the repair is delayed.
 - (iii) Date and time of each bypass alarm or each instance the key is checked out if you are subject to the bypass requirements of § 60.5416c(a)(4).
 - (iv) You must submit the certification signed by the qualified professional engineer or in-house engineer according to § 60.5411c(c) for each closed vent system routing to a control device or process in the reporting year in which the certification is signed.
 - (v) If you comply with the emissions standard for your well, centrifugal compressor, reciprocating compressor, storage vessel, process controller, pump, or process unit equipment designated facility with a control device, the information in paragraphs (b)(10)(v)(A) through (L) of this section, unless you use an enclosed combustion device or flare using an alternative test method approved under § 60.5412c(d). If you use an enclosed combustion device or flare using an alternative test method approved under § 60.5412c(d), the information in paragraphs (b)(10)(v)(A) through (C) and (L) through (P) of this section.
 - (A) Identification of the control device.
 - (B) Make, model, and date of installation of the control device.
 - (C) Identification of the designated facility controlled by the device.
 - (D) For each continuous parameter monitoring system used to demonstrate compliance for the control device, a unique continuous parameter monitoring system identifier and the make, model number, and date of last calibration check of the continuous parameter monitoring system.
 - (E) For each instance where there is a deviation of the control device in accordance with § 60.5417c(g)(1) through (3) or (5) through (7) include the date and time the deviation began, the duration of the deviation in hours, the type of the deviation (e.g., NHV operating limit, lack of pilot or combustion flame, condenser efficiency, bypass line flow, visible emissions), and cause of the deviation.
 - (F) For each instance where there is a deviation of the continuous parameter monitoring system in accordance with § 60.5417c(g)(4) include the date and time the deviation began, the duration of the deviation in hours, and cause of the deviation.

- (G) For each visible emissions test following return to operation from a maintenance or repair activity, the date of the visible emissions test or observation of the video surveillance output, the length of the observation in minutes, and the number of minutes for which visible emissions were present.
- (H) If a performance test was conducted on the control device during the reporting period, provide the date the performance test was conducted. Submit the performance test report following the procedures specified in paragraph (b)(11) of this section.
- (I) If a demonstration of the NHV of the inlet gas to the enclosed combustion device or flare was conducted during the reporting period in accordance with § 60.5417c(d)(8)(iii), an indication of whether this is a re-evaluation of vent gas NHV and the reason for the re-evaluation; the applicable required minimum vent gas NHV; if twice daily samples of the vent stream were taken, the number of hourly average NHV values that are less than 1.2 times the applicable required minimum NHV; if continuous NHV sampling of the vent stream was conducted, the number of hourly average NHV values that are less than the required minimum vent gas NHV; if continuous combustion efficiency monitoring was conducted using an alternative test method approved under § 60.5412c(d), the number of values of the combustion efficiency that were less than 95.0 percent; the resulting determination of whether NHV monitoring is required or not in accordance with § 60.5417c(d)(8)(iii)(D) or (H); and an indication of whether the enclosed combustion device or flare has the potential to receive inert gases, and if so, whether the sampling included periods where the highest percentage of inert gases were sent to the enclosed combustion device or flare.
- (J) If a demonstration was conducted in accordance with § 60.5417c(d)(8)(iv) that the maximum potential pressure of units manifolded to an enclosed combustion device or flare cannot cause the maximum inlet flow rate established in accordance with § 60.5417c(f)(1) or a flare tip velocity limit of 18.3 meter/second (60 feet/second) to be exceeded, an indication of whether this is a re-evaluation of the gas flow and the reason for the re-evaluation; the demonstration conducted; and applicable engineering calculations.
- (K) For each periodic sampling event conducted under § 60.5417c(d)(8)(iii)(G), provide the date of the sampling, the required minimum vent gas NHV, and the NHV value for each vent gas sample.
- (L) For each flare and enclosed combustion device, provide the date each device is observed with OGI in accordance with § 60.5415c(e)(1)(x) and whether uncombusted emissions were present. Provide the date each device was visibly observed during an AVO inspection in accordance with § 60.5415c(e)(1)(x), whether the pilot or combustion flame was lit at the time of observation, and whether the device was found to be operating properly.
- (M) An identification of the alternative test method used.
- (N) For each instance where there is a deviation of the control device in accordance with § 60.5417c(i)(6)(i) or (iii) through (v) include the date and time the deviation began, the duration of the deviation in hours, the type of the deviation (e.g., NHV_{cz} operating limit, lack of pilot or combustion flame, visible emissions), and cause of the deviation.

- (O) For each instance where there is a deviation of the data availability in accordance with § 60.5417c(i)(6)(ii) include the date of each operating day when monitoring data are not available for at least 75 percent of the operating hours.
 - (P) If no deviations occurred under paragraph (b)(10)(v)(N) or (O) of this section, a statement that there were no deviations for the control device during the annual report period.
 - (Q) Any additional information required to be reported as specified by the Administrator as part of the alternative test method approval under § 60.5412c(d).
- (11) Within 60 days after the date of completing each performance test (see § 60.8) required by this subpart, except testing conducted by the manufacturer as specified in § 60.5413c(d), you must submit the results of the performance test following the procedures specified in paragraph (d) of this section. Data collected using test methods that are supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>) at the time of the test must be submitted in a file format generated using the EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA's ERT website. Data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test must be included as an attachment in the ERT or alternate electronic file.
- (12) For combustion control devices tested by the manufacturer in accordance with § 60.5413c(d), an electronic copy of the performance test results required by § 60.5413c(d) shall be submitted via email to Oil_and_Gas_PT@EPA.GOV unless the test results for that model of combustion control device are posted at the following website: <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry>.
- (13) If you had a super-emitter event during the reporting period, the start date of the super-emitter event, the duration of the super-emitter event in hours, and the designated facility associated with the super-emitter event, if applicable.
- (14) You must submit your annual report using the appropriate electronic report template on the Compliance and Emissions Data Reporting Interface (CEDRI) website for this subpart and following the procedure specified in paragraph (d) of this section. If the reporting form specific to this subpart is not available on the CEDRI website at the time that the report is due, you must submit the report to the Administrator at the appropriate address listed in § 60.4. Once the form has been available on the CEDRI website for at least 90 calendar days, you must begin submitting all subsequent reports via CEDRI. The date reporting forms become available will be listed on the CEDRI website. Unless the Administrator or delegated state agency or other authority has approved a different schedule for submission of reports, the report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted.
- (c) **Recordkeeping requirements.** You must maintain the records identified as specified in § 60.7(f) and in paragraphs (c)(1) through (14) of this section. All records required by this subpart must be maintained either onsite or at the nearest local field office for at least 5 years. Any records required to be maintained by this subpart that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

- (1) For each gas well liquids unloading operation at your well designated facility that is subject to § 60.5390c(a)(1) or (2), the records of each gas well liquids unloading operation conducted during the reporting period, including the information specified in paragraphs (c)(1)(i) through (iii) of this section, as applicable.
 - (i) For each gas well liquids unloading operation that complies with § 60.5390c(a)(1) by performing all liquids unloading events without venting of methane emissions to the atmosphere, comply with the recordkeeping requirements specified in paragraphs (c)(1)(i)(A) and (B) of this section.
 - (A) Identification of each well (i.e., U.S. Well ID or U.S. Well ID associated with the well designated facility) that conducts a gas well liquids unloading operation during the reporting period without venting of methane emissions and the non-venting gas well liquids unloading method used. If more than one non-venting method is used, you must maintain records of all the differing non-venting liquids unloading methods used at the well designated facility complying with § 60.5390c(a)(1).
 - (B) Number of events where unplanned emissions are vented to the atmosphere during a gas well liquids unloading operation where you complied with best management practices to minimize emissions to the maximum extent possible.
 - (ii) For each gas well liquids unloading operation that complies with § 60.5390c(b) and (c) best management practices, maintain records documenting information specified in paragraphs (c)(1)(ii)(A) through (D) of this section.
 - (A) Identification of each well designated facility that conducts liquids unloading during the reporting period that employs best management practices to minimize emissions to the maximum extent possible.
 - (B) Documentation of your best management practice plan developed under paragraph § 60.5390c(c). You may update your best management practice plan to include additional steps which meet the criteria in § 60.5390c(c).
 - (C) A log of each best management practice plan step taken to minimize emissions to the maximum extent possible for each gas well liquids unloading event.
 - (D) Documentation of each gas well liquids unloading event where deviations from your best management practice plan steps occurred, the date and time the deviation began, the duration of the deviation, documentation of best management practice plans steps were not followed, and the steps taken in lieu of your best management practice plan steps during those events to minimize emissions to the maximum extent possible.
 - (iii) For each well designated facility that reduces methane emissions from well designated facility gas wells that unload liquids by 95.0 percent by routing emissions to a control device through closed vent system under § 60.5390c(g), you must maintain the records in paragraphs (c)(1)(iii)(A) through (E) of this section.
 - (A) If you comply with the emission reduction standard with a control device, the information for each control device in paragraph (c)(10) of this section.
 - (B) Records of the closed vent system inspection as specified paragraph (c)(7) of this section.
 - (C) Records of the cover inspections as specified in paragraph (c)(8) of this section.

- (D) If applicable, the records of bypass monitoring as specified in paragraph (c)(9) of this section.
 - (E) Records of the closed vent system assessment as specified in paragraph (c)(11) of this section.
- (2) For each associated gas well, you must maintain the applicable records specified in paragraphs (c)(2)(i) or (ii) and (vi) of this section, as applicable.
 - (i) For each associated gas well that complies with the requirements of § 60.5391c(a)(1), (2), (3), or (4), you must keep the records specified in paragraphs (c)(2)(i)(A) and (B) of this section.
 - (A) Documentation of the specific method(s) in § 60.5391c(a)(1), (2), (3), or (4) that was used.
 - (B) For instances where you temporarily route the associated gas to a flare or control device in accordance with § 60.5391c(c), you must keep the records specified in paragraphs (c)(2)(i)(B)(1) through (3) of this section.
 - (1) The reason in § 60.5391c(c)(1), (2), (3), or (4) for each incident.
 - (2) The date of each incident, along with the times when routing the associated gas to the flare or control device started and ended, along with the total duration of each incident.
 - (3) Documentation that all CVS requirements specified in § 60.5411c(a) and (c) and all applicable flare or control device requirements specified in § 60.5412c are met during each period when the associated gas is routed to the flare or control device.
 - (ii) For instances where you temporarily vent the associated gas in accordance with § 60.5391c(d), you must keep the records specified in paragraphs (c)(2)(ii)(A) through (D) of this section. These records are required if you are routinely complying with § 60.5391c(a) or § 60.5391c(b) or temporarily complying with § 60.5391c(c).
 - (A) The reason in § 60.5391c(d)(1), (2), or (3) for each incident.
 - (B) The date of each incident, along with the times when venting the associated gas started and ended, along with the total duration of each incident.
 - (C) The methane emissions that were emitted during each incident.
 - (D) The cumulative duration of venting incidents and methane emissions for all incidents in each calendar year.
 - (iii) For each associated gas well that complies with the requirements of § 60.5391c(b) because it has demonstrated that annual methane emissions are 40 tons per year or less at the initial compliance date, maintain records of the calculation of annual methane emissions determined in accordance with § 60.5391c(e)(1).
 - (iv) For each associated gas well at your well that complies with the requirements of § 60.5391c(b) because it has demonstrated that it is not feasible to comply with § 60.5391c(a)(1), (2), (3), or (4) due to technical reasons, records of each annual demonstration and certification of the technical reason that it is not feasible to comply with § 60.5391c(a)(1), (2), (3), and (4) in accordance with § 60.5391c(b)(2)(i), (ii), and (iii), as well as the records required by paragraph (c)(2)(v) of this section.

- (v) For each associated gas well that complies with the requirements of § 60.5391c(b) by routing your associated gas to a flare or control device that achieves a 95.0 reduction in methane emissions, the records in paragraphs (c)(2)(v)(A) through (E) of this section.
 - (A) Identification of each instance when associated gas was vented and not routed to a control device that reduces methane emissions by at least 95.0 percent in accordance with paragraph (c)(2)(iii) of this section.
 - (B) If you comply with the emission reduction standard in § 60.5391c with a control device, the information for each control device in paragraph (c)(10) of this section.
 - (C) Records of the closed vent system inspection as specified paragraph (c)(7) of this section. If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (c)(7) of this section, you must maintain records of the information specified in § 60.5424c.
 - (D) If applicable, the records of bypass monitoring as specified in paragraph (c)(9) of this section.
 - (E) Records of the closed vent system assessment as specified in paragraph (c)(11) of this section.
- (vi) Records of each deviation, the date and time the deviation began, the duration of the deviation, and a description of the deviation.
- 3 For each centrifugal compressor designated facility, you must maintain the records specified in paragraphs (c)(3)(i) through (iii) of this section.
 - (i) For each centrifugal compressor designated facility, you must maintain records of deviations in cases where the centrifugal compressor was not operated in compliance with the requirements specified in § 60.5392c, including a description of each deviation, the date and time each deviation began and the duration of each deviation.
 - (ii) For each wet seal compressor complying with the emissions reduction standard in § 60.5392c(a)(3) and (4), you must maintain the records in paragraphs (c)(3)(ii)(A) through (E) of this section. For each wet seal compressor complying with the alternative standard in § 60.5392c(a)(3) and (5) by routing the closed vent system to a process, you must maintain the records in paragraphs (c)(3)(ii)(B) through (E) of this section.
 - (A) If you comply with the emission reduction standard in § 60.5392c(a)(3) and (4) with a control device, the information for each control device in paragraph (c)(10) of this section.
 - (B) Records of the closed vent system inspection as specified paragraph (c)(7) of this section. If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (c)(7) of this section, you must maintain records of the information specified in § 60.5424c.
 - (C) Records of the cover inspections as specified in paragraph (c)(8) of this section. If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraph (c)(8) of this section, you must maintain the information specified in § 60.5424c.
 - (D) If applicable, the records of bypass monitoring as specified in paragraph (c)(9) of this section.

- (E) Records of the closed vent system assessment as specified in paragraph (c)(11) of this section.
- (iii) For each centrifugal compressor designated facility using dry seals or wet seals and each self-contained wet seal centrifugal compressor and complying with the standard in § 60.5392c(a)(1) and (2), you must maintain the records specified in paragraphs (c)(3)(iii)(A) through (H) of this section.
 - (A) Records of the cumulative number of hours of operation since initial startup, since 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), or since the previous volumetric flow rate measurement, as applicable.
 - (B) A description of the method used and the results of the volumetric flow rate measurement or emissions screening, as applicable.
 - (C) Records for all flow meters, composition analyzers and pressure gauges used to measure volumetric flow rates as specified in paragraphs (c)(3)(iii)(C)(1) through (6) of this section.
 - (1) Description of standard method published by a consensus-based standards organization or industry standard practice.
 - (2) Records of volumetric flow rate emissions calculations conducted according to § 60.5392c(a)(2), as applicable.
 - (3) Records of manufacturer operating procedures and measurement methods.
 - (4) Records of manufacturer's recommended procedures or an appropriate industry consensus standard method for calibration and results of calibration, recalibration and accuracy checks.
 - (5) Records which demonstrate that measurements at the remote location(s) can, when appropriate correction factors are applied, reliably and accurately represent the actual temperature or total pressure at the flow meter under all expected ambient conditions. You must include the date of the demonstration, the data from the demonstration, the mathematical correlation(s) between the remote readings and actual flow meter conditions derived from the data, and any supporting engineering calculations. If adjustments were made to the mathematical relationships, a record and description of such adjustments.
 - (6) Record of each initial calibration or a recalibration which failed to meet the required accuracy specification and the date of the successful recalibration.
 - (D) Date when performance-based volumetric flow rate is exceeded.
 - (E) The date of successful repair of the compressor seal, including follow-up performance-based volumetric flow rate measurement to confirm successful repair.
 - (F) Identification of each compressor seal placed on delay of repair and explanation for each delay of repair.

- (G) For each compressor seal or part needed for repair placed on delay of repair because of replacement seal or part unavailability, the operator must document: the date the seal or part was added to the delay of repair list, the date the replacement seal or part was ordered, the anticipated seal or part delivery date (including any estimated shipment or delivery date provided by the vendor), and the actual arrival date of the seal or part.
 - (H) Date of planned shutdowns that occur while there are any seals or parts that have been placed on delay of repair.
- (4) For each reciprocating compressor designated facility, you must maintain the records in paragraphs (c)(4)(i) through (x) and (c)(7) through (12) of this section, as applicable. If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraph (c)(7) of this section, you must provide the information specified in § 60.5424c.
- (i) For each reciprocating compressor designated facility, you must maintain records of deviations in cases where the reciprocating compressor was not operated in compliance with the requirements specified in § 60.5393c, including a description of each deviation, the date and time each deviation began and the duration of each deviation in hours.
 - (ii) Records of the date of installation of a rod packing emissions collection system and closed vent system as specified in § 60.5393c(d), where applicable.
 - (iii) Records of the cumulative number of hours of operation since initial startup, since 36 months after the state plan submittal deadline (as specified in § 60.5362c(c)), or since the previous volumetric flow rate measurement, as applicable. Alternatively, a record that emissions from the rod packing are being routed to a process through a closed vent system.
 - (iv) A description of the method used and the results of the volumetric flow rate measurement or emissions screening, as applicable.
 - (v) Records for all flow meters, composition analyzers and pressure gauges used to measure volumetric flow rates as specified in paragraphs (c)(4)(v)(A) through (F) of this section.
 - (A) Description of standard method published by a consensus-based standards organization or industry standard practice.
 - (B) Records of volumetric flow rate calculations conducted according to paragraphs § 60.5393c(b) or (c), as applicable.
 - (C) Records of manufacturer's operating procedures and measurement methods.
 - (D) Records of manufacturer's recommended procedures or an appropriate industry consensus standard method for calibration and results of calibration, recalibration and accuracy checks.
 - (E) Records which demonstrate that measurements at the remote location(s) can, when appropriate correction factors are applied, reliably and accurately represent the actual temperature or total pressure at the flow meter under all expected ambient conditions. You must include the date of the demonstration, the data from the demonstration, the mathematical correlation(s) between the remote readings and actual flow meter conditions derived from the data, and any supporting engineering calculations. If adjustments were made to the mathematical relationships, a record and description of such adjustments.

- (F) Record of each initial calibration or a recalibration which failed to meet the required accuracy specification and the date of the successful recalibration.
 - (vi) Date when performance-based volumetric flow rate is exceeded.
 - (vii) The date of successful replacement or repair of reciprocating compressor rod packing, including follow-up performance-based volumetric flow rate measurement to confirm successful repair.
 - (viii) Identification of each reciprocating compressor placed on delay of repair because of rod packing or part unavailability and explanation for each delay of repair.
 - (ix) For each reciprocating compressor that is placed on delay of repair because of replacement rod packing or part unavailability, the operator must document: the date the rod packing or part was added to the delay of repair list, the date the replacement rod packing or part was ordered, the anticipated rod packing or part delivery date (including any estimated shipment or delivery date provided by the vendor), and the actual arrival date of the rod packing or part.
 - (x) Date of planned shutdowns that occur while there are any reciprocating compressors that have been placed on delay of repair due to the unavailability of rod packing or parts to conduct repairs.
- (5) For each process controller designated facility, you must maintain the records specified in paragraphs (c)(5)(i) through (vii) of this section.
- (i) Records identifying each process controller that is driven by natural gas and that does not function as an emergency shutdown device.
 - (ii) For each process controller designated facility complying with § 60.5394~~c~~(a), you must maintain records of the information specified in paragraphs (c)(5)(ii)(A) and (B) of this section, as applicable.
 - (A) If you are complying with § 60.5394~~c~~(a) by routing process controller vapors to a process through a closed vent system, you must report the information specified in paragraphs (c)(5)(ii)(A)(1) and (2) of this section.
 - (1) An identification of all the natural gas-driven process controllers in the process controller designated facility for which you collect and route vapors to a process through a closed vent system.
 - (2) The records specified in paragraphs (c)(7), (9), and (11) of this section. If you comply with an alternative GHG standard under § 60.5398~~c~~, in lieu of the information specified in paragraph (c)(7) of this section, you must provide the information specified in § 60.5424~~c~~.
 - (B) If you are complying with § 60.5394~~c~~(a) by using a self-contained natural gas-driven process controller, you must report the information specified in paragraphs (c)(5)(ii)(B)(1) through (3) of this section.
 - (1) An identification of each process controller complying with § 60.5394~~c~~(a) by using a self-contained natural gas-driven process controller;
 - (2) Dates of each inspection required under § 60.5416~~c~~(b); and

- (3) Each defect or leak identified during each natural gas-driven-self-contained process controller system inspection, and date of repair or date of anticipated repair if repair is delayed.
- (iii) For each process controller designated facility complying with § 60.5394c(b)(1) process controller bleed rate requirements, you must maintain records of the information specified in paragraphs (c)(5)(iii)(A) and (B) of this section.
 - (A) The identification of process controllers designed and operated to achieve a bleed rate less than or equal to 6 scfh and records of the manufacturer's specifications indicating that the process controller is designed with a natural gas bleed rate of less than or equal to 6 scfh.
 - (B) Where necessary to meet a functional need, the identification of the process controller and demonstration of why it is necessary to use a process controller with a natural gas bleed rate greater than 6 scfh.
- (iv) For each intermittent vent process controller in the designated facility complying with the requirements in § 60.5394c(b)(2), you must keep records of the information specified in paragraphs (c)(5)(iv)(A) through (C) of this section.
 - (A) The identification of each intermittent vent process controller.
 - (B) Dates and results of the intermittent vent process controller monitoring required by § 60.5394c(b)(2)(ii).
 - (C) For each instance in which monitoring identifies emissions to the atmosphere from an intermittent vent controller during idle periods, the date of repair or replacement, or the date of anticipated repair or replacement if the repair or replacement is delayed and the date and results of the re-survey after repair or replacement.
- (v) For each process controller designated facility complying with § 60.5394c(b)(3), you must maintain the records specified in paragraphs (c)(5)(v)(A) and (B) of this section.
 - (A) An identification of each process controller for which emissions are routed to a control device.
 - (B) Records specified in paragraphs (c)(7) and (9) through (12) of this section. If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (c)(7) of this section, you must provide the information specified in § 60.5424c.
- (vi) Records of each change in compliance method, including identification of each natural gas-driven process controller which changes its method of compliance, the new method of compliance, and the date of the change in compliance method.
- (vii) Records of each deviation, the date and time the deviation began, the duration of the deviation, and a description of the deviation.
- (6) For each storage vessel designated facility, you must maintain the records identified in paragraphs (c)(6)(i) through (vii) of this section.

- (i) You must maintain records of the identification and location in latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983 of each storage vessel designated facility.
- (ii) Records of each methane emissions determination for each storage vessel designated facility made under § 60.5386(c)(e) including identification of the model or calculation methodology used to calculate the methane emission rate.
- (iii) For each instance where the storage vessel was not operated in compliance with the requirements specified in § 60.5396c, a description of the deviation, the date and time each deviation began, and the duration of the deviation.
- (iv) If complying with the emissions reduction standard in § 60.5396c(a)(1), you must maintain the records in paragraphs (c)(6)(iv)(A) through (E) of this section.
 - (A) If you comply with the emission reduction standard with a control device, the information for each control device in paragraph (c)(10) of this section.
 - (B) Records of the closed vent system inspection as specified paragraph (c)(7) of this section. If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraph (c)(7) of this section, you must provide the information specified in § 60.5424c.
 - (C) Records of the cover inspections as specified in paragraph (c)(8) of this section. If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraph (c)(8) of this section, you must provide the information specified in § 60.5424c.
 - (D) If applicable, the records of bypass monitoring as specified in paragraph (c)(9) of this section.
 - (E) Records of the closed vent system assessment as specified in paragraph (c)(11) of this section.
- (v) For storage vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges, or ships), records indicating the number of consecutive days that the vessel is located at a site in the crude oil and natural gas source category. If a storage vessel is removed from a site and, within 30 days, is either returned to the site or replaced by another storage vessel at the site to serve the same or similar function, then the entire period since the original storage vessel was first located at the site, including the days when the storage vessel was removed, will be added to the count towards the number of consecutive days.
- (vi) Records of the date that each storage vessel designated facility or portion of a storage vessel designated facility is removed from service and returned to service, as applicable.
- (vii) Records of the date that liquids from the well following fracturing or refracturing are routed to the storage vessel designated facility; or the date that you comply with paragraph § 60.5396c(a)(2), following a monthly emissions determination which indicates that methane emissions increase to 14 tpy or greater and the increase is not associated with fracturing or refracturing of a well feeding the storage vessel designated facility, and records of the methane emissions rate and the model or calculation methodology used to calculate the methane emission rate.

- (7) Records of each closed vent system inspection required under § 60.5416c(a)(1) and (2) and (b) for your well, centrifugal compressor, reciprocating compressor, process controller, pump, storage vessel, and process unit equipment designated facility as required in paragraphs (c)(7)(i) through (iv) of this section.
 - (i) A record of each closed vent system inspection or no identifiable emissions monitoring survey. You must include an identification number for each closed vent system (or other unique identification description selected by you), the date of the inspection, and the method used to conduct the inspection (*i.e.*, visual, AVO, OGI, Method 21 of appendix A-7 to this part).
 - (ii) For each defect or emissions detected during inspections required by § 60.5416c(a)(1) and (2), or (b) you must record the location of the defect or emissions; a description of the defect; the maximum concentration reading obtained if using Method 21 of appendix A-7 to this part; the indication of emissions detected by AVO if using AVO; the date of detection; the date of each attempt to repair the emissions or defect; the corrective action taken during each attempt to repair the defect; and the date the repair to correct the defect or emissions is completed.
 - (iii) If repair of the defect is delayed as described in § 60.5416c(b)(6), you must record the reason for the delay and the date you expect to complete the repair.
 - (iv) Parts of the closed vent system designated as unsafe to inspect as described in § 60.5416c(b)(7) or difficult to inspect as described in § 60.5416c(b)(8), the reason for the designation, and written plan for inspection of that part of the closed vent system.
- (8) A record of each cover inspection required under § 60.5416c(a)(3) for your centrifugal compressor, reciprocating compressor, or storage vessel as required in paragraphs (c)(8)(i) through (iv) of this section.
 - (i) A record of each cover inspection. You must include an identification number for each cover (or other unique identification description selected by you), the date of the inspection, and the method used to conduct the inspection (*i.e.*, AVO, OGI, Method 21 of appendix A-7 to this part).
 - (ii) For each defect detected during the inspection you must record the location of the defect; a description of the defect; the date of detection; the maximum concentration reading obtained if using Method 21 of appendix A-7 to this part; the indication of emissions detected by AVO if using AVO; the date of each attempt to repair the defect; the corrective action taken during each attempt to repair the defect; and the date the repair to correct the defect is completed.
 - (iii) If repair of the defect is delayed as described in § 60.5416c(b)(5), you must record the reason for the delay and the date you expect to complete the repair.
 - (iv) Parts of the cover designated as unsafe to inspect as described in § 60.5416c(b)(7) or difficult to inspect as described in § 60.5416c(b)(8), the reason for the designation, and written plan for inspection of that part of the cover.
- (9) For each bypass subject to the bypass requirements of § 60.5416c(a)(4), you must maintain a record of the following, as applicable: readings from the flow indicator; each inspection of the seal or closure mechanism; the date and time of each instance the key is checked out; date and time of each instance the alarm is sounded.
- (10) Records for each control device used to comply with the emission reduction standard in § 60.5391c(b) for associated gas wells, § 60.5392c(a)(4) for centrifugal compressor designated facilities, § 60.5393c(d)(2) for reciprocating compressor designated facilities, § 60.5394c(b)(3) for

your process controller designated facility in Alaska, § 60.5395c(b)(3) for your pump designated facility, § 60.5396c(a)(2) for your storage vessel designated facility, § 60.5390c(g) for well designated facility gas well liquids unloading, or § 60.5400c(f) or 60.5401c(e) for your process equipment designated facility, as required in paragraphs (c)(10)(i) through (viii) of this section. If you use an enclosed combustion device or flare using an alternative test method approved under § 60.5412c(d), keep records of the information in paragraphs (c)(10)(ix) of this section, in lieu of the records required by paragraphs (c)(10)(i) through (iv) and (vi) through (viii) of this section.

- (i) For a control device tested under § 60.5413c(d) which meets the criteria in § 60.5413c(d)(11) and (e), keep records of the information in paragraphs (c)(10)(i)(A) through (E) of this section, in addition to the records in paragraphs (c)(10)(ii) through (ix) of this section, as applicable.
 - (A) Serial number of purchased device and copy of purchase order.
 - (B) Location of the designated facility associated with the control device in latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.
 - (C) Minimum and maximum inlet gas flow rate specified by the manufacturer.
 - (D) Records of the maintenance and repair log as specified in § 60.5413c(e)(4), for all inspection, repair, and maintenance activities for each control device failing the visible emissions test.
 - (E) Records of the manufacturer's written operating instructions, procedures, and maintenance schedule to ensure good air pollution control practices for minimizing emissions.
- (ii) For all control devices, keep records of the information in paragraphs (c)(10)(ii)(A) through (G) of this section, as applicable.
 - (A) Make, model, and date of installation of the control device, and identification of the designated facility controlled by the device.
 - (B) Records of deviations in accordance with § 60.5417c(g)(1) through (7), including a description of the deviation, the date and time the deviation began, the duration of the deviation, and the cause of the deviation.
 - (C) The monitoring plan required by § 60.5417c(c)(2).
 - (D) Make and model number of each continuous parameter monitoring system.
 - (E) Records of minimum and maximum operating parameter values, continuous parameter monitoring system data (including records that the pilot or combustion flame is present at all times), calculated averages of continuous parameter monitoring system data, and results of all compliance calculations.
 - (F) Records of continuous parameter monitoring system equipment performance checks, system accuracy audits, performance evaluations, or other audit procedures and results of all inspections specified in the monitoring plan in accordance with § 60.5417c(c)(2). Records of calibration gas cylinders, if applicable.

- (G) Periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions and required monitoring system quality assurance or quality control activities Records of repairs on the monitoring system.
- (iii) For each carbon adsorption system, records of the schedule for carbon replacement as determined by the design analysis requirements of § 60.5413c(c)(2) and (3) and records of each carbon replacement as specified in § 60.5412c(c)(1) and § 60.5415c(e)(1)(viii).
- (iv) For enclosed combustion devices and flares, records of visible emissions observations as specified in paragraph (c)(10)(iv)(A) or (B) of this section.
 - (A) Records of observations with Method 22 of appendix A-7 to this part, including observations required following return to operation from a maintenance or repair activity, which include: company, location, company representative (name of the person performing the observation), sky conditions, process unit (type of control device), clock start time, observation period duration (in minutes and seconds), accumulated emission time (in minutes and seconds), and clock end time. You may create your own form including the above information or use Figure 22-1 in Method 22 of appendix A-7 to this part.
 - (B) If you monitor visible emissions with a video surveillance camera, location of the camera and distance to emission source, records of the video surveillance output, and documentation that an operator looked at the feed daily, including the date and start time of observation, the length of observation, and length of time visible emissions were present.
- (v) For enclosed combustion devices and flares, video of the OGI inspection conducted in accordance with § 60.5415c(e)(1)(x). Records documenting each enclosed combustion device and flare was visibly observed during each inspection conducted under § 60.5397c using AVO in accordance with § 60.5415c(e)(1)(x).
- (vi) For enclosed combustion devices and flares, records of each demonstration of the NHV of the inlet gas to the enclosed combustion device or flare conducted in accordance with § 60.5417c(d)(8)(iii). For each re-evaluation of the NHV of the inlet gas, records of process changes and explanation of the conditions that led to the need to re-evaluation the NHV of the inlet gas. For each demonstration, record information on whether the enclosed combustion device or flare has the potential to receive inert gases, and if so, the highest percentage of inert gases that can be sent to the enclosed combustion device or flare and the highest percent of inert gases sent to the enclosed combustion device or flare during the NHV demonstration. Records of periodic sampling conducted under § 60.5417c(d)(8)(iii)(G).
- (vii) For enclosed combustion devices and flares, if you use a backpressure regulator valve, the make and model of the valve, date of installation, and record of inlet flow rating. Maintain records of the engineering evaluation and manufacturer specifications that identify the pressure set point corresponding to the minimum inlet gas flow rate, the annual confirmation that the backpressure regulator valve set point is correct and consistent with the engineering evaluation and manufacturer specifications, and the annual confirmation that the backpressure regulator valve fully closes when not in open position.
- (viii) For enclosed combustion devices and flares, records of each demonstration required under § 60.5417c(d)(8)(iv).

- (ix) If you use an enclosed combustion device or flare using an alternative test method approved under § 60.5412c(d), keep records of the information in paragraphs (c)(10)(ix)(A) through (H) of this section, in lieu of the records required by paragraphs (c)(10)(i) through (iv) and (vi) through (viii) of this section.
 - (A) An identification of the alternative test method used.
 - (B) Data recorded at the intervals required by the alternative test method.
 - (C) Monitoring plan required by § 60.5417c(i)(2).
 - (D) Quality assurance and quality control activities conducted in accordance with the alternative test method.
 - (E) If required by § 60.5412c(d)(4) to conduct visible emissions observations, records required by paragraph (c)(10)(iv) of this section.
 - (F) If required by § 60.5412c(d)(5) to conduct pilot or combustion flame monitoring, record indicating the presence of a pilot or combustion flame and periods when the pilot or combustion flame is absent.
 - (G) For each instance where there is a deviation of the control device in accordance with § 60.5417c(i)(6)(i) through (v), the date and time the deviation began, the duration of the deviation in hours, and cause of the deviation.
 - (H) Any additional information required to be recorded as specified by the Administrator as part of the alternative test method approval under § 60.5412c(d).
- (11) For each closed vent system routing to a control device or process, the records of the assessment conducted according to § 60.5411c(c):
 - (i) A copy of the assessment conducted according to § 60.5411c(c)(1); and
 - (ii) A copy of the certification according to § 60.5411c(c)(1)(i) and (ii).
- (12) A copy of each performance test submitted under paragraphs (b)(11) or (12) of this section.
- (13) For the fugitive emissions components designated facility, maintain the records identified in paragraphs (c)(13)(i) through (vii) of this section.
 - (i) The date of the startup of production or the date of the first day of production after modification for the fugitive emissions components designated facility at a well site and the date of startup or the date of modification for the fugitive emissions components designated facility at a compressor station.
 - (ii) For the fugitive emissions components designated facility at a well site, you must maintain records specifying what type of well site it is (i.e., single wellhead only well site, small wellsite, multi-wellhead only well site, or a well site with major production and processing equipment.)
 - (iii) For the fugitive emissions components designated facility at a well site where you complete the removal of all major production and processing equipment such that the well site contains only one or more wellheads, record the date the well site completes the removal of all major production and processing equipment from the well site, and, if the well site is still producing, record the well ID or separate tank battery ID receiving the production from the well site. If

major production and processing equipment is subsequently added back to the well site, record the date that the first piece of major production and processing equipment is added back to the well site.

- (iv) The fugitive emissions monitoring plan as required in § 60.5397c(b), (c), and (d).
- (v) The records of each monitoring survey as specified in paragraphs (c)(13)(v)(A) through (I) of this section.
 - (A) Date of the survey.
 - (B) Beginning and end time of the survey.
 - (C) Name of operator(s), training, and experience of the operator(s) performing the survey.
 - (D) Monitoring instrument or method used.
 - (E) Fugitive emissions component identification when Method 21 of appendix A-7 to this part is used to perform the monitoring survey.
 - (F) Ambient temperature, sky conditions, and maximum wind speed at the time of the survey. For compressor stations, operating mode of each compressor (*i.e.*, operating, standby pressurized, and not operating-depressurized modes) at the station at the time of the survey.
 - (G) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.
 - (H) Records of calibrations for the instrument used during the monitoring survey.
 - (I) Documentation of each fugitive emission detected during the monitoring survey, including the information specified in paragraphs (c)(13)(v)(I)(1) through (9) of this section.
 - (1) Location of each fugitive emission identified.
 - (2) Type of fugitive emissions component, including designation as difficult-to-monitor or unsafe-to-monitor, if applicable.
 - (3) If Method 21 of appendix A-7 to this part is used for detection, record the component ID and instrument reading.
 - (4) For each repair that cannot be made during the monitoring survey when the fugitive emissions are initially found, a digital photograph or video must be taken of that component or the component must be tagged for identification purposes. The digital photograph must include the date that the photograph was taken and must clearly identify the component by location within the site (*e.g.*, the latitude and longitude of the component or by other descriptive landmarks visible in the picture). The digital photograph or identification (*e.g.*, tag) may be removed after the repair is completed, including verification of repair with the resurvey.
 - (5) The date of first attempt at repair of the fugitive emissions component(s).
 - (6) The date of successful repair of the fugitive emissions component, including the resurvey to verify repair and instrument used for the resurvey.

- (7) Identification of each fugitive emission component placed on delay of repair and explanation for each delay of repair.
 - (8) For each fugitive emission component placed on delay of repair for reason of replacement component unavailability, the operator must document: the date the component was added to the delay of repair list, the date the replacement fugitive component or part thereof was ordered, the anticipated component delivery date (including any estimated shipment or delivery date provided by the vendor), and the actual arrival date of the component.
 - (9) Date of planned shutdowns that occur while there are any components that have been placed on delay of repair.
- (vi) For well closure activities, you must maintain the information specified in paragraphs (c)(13)(vi)(A) through (G) of this section.
- (A) The well closure plan developed in accordance with § 60.5397c(l) and the date the plan was submitted.
 - (B) The notification of the intent to close the well site and the date the notification was submitted.
 - (C) The date of the cessation of production from all wells at the well site.
 - (D) The date you began well closure activities at the well site.
 - (E) Each status report for the well closure activities reported in paragraph (b)(8)(iv)(A) of this section.
 - (F) Each OGI survey reported in paragraph (b)(8)(iv)(B) of this section including the date, the monitoring instrument used, and the results of the survey or resurvey.
 - (G) The final OGI survey video demonstrating the closure of all wells at the site. The video must include the date that the video was taken and must identify the well site location by latitude and longitude.
- (vii) If you comply with an alternative GHG standard under § 60.5398c, in lieu of the information specified in paragraphs (c)(13)(iv) and (v) of this section, you must maintain the records specified in § 60.5424c.
- (14) For each pump designated facility, you must maintain the records identified in paragraphs (c)(14)(i) through (ix) of this section, as applicable.
- (i) Identification of each pump that is driven by natural gas and that is in operation 90 days or more per calendar year.
 - (ii) If you are complying with § 60.5395c(a) or (b)(1) by routing pump vapors to a process through a closed vent system, identification of all the natural gas-driven pumps in the pump designated facility for which you collect and route vapors to a process through a closed vent system and the records specified in paragraphs (c)(7), (9), and (11) of this section. If you comply with an alternative GHG and VOC standard under § 60.5398c, in lieu of the information specified in paragraph (c)(7) of this section, you must provide the information specified in § 60.5424c.

- (iii) If you are complying with § 60.5395c(b)(1) by routing pump vapors to control device achieving a 95.0 percent reduction in methane emissions, you must keep the records specified in paragraphs (c)(7) and (c)(9) through (c)(12) of this section. If you comply with an alternative GHG and VOC standard under § 60.5398c, in lieu of the information specified in paragraph (c)(7) of this section, you must provide the information specified in § 60.5424c.
- (iv) If you are complying with § 60.5395c(b)(3) by routing pump vapors to a control device achieving less than a 95.0 percent reduction in methane emissions, you must maintain records of the certification that there is a control device on site but it does not achieve a 95.0 percent emissions reduction and a record of the design evaluation or manufacturer's specifications which indicate the percentage reduction the control device is designed to achieve.
- (v) If you have less than three natural gas-driven diaphragm pumps in the pump designated facility, and you do not have a vapor recovery unit or control device installed on site by the compliance date, you must retain a record of your certification required under § 60.5395c(b)(4), certifying that there is no vapor recovery unit or control device on site. If you subsequently install a control device or vapor recovery unit, you must maintain the records required under paragraphs (c)(14)(ii) and (iii) or (iv) of this section, as applicable.
- (vi) If you determine, through an engineering assessment, that it is technically infeasible to route the pump designated facility emissions to a process or control device, you must retain records of your demonstration and certification that it is technically infeasible as required under § 60.5395c(b)(7).
- (vii) If the pump is routed to a process or control device that is subsequently removed from the location or is no longer available such that there is no option to route to a process or control device, you are required to retain records of this change and the records required under paragraph (c)(14)(vi) of this section.
- (viii) Records of each change in compliance method, including identification of each natural gas-driven pump which changes its method of compliance, the new method of compliance, and the date of the change in compliance method.
- (ix) Records of each deviation, the date and time the deviation began, the duration of the deviation, and a description of the deviation.

(d) **Electronic reporting.** If you are required to submit notifications or reports following the procedure specified in this paragraph (d), you must submit notifications or reports to the EPA via CEDRI, which can be accessed through the EPA's Central Data Exchange (CDX) (<https://cdx.epa.gov/>). The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as CBI. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim for some of the information in the report or notification, you must submit a complete file in the format specified in this subpart, including information claimed to be CBI, to the EPA following the procedures in paragraphs (d)(1) and (2) of this section. Clearly mark the part or all of the information that you claim to be CBI. Information not marked as CBI may be authorized for public release without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. All CBI claims must be asserted at the time of submission. Anything submitted using CEDRI cannot later be claimed CBI. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data

available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available. You must submit the same file submitted to the CBI office with the CBI omitted to the EPA via the EPA's CDX as described earlier in this paragraph (d).

(1) The preferred method to receive CBI is for it to be transmitted electronically using email attachments, File Transfer Protocol, or other online file sharing services. Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address oaqpscbi@epa.gov, and as described above, should include clear CBI markings. ERT files should be flagged to the attention of the Group Leader, Measurement Policy Group; all other files should be flagged to the attention of the Oil and Natural Gas Sector Lead. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email oaqpscbi@epa.gov to request a file transfer link.

(2) If you cannot transmit the file electronically, you may send CBI information through the postal service to the following address: U.S. EPA, Attn: OAQPS Document Control Officer, Mail Drop: C404-02, 109 T.W. Alexander Drive, P.O. Box 12055, RTP, NC 27711. ERT files should be sent to the secondary attention of the Group Leader, Measurement Policy Group, and all other files should be sent to the secondary attention of the Oil and Natural Gas Sector Lead. The mailed CBI material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope.

(e) **Claims of EPA system outage.** If you are required to electronically submit a notification or report through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with that requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (e)(1) through (7) of this section.

(1) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA's CEDRI or CDX systems.

(2) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(3) The outage may be planned or unplanned.

(4) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(5) You must provide to the Administrator a written description identifying:

(i) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(6) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(7) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

- (f) **Claims of force majeure.** If you are required to electronically submit a report or notification through CEDRI in the EPA's CDX, you may assert a claim of *force majeure* for failure to timely comply with that requirement. To assert a claim of *force majeure*, you must meet the requirements outlined in paragraphs (f)(1) through (5) of this section.
- (1) You may submit a claim if a *force majeure* event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a *force majeure* event is defined as an event that will be or has been caused by circumstances beyond the control of the designated facility, its contractors, or any entity controlled by the designated facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (e.g., hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the designated facility (e.g., large scale power outage).
 - (2) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.
 - (3) You must provide to the Administrator:
 - (i) A written description of the *force majeure* event;
 - (ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the *force majeure* event;
 - (iii) A description of measures taken or to be taken to minimize the delay in reporting; and
 - (iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.
 - (4) The decision to accept the claim of *force majeure* and allow an extension to the reporting deadline is solely within the discretion of the Administrator.
 - (5) In any circumstance, the reporting must occur as soon as possible after the *force majeure* event occurs.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62935, Aug. 1, 2024]

§ 60.5421c What are my additional recordkeeping requirements for process unit equipment designated facilities?

You must maintain a record of each equipment leak monitoring inspection and each leak identified under § 60.5400c and § 60.5401c as specified in paragraphs (b)(1) through (17) of this section. The record must be maintained either onsite or at the nearest local field office for at least 5 years. Any records required to be maintained that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

- (a) You may comply with the recordkeeping requirements for multiple process unit equipment designated facilities in one recordkeeping system if the system identifies each record by each facility.

- (b) You must maintain the monitoring inspection records specified in paragraphs (b)(1) through (17) of this section.
 - (1) Note that connectors need not be individually identified if all connectors in a designated area or length of pipe subject to the provisions of this subpart are identified as a group, and the number of connectors subject is indicated.
 - (2) Date and start and end times of the monitoring inspection.
 - (3) Inspector name.
 - (4) Leak determination method used for the monitoring inspection (*i.e.*, OGI, Method 21, or AVO).
 - (5) Monitoring instrument identification (OGI and Method 21 only).
 - (6) Type of equipment monitored.
 - (7) Process unit identification.
 - (8) The records specified in Section 12 of appendix K to this part, for each monitoring inspection conducted with OGI.
 - (9) The records in paragraph (b)(9)(i) through (vii) of this section, for each monitoring inspection conducted with Method 21 of appendix A-7 to this part.
 - (i) Instrument reading.
 - (ii) Date and time of instrument calibration and initials of operator performing the calibration.
 - (iii) Calibration gas cylinder identification, certification date, and certified concentration.
 - (iv) Instrument scale used.
 - (v) A description of any corrective action taken if the meter readout could not be adjusted to correspond to the calibration gas value in accordance with section 10.1 of Method 21 of appendix A-7 to this part.
 - (vi) Results of the daily calibration drift assessment.
 - (vii) If you make your own calibration gas, a description of the procedure used.
 - (10) For visual inspections of pumps in light liquid service, keep the records specified in paragraphs (b)(10)(i) through (iii) of this section, for each monitored equipment:
 - (i) Date of inspection.
 - (ii) Inspector name.
 - (iii) Result of inspection (*i.e.*, visual indications of liquids dripping from the pump seal or no visual indications of liquids dripping from the pump seal).
 - (11) For each leak detected, the records specified in paragraphs (b)(11)(i) through (v) of this section:
 - (i) The instrument and operator identification numbers and the process unit and equipment identification numbers. For leaks identified via visual, olfactory, audible methods, enter the specific sensory method for instrument identification number.
 - (ii) The date the leak was detected.

- (iii) For each attempt to repair the leak, record:
 - (A) The date.
 - (B) The repair method applied.
 - (C) Indication of whether a leak was still detected following each attempt to repair the leak.
 - (vi) The date of successful repair of the leak and the method of monitoring used to confirm the repair, as specified in paragraph (b)(11)(vi)(A) through (C) of this section.
 - (A) If Method 21 of appendix A-7 to this part is used to confirm the repair, maintain a record of the maximum instrument reading measured by Method 21 of appendix A-7 to this part.
 - (B) If OGI conducted in accordance with appendix K to this part is used to confirm the repair, maintain a record of video footage of the repair confirmation.
 - (C) If the leak is repaired by eliminating AVO indications of a leak, maintain a record of the specific sensory method used to confirm that the evidence of the leak is eliminated.
- (v) For each repair delayed beyond 15 calendar days after detection of the leak, record:
 - (A) "Repair delayed" and the reason for the delay.
 - (B) The signature of the certifying official who made the decision that repair could not be completed without a process shutdown.
 - (C) The expected date of successful repair of the leak.
 - (D) Dates of process unit shutdowns that occur while the equipment is unrepaired.
- (12) A list of identification numbers for equipment that are designated for no detectable emissions complying with the provisions of § 60.5401c.
- (13) A list of identification numbers for valves, pumps, and connectors that are designated as unsafe-to-monitor, an explanation for each valve, pump, or connector stating why the valve, pump, or connector is unsafe-to-monitor, and the plan for monitoring each valve, pump, or connector.
- (14) A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each valve.
- (15) A list of identification numbers for equipment that is in vacuum service.
- (16) A list of identification numbers for equipment you designate as having the potential to emit methane less than 300 hr/yr.
- (17) A list of identification numbers for valves where it was infeasible to replace leaking valves with low-e valves or repack existing valves with low-e packing technology, including the reasoning for why it was infeasible.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62948, Aug. 1, 2024]

§ 60.5422_c What are my additional reporting requirements for process unit equipment designated facilities?

- (a) You must submit semiannual reports using the appropriate electronic report template on the CEDRI website for this subpart and following the procedure specified in § 60.5420_c(d). If the reporting form specific to this subpart is not available on the CEDRI website at the time that the report is due, submit the report to the Administrator at the appropriate address listed in § 60.4. Once the form has been available on the CEDRI website for at least 90 calendar days, you must begin submitting all subsequent reports via CEDRI. The date reporting forms become available will be listed on the CEDRI website. Unless the Administrator or delegated state agency or other authority has approved a different schedule for submission of reports, the report must be submitted within 45 days after the end of the semiannual reporting period, regardless of the method in which the report is submitted.
- (b) The initial semiannual report must include the following information:
 - (1) The general information specified in paragraph (c)(1) of this section.
 - (2) For each process unit:
 - (i) Process unit identification.
 - (ii) Number of valves subject to the monitoring requirements of § 60.5400_c(b) and § 60.5401_c(f).
 - (iii) Number of pumps subject to the monitoring requirements of § 60.5400_c(b) and § 60.5401_c(b).
 - (iv) Number of connectors subject to the monitoring requirements of § 60.5400_c(b) and § 60.5401_c(h).
 - (v) Number of pressure relief devices subject to the monitoring requirements of § 60.5400_c(b) and § 60.5401_c(c).
 - (vi) The information in paragraphs (c)(3) and (4) of this section.
- (c) All subsequent semiannual reports must include the following information:
 - (1) The general information specified in paragraphs (c)(1)(i) through (iii) of this section.
 - (i) The company name, facility site name, and address of the designated facility.
 - (ii) Beginning and ending dates of the reporting period.
 - (iii) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. If your report is submitted via CEDRI, the certifier's electronic signature during the submission process replaces the requirement in this paragraph (c)(1)(iii).
 - (2) Process unit identification for each process unit.
 - (3) For each month during the semiannual reporting period for each process unit report:
 - (i) Number of valves for which leaks were detected as described in § 60.5400_c(b) or § 60.5401_c(f).

- (ii) Number of valves for which leaks were not repaired as required in § 60.5400c(h) or § 60.5401c(i) and the number of instances where it was technically infeasible to replace leaking valves with low-e valves or repack existing valves with low-e packing technology, including the reasoning for why it was technically infeasible.
 - (iii) Number of pumps for which leaks were detected as described in § 60.5400c(b) or § 60.5401c(b).
 - (iv) Number of pumps for which leaks were not repaired as required in § 60.5400c(h) or § 60.5401c(i).
 - (v) Number of connectors for which leaks were detected as described in § 60.5400c(b) or § 60.5401c(h).
 - (vi) Number of connectors for which leaks were not repaired as required in § 60.5400c(h) or § 60.5401c(i).
 - (vii) Number of pressure relief devices for which leaks were detected as described in § 60.5400c(b) or § 60.5401c(c).
 - (viii) Number of pressure relief devices for which leaks were not repaired as required in § 60.5400c(h) or § 60.5401c(i).
 - (ix) Number of open-ended valves or lines for which leaks were detected as described in § 60.5400c(e) or § 60.5401c(d).
 - (x) Number of open-ended valves or lines for which leaks were not repaired as required in § 60.5400c(h) or § 60.5401c(i).
 - (xi) Number of pumps, valves, or connectors in heavy liquid service or pressure relief device in light liquid or heavy liquid service for which leaks were detected as described in § 60.5400c(g) or § 60.5401c(g).
 - (xii) Number of pumps, valves, or connectors in heavy liquid service or pressure relief device in light liquid or heavy liquid service for which leaks were not repaired as required in § 60.5400c(h) or § 60.5401c(i).
 - (xiii) The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.
- (4) Dates of process unit shutdowns which occurred within the semiannual reporting period.
 - (5) Revisions to items reported according to paragraph (b) of this section if changes have occurred since the initial report or subsequent revisions to the initial report.

§ 60.5424c What are my additional recordkeeping and reporting requirements if I comply with the alternative GHG standards for fugitive emissions components designated facilities and covers and closed vent systems?

This section provides notification, reporting, and recordkeeping requirements for owners and operators who choose to comply with an alternative GHG standard as specified in § 60.5398c for fugitive emissions components designated facilities and the alternative continuous inspection and monitoring requirements for covers and closed vent systems. You must submit an annual report in accordance with the schedule in § 60.5420c(b) which includes the information in paragraphs (a)(1), (b), and (d) of this section, as applicable. You must submit the notification in paragraph (a)(2) of this section and maintain the records in paragraphs (c) and (e) of this section, as applicable.

- a) Notifications.** If you choose to comply with an alternative GHG standard as specified in § 60.5398_c for fugitive emissions components designated facilities and the alternative continuous inspection and monitoring requirements for covers and closed vent systems, you must submit the notification in paragraph (a)(1) of this section. If you are required by § 60.5398_c(c)(8) to develop a mass emission rate reduction plan, you must submit the notification in paragraph (a)(2) of this section.
- (1) A notification to the Administrator of adoption of the alternative standards in the annual report required by § 60.5420_c(b)(3) through (10).
 - (2) A notification, which includes the submittal of the mass emission rate reduction plan required by § 60.5398_c(c)(8). You must submit the mass emission rate reduction plan to the Administrator within 60 days of the initial exceedance of the action level.
- b)** If you comply with the periodic screening requirements of § 60.5398_c(b), you must submit the information in paragraphs (b)(1) through (6) of this section in the annual report required by § 60.5420_c(b)(3) through (10).
- (1) Date of each periodic screening during the reporting period and date that results of the periodic screening were received.
 - (2) Alternative test method and technology used for each screening and the spatial resolution of the technology (i.e., facility-level, area-level, or component level).
 - (3) Any deviations from the monitoring plan developed under § 60.5398_c(b)(1) or a statement that there were no deviations from the monitoring plan.
 - (4) Results from each periodic screening during the reporting period. If the results of the periodic screening indicate a confirmed detection of emissions from a designated facility, you must submit the information in paragraphs (b)(4)(i) through (iv) of this section.
 - (i) The date that the monitoring survey of your entire or the required portion of your fugitive emissions components designated facility was conducted.
 - (ii) The date that you completed the instrument inspections of all required covers and closed vent systems(s).
 - (iii) The date that you conducted the visual inspection for emissions of all required closed vent systems and covers.
 - (iv) For each fugitive emission from a fugitive emissions components designated facility and all emissions or defects of each cover and closed vent system, you must submit the information in paragraphs (b)(4)(iv)(A) through (D) of this section.
 - (A) Number and type of components for which fugitive emissions were detected.
 - (B) Each emission or defect identified during the inspection for each cover and closed vent system.
 - (C) Date of repair for each fugitive emission from a fugitive emissions components designated facility or each emission or defect for each cover and closed vent system.
 - (D) Number and type of fugitive emission components and identification of each cover or closed vent system placed on delay of repair and an explanation for each delay of repair.

- (5) The information in paragraphs (b)(5)(i) through (iv) of this section if you are required to conduct OGI surveys in accordance with § 60.5398c(b)(1)(i) or if you replace a periodic screening event with an OGI survey in accordance with § 60.5398c(b)(1)(iv).
 - (i) The date of the OGI survey.
 - (ii) Number and type of components for which fugitive emissions were detected.
 - (iii) Number and type of fugitive emissions components that were not repaired as required in § 60.5397c(h).
 - (iv) Number and type of fugitive emission components placed on delay of repair and an explanation for each delay of repair.
- (6) Any additional information regarding the performance of the periodic screening technology as specified by the Administrator, as part of the alternative test method approval described in § 60.5398b(d).
- (c) If you comply with the periodic screening requirements of § 60.5398c(b), you must maintain the records in paragraphs (c)(1) through (11) of this section in addition to the records as specified in § 60.5420c(c)(2) through (8) and (c)(13) and (14).
 - (1) The monitoring plan as required in § 60.5398c(b)(2).
 - (2) Date of each periodic screening and date that results of the periodic screening were received.
 - (3) Name of screening operator.
 - (4) Alternative test method and technology used for screening, as well as the aggregate detection threshold for the technology and the spatial resolution of the technology (i.e., facility-level, area-level, or component-level).
 - (5) Records of calibrations for technology used during the screening, if calibration is required by the alternative test method approved in accordance with § 60.5398b(d).
 - (6) Results from periodic screening. If the results of the periodic screening indicate a confirmed detection of emissions from a designated facility, you must maintain the records in paragraphs (c)(6)(i) through (v) of this section.
 - (i) The date of the inspection of the fugitive emissions components and inspection of covers and closed vent system, as specified in § 60.5398c(b)(5).
 - (ii) Name of operator(s) performing the survey or inspection.
 - (iii) For surveys and instrument inspections, identification of the monitoring instrument(s) used.
 - (iv) Records of calibrations for the instrument(s) used during the survey or instrument inspection, as applicable.
 - (v) For each fugitive emission from a fugitive emissions components designated facility and each leak or defect for each cover and closed vent system inspection, you must maintain the records in paragraphs (c)(6)(v)(A) through (F) of this section.
 - (A) The location of the fugitive emissions identified using a unique identifier for the source of the emissions and the type of fugitive emissions component.

- (B) The location of the emission or defect from a cover or closed vent system using a unique identifier for the source of the emission or defect.
 - (C) If a defect of a closed vent system, cover, or control device is identified, a description of the defect.
 - (D) The date of repair for each fugitive emission from a fugitive emissions components designated facility or each emission or defect for each cover and closed vent system.
 - (E) Number and type of fugitive emission components and identification of each cover or closed vent system placed on delay of repair and an explanation for each delay of repair.
 - (F) For each fugitive emission component placed on delay of repair for reason of replacement component unavailability, the operator must document: the date the component was added to the delay of repair list, the date the replacement fugitive component or part thereof was ordered, the anticipated component delivery date (including any estimated shipment or delivery date provided by the vendor), and the actual arrival date of the component.
- (7) The date the investigative analysis was initiated, and the result of the investigative analysis conducted in accordance with § 60.5398c(b)(5)(vi) and (vii), as applicable.
- (8) Dates of implementation and completion of action(s) taken as a result of the investigative analysis and a description of the action(s) taken in accordance with § 60.5398c(b)(5)(vi) and (vii), as applicable.
- (9) The information in paragraphs (c)(9)(i) through (vii) of this section if you are required to conduct OGI surveys in accordance with § 60.5398c(b)(1)(i) or if you replace a periodic screening event with an OGI survey in accordance with § 60.5398c(b)(1)(iv).
- (i) The date of the OGI survey.
 - (ii) Location of each fugitive emission identified.
 - (iii) Type of fugitive emissions component for which fugitive emissions were detected.
 - (iv) The date of first attempt at repair of the fugitive emissions component(s).
 - (v) The date of successful repair of the fugitive emissions component(s), including the resurvey to verify the repair.
 - (vi) Identification of each fugitive emissions component placed on delay of repair and an explanation for each delay of repair.
 - (vii) For each fugitive emission component placed on delay of repair for reason of replacement component unavailability, the operator must document: the date the component was added to the delay of repair list, the date the replacement fugitive component or part thereof was ordered, the anticipated component delivery date (including any estimated shipment or delivery date provided by the vendor), and the actual arrival date of the component.
- (10) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.
- (11) All records required by the alternative approved in accordance with § 60.5398b(d).

- (d) If you comply with the continuous monitoring system requirements of § 60.5398c(c), you must submit the information in paragraphs (d)(1) through (6) of this section in the annual report required by § 60.5420c(b)(3) through (10).
- (1) The start date and end date for each period where the emissions rate determined in accordance with § 60.5398c(c)(6) exceeded one of the action levels determined in accordance with § 60.5398c(c)(4). Include which action level was exceeded (the 7-day or 90-day rolling average), the numerical value of the action level, and the mass emission rate calculated by the continuous monitoring system in the report.
 - (2) The date the investigative analysis was initiated, and the result of the investigative analysis conducted in accordance with § 60.5398c(c)(7), as applicable.
 - (3) Dates of implementation and completion of action(s) taken to reduce the mass emission rate and a description of the action(s) taken in accordance with § 60.5398c(c)(7), as applicable.
 - (4) If there are no instances reported under paragraph (d)(1) of this section, report your numerical action levels and the highest 7-day rolling average and highest 90-day rolling average determined by your continuous monitoring system during the reporting period.
 - (5) The start date for each instance where the 12-month rolling average operational downtime of the system exceeded 10 percent and the value of the 12-month rolling average operational downtime during the period. If there were no instances during the reporting period where the 12-month rolling average operational downtime of the system exceeded 10 percent, report the highest value of the 12-month rolling average operational downtime during the reporting period.
 - (6) Any additional information regarding the performance of the continuous monitoring system as specified by the Administrator, as part of the alternative test method approval described in § 60.5398b(d).
- (e) If you comply with the continuous monitoring system requirements of § 60.5398c(c), you must maintain the records in paragraphs (e)(1) through (15) of this section.
- (1) The monitoring plan required by § 60.5398c(c)(2).
 - (2) Date of commencement of continuous monitoring with your continuous monitoring system.
 - (3) The detection threshold of the continuous monitoring system.
 - (4) The results of checks for power and function in accordance with § 60.5398c(c)(1)(ii).
 - (5) The beginning and end of each period of operational downtime for the system.
 - (6) Each rolling 12-month average operational downtime for the system, calculated in accordance with § 60.5398c(c)(1)(iv)(D).
 - (7) The 7-day rolling average and 90-day rolling average action levels for the site determined in accordance with § 60.5398c(c)(4).
 - (8) The information in paragraphs (e)(8)(i) through (v) of this section each time you establish site-specific baseline emissions in accordance with § 60.5398c(c)(5).

- (i) Records of inspections of fugitive emissions components, covers, and closed vent systems required by § 60.5398c(c)(5)(i), including the date of inspection, location of each emission or defect identified, date of successful repair of each fugitive emissions component, cover, or closed vent system.
 - (ii) Records of inspections of control devices required by § 60.5398c(c)(5)(ii), including the date of the inspection and the results of the inspection.
 - (iii) The start date and time and end date and time of any maintenance activities that occurred during the 30 operating day period.
 - (iv) The site-level emission rate for each day during the 30 operating day period.
 - (v) The calculated site-specific baseline emission rate.
- (9) Each methane mass emission rate reading determined by the system.
 - (10) Each daily, 7-day, and 90-day average mass emission rate which was determined in accordance with § 60.5398c(c)(6). If you exceed the 90-day action level, you must also keep records of the 30-day average mass emission rate following completion of the initial actions to reduce the average mass emission rate, in accordance with § 60.5398c(c)(8)(i).
 - (11) The results of each comparison of the emissions rate determined in accordance with § 60.5398c(c)(6) to the action level determined in accordance with § 60.5398c(c)(4).
 - (12) The date the investigative analysis was initiated, and the result of the investigative analysis conducted in accordance with § 60.5398c(c)(7), as applicable.
 - (13) Dates of implementation and completion of action(s) taken to reduce the mass emission rate below the action level and a description of the action(s) taken in accordance with § 60.5398c(c)(7), as applicable.
 - (14) Each mass emission rate reduction plan developed in accordance with § 60.5398c(c)(8), as applicable. You must keep records of the actions taken in accordance with the plan and the date such actions are taken.
 - (15) Any additional information regarding the performance of the continuous monitoring technology as specified by the Administrator, as part of the alternative test method approval described in § 60.5398b(d).

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§ 60.5425c What parts of the General Provisions apply to me?

Table 4 to this subpart shows which parts of the General Provisions in §§ 60.1 through 60.19 apply to you.

MODEL RULE—DEFINITIONS

§ 60.5430c What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of this part; and the following terms shall have the specific meanings given them.

Access to electrical power means commercial line power is available onsite, with sufficient capacity to support the required power loading of onsite equipment, and which provides reliable and consistent power.

Acid gas means a gas stream of hydrogen sulfide (H₂S) and carbon dioxide (CO₂) that has been separated from sour natural gas by a sweetening unit.

Alaskan North Slope means the approximately 69,000 square-mile area extending from the Brooks Range to the Arctic Ocean.

API Gravity means the weight per unit volume of hydrocarbon liquids as measured by a system recommended by the American Petroleum Institute (API) and is expressed in degrees.

Artificial lift equipment means mechanical pumps including, but not limited to, rod pumps and electric submersible pumps used to flowback fluids from a well.

Associated gas means the natural gas from wells operated primarily for oil production that is released from the liquid hydrocarbon during the initial stage of separation after the wellhead. Associated gas production begins at the startup of production after the flow back period ends. Gas from wildcat or delineation wells is not associated gas.

Average aggregate detection threshold means:

- (1) For the purposes of § 60.5398c, the average of all site-level detection thresholds from a single deployment (e.g., a singular flight that surveys multiple well sites, centralized production facility, and/or compressor stations) of a technology; and
- (2) For the purposes of § 60.5388c, the average of all site-level detection thresholds from a single deployment in the same basin and field.

Bleed rate means the rate in standard cubic feet per hour at which natural gas is continuously vented (bleeds) from a process controller.

Capital expenditure means, as an alternative to the definition in § 60.2, an expenditure for a physical or operational change to an existing facility that:

- (1) Exceeds P, the product of the facility's replacement cost, R, and an adjusted annual asset guideline repair allowance, A, as reflected by the following equation: $P = R \times A$, where:
 - (i) The adjusted annual asset guideline repair allowance, A, is the product of the percent of the replacement cost, Y, and the applicable basic annual asset guideline repair allowance, B, divided by 100 as reflected by the following equation: $A = Y \times (B \div 100)$;
 - (ii) The percent Y is determined from the following equation: $Y = (\text{CPI of date of construction/most recently available CPI of date of project})$, where the "CPI-U, U.S. city average, all items" must be used for each CPI value; and
 - (iii) The applicable basic annual asset guideline repair allowance, B, is 4.5.
- (2) [Reserved]

Centralized production facility means one or more storage vessels and all equipment at a single surface site used to gather, for the purpose of sale or processing to sell, crude oil, condensate, produced water, or intermediate hydrocarbon liquid from one or more offsite natural gas or oil production wells. This equipment includes, but is not limited to, equipment used for storage, separation, treating, dehydration, artificial lift, combustion, compression, pumping, metering, monitoring, and flowline. Process vessels and

process tanks are not considered storage vessels or storage tanks. A centralized production facility is located upstream of the natural gas processing plant or the crude oil pipeline breakout station and is a part of producing operations.

Centrifugal compressor means any machine for raising the pressure of a natural gas by drawing in low pressure natural gas and discharging significantly higher-pressure natural gas by means of mechanical rotating vanes or impellers. Screw, sliding vane, and liquid ring compressors are not centrifugal compressors for the purposes of this subpart.

Centrifugal compressor equipped with sour seal oil separator and capture system means a wet seal centrifugal compressor system which has an intermediate closed process that degasses most of the gas entrained in the sour seal oil and sends that gas to either another process or combustion device (i.e., degassed emissions are recovered). The de-gas emissions are routed back to a process or combustion device directly from the intermediate closed degassing process; after the intermediate closed process the oil is ultimately recycled for recirculation in the seals to the lube oil tank where any small amount of residual gas is released through a vent.

Certifying official means one of the following:

- (1) For a corporation: A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities with a designated facility subject to this subpart and either:
 - (i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars); or
 - (ii) The Administrator is notified of such delegation of authority prior to the exercise of that authority. The Administrator reserves the right to evaluate such delegation;
- (2) For a partnership (including but not limited to general partnerships, limited partnerships, and limited liability partnerships) or sole proprietorship: A general partner or the proprietor, respectively. If a general partner is a corporation, the provisions of paragraph (1) of this definition apply;
- (3) For a municipality, State, Federal, or other public agency: Either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of EPA); or
- (4) For designated facilities:
 - (i) The designated representative in so far as actions, standards, requirements, or prohibitions under title IV of the CAA or the regulations promulgated thereunder are concerned; or
 - (ii) The designated representative for any other purposes under this part.

Closed vent system means a system that is not open to the atmosphere and that is composed of hard-piping, ductwork, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device or back to a process.

Coil tubing cleanout means the process where an operator runs a string of coil tubing to the packed proppant within a well and jets the well to dislodge the proppant and provide sufficient lift energy to flow it to the surface. Coil tubing cleanout includes mechanical methods to remove solids and/or debris from a wellbore.

Collection system means any infrastructure that conveys gas or liquids from the well site to another location for treatment, storage, processing, recycling, disposal, or other handling.

Completion combustion device means any ignition device, installed horizontally or vertically, used in exploration and production operations to combust otherwise vented emissions from completions. Completion combustion devices include pit flares.

Compressor mode means the operational and pressurized status of a compressor. For both centrifugal compressors and reciprocating compressors, "mode" refers to either: Operating-mode, standby-pressurized-mode, or not-operating-depressurized-mode.

Compressor station means any permanent combination of one or more compressors that move natural gas at increased pressure through gathering or transmission pipelines, or into or out of storage. This includes, but is not limited to, gathering and boosting stations and transmission compressor stations. The combination of one or more compressors located at a well site, centralized production facility, or an onshore natural gas processing plant, is not a compressor station for purposes of § 60.5386c(e) and § 60.5397c.

Condensate means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature, pressure, or both, and remains liquid at standard conditions.

Connector means flanged, screwed, or other joined fittings used to connect two pipe lines or a pipe line and a piece of process equipment or that close an opening in a pipe that could be connected to another pipe. Joined fittings welded completely around the circumference of the interface are not considered connectors for the purpose of this regulation.

Continuous bleed means a continuous flow of pneumatic supply natural gas to a process controller.

Crude oil and natural gas source category means:

- (1) Crude oil production, which includes the well and extends to the point of custody transfer to the crude oil transmission pipeline or any other forms of transportation; and
- (2) Natural gas production, processing, transmission, and storage, which include the well and extend to, but do not include, the local distribution company custody transfer station.

Custody meter means the meter where natural gas or hydrocarbon liquids are measured for sales, transfers, and/or royalty determination.

Custody meter assembly means an assembly of fugitive emissions components, including the custody meter, valves, flanges, and connectors necessary for the proper operation of the custody meter.

Custody transfer means the transfer of crude oil or natural gas after processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation.

Dehydrator means a device in which an absorbent directly contacts a natural gas stream and absorbs water in a contact tower or adsorption column (absorber).

Delineation well means a well drilled in order to determine the boundary of a field or producing reservoir.

Deviation means any instance in which a designated source subject to this subpart, or an owner or operator of such a source:

- (1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limit, operating limit, or work practice standard;
- (2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any designated source required to obtain such a permit; or
- (3) Fails to meet any emission limit, operating limit, or work practice standard of this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Distance piece means an open or enclosed casing through which the piston rod travels, separating the compressor cylinder from the crankcase.

Double block and bleed system means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

Duct work means a conveyance system such as those commonly used for heating and ventilation systems. It is often made of sheet metal and often has sections connected by screw or crimping. Hard-piping is not ductwork.

Emergency shutdown device means a device which functions exclusively to protect personnel and/or prevent physical damage to equipment by shutting down equipment or gas flow during unsafe conditions resulting from an unexpected event, such as a pipe break or fire. For the purposes of this subpart, an emergency shutdown device is not used for routine control of operating conditions.

Equipment, as used in the standards and requirements of this subpart relative to the process unit equipment designated facility at onshore natural gas processing plants, means each pump, pressure relief device, open-ended valve or line, valve, and flange or other connector that has the potential to emit methane and any device or system required by those same standards and requirements of this subpart.

Field gas means feedstock gas entering the natural gas processing plant.

Field gas gathering means the system used transport field gas from a field to the main pipeline in the area.

First attempt at repair means an action taken for the purpose of stopping or reducing fugitive emissions to the atmosphere. First attempts at repair include, but are not limited to, the following practices where practicable and appropriate: Tightening bonnet bolts; replacing bonnet bolts; tightening packing gland nuts; or injecting lubricant into lubricated packing.

Flare means a thermal oxidation system using an open (without enclosure) flame. Completion combustion devices as defined in this section are not considered flares.

Flow line means a pipeline used to transport oil and/or gas to a processing facility or a mainline pipeline.

Flowback means the process of allowing fluids and entrained solids to flow from a well following a treatment, either in preparation for a subsequent phase of treatment or in preparation for cleanup and returning the well to production. The term flowback also means the fluids and entrained solids that emerge from a well during the flowback process. The flowback period begins when material introduced into the well during the treatment returns to the surface following hydraulic fracturing or refracturing. The flowback period ends when either the well is shut in and permanently disconnected from the flowback equipment or at the

startup of production. The flowback period includes the initial flowback stage and the separation flowback stage. Screenouts, coil tubing cleanouts, and plug drill-outs are not considered part of the flowback process.

Fuel gas means gases that are combusted to derive useful work or heat.

Fuel gas system means the offsite and onsite piping and flow and pressure control system that gathers gaseous stream(s) generated by onsite operations, may blend them with other sources of gas, and transports the gaseous stream for use as fuel gas in combustion devices or in-process combustion equipment, such as furnaces and gas turbines, either singly or in combination.

Fugitive emissions means, for the purposes of § 60.5397c, any indication of emissions observed from a fugitive emissions component using AVO, an indication of visible emissions observed from an OGI instrument, or an instrument reading of 500 ppmv or greater using Method 21 of appendix A-7 to this part.

Fugitive emissions component means any component that has the potential to emit fugitive emissions of methane at a well site, centralized production facility, or compressor station, such as valves (including separator dump valves), connectors, pressure relief devices, open-ended lines, flanges, covers and closed vent systems not subject to § 60.5411c, thief hatches or other openings on a storage vessel not subject to § 60.5396c, compressors, instruments, meters, and yard piping.

Gas to oil ratio (GOR) means the ratio of the volume of gas at standard temperature and pressure that is produced from a volume of oil when depressurized to standard temperature and pressure.

Hard-piping means pipe or tubing that is manufactured and properly installed using good engineering judgment and standards such as ASME B31.3, Process Piping (available from the American Society of Mechanical Engineers, P.O. Box 2300, Fairfield, NJ 07007-2300).

Hydraulic fracturing means the process of directing pressurized fluids containing any combination of water, proppant, and any added chemicals to penetrate tight formations, such as shale or coal formations, that subsequently require high rate, extended flowback to expel fracture fluids and solids during completions.

Hydraulic refracturing means conducting a subsequent hydraulic fracturing operation at a well that has previously undergone a hydraulic fracturing operation.

In gas/vapor service means that the piece of equipment contains process fluid that is in the gaseous state at operating conditions.

In heavy liquid service means that the piece of equipment is not in gas/vapor service or in light liquid service.

In light liquid service means that the piece of equipment contains a liquid that meets the conditions specified in § 60.5402c(d)(2) or § 60.5406c.

In vacuum service means that equipment is operating at an internal pressure which is at least 5 kilopascals (kPa) (0.7 psia) below ambient pressure.

In wet gas service means that a compressor or piece of equipment contains or contacts the field gas before the extraction step at a gas processing plant process unit.

Initial calibration value, as used in the standards and requirements of this subpart relative to the process unit equipment designated facility at onshore natural gas processing plants, means the concentration measured during the initial calibration at the beginning of each day required in § 60.5406c, or the most recent calibration if the instrument is recalibrated during the day (i.e., the calibration is adjusted) after a calibration drift assessment.

Initial flowback stage means the period during a well completion operation which begins at the onset of flowback and ends at the separation flowback stage.

Intermediate hydrocarbon liquid means any naturally occurring, unrefined petroleum liquid.

Intermittent vent natural gas-driven process controller means a process controller that is not designed to have a continuous bleed rate but is instead designed to only release natural gas to the atmosphere as part of the actuation cycle.

Liquefied natural gas unit means a unit used to cool natural gas to the point at which it is condensed into a liquid which is colorless, odorless, non-corrosive and non-toxic.

Liquid collection system means tankage and/or lines at a well site to contain liquids from one or more wells or to convey liquids to another site.

Liquids dripping means any visible leakage from the seal, including spraying, misting, clouding, and ice formation.

Liquids unloading means the unloading of liquids that have accumulated over time in gas wells, which are impeding or halting production. Routine well maintenance activities, including workovers, screenouts, coil tubing cleanouts, or any other activity that requires a rig or other machinery are not considered liquids unloading.

Local distribution company (LDC) custody transfer station means a metering station where the LDC receives a natural gas supply from an upstream supplier, which may be an interstate transmission pipeline or a local natural gas producer, for delivery to customers through the LDC's intrastate transmission or distribution lines.

Low-e valve means a valve (including its specific packing assembly) for which the manufacturer has issued a written warranty or performance guarantee that it will not emit fugitives at greater than 100 ppm in the first five years. A valve may qualify as a low-e valve if it is as an extension of another valve that has qualified as a low-e valve.

Low-e packing means a valve packing product for which the manufacturer has issued a written warranty or performance guarantee that it will not emit fugitives at greater than 100 ppm in the first five years. Low-e injectable packing is a type of low-e packing product for which the manufacturer has also issued a written warranty or performance guarantee and that can be injected into a valve during a "drill-and-tap" repair of the valve.

Major production and processing equipment means reciprocating or centrifugal compressors, glycol dehydrators, heater/treaters, separators, control devices, natural gas-driven process controllers, natural gas-driven pumps, and storage vessels or tank batteries collecting crude oil, condensate, intermediate hydrocarbon liquids, or produced water, for the purpose of determining whether a well site is a wellhead only well site.

Maximum average daily throughput means the following:

- (1) The earliest calculation of daily average throughput, determined as described in paragraph (2) or (3) of this definition, to a tank battery over the days that production is routed to that tank battery during the 30-day PTE evaluation period employing generally accepted methods specified in § 60.5386c(e)(2).

- (2) If throughput to the tank battery is measured on a daily basis (e.g., via level gauge automation or daily manual gauging), the maximum average daily throughput is the average of all daily throughputs for days on which throughput was routed to the tank battery during the 30-day evaluation period; or
- (3) If throughput to the tank battery is not measured on a daily basis (e.g., via manual gauging at the start and end of loadouts), the maximum average daily throughput is the highest, of the average daily throughputs, determined for any production period to that tank battery during the 30-day evaluation period, as determined by averaging total throughput to that tank battery over each production period. A production period begins when production begins to be routed to a tank battery and ends either when throughput is routed away from that tank battery or when a loadout occurs from that tank battery, whichever happens first. Regardless of the determination methodology, operators must not include days during which throughput is not routed to the tank battery when calculating maximum average daily throughput for that tank battery.

Multi-wellhead only well site means a well site that contains two or more wellheads and no major production and processing equipment.

Natural gas-driven diaphragm pump means a positive displacement pump powered by pressurized natural gas that uses the reciprocating action of flexible diaphragms in conjunction with check valves to pump a fluid. A pump in which a fluid is displaced by a piston driven by a diaphragm is not considered a diaphragm pump for purposes of this subpart. A lean glycol circulation pump that relies on energy exchange with the rich glycol from the contactor is not considered a diaphragm pump.

Natural gas-driven piston pump means a positive displacement pump powered by pressurized natural gas that moves and pressurizes fluid by using one or more reciprocating pistons. A pump in which a fluid is displaced by a piston driven by a diaphragm is considered a piston pump for purposes of this subpart. A lean glycol circulation pump that relies on energy exchange with the rich glycol from the contactor is not considered a piston pump.

Natural gas-driven process controller means a process controller powered by pressurized natural gas.

Natural gas liquids means the hydrocarbons, such as ethane, propane, butane, and pentane that are extracted from field gas.

Natural gas processing plant (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both. A Joule-Thompson valve, a dew point depression valve, or an isolated or standalone Joule-Thompson skid is not a natural gas processing plant.

Natural gas transmission means the pipelines used for the long-distance transport of natural gas (excluding processing). Specific equipment used in natural gas transmission includes the land, mains, valves, meters, boosters, regulators, storage vessels, dehydrators, compressors, and their driving units and appurtenances, and equipment used for transporting gas from a production plant, delivery point of purchased gas, gathering system, storage area, or other wholesale source of gas to one or more distribution area(s).

No detectable emissions means, for the purposes of §§ 60.5401c and 60.5406c, that the equipment is operating with an instrument reading of less than 500 ppmv above background, as determined by Method 21 of appendix A-7 to this part.

No identifiable emissions means, for the purposes of covers, closed vent systems, and self-contained natural gas-driven process controllers and as determined according to the provisions of § 60.5416c, that no emissions are detected by AVO means when inspections are conducted by AVO; no emissions are imaged with an OGI camera when inspections are conducted with OGI; and equipment is operating with an instrument reading of less than 500 ppmv above background, as determined by Method 21 of appendix A-7 to this part when inspections are conducted with Method 21.

Nonfractionating plant means any gas plant that does not fractionate mixed natural gas liquids into natural gas products.

Non-natural gas-driven process controller means an instrument that is actuated using other sources of power than pressurized natural gas; examples include solar, electric, and instrument air.

Onshore means all facilities except those that are located in the territorial seas or on the outer continental shelf.

Open-ended valve or line or open-ended vent line means any valves, except safety relief valves, having one side of the valve seat in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

Plug drill-out means the removal of a plug (or plugs) that was used to isolate different sections of the well.

Process controller means an automated instrument used for maintaining a process condition such as liquid level, pressure, delta-pressure and temperature.

Pressure release means the emission of materials resulting from system pressure being greater than set pressure of the pressure relief device.

Pressure vessel means a storage vessel that is used to store liquids or gases and is designed not to vent to the atmosphere as a result of compression of the vapor headspace in the pressure vessel during filling of the pressure vessel to its design capacity.

Pressurized mode means when the compressor contains natural gas that is maintained at a pressure higher than the atmospheric pressure.

Process improvement means routine changes made for safety and occupational health requirements, for energy savings, for better utility, for ease of maintenance and operation, for correction of design deficiencies, for bottleneck removal, for changing product requirements, or for environmental control.

Process unit means components assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the products.

Process unit shutdown means a work practice or operational procedure that stops production from a process unit or part of a process unit during which it is technically feasible to clear process material from a process unit or part of a process unit consistent with safety constraints and during which repairs can be accomplished. The following are not considered process unit shutdowns:

- (1) An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours.

- (2) An unscheduled work practice or operational procedure that would stop production from a process unit or part of a process unit for a shorter period of time than would be required to clear the process unit or part of the process unit of materials and start up the unit, and would result in greater emissions than delay of repair of leaking components until the next scheduled process unit shutdown.
- (3) The use of spare equipment and technically feasible bypassing of equipment without stopping production.

Produced water means water that is extracted from the earth from an oil or natural gas production well, or that is separated from crude oil, condensate, or natural gas after extraction.

Qualified Professional Engineer means an individual who is licensed by a state as a Professional Engineer to practice one or more disciplines of engineering and who is qualified by education, technical knowledge and experience to make the specific technical certifications required under this subpart. Professional engineers making these certifications must be currently licensed in at least one state in which the certifying official is located.

Quarter means a 3-month period. For purposes of standards for process unit equipment designated facilities at onshore natural gas processing plants, the first quarter concludes on the last day of the last full month during the 180 days following initial startup.

Reciprocating compressor means a piece of equipment that increases the pressure of a process gas by positive displacement, employing linear movement of the driveshaft.

Reciprocating compressor rod packing means a series of flexible rings in machined metal cups that fit around the reciprocating compressor piston rod to create a seal limiting the amount of compressed natural gas that escapes to the atmosphere, or other mechanism that provides the same function.

Recovered gas means gas recovered through the separation process during flowback.

Recovered liquids means any crude oil, condensate or produced water recovered through the separation process during flowback.

Reduced emissions completion means a well completion following fracturing or refracturing where gas flowback that is otherwise vented is captured, cleaned, and routed to the gas flow line or collection system, re-injected into the well or another well, used as an onsite fuel source, or used for other useful purpose that a purchased fuel or raw material would serve, with no direct release to the atmosphere.

Reduced sulfur compounds means H₂S, carbonyl sulfide (COS), and carbon disulfide (CS₂).

Removed from service means that a storage vessel designated facility has been physically isolated and disconnected from the process for a purpose other than maintenance in accordance with § 60.5396c(c)(1).

Repaired means the following:

- (1) For the purposes of fugitive emissions components designated facilities, that fugitive emissions components are adjusted, replaced, or otherwise altered, in order to eliminate fugitive emissions as defined in § 60.5397c and resurveyed as specified in § 60.5397c(h)(4) and it is verified that emissions from the fugitive emissions components are below the applicable fugitive emissions definition.

- (2) For the purposes of process unit equipment designated facilities, that equipment is adjusted, or otherwise altered, in order to eliminate a leak as defined in §§ 60.5400c and 60.5401c and is re-monitored as specified in § 60.5400c(b) introductory text or § 60.5406c, respectively, to verify that emissions from the equipment are below the applicable leak definition. Pumps in light liquid service subject to § 60.5400c(c)(2) or § 60.5401c(b)(1)(ii) are not subject to re-monitoring.

Replacement cost means the capital needed to purchase all the depreciable components in a facility.

Returned to service means that a storage vessel designated facility that was removed from service has been:

- (1) Reconnected to the original source of liquids or has been used to replace any storage vessel designated facility; or
- (2) Installed in any location covered by this subpart and introduced with crude oil, condensate, intermediate hydrocarbon liquids or produced water.

Routed to a process or route to a process means the emissions are conveyed via a closed vent system to any enclosed portion of a process that is operational where the emissions are predominantly recycled and/or consumed in the same manner as a material that fulfills the same function in the process and/or transformed by chemical reaction into materials that are not regulated materials and/or incorporated into a product; and/or recovered.

Salable quality gas means natural gas that meets the flow line or collection system operator specifications, regardless of whether such gas is sold.

Screenout means an attempt to clear proppant from the wellbore to dislodge the proppant out of the well.

Self-contained process controller means a natural gas-driven process controller that releases gas into the downstream piping and not to the atmosphere, resulting in zero methane emissions.

Self-contained wet seal centrifugal compressor means:

- (1) A wet seal centrifugal compressor system that is a closed process that ports the degassing emissions into the natural gas line at the compressor suction (i.e., degassed emissions are recovered) or which has an intermediate closed process that degasses most of the gas entrained in the seal oil and sends that gas to another process. The de-gas emissions are routed back to suction or process directly from the closed or intermediate closed degassing process; after the closed or intermediate closed degassing process the oil is ultimately recycled for recirculation in the seals to the lube oil tank where any small amount of residual gas is released through a vent.
- (2) A wet seal centrifugal compressor equipped with mechanical wet seals, where
 - (1) a differential pressure is maintained on the system and there is no off gassing of the lube oil, and
 - (2) the mechanical seal is integrated into the compressor housing.

Sensor means a device that measures a physical quantity or the change in a physical quantity such as temperature, pressure, flow rate, pH, or liquid level.

Separation flowback stage means the period during a well completion operation when it is technically feasible for a separator to function. The separation flowback stage ends either at the startup of production, or when the well is shut in and permanently disconnected from the flowback equipment.

Separator dump valve means, for purposes of the fugitive emission standards in §§ 60.5397c and 60.5398c, a liquid-control valve in a separator that controls the liquid level within the separator vessel.

Single wellhead only well site means a wellhead only well site that contains only one wellhead and no major production and processing equipment.

Small well site means, for purposes of the fugitive emissions standards in §§ 60.5397c and 60.5398c, a well site that contains a single wellhead, no more than one piece of certain major production and processing equipment, and associated meters and yard piping. Small well sites cannot include any controlled storage vessels (or controlled tank batteries), control devices, or natural gas-driven process controllers, or natural gas-driven pumps.

Startup of production means the beginning of initial flow following the end of flowback when there is continuous recovery of salable quality gas and separation and recovery of any crude oil, condensate, or produced water, except as otherwise provided in this definition. For the purposes of the fugitive monitoring requirements of § 60.5397c, *startup of production* means the beginning of the continuous recovery of salable quality gas and separation and recovery of any crude oil, condensate, or produced water.

Storage vessel means a tank or other vessel that contains an accumulation of crude oil, condensate, intermediate hydrocarbon liquids, or produced water, and that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provide structural support. A well completion vessel that receives recovered liquids from a well after startup of production following flowback for a period which exceeds 60 days is considered a storage vessel under this subpart. A tank or other vessel shall not be considered a storage vessel if it has been removed from service in accordance with the requirements of § 60.5396c(c)(1) until such time as such tank or other vessel has been returned to service. For the purposes of this subpart, the following are not considered storage vessels:

- (1) Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If you do not keep or are not able to produce records, as required by § 60.5420c(c)(6)(v), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel from the date the original vessel was first located at the site. This exclusion does not apply to a well completion vessel as described above.
- (2) Process vessels such as surge control vessels, bottoms receivers or knockout vessels.
- (3) Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

Sulfur production rate means the rate of liquid sulfur accumulation from the sulfur recovery unit.

Sulfur recovery unit means a process device that recovers element sulfur from acid gas.

Surface site means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.

Sweetening unit means a process device that removes hydrogen sulfide and/or carbon dioxide from the sour natural gas stream.

Tank battery means a group of all storage vessels that are manifolded together for liquid transfer. A tank battery may consist of a single storage vessel if only one storage vessel is present.

Total Reduced Sulfur (TRS) means the sum of the sulfur compounds hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide as measured by Method 16 of appendix A-6 to this part.

Total SO₂ equivalents means the sum of volumetric or mass concentrations of the sulfur compounds obtained by adding the quantity existing as SO₂ to the quantity of SO₂ that would be obtained if all reduced sulfur compounds were converted to SO₂ (ppmv or kg/dscm (lb/dscf)).

UIC Class I oilfield disposal well means a well with a UIC Class I permit that meets the definition in 40 CFR 144.6(a)(2) and receives eligible fluids from oil and natural gas exploration and production operations.

UIC Class II oilfield disposal well means a well with a UIC Class II permit where wastewater resulting from oil and natural gas production operations is injected into underground porous rock formations not productive of oil or gas, and sealed above and below by unbroken, impermeable strata.

Underground storage vessel means a storage vessel stored below ground.

Well means a hole drilled for the purpose of producing oil or natural gas, or a well into which fluids are injected.

Well completion means the process that allows for the flowback of petroleum or natural gas from newly drilled wells to expel drilling and reservoir fluids and tests the reservoir flow characteristics, which may vent produced hydrocarbons to the atmosphere via an open pit or tank.

Well completion operation means any well completion with hydraulic fracturing or refracturing occurring at a well completion designated facility.

Well completion vessel means a vessel that contains flowback during a well completion operation following hydraulic fracturing or refracturing. A well completion vessel may be a lined earthen pit, a tank or other vessel that is skid-mounted or portable. A well completion vessel that receives recovered liquids from a well after startup of production following flowback for a period which exceeds 60 days is considered a storage vessel under this subpart.

Well site means one or more surface sites that are constructed for the drilling and subsequent operation of any oil well, natural gas well, or injection well. For the purposes of the fugitive emissions standards at § 60.5397c, a well site does not include:

- (1) UIC Class II oilfield disposal wells and disposal facilities;
- (2) UIC Class I oilfield disposal wells; and
- (3) The flange immediately upstream of the custody meter assembly and equipment, including fugitive emissions components, located downstream of this flange.

Wellhead means the piping, casing, tubing and connected valves protruding above the earth's surface for an oil and/or natural gas well. The wellhead ends where the flow line connects to a wellhead valve. The wellhead does not include other equipment at the well site except for any conveyance through which gas is vented to the atmosphere.

Wellhead only well site means, for the purposes of the fugitive emissions standards at § 60.5397c and the standards in § 60.5398c, a well site that contains one or more wellheads and no major production and processing equipment.

Wildcat well means a well outside known fields or the first well drilled in an oil or gas field where no other oil and gas production exists.

Yard piping means hard-piping at a well site, centralized production facility, or compressor station that is not part of a closed vent system.

[89 FR 17043, Mar. 8, 2024, as amended at 89 FR 62948, Aug. 1, 2024]

§§ 60.5431c-60.5439c [Reserved]

Table 1 to Subpart OOOOc of Part 60—Designated Facility Presumptive Standards and Regulated Entity Compliance Dates

Designated facility	Model rule presumptive standards section	Regulated entity compliance dates
Wells	a. Gas wells liquids unloading events—§ 60.5390c b. Associated gas wells—§ 60.5391c	36 months after the state plan submittal deadline specified in § 60.5362c(c).
Centrifugal Compressors	§ 60.5392c	
Reciprocating Compressors	§ 60.5393c	
Process Controllers	§ 60.5394c	
Pumps	§ 60.5395c	
Storage Vessels	§ 60.5396c	
Fugitive Emissions Components	a. Primary standards—§ 60.5397c b. Alternative standards for fugitive emissions components and covers and closed vent systems—§ 60.5398c	
Super Emitter Events	§ 60.5388c	
Process Unit Equipment	a. Onshore natural gas processing plants—§ 60.5400c b. Process unit equipment alternative standards—§ 60.5401c c. Process unit equipment requirement exceptions—§ 60.5402c	

[89 FR 62948, Aug. 1, 2024]

Table 2 to Subpart OOOOc of Part 60—Alternative Technology Periodic Screening Frequency at Well Sites, Centralized Production Facilities, and Compressor Stations Subject to AVO Inspections With Quarterly OGI or EPA Method 21 Monitoring

Minimum screening frequency	Minimum detection threshold of screening technology * (kg/hr)
Quarterly	≤1
Bimonthly	≤2
Bimonthly + Annual OGI	≤10
Monthly	≤5
Monthly + Annual OGI	≤15

* Based on a probability of detection of 90%.

Table 3 to Subpart OOOOc of Part 60—Alternative Technology Periodic Screening Frequency at Well Sites and Centralized Production Facilities Subject to AVO Inspections and/or Semiannual OGI or EPA Method 21 Monitoring

Minimum screening frequency	Minimum detection threshold of screening technology * (kg/hr)
Semiannual	≤1
Triannual	≤2
Triannual + Annual OGI	≤10
Quarterly	≤5
Quarterly + Annual OGI	≤15
Bimonthly	≤15

* Based on a probability of detection of 90%.

Table 4 to Subpart OOOOc of Part 60—Applicability of General Provisions to Subpart OOOOc

General provisions citation	Subject of citation	Applies to subpart?	Explanation
§ 60.1	General	Yes	

General provisions citation	Subject of citation	Applies to subpart?	Explanation
	applicability of the General Provisions		
§ 60.2	Definitions	Yes	Additional terms defined in § 60.5430c.
§ 60.3	Units and abbreviations	Yes	
§ 60.4	Address	Yes	
§ 60.5	Determination of construction or modification	Yes	
§ 60.6	Review of plans	Yes	
§ 60.7	Notification and record keeping	Yes	Except that § 60.7 only applies as specified in §§ 60.5417c(c) and 60.5420c(a).
§ 60.8	Performance tests	Yes	Except that the format and submittal of performance test reports is described in § 60.5420c(b) and (d). Performance testing is required for control devices used on wells, storage vessels, centrifugal compressors, reciprocating compressors, process controllers, and pumps, as applicable, except that performance testing is not required for a control device used solely on pump(s).
§ 60.9	Availability of information	Yes	
§ 60.10	State authority	Yes	
§ 60.11	Compliance with standards and maintenance requirements	No	Requirements are specified in subpart OOOOc.
§ 60.12	Circumvention	Yes	
§ 60.13	Monitoring requirements	Yes	Continuous monitors are required for storage vessels.
§ 60.14	Modification	Yes	To the extent any provision in § 60.14 conflicts with specific provisions in subpart OOOOc, it is superseded by subpart OOOOc provisions.
§ 60.15	Reconstruction	Yes	Except that § 60.15(d) does not apply to wells (i.e., well completions, well liquids unloading, associated gas wells), process controllers, pumps, centrifugal compressors, reciprocating compressors, storage vessels, or fugitive

General provisions citation	Subject of citation	Applies to subpart?	Explanation
§ 60.16	Priority list	Yes	emissions components designated facilities.
§ 60.17	Incorporations by reference	Yes	
§ 60.18	General control device and work practice requirements	Yes	
§ 60.19	General notification and reporting requirement	Yes	

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