California Air Resources Board

Public Hearing to Consider the Proposed Amendments to the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities

Staff Report: Initial Statement of Reasons

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Executive Summary

In this rulemaking, the California Air Resources Board (Board or CARB) staff is proposing to amend the regulation entitled Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (the Oil and Gas Methane Regulation or the Regulation). [1] The Oil and Gas Methane Regulation reduces methane emissions from sources in California's oil and natural gas sectors. The Regulation was submitted into California's State Implementation Plan (SIP) in 2018 due to the co-benefits provided by the reduction of volatile organic compound (VOC) that are typically co-emitted with methane. In 2022, US EPA issued a "limited approval, limited disapproval" of the California Oil and Gas Methane Regulation in the SIP. This report presents staff's proposal to amend the Regulation to address the deficiencies identified by US EPA, to improve and clean up provisions based on implementation experience, and to add a provision requiring owners or operators of oil and gas facilities to respond to remotely detected methane emission plumes.

Background on the Regulation

California's Global Warming Solutions Act of 2006 (AB 32, Nuñez, Chapter 488, Statutes of 2006), charged the CARB with reducing statewide greenhouse gas emissions to 1990 emission levels by 2020. The Short-Lived Climate Pollutant (SLCP) Reduction Strategy (CARB 2017a), which was mandated by Senate Bill 1383 (Lara, Chapter 395, Statutes of 2016) and approved by the Board in March 2017, lays out a range of options to reduce SLCP emissions in California, including regulations, incentives, and other market-supporting activities. The Oil and Gas Methane Regulation was adopted by the Board in 2017 to reduce methane emissions from California's oil and natural gas sector. This includes oil and natural gas production fields, natural gas gathering and boosting stations, natural gas processing plants, natural gas underground storage facilities, and natural gas transmission compressor stations. Depending on the type of equipment or component, control mechanisms include vapor collection, leak detection and repair (LDAR), and equipment replacement. Additionally, the Regulation includes monitoring at underground natural gas storage facilities for the early detection of large leaks or well failures.

In 2019, the first year that most of the Regulation's emission control provisions were in effect, the Regulation reduced methane emissions by an estimated 9,000 metric tons (MT) or 225,000 MT of carbon dioxide equivalent (CO2e) over a 100-year timeframe. Approximately two-thirds of these reductions came from vapor collection and equipment replacement, while one-third came from leak detection and repair efforts. Monitoring plans for all 12 of the state's natural gas underground storage facilities have been approved and 34 ambient air quality monitors have been installed as a result of those plans.

Problem to be Solved

US EPA's SIP decision was based on comparing the requirements in the Oil and Gas Methane Regulation to US EPA's Control Techniques Guidelines for the Oil and Natural Gas Industry (CTG), a document that defines "reasonably available control technology" (RACT) for certain

[1] California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4. Subarticle 13: Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities.

types of VOC sources in the sector. The US EPA decision included a list of specific deficiencies in the Oil and Gas Methane Regulation that need to be corrected to achieve approval of the Regulation in the SIP. Amendments to the Regulation are necessary to address these deficiencies and avoid sanctions that would go into effect starting April 30, 2024.

Over the course of implementing the Regulation, staff have identified numerous areas for improvement, such as unclear language, insufficient reporting to fully verify compliance with the Regulation and calculate emission reductions, and dates in the past that are no longer necessary to continued implementation of the Regulation. Improvements in these areas are necessary to streamline the Regulation, improve the uniformity of implementation, and ensure the Regulation's outcomes.

Finally, amendments to the Regulation are proposed to require owners or operators of oil and gas facilities to address emissions detected with satellites deployed with remote monitoring technology. Remote monitoring data from across the United States have shown that a disproportionate share of methane emissions in the oil and gas sector typically come from a relatively small number of large emission sources. A study in California that took place from 2016-2018 found numerous large methane emission sources in the oil and gas sector based on detections from airplane-mounted sensors. Starting in late 2023, CARB expects to begin receiving remote monitoring data from satellites, and the California legislature has also appropriated an additional $100 million to supply high-quality and frequent methane monitoring data to CARB collected by satellites. This $100 million represents an unprecedented level of investment in methane monitoring data from a jurisdiction and, when paired with quick action to address methane leaks on the ground, will enable California to more quickly reduce methane emissions. In order to ensure that California can fully utilize this investment in methane monitoring technology and data, regulatory mechanisms are needed to require response to methane emissions detections from satellite-based instruments.

Proposed Amendments

As discussed above, staff are proposing amendments to the Oil and Gas Methane Regulation to achieve US EPA approval of the Regulation in the SIP, to make improvements based on implementation experience, and to utilize remote emission detection monitoring data.

The changes to address deficiencies identified by the US EPA to achieve SIP approval include (1) requirements to better assure emission reductions from vapor collection and control systems including additional inspections, capacity assessments, bypass requirements, and performance testing; (2) requirements to assure proper operation of controlled separator and tank systems through additional inspections and requirements; (3) a requirement for owners or operators to develop leak detection and repair plans; (4) reduced CARB Executive Officer discretion through strengthened approval processes, justification, and required documentation; (5) more thorough specification of when equipment and components covered by air district rules can follow those rules instead of the Oil and Gas Methane Regulation, (6) removal of some exemptions that US EPA identified as conflicting with the CTG's requirements, and (7) other miscellaneous changes such as wording changes at US EPA's request to better clarify testing standards.

Changes to improve the Regulation based on implementation experience include expanded recordkeeping and reporting requirements, a change in the reporting method for many

provisions to an electronic database system (Cal e-GGRT), and language cleaned up throughout the Regulation to correct typos, increase clarity, and remove deadlines and effective dates from the past.

Finally, a provision is added in the Proposed Amendments that will require owners or operators to respond to remotely detected methane emission plumes when notified by CARB. These remote detections will originate from data produced by satellite-based technologies approved by the CARB Executive Officer based on their proven ability to detect methane emission plumes. Upon receiving a notification, owners or operators will be required to inspect the facility for leaking or venting components and report the results to CARB within a specified timeframe. If the emissions are found to be due to a fugitive leak (i.e., an unintentional leak), the owner or operator will be required to repair the leak according to specific repair timeframes based on the measured leak concentration and follow up with CARB to confirm the repair.

Potential Impacts of Proposal

The proposal is intended to achieve approval in the SIP and to gain additional emission reductions from the mitigation of remotely detected methane plumes. SIP and implementation experience changes help to ensure that the emission reductions envisioned and calculated in the original Regulation are achieved in practice by better assurance that systems and processes are designed and operating properly. Changes based on implementation experience will also ensure more uniform implementation of the Regulation, more complete data for CARB to understand emissions and the equipment currently in use, and a regulation that is easier to understand.

The remote detection of methane plumes will lead to methane and co-pollutant emission reductions. Although staff were unable to quantify these reductions, evidence suggests that a disproportionate share of emissions are attributable to high emitting sources. Once this provision is in effect, CARB will use the remote monitoring data paired with reporting from owners or operators about their follow-up activities to assess the emission reductions associated with this measure.

I. Introduction and Background

A. Background

California's Global Warming Solutions Act of 2006 (AB 32, Nuñez, Chapter 488, Statutes of 2006), charged the California Air Resources Board (CARB or Board) with reducing statewide greenhouse gas emissions to 1990 emission levels by 2020. Senate Bill (SB) 32 (Pavley, Chapter 249, Statutes of 2016) expanded upon the targets in AB 32 by requiring a reduction in greenhouse gas emissions of 40 percent below 1990 levels by 2030.

A reduction in atmospheric short-lived climate pollutants (SLCP) will support achieving these targets. SLCPs, including methane, are powerful climate forcers that have relatively short atmospheric lifetimes. Because SLCP impacts are especially strong over the short term, reducing their emissions can have an immediate beneficial impact on climate change and public health. The SLCP Reduction Strategy (CARB 2017a), required by Senate Bill 1383 (Lara, Chapter 395, Statutes of 2016) and approved by the Board in March 2017, lays out a range of options to reduce SLCP emissions in California, including regulations, incentives, and other market-supporting activities. SB 1383 also sets a target for statewide reductions in SLCP emissions of 40 percent below 2013 levels by 2030 for methane.

California's Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities [2] (the Regulation or the Oil and Gas Methane Regulation) was developed pursuant to Board direction as a strategy to reduce methane emissions from the oil and gas sector and was adopted by the Board in 2017 (CARB 2017e). The Regulation addresses vented and fugitive emissions generated by processes at new and existing facilities in the following sectors:

- Onshore and offshore crude oil or natural gas production
- Natural gas gathering and boosting stations
- Natural gas processing plants
- Natural gas transmission compressor stations
- Natural gas underground storage

The Regulation establishes emission standards for active and idle equipment and components at these facilities. Depending on the equipment or component, control mechanisms include vapor recovery, leak detection and repair (LDAR), and equipment replacement. Additionally, the Regulation includes monitoring at underground natural gas storage facilities for the early detection of large leaks or well failures.

CARB's Scoping Plan for Achieving Carbon Neutrality (Scoping Plan) (CARB 2022a), adopted by the Board in November 2022, lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier, as called for in Assembly Bill 1279 (Muratsuchi, Chapter 337, Statutes of 2022). In support of the goal of carbon neutrality, the Scoping Plan

[2] California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4. Subarticle 13: Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities.

includes development of new regulations as well as amendments to strengthen regulations and programs already in place. Amendments to the Oil and Gas Methane Regulation proposed in this report are expected to contribute to greater methane emissions reductions in California and support the state's carbon neutrality goal.

CARB estimates methane emissions in its annual Greenhouse Gas Emission Inventory (CARB 2022b). In 2020, the latest year for which data are available, the oil and gas production and processing sector was estimated to be responsible for about 3% of California's methane emissions. The natural gas transmission and distribution sector was estimated to be responsible for about 11% of the State's methane emissions. A breakdown of California's methane emissions by source sector is shown in Figure 1.

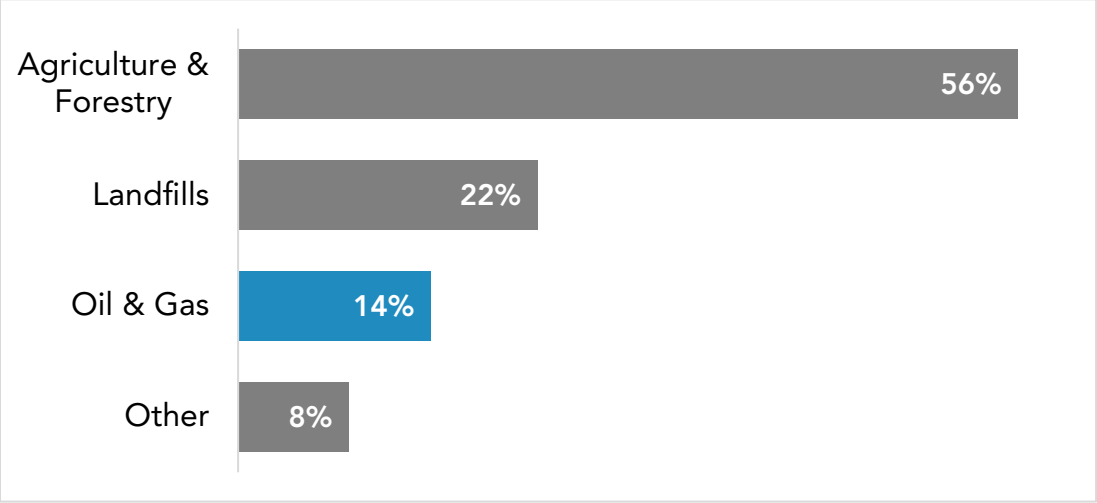

Figure 1 Percentage of California's Methane Emissions by Economic Sector in CARB's 2020 Greenhouse Gas Inventory

Oil and gas sources are responsible for a substantial amount of California's methane emissions in part due to the state being a significant producer of oil and natural gas. In 2021, California produced 137 million barrels of oil (CalGEM 2022a) and 122 billion cubic feet of natural gas (CalGEM 2022b). Among the US states, California was the 7th largest oil producer and the 15th largest natural gas producer in 2021 (EIA 2022a, EIA 2022b).

In 2022, California had over 45,000 active production wells [3] (CalGEM 2022c) and over 32,000 idle production wells (CalGEM 2022d). In addition to production wells, many other pieces of equipment are used in the oil and gas industry, such as injection wells, pumps, separators, pipes, compressors, storage tanks, process controllers, and steam generators. In addition to production and processing facilities, the State has 12 underground natural gas storage facilities (CalGEM 2022e), 22 natural gas transmission compressor stations (based on reporting data for this Regulation), and over 100,000 miles of natural gas transmission and

[3] "Production wells" include dry gas, oil & gas, and cyclic steaming wells.

distribution pipelines (CPUC 2022). The 2016 ISOR for the current Regulation contains a more complete description of the various types of facilities and equipment in the oil and gas industry (CARB 2016a).

B. California Oil and Gas Methane Regulation

1. Introduction to the Current Regulation

The Oil and Gas Methane Regulation was adopted by CARB in 2017 to reduce fugitive and vented methane emissions. The Regulation covers new and existing oil and gas facilities, including oil and gas production, processing, and storage facilities; natural gas gathering and boosting stations; natural gas underground storage facilities; and natural gas transmission compressor stations. For decades, local air district rules have reduced volatile organic compound (VOC) emission from these facilities, but because methane is not a significant precursor to ground level ozone, these district rules have exempted methane. The Regulation addresses this gap.

Methane emissions can originate from oil and gas infrastructure when natural gas is either intentionally released ("vented" emissions) or unintentionally leaked ("fugitive" emissions). Intentional releases can occur due to process designs (e.g., as a fluid to operate pneumatic devices), for safety or maintenance reasons, or for when no other control or disposal options exist (where allowed). Unintentional leaks can occur due to factors such as defects or wear in connections, valves, seals, and similar mechanisms, or due to process upsets, system malfunctions, or human error.

The Regulation includes provisions for preventing emissions from occurring through maintenance, equipment replacement, and vapor control and recovery. For example, the Regulation includes requirements for vapor control on uncontrolled tanks above an emission threshold, replacement of compressors' high-emitting rod packing or wet seals, and zero-emitting pneumatic devices and pumps (with some exceptions).

Unintentional leaks sometimes occur that can be difficult to predict or prevent. For the purposes of finding and fixing fugitive leaks, the Regulation also mandates leak detection and repair (LDAR) and additional monitoring at natural gas underground storage facilities. LDAR inspections consist of periodic surveys of covered components where each is tested with a measurement device to determine whether it is leaking over a specified leak threshold. Repairs are then mandated within certain timeframes depending on leak concentration and other factors. In the Regulation, monitoring at natural gas underground storage facilities includes requirements for owners or operators to establish and implement air monitoring and leak screening plans. For example, owners or operators are required to install air pollution sensors at their facilities, which will alarm when certain threshold concentrations are exceeded.

Additionally, the Regulation includes provisions to require measurement of emissions from certain sources and recordkeeping and reporting procedures. Measurement requirements were used instead of emission reduction measures for certain types of equipment where little information existed on the magnitude of emissions from those sources in California. Thus, data needs to be collected to inform the need for any future efforts. These include measuring of liquids unloading and well casing vent emissions.

In some areas, the Regulation provides exemptions when similar requirements are already mandated by local air district regulations. Components already covered by air district mandated LDAR programs and tanks controlled subject to air district requirements are generally exempt from the Oil and Gas Methane Regulation.

2. Regulation Implementation

Over 200 operators and over 800 facilities are currently reporting under the Regulation. All separators, tanks, and compressors that are subject to the Regulation are in compliance. For continuous-bleed pneumatic controllers (devices that continuously vent natural gas during normal operation to control processes) high-bleed controllers have been completely eliminated, and only several dozen low-bleed controllers remain. Based on regulatory reporting data, the emission control measures and equipment replacement reduced methane emissions by an estimated ~6,000 MT in 2019, the first year that most of these requirements were in effect. Monitoring plans for all 12 of the state's natural gas underground storage facilities have been approved and 34 ambient air quality monitors have been installed as a result of those plans.

Pursuant to the Regulation's LDAR provisions, operators submit data to CARB including number of leaks, component type found leaking, and leak concentrations. CARB analyzed 2018 and 2019 data with results published in two reports (CARB 2022c, CARB 2022d). The 2018 report showed that over 11,000 leaks were detected that year resulting in estimated emissions reductions of about 5,400 metric tons (MT) of methane (CH_4). The 2019 report showed that over 7,000 leaks were detected that year resulting in emissions reductions of 3,000 MT CH_4. These emission reductions are in addition to those stated above for equipment replacement and emission controls.

Additionally, emissions measurements are reported to CARB for open well casing vents and liquids unloading. Well casing vents are openings on wellheads that block or allow natural gas to flow to the atmosphere or a vapor collection system. These vents are typically used when associated natural gas has built up in the annular space between the casing and tubing of an oil well and have caused restricted oil flow. Open well casing venting refers to when those emissions are allowed to flow to the atmosphere (CCAC 2015). Liquids unloading refers to the removal of liquid that has built up in a gas well, which can restrict gas production (CCAC 2017a). Measurement data from 2019 submitted pursuant to the Regulation showed that well casing vents to contributed about 1,600 MT CH_4 and liquids unloaded contributed about 100 MT CH_4.

C. Summary of Proposed Amendments

In 2018, CARB submitted the Oil and Gas Methane Regulation into California's State Implementation Plan (SIP) (CARB 2018). On October 31, 2022, US EPA finalized a "limited approval, limited disapproval" of CARB's SIP submittal on based on their determination that the Regulation did not meet all of the requirements in US EPA's Control Techniques Guidelines for the Oil and Natural Gas Industry (CTG) (US EPA 2016). CARB is proposing amendments to the Regulation primarily to ensure each source type achieves emissions controls at least as stringent as those required by the US EPA for the Proposed Amendments

to be fully approved in California's SIP. The background and findings of the US EPA decision are discussed in more detail in Section II.

In addition to the proposed amendments to comply with the CTG, CARB is proposing amendments to achieve additional emission reductions based on remote emission detection data, and to make corrections, clarifications, and improvements based on experience implementing the Regulation. The following list includes what staff believes to be the most substantial proposed amendments. A full accounting of all changes that are being proposed is contained in Section III.

1. Additional testing and reporting to verify vapor collection and control system performance

The Regulation requires owners or operators to control emissions from various emission sources using vapor collection systems or vapor control devices. Those systems must meet certain design and performance criteria, such as options for ultimate fate of the vapors, collection or destruction efficiency, and oxides of nitrogen (NO_x) emissions in areas in non-attainment with ambient air quality standards. The Proposed Amendments will add additional requirements for the design and performance of these systems if they are used to control emissions pursuant to the Regulation, mainly in Appendices E and F of the Proposed Amendments.

Owners or operators will be required to conduct assessments that each vapor collection system is of sufficient design and capacity to ensure that all emissions are collected and that each vapor control device can accommodate all emissions routed to it. These assessments will need to be performed under the supervision of, and certified by, a Professional Engineer.

Owners or operators will be required to operate vapor control devices according to certain standards and will be required to conduct monthly auditory-visual-olfactory (AVO) inspections of vapor collection systems and vapor control devices to look for defects or poor functioning. If those inspections reveal leaks or defects, repair is mandated.

Owners or operators will also be required to conduct periodic performance tests to demonstrate that vapor control devices are achieving 95% emission reductions (as well as other metrics). Further, any bypass valves that could be used to circumvent the vapor control device or other process that the vapor collection system is directing vapors to would need to be outfitted with either a lock or a mechanism to alarm when the flow is directed to the bypass.

There are some exceptions to these requirements or alternate compliance pathways, such as for devices certified by the manufacturer to meet certain requirements. Other vapor collection and control system requirements added in the Proposed Amendments are covered in Section III.

2. Additional inspections of separator and tank systems that are subject to emission control requirements

The Regulation requires owners or operators to control emissions from separator and tank systems that exceed a methane emission rate limit determined through testing. The

Proposed Amendments will require owners and operators of separator and tank systems that are required to be controlled pursuant to the Regulation to meet certain equipment and practices standards, and complete additional record keeping and reporting. For example, some of the requirements include ensuring openings are kept closed except when actively in use, requiring thief hatches to be equipped with a mechanism to ensure a proper seat/seal, and requirements for and reporting of when separator and tank systems are taken out of service and returned to service.

3. Development and maintenance of LDAR plans

The Regulation requires owners or operators to perform LDAR on many types of components, usually on a quarterly basis. Parameters around frequency of inspections, leak detection threshold, repair timeframes, record keeping, reporting, and other important factors are defined in the Regulation and updated in the Proposed Amendments.

The Proposed Amendments will require owners or operators to develop and maintain detailed LDAR plans. These plans will include procedures for conducting surveys, site maps, lists of equipment and components to be monitored, lists of equipment and components designated as inaccessible or unsafe to monitor, frequency of surveys for each piece of equipment, and repair timeframes for leaks of different sizes for each piece of equipment.

4. More rigorous process for obtaining delays of repair

The Regulation allows for delays of repair in certain circumstances, such as when parts have been ordered but will not arrive in time to complete a repair within the normally allowed period. The Proposed Amendments create a more rigorous process around obtaining a delay of repair and clearly set forth requirements for follow-up action. This includes requiring additional documentation to prove the necessity for an extended repair period, setting a deadline for those repairs, and requiring owners or operators to follow-up with CARB soon after the repairs have been completed. The Proposed Amendments also more clearly specify the acceptable justifications for a delay of repair and include options to delay repair when the owner or operator can prove that bunding repairs would lead to lower emissions than performing a repair in the normally allowed period, and for delaying repair when repair is precluded due to a wildlife regulation.

5. Expanded record keeping and reporting

The Regulation requires owners or operators to keep records of equipment, activities, plans, and other items, and to report certain information to CARB. The Proposed Amendments will require additional record keeping and reporting to ensure that the Regulation is being adhered to and to provide CARB with data necessary to make more accurate emissions calculations. For example, under the Proposed Amendments, owners or operators are required to keep records of when audio-visual inspections are performed to enable compliance verification and to report the percentage of the calendar year that well casing vents are opened so that CARB can better calculate emissions from those events.

6. Remotely detected emission plume inspection and mitigation

New technologies are now available or expected to be available soon that will allow remote sensing of methane emission plumes. CARB anticipates having access satellite measurements in late 2023 (CARB 2021). The Proposed Amendments will require owners or operators to inspect facilities if CARB notifies the owner or operator of a remote emission plume detection based on data from a CARB approved satellite-based technology. The owner or operator will have to inspect the facility for leaking or venting components in at least a 100-meter radius around the estimated emission source location sent by CARB (or less if the emission source is found prior to inspecting the entire area), unless the owner or operator has records showing venting was occurring at the time due to an activity. The Proposed Amendments then require follow-up reporting to confirm that the inspection was performed and to provide preliminary results and an initial mitigation plan. If the emissions are found to be due to a component fugitive leak (or other unintentional source that is not a component), the owner or operator will be required to repair the leak according to specific repair timeframes and report information about the repair to CARB to confirm the repair occurred. Annually, more detailed data are submitted to CARB to enable a more systematic analysis of the emission reductions and the source types and activities that were responsible for the emission plumes.

D. Public Process for the Proposed Amendments

CARB staff held two public workshops during the development of the Proposed Amendments. The first workshop was held on September 20, 2022, where CARB staff discussed data submitted pursuant to the Regulation, rationale for amendments being considered, and the broad updates under consideration at that time both in the near-term and the future. The second public workshop was held on January 20, 2023, where CARB staff discussed potential changes in more detail. Draft regulatory text was released shortly before the second workshop. Informal public comment was received verbally during the workshops and in written comment letters provided following the workshops.

In addition to the public workshops, CARB staff participated in direct pre-rulemaking meetings with local air districts and stakeholders from industry and environmental advocacy groups.

These informal pre-rulemaking workshop comments and direct meetings provided staff with useful information that was considered during the development of the amendments now being proposed for formal public comment.

II. The Problem that the Proposal is Intended to Address

A. Aligning the Regulation with US EPA Requirements

In 2016, the United States Environmental Protection Agency (US EPA) issued Control Techniques Guidelines for the Oil and Natural Gas Industry (CTG) (US EPA 2016). The CTG provides recommendations to air agencies as to what constitutes “reasonably available control technology” (RACT) for select oil and natural gas industry emission sources. States

must revise their State Implementation Plans (SIPs) [4] for ozone nonattainment areas to include RACT for each category of sources of volatile organic compound (VOC) emissions. The emission sources in the CTG selected for RACT recommendations were chosen because they are significant sources of VOC emissions. Since VOCs and methane are both found in field gas in oil and gas operations, methane controls in the oil and gas industry can reduce VOCs as a co-benefit. The CTG and CARB's Regulation cover similar sources because the sources emit both VOCs and methane.

In December 2018, CARB submitted the Regulation to the US EPA as a revision to the California SIP to satisfy the CTG requirements. On October 31, 2022, US EPA finalized a "limited approval, limited disapproval" for CARB's SIP submittal due to the US EPA's determination that certain provisions of the Regulation do not adequately address the requirements in the CTG (US EPA 2022a). CARB must amend the Regulation, submit a SIP revision, and have US EPA approve the SIP revision in order to avoid sanctions. Unless US EPA approves a new SIP revision that fully complies with the CTG by April 29, 2024, sanctions would go into effect in ozone nonattainment areas. Specifically, offset sanctions for new or modified sources would go into effect in ozone nonattainment areas beginning April 30, 2024, and highway funding sanctions would go into effect beginning six months after that [5].

The specific issues with the Regulation that US EPA identified are primarily associated with ensuring that all provisions of the Regulation can be verified and enforced, and that exemptions do not reduce stringency below RACT. Some of the specific reasons for US EPA's decision include overly broad CARB Executive Officer discretion, lack of clearly specified test methods for some sources, undefined terms, references to undefined air district requirements and rules, insufficient reporting and recordkeeping requirements, and several exemptions that reduce the Regulation's stringency below RACT. In addition to detailing deficiencies in CARB's Regulation, US EPA's decision also identified deficiencies in local air district rules that the Regulation relies upon for exemptions. US EPA also issued a detailed Technical Support Document (TSD) with their earlier proposed decision containing additional details about the issues that precluded full approval (US EPA 2022b).

B. Enabling Action based on New Technologies for Detecting Emission Plumes

CARB's Scoping Plan for Achieving Carbon Neutrality (Scoping Plan), adopted by the Board in November 2022, lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier, as called for in Assembly Bill 1279 (Muratsuchi, Chapter 337, Statutes of 2022). In support of the goal of carbon neutrality, the Scoping Plan includes development of new regulations as well as amendments to strengthen regulations and

[4] All geographic areas in California that are designated nonattainment areas for one or more National Ambient Air Quality Standards (NAAQS) are required by the federal Clean Air Act to submit a SIP. Under federal Clean Air Act section 110, SIPs provide for the "implementation, maintenance, and enforcement" of NAAQS. Areas with more significant air quality challenges are required to include strategies to attain the relevant NAAQS.
[5] As described in US EPA 2022a. Offset sanctions would be imposed according to section 179(b)(2) of the Clean Air Act and highway sanctions according to section 179(b)(1) of the Clean Air Act.

programs already in place. The Proposed Amendments are expected to contribute to greater methane emissions reductions in California and support the state's carbon neutrality goal by requiring owners or operators of oil and gas facilities to respond to CARB notification of detection of methane plumes. The Proposed Amendments will ensure that CARB can mandate such inspections and repairs when CARB reports an emission plume detection made with a remoting sensing technology to the operator.

Since the Regulation was adopted, there have been significant advancements in the availability or expected availability of remote sensing technologies. These technologies enable emission plume detection without physically visiting a site. Use of these technologies followed by owner or operator actions to address leaking equipment could increase emission reductions and/or decrease the cost of such reductions.

Studies and pilot projects using remote imaging techniques have demonstrated the potential for reducing emissions. The California Methane Survey was performed from 2016-2018 using a visible/infrared imaging spectrometer mounted on an airplane to detect high-emitting methane sources (Duren et al. 2019). This study found 259 unique sources in California's oil and gas sector above their detection limit of roughly 2-10 kilograms of methane per hour (kg CH_4/hr). Similar types of studies have been performed in other regions using remote sensing technologies and site-level measurements, which have found that a disproportionate share of total methane emissions in the sector typically come from a relatively small number of large emission sources (Cusworth et al. 2021, Chen et al. 2021, Omara et al. 2018).

Inclusion of this provision sets expectations for actions required of owners and operators in preparation of planned satellite deployment in the near future. Starting in late 2023, CARB expects to begin receiving remote monitoring data from satellites and the California legislature has also appropriated an additional $100 million to supply high-quality and frequent methane monitoring data to CARB collected by satellites (DOF 2022). This $100 million represents an unprecedented level of investment in methane monitoring data from a jurisdiction and, when paired with quick action to address methane leaks on the ground, will enable California to more quickly reduce methane emissions. In order to ensure that California can fully utilize this investment in methane monitoring technology and data, regulatory mechanisms are needed to require response to methane emissions detections from satellite-based instruments.

C. Utilizing Information Gathered through Implementation

Since implementation of the Regulation began in 2018, CARB staff has identified opportunities for improvements that these amendments will address. Some of these instances are detailed here, and a full accounting of proposed changes and the corresponding rationale for proposing the changes is contained in Section III.

Some requirements in the Regulation were unclear during implementation based on the current regulatory language. Examples include the need for more detail and clarified timelines in some sections, especially where compliance dates are in the past without clear timelines for new equipment. In addition, delay of repair provisions in the Regulation are scattered throughout the sections and do not cover all potential situations where a delay of repair may be warranted, such as when performing the repair would require disturbance of

wildlife protected by wildlife regulations. Another example is clarifying that LDAR needs to be performed on idle wells as well as on active wells.

An update to the Regulation on outdated reporting submittal requirements is also included in the Proposed Amendments. The reporting requirements in the current Regulation are outdated since a module was developed in the California Electronic Greenhouse Gas Reporting Tool (Cal e-GGRT) to allow reporting through the electronic database tool, rather than via email. Based on implementation experience, CARB staff have also identified areas where reported data are lacking enough detail to confirm compliance or perform emission calculations.

Many of these and other similar clarifications are based on industry and air district feedback since implementation of the Regulation.

III. The Specific Purpose and Rationale of Each Adoption, Amendment, or Repeal

In the purpose and rationale statements in this section, section numbers refer to the section in the Proposed Amendments unless they are specified to be the section number in the current Regulation.

A. Global Changes throughout the Proposed Amendments

The proposed global changes in this section update text that does not alter current requirements under the Regulation.

CARB Acronym Change

Purpose

The Proposed Amendments change "ARB" to "CARB" and "Air Resources Board" to "California Air Resources Board" to conform with CARB's current branding and style practices.

Rationale

This change ensures that it is understood which agency is being referenced in the Regulation since "CARB" and "California Air Resources Board" are now the preferred titles of the organization.

Agency Name Change

Purpose

The Proposed Amendments change "Division of Oil, Gas and Geothermal Resources" or "DOGGR" to "California Geologic Energy Management Division" or "CalGEM." This reflects a change in the name of the agency primarily responsible for overseeing regulation of oil, gas, and other energy resources in California that was effective January 1, 2020.

Rationale

This change ensures that it is clear which agency is being referenced in the Regulation since "CalGEM" or "California Geologic Energy Management Division" is now the name of the organization.

"Must" to "Shall"

Purpose

Throughout the Regulation, staff propose to change "must" to "shall" when directing an action.

Rationale

The Current Regulation uses "must" and "shall" interchangeably. The change is necessary to make the regulatory text consistent by using the word "shall" throughout the regulatory text. These proposed changes are non-substantive, and will not change the meaning, interpretation, or implementation of the Proposed Amendments.

Located in Sectors

Purpose

Throughout the Regulation, previous text referring to applicability read "facilities located in sectors identified in section 95666." The Proposed Amendments remove the word "located" in each instance that it occurs in the phrase quoted in the previous sentence.

Rationale

The word "located" evokes a spatial position, whereas a sector represents businesses or organizations engaged in similar activities. The word "located" was removed to avoid a potential misunderstanding that spatial location is relevant to sector classification.

Pneumatic Devices and Controllers

Purpose

In the Proposed Amendments, the term "pneumatic devices" is changed to "pneumatic controllers" throughout the regulation.

Rationale

"Pneumatic controllers" has the same meaning as "pneumatic devices," but is more standard terminology in the industry. This proposed change makes it more clear which types of pneumatics are being referred to and this change was recommended by the US EPA in their TSD explaining their decision on this regulation for CARB's SIP submittal.

Authority Cited Under Health and Safety Code section 38566

Purpose

In each section of the Regulation, staff propose to add an authority citation for Health and Safety Code section 38566 (HSC § 38566). This section of the HSC directs CARB to reduce statewide greenhouse gas emissions by at least 40 percent below the statewide greenhouse gas emissions limit by December 31, 2030.

Rationale

HSC § 38566 is appropriate authority because the Regulation aims to reduce greenhouse gas emissions. This section of the HSC was added in 2019, after the approval of the current Regulation.

Optical Gas Imaging Capitalization

Purpose

Throughout the current Regulation, the words "Optical Gas Imaging" are capitalized. In the Proposed Amendments, these words are changed to lowercase.

Rationale

Optical gas imaging is a type of technology, not a proper name, and thus should not be capitalized.

B. Section 95666. Applicability

Section 95666(a)

Purpose

Section 95666(a) establishes which owners and operators are subject to the Regulation. The first proposed amendment removes the specification that applicability is to those owners or operators with equipment and components listed in section 95668 of the Regulation. The second proposed amendment adds "or well status" to the list of items that do not affect whether the Regulation applies to owners or operators of equipment or components otherwise subject to the Regulation. Finally, the sentence structure is adjusted for better grammatical flow.

Rationale

The removal of reference to section 95668 is necessary to avoid circular applicability descriptions between this section and 95668, and to ensure that equipment and components only mentioned in other parts of the Regulation fall within the Regulation's overall applicability.

Adding the specification that well status does not affect coverage by the Regulation is necessary to ensure that wells are not interpreted as being excluded from coverage based on being inactive or any other status. Note, however, that the definition of a "well" in section 95667 excludes active observation wells and wells that have been properly abandoned in accordance with Public Resources Code Section 3208.

The change is sentence structure is required to make the passage easier to read after the removal of "listed in section 95668."

C. Section 95667. Definitions

Section 95667(a)

Purpose

This section establishes definitions for the terms used in the Regulation. Various definitions are added, removed, or amended as described in the following statements of purposes and rationales. Some renumbering occurs in this section due to adding and removing of definitions.

Rationale

Renumbering is necessary to maintain a continuous list in alphabetical order and with sequential numbering.

Current Regulation section 95667(a)(2)

Purpose

The Proposed Amendments remove the definition of "Air Resources Board or "ARB."

Rationale

The definition has been replaced with a definition for "California Air Resources Board" or "CARB" later in section 95667(a) to conform with alphabetical order. "Air Resources Board" and "ARB" no longer appear in the Regulation, so it is necessary to remove them.

Section 95667(a)(4)

Purpose

The Proposed Amendments add a new definition for the term "California waters."

Rationale

This new definition is necessary to establish which owners or operators of equipment or components are subject to the Regulation. Defining this term makes it clear what is meant by "including California waters" in section 95666(a) and establishes which offshore facilities are covered. Three nautical miles is selected for consistency with California's boundary as defined in California Government Code section 170.

Section 95667(a)(5)

Purpose

In the Proposed Amendments, the term "CARB" is defined to mean the "California Air Resources Board." This replaces a previous definition given for "ARB" and was updated to reflect CARB's current branding.

Rationale

The California Air Resources Board now uses the acronym CARB, so it is necessary to update the acronym so that it is clear what agency is being referred to in the Regulation.

Section 95667(a)(10)

Purpose

The term "component" is defined with a list of types of physical elements that are considered "components." The Proposed Amendments specify that reciprocating

compressor rod packings and seals are only considered "components" when the compressors are located at production facilities.

Rationale

In section 95669, the Regulation requires "components" to be inspected in LDAR surveys. Reciprocating compressor rod packings and seals for compressors outside of the production sector are subject to different rules for leak inspection in section 95668(b) and an exemption for those compressors is already present in section 95669(b)(14) of the current Regulation. The definition change is necessary to harmonize the definition of a "component" with the types of elements that are subject to section 95669.

Section 95667(a)(12)

Purpose

The Proposed Amendments change the definition of "continuous bleed" in reference to pneumatic controllers by replacing "must venting continuously" with "are those that vent continuously."

Rationale

The previous language could be interpreted as directing an action, whereas the amended language more clearly reflects that the type of venting is a description of the characteristics of a continuous bleed controller. This change is necessary to avoid any confusion about whether an action is being directed.

Section 95667(a)(15)

Purpose

The Proposed Amendments change the definition of "crude oil" to reflect that the fluid must remain in liquid or semi-solid state upon reaching atmospheric pressure and passing through surface separating facilities and to make the description of chemical makeup more general.

Rationale

It is necessary to define crude oil as remaining in liquid or semi-solid state after surface separation to account for fractions of hydrocarbons that may volatilize under such conditions. Generalizing the description of the types of hydrocarbons that may be considered "crude oil" is necessary to fix an overly detailed definition that could exclude some types of hydrocarbons traditionally categorized as crude oil.

Section 95667(a)(17)

Purpose

The Proposed Amendments add a new definition for "direct measurement" to replace parenthetical explanations of "direct measurement" that are listed after each appearance of this term in the current Regulation. The new definition includes high-volume sampling and calibrated flow measuring instrument, as already included in the current Regulation's parentheticals, but removes "bagging" as option. Procedures for using each type of measurement device are specified.

Rationale

US EPA's SIP decision included a deficiency that no test method or calculation approach is specified for direct measurement. The specifications of procedures to follow for each type of measurement device is necessary to address US EPA's deficiency. Similarly, bagging is removed because no test method or calculation approach could be found for this type of measurement to satisfy the US EPA deficiency. Following US EPA Method 2D and annual calibration for a calibrated flow measuring instrument are specified to be consistent with the US EPA's proposed Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities (US EPA 2022c).

Section 95667(a)(22)

Purpose

The Proposed Amendments add a new definition for "first attempt at repair," which appears in section 95669(h) in the Proposed Amendments.

Rationale

Under the Proposed Amendments, a "first attempt at repair" is required within 5 days for components with leaks from 1,000-9,999 ppm under section 95669(h). This definition ensures that the types of activities that are considered a "first attempt at repair" are understood by the owner or operator and include the types of activities that can typically be performed without further scheduling of crews, downtime, or ordering of parts, and thus are appropriate for a "first attempt." "Parts" in "replacement of parts" in the proposed definition means more substantial parts, like the component itself, and not something small, like a bolt.

Section 95667(a)(23)

Purpose

The Proposed Amendments add a new definition for "fitting."

Rationale

The term "fitting" appears under the list of elements classified as "components." The definition makes clear what types of elements are fittings for reporting purposes because air district rules differ in how fittings are defined. The definition of fitting here is consistent with the implication that it should be differentiated from a flange or threaded connector due to being a separately listed component type in the definition of "component" and is consistent with how "fitting" is defined in the San Joaquin Valley Air Pollution Control District Rule 4409 (SJVAPCD 2005a).

Section 95667(a)(27)

Purpose

The Proposed Amendments add a new definition for "gas blanket system."

Rationale

This new definition is necessary to understand the exemption from separator and tank system requirements in the case that a gas blanket system is used, as stated in section 95668(a)(2)(D).

Subsection 95667(a)(30)

Purpose

The Proposed Amendments add a new definition for "idle well" that is based on the definition of "idle well" from Public Resources Code section 3008(d).

Rationale

This new definition is necessary because a proposed amendment in section 95669(d) specifies that idle wells are included among the types of wells that must be inspected for leak detection and repair and the status of leaking wells must be noted as "active" or "idle" in Table A5 and Table A8. Without a definition, it may not clear which types of wells are considered idle wells. The definition is aligned with that in Public Resources Code section 3008(d) for consistency with how CalGEM defines idle wells to make it easier for owners or operators to identify the well status from their records.

Section 95667(a)(37)

Purpose

The Proposed Amendments modify the definition for "natural gas gathering and boosting station" by specifying that such stations collect gas from multiple wells.

Rationale

The change in definition is necessary to ensure that compressors at production facilities that do not gather gas from multiple wells are not incorrectly treated as part of gathering and boosting stations.

Section 95667(a)(49)

Purpose

The Proposed Amendments replace the definition of a "pneumatic controller" (previously "pneumatic device") with a definition similar to the US EPA definition in 40 CFR 60.5430a.

Rationale

"Pneumatic controllers" is intended to have the same meaning as "pneumatic devices," but is more standard terminology in the industry. This proposed change makes it more clear which types of pneumatics are being referred to and this change was recommended by the US EPA in their TSD explaining their decision on this Regulation for CARB's SIP submittal.

This proposed amendment to the definition of a pneumatic controller (previous pneumatic device) is not intended to change which types of equipment are considered pneumatic controllers or devices. Rather it is to harmonize the general characteristics of the definition with that which US EPA uses to ensure it is understood that the same types of devices are being referred to in CARB's Regulation and US EPA rules and requirements.

Section 95667(a)(51)

Purpose

The Proposed Amendments modify the definition of "pond" by replacing "and/or" with just "or" to connect "routine storage" and "disposal of produced water" as purposes of a pond.

Rationale

"And/or" is ambiguous because it is not clear whether both or just one of the conditions must be met. A pond could be performing just one of the functions (or both) so "or" more accurately represents what a pond is.

Section 95667(a)(62)

Purpose

The Proposed Amendments add a definition for "remote monitoring data," which means data CARB obtains from a satellite-based measurement technology capable of detecting methane plumes.

Rationale

This definition is necessary to understand the type data that could be eligible to serve as the source of a remote methane emission plume detection in section 95669.1. CARB is proposing to utilize only data from satellite-based technologies because the Governor and Legislature have recently authorized funding for the purchase of methane satellite data, and because CARB will receive this satellite-based data at the frequency and quality needed to support leak-detection and repair under this Regulation.

Section 95667(a)(63)

Purpose

The Proposed Amendments add a definition for "sales gas system."

Rationale

This definition is necessary to understand the options allowed for gas disposition when using a vapor collection system because directing collected vapor to a "sales gas system" is one the choices in section 95671(b).

Section 95667(a)(66)

Purpose

The Proposed Amendments add a definition for "standard conditions" for purposes of calculating emissions in standard cubic feet.

Rationale

The volume of a given quantity of gas will change with changes in temperature and pressure. Defining standard conditions ensures that all owners or operators are reporting the quantity of natural gas emissions in a harmonized and consistent unit.

Section 95667(a)(67)

Purpose

The Proposed Amendments modify the definition of a "successful repair" to specify that repairs are only considered successful if they are confirmed below the minimum leak standard by re-measurement with the appropriate technique for the source type.

Rationale

This proposed change is necessary to ensure that a repair is only considered successful if it meets the leak concentration or flow rate requirements within the Regulation using the appropriate measurement technique after the repair. This aligns with the previous intent of a "successful repair" as the definition in the Current Regulation specifies "the purpose of stopping or reducing fugitive leaks below the minimum leak threshold or emission flow rate standard specified in this subarticle."

Section 95667(a)(73)

Purpose

The Proposed Amendments modify the definition of "vapor control efficiency" to specify that it is calculated using the methods in the proposed Appendix F.

Rationale

The proposed Appendix F defines test methods for vapor control devices. The proposed changes are necessary to ensure that vapor control efficiency as referred to in other sections of the Regulation is understood to be calculated using the methods in Appendix F. This ensures consistency in reported results and that all owners or operators are held to the same minimum vapor control efficiency requirement in practice.

Section 95667(a)(76)

Purpose

The Proposed Amendments add a definition for "wellhead."

Rationale

The term "wellhead" is used in the underground natural gas storage standards and reporting requirements. The added definition ensures that it is clear which components are part of the wellhead and which are not for those provisions.

D. Section 95668. Standards

Purpose

The opening paragraph of this section specifies that the standards apply to all facilities listed in section 95666, and that exemptions to one standard do not provide an exemption to other required standards. The Proposed Amendments remove the clause "for equipment or processes located at a facility" and add the clause "or requirements in other sections of this subarticle."

Rationale

The removed language was unnecessary because the location of equipment or processes is not relevant to whether all equipment and processes must follow all standards.

The added language ensures that all standards in section 95668 are complied with, regardless of whether there is exemption for a specific component, piece of equipment, or process from provisions in other sections of the Regulation.

Section 95668(a)(2)(A)

Purpose

This section in the current Regulation specifies that separator and tank systems that receive less than 50 barrels of crude oil or condensate per day are exempt from the requirements of 95668(a). The Proposed Amendments change "crude oil or condensate" to "crude oil and condensate" when describing the exemption.

Rationale

Use of the word "or" could allow an interpretation that a tank is exempt in cases where the amount of either crude oil or condensate received are less than 50 barrels per day, regardless of the amount of the other substance received. Changing "or" to "and" is necessary to ensure that any tank receiving at least 50 barrels per day of either or both organic liquids does not qualify for the exemption. This change is logical because it would not make sense to set a low throughput exemption based on the flow rate of the lower flow rate liquid.

Section 95668(a)(2)(C)

Purpose

In the current Regulation, this section specifies that separator and tank systems that use a vapor collection system approved for use by a local air district rule are exempt from the requirements of section 95668(a). The Proposed Amendments change the exemption requirement that the vapor collection system is "approved for use" by a local air district to being "subject to" a local air district "rule". Further if the systems are located in an ozone non-attainment area, the specific air district rules qualifying for the exemption are now listed in the Proposed Amendments. These include rules from the San Joaquin Valley Air Pollution Control District, South Coast Air Quality Management District, and Ventura County Air Pollution Control District.

The Proposed Amendments also add an exemption for tanks that use a floating roof meeting the requirements of 40 CFR 60.112b(a)(1) or (2) pursuant to a local air district rule because floating roof tanks are considered a type of emission control technology in the CTG if following the requirements of 40 CFR 60.112b(a)(1) or (2). CARB's Oil and Gas Industry Survey also states that floating roof tanks are generally considered a type of vapor control system for a storage tank (CARB 2013).

The date associated with this exemption, January 1, 2018, is removed. The word "tank" is made singular.

Rationale

The change from "approved for use by" to "subject to" removes ambiguity about whether the rules need to have any specific approval process for the exemption to apply. Lack of specificity around what type of air district approval is required for separator and tank system in the current Regulation could lead to confusion about whether some systems meet this exemption. Being subject to a rule establishes a more objective standard.

Specific rules are now named for areas in nonattainment with ozone air quality standards to provide certainty that the separators and tanks included under this exemption are subject to sufficiently stringent vapor collection requirements in those areas to avoid excessive contributions of VOCs that could worsen ozone air pollution. The rules listed are those which set requirements for tanks intended to control tanks with a high potential to emit in ozone non-attainment areas. This change is necessary to achieve US EPA approval in the SIP because US EPA needs to be able to assess separator and tank system requirements in those specific rules in ozone non-attainment areas.

The floating roof tank exemption is added to avoid unnecessary testing and other requirements from being applied to tanks that are already considered emission-controlled. The date associated with this exemption is removed because it is in the past. "Tank" is singularized to match its spelling elsewhere in the Regulation as "separator and tank systems."

Sections 95668(a)(2)(F)-(G)

Purpose

These sections describe an exemption from the requirements of section 95668(a) for tanks temporarily separating, storing, or holding liquids from a newly constructed well or for a well undergoing rework or inspection. The Proposed Amendments remove the specification that these exemptions do not apply to circulation tanks used in well stimulation treatments.

Rationale

The Proposed Amendments remove the requirements in the current Regulation to potentially control circulation tanks under section 95668(b). Therefore, as circulation tanks are no longer covered by that potential control requirement, they need to be treated the same as other tanks, including potentially being exempt from section 95668(a) if the tanks are temporary.

Section 95668(a)(2)(H)

Purpose

The current Regulation defines how the average daily production is calculated for purposes of exempting tanks recovering low amounts of petroleum waste. The Proposed Amendments change "production" to "recovery" in two places.

Rationale

The wording change is necessary to ensure that the calculation method is understood as the amount of petroleum waste recovered on which the volume limit for the exemption is set, and not as the production of some well or system that the tank services.

Section 95668(a)(3)

Purpose

This section of the current Regulation requires owners or operators of separator and tank systems to conduct flash analysis testing, unless the tanks are controlled for emissions using a vapor collection system. The Proposed Amendments consolidate the requirements for new and existing systems, which are listed separately in the current Regulation due to the previous need for defining dates by which existing tanks must comply and when new tanks must start complying (January 1, 2018). The Proposed Amendments therefore remove the reference to "existing" systems and the date by which those systems must comply. The word "annual" is also added to describe how frequently the testing shall occur, which is the standard already in place in the current Regulation (in section 95668(a)(8)).

The Proposed Amendments also add details about the type of vapor collection system required to qualify for the flash testing exemption by specifying it must meet the specifications in section 95671. The Proposed Amendments also add the alternative exemption option of using a floating roof tank that meets the requirements of 40 CFR 60.112b(a)(1) or (2).

The Proposed Amendments also add new subsections below 95668(a)(3) that specify how soon after startup the first flash test must occur for new systems and to allow for a reduced frequency of testing after three consecutive years of test results below the emission rate standard. The former is based on the current Regulation's section 95668(a)(4), including the same allowable time period for the first flash test. The latter is based on the current Regulation's section 95668(a)(8), which included the same provisions for testing frequency changes, a requirement to perform recalculation if throughput of any liquid increases by more than 20 percent, and recordkeeping (by referencing requirements in section 95673 and Table A1). Minor modifications are made in the 20 percent throughput provision to make clear that the baseline for the calculation is the throughput from the previous flash test. A modification is also made to the reporting requirement by removing "within 90 days" that is in the current Regulation's section 95668(a)(8) (under the Proposed Amendments this reporting is required annually).

Rationale

Removal of "existing" and the date by which compliance must occur is necessary to avoid potential confusion about which separator and tank systems are considered "existing" and "new" relative to the January 1, 2018, date. Because that date is in the past, and after the initial flash testing separator and tank systems are subject to the same flash test requirements regardless of when they were installed, this simplification provides greater clarity and makes the Regulation easier to understand. Requirements about when the first flash test must occur for new tanks are retained in the new section 95668(a)(3)(A) as described above.

Addition of the word "annual" consolidates the requirement for once-yearly testing that is in the current Regulation's section 95668(a)(8) (deleted in the Proposed Amendments) to streamline and simplify the Regulation to make it easier to understand.

The proposed added text also ensures that the vapor collection system exemption in section 95668(a)(3) only applies when those systems meet the standards of section 95671 or when control is accomplished using a floating roof design. This is necessary to ensure that inferior vapor collection systems which may not be designed, operated, and tested with the rigor

required by section 95671 do not qualify for this specific exemption to flash testing and to ensure that flash testing is not performed unnecessarily on floating roof tanks as those tanks are already emission-controlled (see discussion for section 95668(a)(2)(C)).

The provisions in sections 95668(a)(3)(A)-(B) are reorganized in this location in the Proposed Amendments (and deleted in their original locations) to streamline this section after consolidating requirements for new and existing systems. The change in how the baseline for calculating a 20 percent increase in liquid throughput is described and provides more specific guidance to ensure consistent application of the provision than the language in the current Regulation's section 95668(a)(8). The removal of the 90-day reporting timeframe for recalculated emission rates is consistent with proposed changes in section 95673 that do not call for reporting within 90 days under the Proposed Amendments. The previous 90-day reporting requirement is not necessary because CARB does not immediately use those reported data. Under the Proposed Amendments, the data is reported annually along with most of the other reporting in the Regulation to be more straightforward and less burdensome for regulated parties.

Section 95668(a)(4) of the current Regulation and Proposed Amendments

Purpose

The Proposed Amendments remove section 95668(a)(4) of the current Regulation, which describes requirements for the first flash test in new separator and tank systems. The current Regulation's section 95668(a)(5) is renumbered as 95668(a)(4) in the Proposed Amendments.

Rationale

The requirements in the current Regulation's section 95668(a)(4) are now consolidated into the section 95668(a)(3) of the Proposed Amendments, so do not need to be restated here.

The update to the numbering of section 95668(a)(5) to 95668(a)(4) is necessary because section 95668(a) is reorganized and has fewer subsections in the Proposed Amendments.

Section 95668(a)(5) and current Regulation sections 95668(a)(6)-(7)

Purpose

Section 95668(a)(6) in the current Regulation is removed and Section 95668(a)(7) in the current Regulation is renumbered to 95668(a)(5) in the Proposed Amendments.

This section requires separator and tank systems with an annual emission rate greater than 10 metric tons per year of methane to be controlled with a vapor collection system. The current Regulation's section 95668(a)(6) concerns existing separator and tank systems as of January 1, 2019, and the current Regulation's section 95668(a)(7) concerns new separator and tank systems as of January 1, 2018. The Proposed Amendments consolidate these previous sections into section 95668(a)(5) by removing "new" and the date by which new systems must start complying.

The Proposed Amendments also specify that the emission rate referenced is based on flash analysis testing, which includes recalculations of emissions rates. The current Regulation specifies that owners or operators have 180 days after conducting flash analysis testing to install vapor recovery if the flash analysis testing shows that the allowable emission rate is

exceeded. The Proposed Amendments further specify that this requirement is also triggered by emission rate recalculations (whichever method of determining emission rates first shows the emission rate to exceed the allowable limit).

Rationale

The current Regulation's section 95668(a)(6) was removed due to restructuring of this section to remove the date-based dichotomy between existing and new separator and tank systems as described in the rationale for section 95668(a)(3). The remaining section is amended as described to remove reference to new systems and the date by which compliance must be achieved for new systems to make the section more general and applicable to all separator and tank systems.

The specification that flash testing determines the emission rate and that recalculations of flash testing results are included is necessary to ensure that regulated parties know that the flash testing specified previously in the Regulation is not the only method to determine the emission rate governing the control requirements in this section. Specifying that the first of flash testing or an emission rate recalculation that showed a greater than 10 metric ton per year (MT/yr.) emission rate determines the start of the time period for emission control is necessary to ensure that control is not delayed in the case that subsequent flash testing is performed after an emission rate recalculation. This specification also helps regulated parties understand that the date of the initial flash test that was used for a recalculation does not drive this timeline if the recalculation was the first indication of an emission rate over 10 MT/yr.

Current Regulation section 95668(a)(8)

Purpose

This section is removed due to restructuring of the broader section 95668(a) and the requirements in the current Regulation's section 95668(a)(8) regarding the required cycle for flash testing of systems below 10 metric tons of methane per year are now contained in section 95668(a)(3) of the Proposed Amendments.

Rationale

Given that section 95668(a)(3) in the Proposed Amendments now contains the requirements that are in section 95668(a)(8) of the current Regulation, it is necessary to remove this section to avoid duplication of requirements.

Section 95668(a)(6)

Purpose

The Proposed Amendments add a new requirement in the new section 95668(a)(6) that owners or operators of separator and tank systems that are required to use vapor collection systems to control emissions pursuant to this regulation must comply with all requirements in Appendix D by April 1, 2024 (or the effective date if it is later), regardless of whether those vapor collection systems were installed before or after that date.

Rationale

The requirements in Appendix D ensure that separator and tank systems that are required to have vapor collection systems are properly designed and operated to minimize emissions, including recordkeeping. The requirements in Appendix D are necessary to satisfy a deficiency from US EPA on the SIP submittal, and must be applied to any separator and tank systems which must meet RACT-level control under the CTG. The separator and tank systems which test above 10 MT/yr. of methane emissions through flash testing may exceed the allowable level specified in the CTG and therefore require RACT-level control. A reference to Appendix D is needed in this section to ensure that regulated entities know they are required to follow the provisions in the new Appendix D for tank systems with annual emissions over the threshold of 10 MT/yr. of methane. Application to separator and tank systems controlled prior to April 1, 2024 (or the effective date if it is later), is necessary because regardless of the date that the emission control system was added, those separator and tank systems need to implement RACT-level control in order to achieve approval of this Regulation in the SIP.

Section 95668(b)(1)

Purpose

This section specifies that owners or operators of circulation tanks must implement a best practices management plan, and the Proposed Amendments remove the date by which that plan must be implemented (January 1, 2018).

Rationale

The implementation date is in the past so all owners or operators using circulation tanks for well stimulation treatment must have a best practices management plan. Therefore, the starting date is no longer relevant and is removed for simplicity.

Current Regulation sections 95668(b)(2)-(4)

Purpose

Section 95668(b)(2) of the current Regulation requires owners or operators that conduct well stimulation treatments (WST) to conduct technology assessments on the use of vapor collection for circulation tanks, including (among other requirements) technical feasibility, costs, safety, and emissions impacts by January 1, 2019. Section 95668(b)(3) of the current Regulation requires the CARB Executive Officer to review the technology assessments and determine whether 95% emission control is possible. Section 95668(b)(4) of the current Regulation requires owners or operators to use 95% control on circulation tanks unless the CARB Executive Officer determines that doing so is not possible or as long as the CARB Executive Officer does not make a determination. The Proposed Amendments remove all of these sections.

Rationale

Technology assessments have been completed and the due date for this requirement is in the past. Therefore, this provision is no longer necessary.

Based on CARB staff experience over the course of implementation of the Current Regulation, staff determined that there is no technically feasible solution currently available for 95% control of circulation tanks. Additionally, the number of well stimulation treatments (WST) performed in California has declined significantly in recent years, with the most recent

WST performed in California in April 2021 (CalGEM 2023a), and it is anticipated that new permits may not be issued after January 1, 2024, pending the outcome of a proposed CalGEM rulemaking (CalGEM 2021) and direction from the Governor (California Office of Governor 2021). Between lack of currently available technology and the decreased prevalence of WST in California, staff have determined that this provision is not viable nor necessary at this time. However, staff will continue to monitor the state of technology for control of emissions from circulation tanks and the prevalence of WSTs in California when assessing the need for potential future changes to this provision.

Removal of this provision also removes Executive Officer discretion. US EPA determined this Executive Officer discretion is not acceptable in the SIP.

Section 95668(c)(1) and current Regulation section 95668(c)(3)

Purpose

Section 95668(c)(1) defines the applicability of section 95668(c) as applying to reciprocating compressors in the sectors listed in section 95666. The Proposed Amendments narrow the applicability to only those reciprocating compressors located at natural gas gathering and boosting stations, natural gas processing plants, natural gas transmission compressor stations, and natural gas underground storage facilities. This removes applicability to reciprocating compressors at production facilities.

Aligned with that change, the Proposed Amendments remove the current Regulation's section 95668(c)(3), which detailed requirements specific to reciprocating compressors located at crude oil or natural gas production facilities. The requirements to perform leak detection and repair, according to section 95669, as outlined in the current Regulation's section 95668(c)(3)(A)-(B) still apply because the rod packings and seals on reciprocating compressors are explicitly included as "components" subject to those requirements in the Proposed Amendments. The extended measurement and repair timeframes in the current Regulation's section 95668(c)(3) no longer apply, however, a delay of repair can still be requested using the delay of repair provisions in section 95670.1 of the Proposed Amendments. There is no longer a requirement to test the rod packing or seal while the compressor is running at normal operating temperature.

Rationale

LDAR for components, which includes those on reciprocating compressors in the production sector, is already required with more stringent repair timeframes in section 95669. Removing production sector reciprocating compressors from the applicability of section 95668(c) streamlines the Regulation as the previous version simply called to section 95669 inspection requirements. This is necessary to make the Regulation easier to understand. Additionally, requiring repair within the timeframes outlined in section 95669 ensures consistency in repair timeframes with other components, which makes the Regulation easier to implement and avoids repair time periods that could be excessively long, resulting in additional emissions that would otherwise be avoided.

Removal of the current Regulation's 95668(c)(3) removes a requirement that is only appropriate for compressors measuring flow rate, and which should not have applied to these production compressors originally. Removal of this section is consistent with the original intent.

Current Regulation section 95668(c)(4)

Purpose

The current Regulation's section 95668(c)(4) is amended to remove the opening paragraph that that the requirements listed below it apply to reciprocating compressors in certain sectors, because those sectors are now listed in section 95668(c)(1). The remainder of section 95668(c) is reformatted one heading level up to align with this formatting change.

Rationale

Now that section 95668(c) only applies to the sectors previously listed in 95668(c)(4), that listing is no longer necessary. The reformatting is necessary to reflect this change, and to prevent excessive indentation of sections that is not necessary under the Proposed Amendments.

Section 95668(c)(3)-(4)

Purpose

Section 95668(c)(3) specifies that components on driver engines and compressors shall comply with the leak detection and repair requirements in section 95669, except for rod packings, which are subject to different requirements as specified section 95668(c)(4). The starting date for this requirement, January 1, 2018, is removed.

In section 95668(c)(4), the Proposed Amendments specify that emission rate measurements do not need to be taken if the compressor is controlled with the use of a vapor collection system. The parenthetical listing options for methods of direct measurement is removed to reflect that "direct measurement" is now defined in section 95667. The term "inspection period" is replaced with "calendar year" when describing protocols for measurement delay when the compressor is not operating. A provision is added to describe how flow rate is reported for compressors equipped with a continuous emission flow rate measurement instrument.

Rationale

The starting date is no longer necessary because that date has passed and the provision is in effect.

Flow rate measurements do not make sense on a compressor where the emissions are controlled with a vapor collection system because the vapors would not be released to the atmosphere. Without the amendments, it may be interpreted that owners or operators would be required to detach the vapor collection system for purposes of taking this flow rate measurement. This could add additional emissions during the test and does not provide useful information as the vapors would not be released to the atmosphere as control with a vapor collection system is one of the options to prevent emissions from systems exceeding the flow rate standard.

Removal of the parenthetical after "direct measurement" is necessary to allow the definition in section 95667 to specify what a "direct measurement" is. Replacing "inspection period" with "calendar year" is necessary because "inspection period" is not defined in the Regulation. Calendar year is appropriate as this is an unambiguous term that imposes the

same requirement, as the inspections are required to occur annually under the current Regulation (which is unchanged in the Proposed Amendments).

Continuous flow rate measurements are not addressed in this section of the current Regulation and the Proposed Amendments are necessary to provide certainty about how to report a single value when continuous measurements are collected. Owners or operators subject to the Regulation have used continuous measurement instruments, so this is a necessary addition for regulatory certainty. The proposed approach establishes a standard and ensures that the measurements reported are taken during normal operation to be representative of operational conditions and that single outlier measurements cannot be reported as the flow rate.

Current Regulation section 95668(c)(7) (as shown in markup, section 95668(c)(4)(C) in actual current Regulation)

Purpose

This section of the current Regulation specifies that controlling reciprocating compressor vent stacks with a vapor collection system is an alternative to the requirement to test below the emission rate limit. This section is removed in the Proposed Amendments.

Rationale

The allowance for a vapor collection system as an alternative to testing below the emission rate limit is not relevant anymore because emission rate measurements are not taken on compressors with vapor collection systems under the Proposed Amendments (section 95668(c)(4)). The option to remedy a compressor over the emission rate limit by adding an emission control system is added in the Proposed Amendments in section 95668(c)(5) so removal of this section does not negate that option.

Section 95668(c)(5)

Purpose

This section specifies requirements for compressor rod packings or seals with a measured flow rate greater than 2 standard cubic feet per minute per compressor cylinder. The Proposed Amendments change the requirements for granting a delay of repair for compressor rod packings or seals over the limit to conform with the proposed section 95670.1.

The Proposed Amendments also add requirements for compressors that are not able to be successfully repaired. These amendments give owners or operators two options including (1) replacing the rod packing and seal within 60 days of the initial measurement (and verifying that emissions are below the threshold), or (2) controlling emissions with a vapor collection system within 180 days of the initial emission rate measurement.

Rationale

The delay of repair provisions are centralized to provide greater consistency throughout the Regulation and to address an issue with overly broad CARB Executive Officer discretion that US EPA identified as a deficiency in their review of the Regulation for CARB's SIP submittal.

The additional specification for compressors which are not able to be successfully repaired is added to ensure that the leak cannot continue indefinitely on the basis that it cannot be repaired. Replacing the rod packing or seal is required within 60 days of the initial leak measurement because this is consistent with the time period allowed for the original repair (30 days for repair attempt and 30 additional days for the replacement). Allowing 180 days for control with a vapor collection system is consistent with the time allowed to install a vapor collection system on a separator and tank system that exceeds the emission rate limit for those systems.

Current Regulation section 95668(c)(10) (as shown in markup, section 95668(c)(4)(F) in actual current Regulation)

Purpose

This section of the current Regulation allows for extended repair timeframes of up to 12 months if the rod packing or seal was approved as a critical component, and is removed in the Proposed Amendments.

Rationale

Under the Proposed Amendments rod packings and seals on non-production sector reciprocating compressors are not included within the definition of a "component" and thus cannot be "critical components." Since these rod packings and seals cannot be critical components, there should not be critical component repair timeframes.

Section 95668(d)(3)

Purpose

The starting date of January 1, 2018, for the requirement for components on driver engines and centrifugal compressors to follow the leak detection and repair requirements in section 95669 is removed in the Proposed Amendments.

Rationale

The starting date is no longer necessary because that date in the past and the provision is in effect. Removing it streamlines the regulation making it easier to understand.

Section 95668(d)(4)

Purpose

This section specifies requirements and options for the measurement of emission rates from centrifugal compressor wet seals. Under the Proposed Amendments, these measurements do not need to be taken if the wet seal vent gas is controlled with a vapor collection system. The parenthetical listing options for methods of direct measurement is removed to reflect that "direct measurement" is now defined in section 95667. Additional details are added to the types of vent stacks referred to, by specifying these stacks should capture all wet seal emissions, including from degassing. The term "inspection period" is changed to "calendar year" when describing protocols for measurement delays when the compressor is not operating. Finally, a provision is added to describe how flow rate is reported for compressors equipped with a continuous emission flow rate measurement instrument.

Rationale

Flow rate measurements do not make sense on a compressor where the emissions are controlled with a vapor collection system because the gas would not be released to the atmosphere. Without the amendments, it may be interpreted that owners or operators would be required to detach the vapor collection system for purposes of taking this flow rate measurement. This could add additional emissions during the test and does not provide useful information as the vapors would not be released to the atmosphere as control with a vapor collection system is one of the options to prevent emissions from systems exceeding the flow rate standard. Removal of the parenthetical after "direct measurement" is necessary to allow the definition in section 95667 to specify what a "direct measurement" is.

Wet seals must periodically release the gas that becomes dissolved or entrained in the wet seals to retain viscosity and lubricity in a process called degassing (CCAC 2017b). The Proposed Amendments are necessary to ensure that emissions from the seals in normal operation and during degassing are all routed to the vent stacks from which measurements are taken. This is important considering findings in an URS/UT/EPA study that determining all flash emission locations within a wet seal centrifugal compressor requires considerable care, such as reviewing a piping and instrumentation diagram (Harrison et al. 2011). If some emissions from degassing are instead routed to a different vent stack that is not measured, emissions could be higher than measurements would suggest.

Replacing "inspection period" with "calendar year" is necessary because "inspection period" is not defined in the Regulation. Calendar year is appropriate as this is an unambiguous term that imposes the same requirement, as the inspections are required to occur annually in the current Regulation (unchanged in the Proposed Amendments).

Continuous flow rate measurements are not addressed in this section of the current Regulation and the Proposed Amendments are necessary to provide certainty about how to report a single value when continuous measurements are collected. Owners or operators subject to the Regulation have used continuous measurement instruments, so this is a necessary addition for regulatory certainty. The proposed approach establishes a standard and ensures that the measurements reported are taken during normal operation to be representative of operational conditions and that single outlier measurements cannot be reported as the flow rate.

<u>Current Regulation section 95668(d)(5)</u>

Purpose

This section of the current Regulation specifies that controlling wet seal centrifugal compressor vent stacks with a vapor collection system is an alternative to the requirement to test below the emission rate limit. This section is removed in the Proposed Amendments.

Rationale

The allowance for a vapor collection system as an alternative to testing below the emission rate limit is not relevant anymore because emission rate measurements are not taken on compressors with vapor collection systems under the Proposed Amendments, as specified in section 95668(d)(4) of the Proposed Amendments. The option to remedy a compressor over

the emission rate limit by adding an emission control system is added in the Proposed Amendments in section 95668(d)(5) so removal of this section does not negate that option.

Section 95668(d)(5)

Purpose

This section specifies options for the control of emissions from centrifugal compressor wet seals over the maximum emission rate threshold. This section is numbered 95668(d)(6) in the current Regulation and is changed to 95668(d)(5) in the Proposed Amendments.

Section 95668(d)(5)(A) specifies delay of repair provisions for wet seal centrifugal compressors. The Proposed Amendments remove existing specifications about which records need to be maintained and the time periods allowable for repair and replace them with a reference to the new section 95670.1 containing harmonized delay of repair request procedures.

Section 95668(d)(5)(B) specifies what to do if the compressor cannot be repaired. The Proposed Amendments add a requirement that centrifugal compressor wet seals that are not able to be successfully repaired shall be replaced with a dry seal within 180 days of the initial emission rate measurement rather than by January 1, 2020, or shall be controlled by vapor collection system within the same time period. Formatting is changed in this section which affects the section numbering.

Rationale

The renumbering is necessary due to the removal of the current Regulation's section 95668(d)(5). The delay of repair provisions are centralized to provide greater consistency throughout the Regulation and to address an issue with overly broad CARB Executive Officer discretion that US EPA identified as a deficiency in their review of the Regulation for CARB's SIP submittal.

The additional specification for compressors which are not able to be successfully repaired is added to ensure that owners or operators switch to a dry seal if the wet seal cannot be repaired in a timely manner. This is necessary because it was not clear how quickly such a changeover would have to occur given that January 1, 2020, is in the past. The added passage removes ambiguity and sets a clear upper limit on the time period by which the replacement must occur. Additionally, the option to use a vapor collection system for control instead of replacing the wet seal with a dry seal is consistent with the current Regulation's section 95668(d)(5) that allows a vapor collection system to be an alternative to the emission rate standard (and which is still present as an exemption from performing the measurement in the first place in the Proposed Amendments). However, it needs to be stated clearly as a response option to an unrepairable rod packing or seal because under the Proposed Amendments it would otherwise not be clear if that is an option once an emission rate measurement has been taken that shows an emission rate over the threshold. Allowing equipment emitting over the leak rate threshold to be controlled with a vapor collection system is consistent with other sections of the Regulation, including the separator and tank system standards (section 95668(a)) and the pneumatic controller and pump standards (section 95668(e)).

Replacing the wet seal with a dry seal could require a new compressor, so 180 days is given to allow time for design and permitting to occur that would likely not be able to be completed on time periods as short as replacing the rod packing or seal. Additionally, this is consistent with the time period allowable for installing a vapor collection system on a separator and tank system following flash testing that indicates an emission rate over the threshold. The formatting change and associated numbering change is necessary to allow nesting of multiple options for when the compressor is not able to be successfully repaired.

Section 95668(d)(6)

Purpose

This section is renumbered in the Proposed Amendments.

Rationale

Deletion of the current Regulation section 95668(d)(5) necessitates changing the numbering of subsequent sections to maintain continuity in numbering.

Current Regulation section 95668(d)(9)

Purpose

This section of the current Regulation allows for extended repair timeframes of up to 12 months if the wet seal was approved as a critical component, and is removed in the Proposed Amendments.

Rationale

Under both the current Regulation and the Proposed Amendments, wet seals on centrifugal compressors are not included within the definition of a "component" and thus cannot be "critical components." Since these wet seals cannot be critical components, there should not be critical component repair timeframes.

Section 95668(e)(2)

Purpose

This section specifies that continuous bleed pneumatic controllers shall not vent and shall be subject to the leak detection and repair requirements in section 95669. The date on which this provision started, January 1, 2019, is removed. A phrase is added to better explain an exemption to this requirement for certain controllers installed prior to January 1, 2016.

Rationale

The starting date is no longer necessary because that date in the past and the provision is in effect. Removing it streamlines the Regulation making it easier to understand.

The exemption for certain controllers installed prior to January 1, 2016, was already implied by the text of section 95668(e)(2)(A), however, without the added phrasing, this section could be misinterpreted as categorically stating that no continuous bleed pneumatic controllers are allowed to vent to the atmosphere.

Section 95668(e)(2)(A)

Purpose

This section specifies that certain continuous bleed pneumatic controllers installed prior to January 1, 2016, may be used. The date by which this provision starts is removed in the Proposed Amendments.

Rationale

The text "as of January 1, 2019" mirrored the starting date of the general prohibition on venting continuous bleed pneumatic controllers to signify that the exception for certain controllers installed prior to January 1, 2016, also starts as of that same date. Because this date in the past and is removed from section 95669(e)(2), it is no longer necessary. Removing it streamlines the Regulation making it easier to understand.

Section 95668(e)(2)(A)3.

Purpose

This section specifies annual testing of certain pneumatic controllers using a direct measurement method. In the Proposed Amendments, the parenthetical listing options for methods of direct measurement is removed to reflect that "direct measurement" is now defined in section 95667.

Rationale

Removal of the parenthetical after "direct measurement" is necessary to allow the definition in section 95667 to specify what a "direct measurement" is.

Section 95668(e)(2)(A)2.

Purpose

This section specifies what the tag on a venting continuous bleed pneumatic controller must contain. The phrase "meets the following requirements" is added when describing the items on the tag and the first item is moved to heading level (a). Two additional items are added including identifying the month and year of installation and identification information.

Rationale

The change to "meets the following requirements" is necessary to grammatically allow for a list with more items. The month and year of installation and identification information are necessary to allow field verification that the controller is of the proper age to qualify for the exemption and that manufacturer's documentation can be referenced to verify the designed emission rate and maintenance procedures.

Section 95668(e)(2)(A)6.

Purpose

This new section requires the maintenance of records on the location and manufacturer's specifications of each continuous bleed pneumatic controller under section 95668(e)(2)(A).

Rationale

Maintenance of manufacturer's documentation is necessary so that it can be referenced to verify the designed emission rate of the controller to ensure it qualifies for the venting ban exemption and so that it can be referenced for maintenance instructions. The location is necessary to be able to locate the controller in case it needs to be maintained or inspected. These requirements are also contained in the CTG and are necessary to achieve SIP approval by US EPA.

Section 95668(e)(3)

Purpose

This section requires intermittent bleed pneumatic controllers to follow the LDAR procedures in section 95669. The date on which this provision goes into effect, January 1, 2018, is removed.

Rationale

The starting date is no longer necessary because that date in the past and the provision is in effect. Removing it streamlines the Regulation making it easier to understand.

Section 95668(e)(4)

Purpose

This section disallows venting from natural gas powered pneumatic pumps and requires them to adhere to the LDAR procedures in section 95669. The date on which this provision goes into effect, January 1, 2019, is removed. Additionally, the Proposed Amendments add a requirement to maintain records on the location and manufacturer's specifications of each pneumatic pump.

Rationale

The starting date is no longer necessary because that date in the past and the provision is in effect. Removing it streamlines the Regulation making it easier to understand.

Maintenance of manufacturer's documentation is necessary so that it can be referenced for proper maintenance procedures and the location is necessary to be able to locate the pump in case it needs to be maintained or inspected. These requirements are also contained in the CTG and are necessary to achieve SIP approval by US EPA.

Section 95668(f)(1)-(2)

Purpose

These sections specify requirements for liquids unloadings. The starting date for these requirements, January 1, 2018, is removed in the Proposed Amendments. The parenthetical listing options for methods of direct measurement is removed to reflect that "direct measurement" is now defined in section 95667. The word ";and," is removed from the end of section 95668(f)(1)(C). The word "record" is replaced with "owners or operators shall record." The numbering of section 95668(f)(1)(D) is changed to 95668(f)(2).

Rationale

The starting date is no longer necessary because that date in the past and the provision is in effect. Removing it streamlines the Regulation making it easier to understand. Removal of the parenthetical after "direct measurement" is necessary to allow the definition in section 95667 to specify what a "direct measurement" is.

The word ";and," is removed because it referred to section 95668(f)(1)(D) (as numbered in the current Regulation). Additionally, it was not clear whether "and" meant that the last two items on the list were together as one option or whether the first three items were options with the last item being required regardless of the option selected among the first three. Removing "and" and renumbering that section to 95668(f)(2) is necessary to clearly establish that regardless of the option selected in 95668(f)(1), the requirement of 95668(f)(2) applies. "Owners or operators shall record" is necessary because "record" alone does not specify the party responsible for the action once that section is removed from the umbrella of 95668(f)(1) that specifies "owners or operators…shall perform."

Section 95668(f)(3)

Purpose

This section describes recordkeeping requirements for liquids unloading of natural gas wells. The Proposed Amendments add a requirement to report the type of manual liquids unloading method used in the case that automatic unloading is not used.

Rationale

There are multiple methods that can be used for liquids unloading and the current Regulation asks for reporting of the type of unloading equipment used for automatic unloading. For complete recordkeeping on the types of liquids unloading being used in California, the addition is necessary to ensure that no matter what type of method is used (including manual methods), the method is reported. This information is necessary for CARB to accurately quantify emissions specific to the unloading method and the results will be used to determine if future modifications to the Regulation are necessary.

Section 95668(g)(1)

Purpose

This section specifies that owners or operators must annually measure the emission rate of well casing vents that are open to the atmosphere. The starting date for this requirement, January 1, 2018, is removed in the Proposed Amendments. The parenthetical listing options for methods of direct measurement is removed to reflect that "direct measurement" is now defined in section 95667.

The word ";and," is removed from this section and three new subsections are added as 95668(g)(1)(A)-(C). Section 95668(g)(1)(A) specifies conditions under which a release is not considered an open well casing vent. Section 95668(g)(1)(B) disallows measurement under negative pressure. Section 95668(g)(1)(C) requires the owner or operator to estimate the percentage of the calendar year that the well casing vent is open.

Rationale

The starting date is no longer necessary because that date in the past and the provision is in effect. Removing it is necessary to streamline the Regulation and make it easier to understand. Removal of the parenthetical after "direct measurement" is necessary to allow the definition in section 95667 to specify what a "direct measurement" is.

The word "and" is removed because with the addition of subsections below 95668(g)(1), "and" no longer makes grammatical sense and is not required to understand that 95688(g)(2) must also be followed. Section 95668(g)(1)(A) is necessary to prevent owners or operators from avoiding routine maintenance or testing due to uncertainty about whether they may need to take measurements. These limited duration openings are not representative of normal operating conditions. Section 95668(g)(1)(B) is necessary to prevent an unrepresentative emission measurement because if the well casing vent is being operated under a vacuum, no emissions would be occurring. Section 95668(g)(1)(C) is necessary so that the information is available for reporting purposes in section 95668(g)(2).

Section 95668(g)(2)

Purpose

This section describes recordkeeping and reporting requirements for open well casing vent emission rate measurements. The Proposed Amendments add a requirement to record and report the percentage of the calendar year that the vent is open. Further, the Proposed Amendments add subsection 95668(g)(2)(A), which requires reporting the average flow rate if more than one measurement is taken during the calendar year.

Rationale

Reporting the fraction of the calendar year that the vent is open is necessary for CARB to be able to accurately evaluate the total emissions from well casing vents by combining the measured flow rate with the percentage of time that the vent is open. This information will be used to determine if future modifications to the Regulation are necessary.

Reporting the average flow rate if more than one measurement is taken is necessary to eliminate the possibility of biased reporting if the owner or operator were to choose which of multiple measurements to report. Such biased reporting could impact the accuracy of CARB's understanding of actual emission rates from this source and the need for potential future modifications to the Regulation.

Current Regulation section 95668(h)(1)

Purpose

This section of the current Regulation specifies that owners or operators of natural gas underground storage facilities are required to continue implementing leak detection protocols approved by the Division of Oil, Gas, and Geothermal Resources (DOGGR, now renamed CalGEM) until an air monitoring plan is approved under this Regulation. This section is removed in the Proposed Amendments.

Rationale

This section is removed in because all natural gas underground storage facilities have had their air monitoring plans approved under this regulation, as confirmed in a 2019 letter from CARB to DOGGR (CARB 2019).

Section 95668(h)(1)

Purpose

In the Proposed Amendments, this section stipulates that owners or operators of natural gas underground storage facilities must have a monitoring plan that is approved by the CARB Executive Officer. The current Regulation requires owners or operators to "submit" a plan by January 1, 2018, and this is replaced in the Proposed Amendments with the requirement to have an approved plan. This section is renumbered from 95668(h)(2) to 95668(h)(1) to reflect that the current Regulation's section 95668(h)(1) is removed.

The Proposed Amendments add "quality assurance" to further describe the types of "procedures" that must be contained in the plan. A section callout is updated to section 95668(h)(4) reflecting a change in the numbering of subsequent sections. The word ";and,"is removed at the end of this section.

Rationale

When the current Regulation was written, natural gas underground storage facility owners or operators were required for the first time to develop their monitoring plans. All existing natural gas underground storage facilities now have plans that have been approved by the CARB Executive Officer. Therefore, the date by which plans must be submitted and the requirement to submit a plan are no longer needed and are removed to streamline the Regulation. This is not in conflict with new facilities potentially coming online, because a requirement for new facilities to implement plans is now included as a subsection of 95668(h)(1).

The updated numbering is necessary to maintain continuous sequential numbering. The addition of "quality assurance" to describe the types of procedures is necessary to better describe the nature of the procedures to ensure this requirement is understood by the regulated community. Removal of ";and," is necessary because it no longer makes grammatical sense and is not required to understand that 95688(h)(2) must also be followed.

Sections 95668(h)(1)(A)-(C)

Purpose

Section 95668(h)(1)(A) in the Proposed Amendments requires plans to be submitted for new facilities within 180 days of commencing operations. Section 95668(h)(1)(B) requires existing plans for existing facilities to be updated to match the requirements of the Regulation as amended and to submit those updated plans to the CARB Executive Officer by the later of April 1, 2024 or the effective date. Section 95668(h)(1)(C) specifies the method of submitting monitoring plans including an email address and subject line.

Rationale

Subsection (A) is necessary to lay out a requirement and timeline for new facilities to submit monitoring plans. Without the amendment, it is not clear by when a new facility would be

required to submit a monitoring plan because the date in the current Regulation (January 1, 2018) is in the past. 180 days after commencing operations is the time period selected to allow the facility owner or operator to be sure of the final configuration and operating parameters of the facility prior to creating the plan and in recognition that these plans are relatively lengthy and technical in nature. From experience implementing the current Regulation and reviewing these air monitoring plans, staff believe this is appropriate amount of time to allow for plan development.

Subsection (B) is necessary because the requirements of the plans are altered slightly in the Proposed Amendments, such as the requirement to keep records of when systems are inactivated and reactivated and the requirement to perform a first attempt at repair for leaks from 1,000-9,999 ppm within 5 days. The latest requirements need to be reflected in plans so that facilities are following the latest requirements in practice. April 1, 2024 (or the effective date if later), is selected as the deadline because it is necessary to implement this requirement ahead of US EPA's sanctions deadline of April 30, 2024.

Section (C) is necessary to ensure owners or operators know how to submit monitoring plans, and the method used is consistent with the submission of other non-routine reporting information in the Regulation.

Section 95668(h)(2)

Purpose

This section describes the process for approval of a natural gas underground storage facility monitoring plan. The Proposed Amendments change the date by which the CARB Executive Officer must approve monitoring plans from July 1, 2018, to 180 days after plan submission, updates the section number from 95668(h)(3) to 95668(h)(2), and updates the numbering of a section callout to 95668(h)(4) to reflect a change in the numbering of subsequent sections.

Rationale

The proposed Regulation includes provisions for new and updated plans to be submitted, so a timeline for approval of those plans not based on a date in the past is necessary to provide certainty about how expeditiously the CARB Executive Officer will act to review and approve plans. The time period of 180 days is chosen both to reflect the amount of time that CARB expects to potentially need for review based on past experience implementing the Regulation and for consistency with the review time period allowed in the current Regulation for the original plans for existing facilities (i.e., six months between January 1, 2018, and July 1, 2018).

The updated numbering is necessary to maintain sequential numbering (for this section's number) and to maintain reference to same requirements (for the updated callout) given that the number of the section being referenced changed.

Section 95668(h)(2)(A)-(B)

Purpose

Section 95668(h)(2)(A) describes the process for submitting revisions a natural gas underground storage facility following disapproval (in full or in part) by the CARB Executive Officer. Section 95668(h)(2)(B) describes the timeline for the CARB Executive Officer to

approve or disapprove of the plan (in full or in part) following revisions. The Proposed Amendments change "ARB" to "the CARB Executive Officer" in both sections when describing the authority that approves or disapproves of these plans.

Rationale

Describing the approving authority as "the CARB Executive Officer" is necessary to clearly recognize who at CARB is responsible for approving or disapproving of these plans.

Sections 95668(h)(2)(B)(1)-(3).

Purpose

Three new subsections are added below section 95668(h)(2)(B) in the Proposed Amendments. The first two further describe the timelines allowable for revisions and reviews of revisions after the first round of revisions and reviews that are already prescribed in the current Regulation, which is 14 days each. The third new subsection specifies that if a plan is not approved by 6 submissions of revisions, the owner or operator is in violation of the Regulation.

Rationale

The timelines for additional revisions and reviews are necessary to provide certainty about what happens if the monitoring plan is still not approved after the first round of revisions and review. Without this addition, it may not be clear what timelines are required to reach an approved plan, which could allow plan implementation to be delayed. 14 days for subsequent revisions and reviews is selected for consistency with the existing requirements for the first round of revisions and review. The requirement for plans to be approved within 6 submissions of revisions is necessary to ensure that an indefinite period of time cannot pass while monitoring is not occurring. 6 cycles is selected because the total time elapsed over the course of 6 cycles could be up to approximately half a year, which is similar to the time allowed for original plan development and original plan review by CARB in the Proposed Amendments. Additionally, this is a number of cycles that is moderately higher than any plan development required in the original implementation of this Regulation so staff believe it represents a reasonable upper bound of the number of cycles necessary when working in good faith.

Section 95668(h)(3)

Purpose

This section requires plans to be placed in effect within 180 days of approval. There are several proposed changes. It is specified that this refers to both new and updated monitoring plans. Pluralization is removed from "owners and operators" and "each" for grammatical reasons. A specification that the facilities are "listed in section 95666" is removed. A specification that the plan to be put into effect is that "most recently approved" is added. A section callout is updated to 95668(h)(4) to reflect a change in the numbering of subsequent sections and the number of this section is changed from 95668(h)(4) to 95668(h)(3).

Rationale

The specification of a "new or updated monitoring plan" and the "most recently approved" monitoring plan is necessary to clearly communicate that the passage refers to either type of plan put forth in section 95668(h)(1), and that is refers to the most recent of those plans. Removal of "listed in section 95666" is necessary to streamline the Regulation because the applicability of the Regulation already necessitates that such facilities are included in section 95666. The change from plural to singular language is necessary because the new structure of the section refers to the process for any single plan and is needed for grammatical accuracy.

The updated numbering is necessary to maintain sequential numbering and to maintain reference to same requirements given that the number of the section being referenced changed.

Section 95668(h)(3)(A)

Purpose

This new section specifies that when updating a plan, the previous plan remains in effect until the updated plan is put into effect.

Rationale

This section is necessary to ensure that monitoring continues during the 180-day allowable implementation period of an updated plan to prevent additional emissions from occurring during that time period.

Section 95668(h)(4)

Purpose

The Proposed Amendments add "quality assurance" to further describe the types of "procedures" that must be contained in a natural gas underground storage monitoring plan.

Rationale

The addition of "quality assurance" is necessary to better describe the nature of the "procedures" being referred to.

Section 95668(h)(4)(A)

Purpose

This section specifies requirements for continuous air monitoring systems at natural gas underground storage facilities. The Proposed Amendments add the requirement that continuous data means a data resolution of one minute or less.

Rationale

The Proposed Amendments further categorize continuous measurements to ensure that all facilities are interpreting the frequency of measurements required to be a "continuous" air monitoring system in the same way. This ensures greater consistency across facilities and that minimum standards are met in the design of these systems. At least one-minute resolution is selected because this is consistent with the recommended resolution for continuous

monitoring in US EPA's Quality Assurance Handbook for Air Pollution Measurement Systems (US EPA 2013).

Section 95668(h)(4)(A)1.b.

Purpose

This section addresses calibration of instruments and the repair timeline for defective instrumentation for underground natural gas storage facility continuous air monitoring systems. The Proposed Amendments add a delay of repair provision per section 95670.1.

Rationale

At times, it may not be possible or beneficial to replace defective equipment on the schedule specified in the Regulation. The proposed addition of a delay of repair provision is necessary to ensure that a specific set of consistent protocols are followed in instances when repair by the normal deadline is not possible or beneficial due to a reasonable justification (as listed in section 95670.1).

Section 95668(h)(4)(A)6.

Purpose

This section stipulates that baseline monitoring conditions be established by the facility, in conjunction with the CARB Executive Officer, using 12 months of monitoring data at natural gas underground storage facilities. The Proposed Amendments simply calls for the owner or operator to establish the baseline and submit those concentrations to CARB. A requirement to complete this by January 1, 2020, is also removed to reflect updating the section overall to allow for new and updated plans.

Rationale

The process surrounding establishing baseline concentrations, including relative roles and responsibilities of CARB and the owner or operator, was not clear with the language "in conjunction with." The revised process is necessary to clearly state how the baseline is established. Submission of the baseline concentrations is sufficient because the data are objective and not subject to differing interpretations that require a shared process between CARB and the owner or operator. The January 1, 2020, deadline is in the past and removal is necessary in order to allow new facilities to establish baseline data.

Section 95668(h)(4)(A)8.

Purpose

This section requires owners or operators of underground natural gas storage facilities to contact CARB, CalGEM, and the local air district when an alarm condition is triggered by the air sensors at the facility. The Proposed Amendments add details to better scope the type of alarm that is referred to in this section (to exclude alarms based on sensor failures) and removes the requirement for owners or operators to "confirm that an alarm condition has occurred."

Rationale

Addition of the specific alarm condition referenced by the passage ensures that any alarm for that condition is reported and that alarms for sensor failure or other conditions that the owner or operator may have set up that are not related to the requirements of this regulation do not trigger reporting. Sensor failure alarms are not necessary to report as these are now logged for recordkeeping pursuant to 95668(h)(4)(A)(10.). The requirement to "confirm that an alarm condition has occurred" is not sufficiently scoped for it to have a clear meaning and it is necessary to remove to ensure that any alarm meeting the conditions triggers notification and that notification is not delayed during any confirmation process.

Section 95668(h)(4)(A)10.

Purpose

The Proposed Amendments add this section which requires natural gas underground storage facility owners or operators to keep records of when a continuous air monitoring system is inactivated along with a justification, and to record when the system is reactivated.

Rationale

Air monitoring systems may need to be inactivated periodically for maintenance or repairs, or may become inactivated due to power disruptions. It is important for CARB to be able to access records of when a system is not collecting data to evaluate the amount of time that systems are not operational and to understand when and why that may occur, since any time that systems are inactive present a risk that emission events could occur undetected. This is necessary to evaluate the need for future changes the Regulation.

Section 95668(h)(4)(B).

Purpose

This section requires leak screening at injection/withdrawal wellheads. The Proposed Amendments add a reference to the definition of an injection or withdrawal well.

Rationale

Referencing the definition of an injection or withdrawal well ensures that regulated parties can discern which wells are required to be monitored under section 95668(h)(4)(B). This is important because other types of wells may be present at or around a gas storage facility and thus it needs to be clear which types of wells are considered injection or withdrawal wells.

Section 95668(h)(4)(B)(1).

Purpose

This section provides a daily leak screening option for monitoring injection/withdrawal wellhead assemblies, including acceptable screening methods/technologies. The Proposed Amendments remove an option to use other natural gas leak screening instruments approved by the CARB Executive Officer. The Proposed Amendments also allow a delay of inspection when wildlife is found to be present on a component that has caused work to be halted or postponed pursuant to other state or federal regulations, so long as the owner or operator notifies CARB within 24 hours, provides information about the delay as detailed in the Regulation, and notifies CARB within 24 hours after inspections have resumed.

Rationale

The current Regulation has no process defined for how an alternate leak screening instrument would be approved by the CARB Executive Officer. It is necessary to remove this option because it removes insufficiently bounded director's discretion that US EPA determined to be unacceptable in CARB's submittal of the Regulation into the SIP.

The delay of inspection provision is necessary to recognize that in some instances the presence of wildlife may preclude screening, and to set up a specific process for that set of circumstances to avoid ambiguity when regulations are in conflict with one another. Providing information about the reason for the delay is necessary for CARB to verify that the delay of inspection is justified. A follow-up notification upon beginning inspections again is necessary for CARB to understand how many total days inspections are not occurring during these provisions, which is necessary for evaluating potential future changes to the Regulation. The 24-hour notification periods are chosen to balance the need for CARB to know quickly when leak screening is and is not occurring, in case an incident occurs, with the need for owners or operators to have enough time to evaluate the type of wildlife and laws, especially if the personnel or resources used to make the determination or issue the reporting are not immediately available. This is also consistent with the amount of time in the current Regulation allowed for reporting alarms to CARB.

Section 95668(h)(4)(B)2.

Purpose

This section provides the requirements for using a continuous measurement system for natural gas underground storage facility injection/withdrawal wellhead assembly leak screening. The Proposed Amendments adjust the start time of the 14-day window to repair defective instrumentation to be the date of the discovery of a malfunction rather than the date of alarm system testing/calibration. The Proposed Amendments also add provisions for delays of repair (following section 95670.1) after discovering a malfunction. The Proposed Amendments also add a requirement to keep records of when the monitoring system is inactivated along with a justification, and to record when the system is reactivated.

Rationale

The change from the date of testing or calibration to the date of discovery of a malfunction is necessary to clearly lay out the repair window in cases where testing or calibration takes more than one day to complete.

Delays of repair provisions ensure that specific procedures are followed when repairs cannot be made within the 14-day window. This ensures that CARB is aware of when the monitoring system may not be functioning properly, and that proper justification must be given for such circumstances.

Monitoring systems may need to be inactivated periodically for maintenance or repairs (e.g., removing sensors on wellheads when performing well maintenance), or may become inactivated due to power disruptions. It is important for CARB to be able to access records of when a system is not collecting data to evaluate the amount of time that systems are not operational and to understand when and why that may occur, since any time that systems are

inactive present a risk that emission events could occur undetected. This is necessary to evaluate the need for future changes the Regulation.

Section 95668(h)(4)(B)3.

Purpose

This section specifies that concentrations must be measured within 24 hours of the initial detection for a leak detected in a natural gas underground storage wellhead leak inspection. The Proposed Amendments exempt owners or operators from performing a separate measurement when using a continuous monitoring system that measures leak concentrations. The Proposed Amendments also reference the requirements of a Method 21 measurement in section 95669(b) instead of specifying them in this section. Finally, the Proposed Amendments allow a delay of inspection when wildlife is found to present on a component that has caused work to be halted or postponed pursuant to other state or federal regulations, so long as the owner or operator notifies CARB within 24 hours, provides information about the delay as detailed in the Proposed Amendments, and notifies CARB within 24 hours after inspections have resumed.

Rationale

Exempting separate follow-up measurement of the leak concentration using Method 21 for a component with leak concentrations already available via continuous monitoring prevents unnecessary duplication of work. Referencing the global requirements of a Method 21 survey in section 95669(b) ensures that Method 21 surveys are performed in a consistent way across the regulation, which also makes it easier for owners or operators to perform such surveys due to that consistency.

The delay of inspection provision is necessary to recognize that in some instances the presence of wildlife may preclude screening, and to set up a specific process for that set of circumstances to avoid ambiguity when regulations are in conflict with one another. Providing information about the reason for the delay is necessary for CARB to verify that the delay of inspection is justified and a follow-up notification upon beginning inspections again is necessary for CARB to understand how many total days inspections are not occurring during to these provisions, which is necessary for evaluating potential future changes to the Regulation. The 24-hour notification periods are chosen to balance the need for CARB to know quickly when leak screening is and is not occurring, in case an incident occurs, with the need for owners or operators to have enough time to evaluate the type of wildlife and laws, especially if the personnel or resources used to make the determination or issue the reporting are not immediately available. This is also consistent with the amount of time in the current Regulation allowed for reporting alarms to CARB.

Section 95668(h)(4)(B)6.

Purpose

This section lists measurement conditions for a natural gas underground storage facility wellhead leak survey that trigger reporting to CARB, CalGEM, and the local air district within 24 hours. The Proposed Amendments add text to ensure that it is clear that the alarm trigger conditions specified are for a leak detected either at 50,000 ppmv in any single measurement or at 10,000 ppmv that persists for five or more days. The Proposed Amendments also

change the start of the 24-hour notification period from the "initial leak measurement" to the "alarm trigger" and remove a requirement for the owner or operator to "confirm that an alarm condition has occurred."

Rationale

The original wording could potentially be misinterpreted to mean that a 50,000 ppmv total hydrocarbon measurement would have to persist for five or more days to signal an alarm condition. The change is necessary to ensure that regulated parties understand that a single 50,000 ppmv measurement constitutes an alarm trigger. The change from "initial leak measurement" to "alarm trigger" is necessary to ensure that owners or operators understand the 24-hour reporting period for five continuous days of at least 10,000 ppmv leak concentrations begins upon the measurement on the fifth day, not the measurement on the first day. The requirement to "confirm that an alarm condition has occurred" is not sufficiently scoped for it to have a clear meaning and it is necessary to remove to ensure that any alarm meeting the conditions triggers notification and that notification is not delayed during any confirmation process.

Section 95668(h)(4)(C)

Purpose

This section specifies requirements for performing optical gas imaging recordings for well blowouts at natural gas underground storage facilities. The Proposed Amendments change the specific requirements for the type of certification or training that the camera operator must possess. They also specify that the recording should be performed "throughout the course of" the incident, rather than just "through" the incident.

Rationale

CARB staff's experience with implementing the Regulation revealed that different types of principles and coursework were more appropriate to ensure that camera operators could sufficiently capture the videos required for this section. The new list of certification or training topics better reflects the most important principles for this specific task. The specification to perform recordings "throughout the course of" the incident more clearly describes that the time period in question covers from the start to the end of the blowout incident.

E. Section 95669. Leak Detection and Repair

Section 95669(b)

Purpose

This proposed new section specifies requirements for leak testing using US EPA Reference Method 21 including the units used for measurement and the exclusion of PID instruments.

Rationale

This proposed new section ensures consistency across the Regulation in the basic requirements of a Method 21 survey for the elements identified in the section. This is necessary to make implementation of surveys easier by consolidating and harmonizing these requirements in one section.

Section 95669(c)(1)

Purpose

This section specifies that components already subject to local air district leak detection and repair rules in place prior to January 1, 2018, are not subject to Section 95669 of this Regulation. The Proposed Amendments change local air district leak detection and repair "requirements" to "rules" when specifying the exemption. Additionally, the lettering is changed to reflect the addition of the new section 95669(b).

Rationale

The proposed change from "requirements" to "rules" is necessary to ensure that only rules quality for exemptions, rather than other types of requirements (such as permit conditions). This is necessary because the US EPA in their SIP decision determined that only rules could be a basis for such an exemption as those rules are able to be reviewed and included in the SIP. The lettering change is necessary to maintain continuous alphabetical order with the addition of the new section 95669(b).

Section 95669(c)(1)(A)

Purpose

This new proposed section states that a component qualifying for an LDAR requirement exemption from an air district rule is not "subject to a local air district rule" for purposes of exemption to the requirements of section 95669. Under the Proposed Amendments, such a component would need to qualify for an exemption in sections 95669(c)(2)-(15) to remain exempt from the requirements of section 95669.

Rationale

This proposed addition is necessary to ensure that components are not exempt from all leak detection and repair activities when the component would not otherwise be exempt based on the allowable exemptions in sections 95669(c)(2)-(14).

Section 95669(c)(1)(B)

Purpose

This new proposed section lists the specific local air district rules that qualify components for the air district leak detection and repair rule exemption for components located in ozone non-attainment areas. No other rules qualify for an exemption in those areas.

Rationale

This proposed addition ensures that all local air district rules being used for exemptions to the leak detection and repair requirements in section 95669 have been vetted by the US EPA against the CTG for SIP purposes. The lack of a list of specific local air district rules for ozone non-attainment areas was identified by US EPA as a deficiency that would preclude full SIP approval because new or modified air district rules could be created in those areas that do not meet the minimum requirements for the SIP.

Section 95669(c)(2)

Purpose

This section exempts components handling exclusively heavy crude oil (API gravity less than 20) from LDAR requirements of section 95669. The Proposed Amendments add greater detail to describe that components that handle either crude oil or the associated produced water (i.e., water that is produced along with the crude oil) qualify for this exemption.

Rationale

This change is necessary to eliminate potential confusion about whether this exemption applies to water produced along with heavy crude oil and aligns with the original intent of this passage.

Section 95669(c)(3)

Purpose

This section exempts components on produced water lines downstream of controlled separator and tank systems from LDAR requirements in section 95669. The Proposed Amendments more thoroughly describe the type of vapor collection system or control system that applies to this exemption. Further, the Proposed Amendments provide an exemption for components on produced water lines downstream of separator and tank systems that meet criteria for those systems to be exempt from section 95668(a) or which have an annual emission rate less than or equal to 10 MT/yr. of methane.

Rationale

The proposed changes are necessary to ensure that vapor collection or control systems referenced in this section meet the necessary standards of such systems to be RACT-level controls for SIP approval purposes. Without the amendments, use of a subpar vapor collection or control system could be interpreted as qualifying for this exemption. Further, the additional methods of exemption outlined in the Proposed Amendments are prudent because those are systems with less potential for emissions and for which it would not be expected that downstream produced water components would have a high potential for emissions relative to the emissions from the upstream uncontrolled separator and tank system that are already allowed to vent.

Current Regulation Section 95669(b)(7)

Purpose

This previous section had exempted small stainless steel tube fittings used to supply natural gas to equipment or instruments from the LDAR provisions of section 95669 so long as they had been tested to be below the minimum allowable leak threshold at startup or during the first leak inspection performed after installation. The Proposed Amendments remove this section. Thus, under the Proposed Amendments, these small stainless steel tube fittings do not qualify for an exemption to the LDAR provisions of the Regulation.

Rationale

This exemption was identified by the US EPA as a deficiency precluding approval of the Regulation into the SIP because the exemption does not meet the requirements of the CTG,

which contains no similar exemption. This proposed amendment is necessary to attain approval into the SIP.

Section 95669(c)(8)

Purpose

This section exempts components at crude oil and natural gas production facilities that are not owned or operated by the facility from the LDAR requirements of section 95669. The Proposed Amendments remove text that stated this only applied to components located downstream of the point of transfer of custody.

Rationale

The proposed changes ensure that owners or operators are only responsible for performing leak detection and repair activities on equipment they own. This is necessary because it would not be reasonable to require an owner or operator to maintain equipment they do not own or operate.

Section 95669(c)(13)

Purpose

A callout to section 95668(c)(4)(B) is changed to section 95668(c)(4). This is because section 95668(c) is reorganized in the Proposed Amendments and the requirements previously found at 95668(c)(4)(B) are now found in section 95668(c)(4).

Rationale

This change is necessary to point to the correct section.

Section 95669(c)(14)

Purpose

These Proposed Amendments add a new exemption to the LDAR provisions in section 95669 for components on equipment or wells that are actively undergoing drilling, completion, or maintenance activities.

Rationale

The proposed amendment for components on equipment or wells undergoing drilling, completion, or maintenance activities is necessary primarily because it may be unsafe to require an LDAR inspector to perform an inspection during these types of ongoing activities. It is necessary to perform the inspection after the activity is complete to ensure that everything which may have been disassembled was reassembled in a leak-free state.

Section 95669(d)

Purpose

This section of the current Regulation specifies the date by which all components not otherwise exempted must begin inspection and repair requirements under the LDAR provisions of the Regulation. The Proposed Amendments remove that date (January 1, 2018)

and include clarification that "wells" includes "idle wells" when listing the types of equipment on which components are subject to the section.

The section letter is also changed from 95669(c) to 95669(d) due to the addition of the new section 95669(b).

Rationale

The proposed addition is necessary to ensure that owners or operators understand that "wells" includes idle wells, which is consistent with how the Regulation has been implemented and the existing definition of a well in the current Regulation.

The starting date is no longer necessary because that date in the past and the provision is in effect. Removing it is necessary to streamline the Regulation and make it easier to understand. The change in section lettering is necessary to maintain sequential lettering.

Section 95669(d)(1)

Purpose

This new proposed section requires owners or operators to develop a leak detection and repair plan by April 1, 2024 (or the effective date if it later), and to keep the plan updated annually thereafter if there are any changes to the facility or equipment. This section describes the specific elements that must be included in the plan including procedures for conducting surveys, a sitemap, a list of equipment to be monitored, a list of components to be monitored, a list of equipment and components designated inaccessible or unsafe to monitor, the survey frequency for each piece of equipment, and the repair timeframes for each piece of equipment.

Rationale

The US EPA identified the lack of a list of equipment subject to leak detection and repair requirements and those designed as "unsafe to monitor" as a deficiency that precluded full approval of the Regulation in the SIP. The proposed addition of an LDAR plan address that deficiency by requiring owners or operators to list all components and equipment subject to LDAR including those components designated as "inaccessible" or "unsafe to monitor". The requirements of the LDAR plans in this section align with those in the CTG.

Further, these LDAR plans are expected to help to ensure that LDAR activities are carried out in a manner that is compliant with the Regulation. Surveying procedures are necessary to ensure the surveys are compliant with the requirements in the Regulation. A sitemap is necessary to guide the LDAR practitioners to the equipment onsite that is required to be monitored. Lists of equipment and components are necessary to ensure that the LDAR practitioner knows every piece of equipment and component that must be monitored, and the descriptions or ID numbers ensure the LDAR practitioner can verify they are monitoring the correct equipment or component. Lists of equipment designated inaccessible or unsafe to monitor ensure that the special timeframes allowable for inspection of those components are recognized by the LDAR practitioner, and the explanation/review of conditions ensures that each piece of equipment or component so designated meets the definition for inaccessible or unsafe to monitor as defined in section 95667. The survey frequency and repair timeframes for each piece of equipment are necessary to ensure the LDAR practitioner

knows how often they need to monitor each piece of equipment and the owner or operator knows how quickly each piece of equipment must be repaired to comply with the Regulation.

Periodic updates are necessary to ensure that changes to the facility or surveying procedures are reflected in the plans and an annual update schedule is used for consistency with the updating schedule for Operator Management Plans in some air district rules (e.g., San Joaquin Valley Air Pollution Control District's Rule 4401, April 20, 2005). The implementation date of April 1, 2024 is selected to ensure the provision in implemented ahead of the April 30, 2024 sanction deadline (or as soon as possible if the effective date is later than April 1, 2024).

Section 95669(e)-(f)

Purpose

The lettering of these sections is changed to reflect the addition of the new section 95669(b).

Rationale

The lettering changes are necessary to maintain continuous alphabetical order.

Section 95669(f)(1)

Purpose

This section requires owners or operators to inspect all pipes for leaks or indications of leaks using audio-visual methods at least once every 12 months. The Proposed Amendments add that "pipelines" must be inspected and that these inspection requirements apply within the facility boundaries.

Rationale

Adding "pipelines" ensures that all types of pipes, including pipelines, are inspected. This change aligns with the original intention of the word "pipes" in this section. Specifying that these inspections only apply to pipes and pipelines within the facility boundary ensures that owners or operators do not interpret the rules as requiring them to inspect portions of a pipe or pipeline that may not be under their control due to being outside of the facility.

Section 95669(f)(2)

Purpose

This new proposed section requires owners or operators to maintain records of all of the dates that audio-visual inspections occurred at facilities in compliance with section 95669(f). The proposed section also requires those records to be made available to CARB upon request.

Rationale

This proposed requirement is necessary to verify that the required inspections indeed occurred. Without the recordkeeping requirements in this proposed section, there would be no way to check whether or when audio-visual inspections occurred. Making the records available to CARB upon request is necessary to allow CARB to verify that such inspections occurred to ensure compliance with the Regulation.

Section 95669(f)(3)

Purpose

This section specifies the procedure owners or operators must follow if a leak discovered during the audio-visual inspections required by section 95669(f) cannot be repaired within 24 hours. The Proposed Amendments add that the Method 21 measurement must be performed in accordance with the requirements in section 95669(b). The Proposed Amendments also remove a passage stating that leaks must be repaired within the timeframes specified in section 95669. The Proposed Amendments also change the numbering/lettering of this item by nesting it underneath 95669(f), instead of being at the same heading level as it is in the current Regulation.

Rationale

Adding a reference to section 95669(b) ensures that Method 21 surveys used in this section meet certain basic requirements. The proposed deleted text referring to leaks being repaired within certain timeframes is duplicative because a passage with the same meaning is already present below in section 95669(f)(3)(B).

This section is nested under 95669(f) in the Proposed Amendments because it refers to follow-up activities to the audio-visual inspections required by 95669(f). For easier understanding by the regulated community, it is necessary to change this heading level.

Section 95669(g)

Purpose

The Proposed Amendments add that the Method 21 measurement must be performed in accordance with the requirements in section 95669(b) and removes the clause "excluding the use of PID instruments."

Rationale

Adding a reference to section 95669(b) ensures that Method 21 surveys used in this section meet certain basic requirements, including the exclusion of PID instruments.

Section 95669(g)(1)

Purpose

This section describes the optional use of optical gas imaging (OGI) as a leak screening method. The Proposed Amendments change "may not" to "shall not" when stating that these surveys are not allowed to be used in place of the mandated Method 21 surveys. The Proposed Amendments also change the certification or training requirements for instrument operators to training in basic thermal science, OGI camera operation and safety, and OGI inspections (e.g., OGI certification).

Rationale

This intent of this section is to forbid the use of OGI screening as a replacement for the required Method 21 surveys. "Shall not" more clearly communicates this prohibition than "may not." The training or certification requirements for OGI camera operators was changed

to reflect the types of training topics most likely to produce optimal results for this measure. CARB staff's experience with implementing the Regulation revealed that different types of principles and coursework were more appropriate for this task.

Section 95669(g)(1)(A)

Purpose

This section requires leaks detected during OGI surveys to be measured with Method 21 to determine if the concentration is above the leak threshold, and if so, the associated repair timeframe. The Proposed Amendments specify that the Method 21 survey must follow the requirements of section 95669(b) and that the requirements of this section apply to both (1) owner or operator inspections and (2) CARB Executive Officer inspections.

Rationale

The proposed changes are necessary to specify which types of OGI inspections result in a need to measure the leaks with Method 21. Without the amendments it may be unclear whether leaks detected in certain OGI surveys necessitate measurement with Method 21 and eventual repair if the concentration exceeds the leak threshold. Follow-up Method 21 measurements are necessary after both owner or operator conducted inspections and CARB Executive Officer inspections because in both cases a leak has been found and it is prudent to fix known leaks to reduce greenhouse gas emissions.

Section 95669(g)(2)

Purpose

This section specifies that owners or operators can measure "inaccessible" or "unsafe to monitor" components annually instead of quarterly. The Proposed Amendments specify that the Method 21 survey must follow the requirements of section 95669(b).

Rationale

Adding a reference to section 95669(b) ensures that Method 21 surveys used in this section meet certain basic requirements.

Current Regulation section 95669(h)

Purpose

This section in the current Regulation describes repair timeframes for leaks of various concentrations between January 1, 2018, and December 31, 2019. This section is removed in the Proposed Amendments because the entire time period is in the past.

Rationale

The requirements for this time period are no longer necessary because it is entirely in the past. Removing it streamlines the Regulation, making it easier to understand.

Section 95669(h)

Purpose

In the current Regulation, this section describes repair timeframes for leaks of various concentrations on or after January 1, 2020. The Proposed Amendments remove the start date because that date in the past and the provisions in this section are in effect.

The Proposed Amendments add a reference to Table 1 (summarizing the repair timeframes), specify that leak concentration repair timelines begin when a Method 21 measurement is made, add a requirement to perform a first attempt at repair for leaks with concentrations between (and inclusive of) 1,000 ppmv and 9,999 ppmv within 5 days (both in text and in Table 1) of initial leak detection, and replace the previous procedures for delays of repair with a reference to the new proposed section that contains the procedure for obtaining a delay of repair.

The Proposed Amendments also remove the table specifying the allowable number of leaks for CARB Executive Officer-conducted inspections (which is readded later in the Proposed Amendments), renumbers Table 4 to Table 1, and removes "On or After January 1, 2020" from the table title. Finally, the lettering of this section is changed to reflect the addition of the new section 95669(b).

Rationale

Removing the starting date for this provision (both at the beginning of the section and from the title of Table 1) is necessary to streamline the Regulation an make it easier to understand, and does not change the requirements since the date is in the past.

The added reference to Table 1 helps explain where the information in the subsequent sections can be found summarized for ease of interpretation. Specifying that a Method 21 measurement starts the leak repair clock ensures that a consistent starting point is defined in the case where a leak is first detected by some other means (e.g., by an OGI camera or an audio-visual inspection). Because the repair timeframes rely on the leak concentration value, it is sensible to start this clock at the point of the Method 21 measurement that determined the leak concentration value. The addition of a first attempt at repair within 5 days for leaks between 1,000 ppmv and 9,999 ppmv is necessary because this requirement is included in the CTG and the lack of such a requirement was identified by US EPA as a SIP deficiency. Thus, this change is necessary to address this deficiency and achieve approval of the Regulation into the SIP. Replacing the delay of repair provisions ensures that the procedures for delay of repair are harmonized throughout the Regulation to enable easier implementation by regulated parties. Insufficient specificity of the acceptable reasons for justifying delays of repair was identified by the US EPA as a SIP deficiency, so this also helps ensure that the delay of repair requirements in this section meet the requirements of the US EPA for SIP approval.

The table specifying the number of allowable leaks is removed and moved to section 95669(o), where it is more relevant. Renumbering Table 4 to Table 1 is necessary to maintain numerically ordered table numbers after the removal of previous tables. The section lettering change is necessary to maintain continuous alphabetical order.

<u>Section 95669(i)</u>

Purpose

This section requires owners or operators to tag leaks discovered during LDAR activities. The Proposed Amendments restructure this section so that the requirement "tags shall be removed from components following successful repair" is not listed at the same heading level as the criteria for allowing removal of the tag. To facilitate this change, the requirement for successful repair or replacement is also moved up into the parent item of section 95669(i). Finally, the passage requiring remeasurement with Method 21 following repair is slightly restructured to match the formatting of the section in Proposed Amendments and a requirement to follow section 95669(b) for the Method 21 measurement is added.

Rationale

Restructuring this section is necessary to avoid directed actions from being interpreted as criteria, due to their placement in the heading structure. The new structure therefore clarifies what triggers removal of a tag and what actions the owner or operator must perform to confirm successful repair.

Adding a reference to section 95669(b) ensures that Method 21 surveys used in this section meet certain basic requirements, including the exclusion of PID instruments.

Section 95669(j)

Purpose

This section requires owners or operators to maintain certain records about all leaks found at the facility and to report those results to CARB once a year and upon request. The Proposed Amendments add that the production status (active or idle) of a well must be reported for leaks from components associated with a well. The lettering of this section is also changed to reflect the addition and removal of previous sections.

Rationale

Reporting of production status is necessary for CARB to better understand which types of sources are responsible for what share of the discovered leaks and emissions. The lettering change is necessary to maintain continuous alphabetical order.

Section 95669(k)

Purpose

The lettering of this section is changed in the Proposed Amendments to reflect the addition and removal of previous sections.

Rationale

The lettering change is necessary to maintain continuous alphabetical order.

Section 95669(l)

Purpose

This proposed new section specifies that pressure-vacuum valves shall not vent or actuate except when exceeding the valve's set pressure, which must be within 10% of the maximum allowable working pressure of the tank.

Rationale

Pressure-vacuum valves are designed to allow venting or intake for safety reasons when the pressure of the tank exceeds manufacturer's recommendations to avoid failure of the tank. This new requirement is necessary to ensure that this venting only occurs when necessary due to tank pressure build-up and not due to failure of the PV valve to seat properly when tank is within an allowable pressure range. The requirement for the valve's pressure setting to be within 10% of the tank's maximum allowable working pressure is consistent with the requirements in air district rules (e.g., San Joaquin Valley APCD Rule 4623, Ventura County APCD Rule 71.1) (SJVAPCD 2005b, VCAPCD 1992).

Section 95669(m)

Purpose

This section specifies requirements for capping or sealing open-ended lines, including the timeframe for doing so following an inspection and subsequent repair timeframes if capped or sealed open-ended lines are found leaking. The Proposed Amendments change the timeframe for capping or sealing open-ended lines that are not capped or sealed following an inspection from 14 calendar days to 7 calendar days. The word "and" is changed to "that" for grammatical reasons. The callout to section 95669(i) is removed to align with the removal of the requirements for the period of 2018-2019.

Rationale

Experience implementing the Regulation and discussion with air district staff revealed that the typical amount of time needed for this task is on the order of a few days. Allowing this condition to exist for 14 days is therefore excessive and changing to a shorter time period is necessary to the prevent potential emissions from uncapped open-ended lines persisting for longer periods of time. 7 days is selected based on experience that a few days is a reasonable amount of time for adding a cap with some additional time for extenuating circumstances.

The change from "and" to "that" is necessary for grammatical accuracy and is not intended to change the meaning of the passage. The callout removal is necessary because the section that was called out to no longer exists in the Regulation.

Section 95669(n)

Purpose

This section requires components which incur five repair actions within any 12-month period to be replaced and remeasured below the leak concentration threshold. The Proposed Amendments add that this replacement must occur within 30 calendar days of the initial Method 21 leak detection of the fifth leak and call out to section 95669(b) for Method 21 requirements. The Proposed Amendments also allow a delay of repair option as specified in section 95670.1 of the Regulation. The language regarding a record of the replacement is moved to subsection 95669(n)(3).

Rationale

This proposed amendment is necessary because there is currently no explicit limit on the amount of time that can pass between determining that the component needs to be replaced and completing such a replacement. This could potentially allow a defective component to remain in service and emitting for an extended period of time. A replacement period of 30 days is chosen because the owner or operator may need to procure a new component and ensure that the replacement component will not continue to experience the same issue. Adding a provision for delay of repair is necessary to account for justifiable extenuating circumstances that could prevent compliance with the proposed 30-day replacement period. Moving the recordkeeping requirement is necessary for more natural structuring of the section.

Current Regulation section 95669(o)(1)

Purpose

This section of the current Regulation specifies the maximum number of allowable leaks during a CARB Executive Officer inspection for 2018-2019. This section is removed in the Proposed Amendments because it refers to a time period in the past.

Rationale

The requirements for this time period are no longer necessary because it is in the past. Removing it streamlines the Regulation making it easier to understand.

Section 95669(o)(1)

Purpose

This section and its subsections specify the allowable number of leaks per facility for inspections conducted by the CARB Executive Officer. There are several proposed changes in these sections. Section 95669(o)(1) is introduced with new text stating that these provisions apply to inspections conducted by the CARB Executive Officer. The start date of this provision (January 1, 2020) is removed. The requirement that Method 21 surveys are not performed with PID instruments is replaced by the harmonized list of Method 21 survey requirements in section 95669(b). Table 2 is added here (it is in section 95669(i) as Table 3 in the current Regulation). The table headers specifying the number or percentage of allowable leaks are amended to include "inspected," but otherwise Table 2 in the Proposed Amendments is identical to Table 3 in the current Regulation. The header change specifies that the number of components determining which column of the table to look up refers to how many components at the facility were inspected rather than how many total components are present. Finally, "during any inspection period" is removed from the clause stating the leaks must be repaired.

Rationale

Structuring this section under a heading that these provisions apply to inspections conducted by the CARB Executive Officer is necessary to make the Regulation easier to understand, especially pertaining to the requirement that leaks discovered during these inspections must be repaired according to the normal repair timeframes for leaks. Removal of the starting date of this provision is necessary because it is in past, fully in effect, and doing so streamlines the Regulation.

Adding the reference to section 95669(b) for Method 21 requirements ensures that Method 21 surveys are performed in a consistent manner throughout the Regulation and across regulated parties. Specifying that the number of components in the headers of Table 2 refer to the number of components inspected, rather than the number of total components at the facility, ensures that facilities cannot allow a large fraction of the surveyed components to be leaking simply because many of the components at the facility were not inspected. Table 2 is moved to this section because this section contains the requirements associated with Table 2. In its original location, it may not be clear what this table is referring to. The term "inspection period" does not have any specific meaning in the Regulation or serve any purpose in this section. Removing this text is necessary to avoid confusion because the provision applies anytime a CARB Executive Office inspection is conducted.

Sections 95669(o)(2) and 95669(o)(2)(A)

Purpose

This new proposed section changes the organizational structure of section 95669(o) to more clearly delineate requirements that apply to inspections conducted by the owner or operator (rather than those conducted by the CARB Executive Officer). Under the Proposed Amendments, a passage stating that the failure to repair leaks within the specified timeframes is a violation of the Regulation, as is required in the current Regulation, is moved to 95669(o)(2)(a).

Rationale

This reorganization is necessary to clearly communicate which provisions in section 95669(o) apply to CARB Executive Officer-conducted surveys and which apply to owner or operator-conducted surveys. The statement that exceeding the leak repair timeframes constitutes a violation was moved due to the restructuring of requirements into separate sections based on who conducted the inspection.

Section 95669(o)(2)(B)

Purpose

This section states that leaks discovered during inspections conducted by owner or operators are not violations so long as they are repaired with the specified timeframes, except for the fourth quarterly inspection of each calendar year. The Proposed Amendments remove the text "except for the fourth (4^{th}) quarterly inspection of each calendar year."

Rationale

As explained in the Final Statement of Reasons (FSOR) for the current Regulation, CARB's intention is to incentivize owners or operators to find and repair leaks in every quarterly LDAR inspection, and as long as owners or operators repair leaks discovered during owner or operator-conducted surveys within the necessary timeframes, there is no violation of the regulation (CARB 2017b, p. 84). The statement about different treatment in the fourth quarterly inspection is removed because of the potential for it to be misread if it is not considered within the greater context of the section. Removing it does not change the meaning as CARB intended based on the FSOR.

F. Section 95669.1 Remotely Detected Emission Plumes

Section 95669.1(a)

Purpose

This proposed section specifies circumstances under which CARB may send notifications to owners or operators if remote monitoring data includes a methane emission plume at their facility. Both the technology source of the remote monitoring data and the notification program must be approved by the CARB Executive Officer.

The CARB Executive Officer may approve a technology for generation and use of satellite-based remote monitoring data if it demonstrates a capability to detect methane plumes and meets certain specifications regarding data resolution, data availability, and plume visualization.

This section further specifies that notifications are delivered by email to the email address submitted by the owner or operator in their facility and equipment reporting. The notifications must include an emission ID, an estimate of the location where the plume is originating, a visualization of the plume, and the date and time of the detection.

Rationale

This section is necessary to specify under what circumstances CARB can send a notification to an owner or operator for a remotely detected emission plume that needs to be responded to under section 95669.1. Demonstrating an ability to detect methane emissions is necessary to require that the technology is able to provide meaningful methane plume data. The criteria set are necessary to define minimum qualifications for CARB Executive Officer approval. Spatial resolution is important to ensure that the technology can constrain the source to a reasonably small area so that a follow-up inspection would be likely to locate the source. The data age requirement is necessary to ensure that old plumes which may have already been addressed are not being flagged in the monitoring data. The visualization is necessary to be able to estimate where the plume is originating.

The information required in the notifications ensures that owners or operators are able to track and accurately report on each detection. The emission ID provides a unique identifier for tracking notifications and responses. The source location estimate is necessary to set the central location around which the owner or operator will need to search (as further defined in section 95669.1(b)(2)). The visualization of the plume is necessary to help the owner or operator target their search. The date and time of detection is necessary in case there was documented venting occurring due to an activity at the time (see section 95669(b)(1)) or to help the owner or operator understand what types of sources may have been responsible for the detection based on operational parameters.

Section 95669.1(b)

Purpose

This proposed section requires an owner or operator to inspect a facility for leaking or venting components or equipment within five days of a remotely detected methane plume notification using either optical gas imaging or US EPA Method 21. This inspection is not

necessary if the owner or operator has (and maintains) records demonstrating that venting was occurring due to an activity and reports that activity to CARB.

The inspection must cover all components and equipment under the control of the owner or operator within 100-meters of the location included in the notification, unless the emission source is found prior to inspecting that full area (in which case the inspection is complete).

Rationale

This section is necessary to ensure a prompt response to locate the source of a remotely detected emission plume. The option of using either optical gas imaging or Method 21 is provided to give owners or operators flexibility, as either option would be expected to be able to locate leaks detected in remote monitoring data. Five days is selected to balance the need for these likely large emission sources to be quickly mitigated with the logistical challenges of allocating inspection resources and performing the inspection, especially for facilities with a greater density of equipment and components.

In some cases, owners or operators may be performing an activity, such blowing down equipment to perform maintenance, that caused the remotely detected plume. In those cases, inspections would be unnecessary since the source of the emissions has already been determined and the condition would not be present any longer at the time of the inspection (unless the activity is ongoing). Exempting inspections in those cases is therefore necessary to avoid unnecessary inspections that are unlikely to find an emission source.

A distance bound is set on the inspection to ensure that owners or operators search a sufficiently large area that the source could reasonably be located in while also preventing the need to search an excessively large area in the case that the emission source is not found, because some emission sources may be intermittent and therefore searching a larger area would not lead to finding those sources. 100 meters was selected as the radius taking into account the required resolution in section 95669.1(a) and the need for a sufficiently sized pixel grid to constrain a source within that radius.

Allowing the search to cease if the emission source is found is necessary to prevent additional inspection resources from being used by owners or operators when the goal of the inspection has already been accomplished (i.e., finding the emission source).

<u>Section 95669.1(c)</u>

Purpose

This proposed section requires an owner or operator report certain information to CARB about the results of the inspection within 24 hours after conducting the inspection.

Rationale

This section is necessary for CARB to verify compliance with the inspection requirement and to provide CARB with basic information about what actions can be expected to follow. 24 hours is selected because these are likely to be large emission sources and CARB needs to know quickly that actions are being taken to mitigate any unintentional emission sources that are detected and to be able to follow up if no indication of an inspection has been provided past the inspection and notification periods.

Section 95669.1(d)

Purpose

This proposed section requires an owner or operator to perform certain actions based on the results of a follow-up inspection after a remotely detected emission notification.

Subsection (1) applies when the owner or operator determines through an inspection that the source is the result of venting, in which case the owner or operator reports specific information to CARB within 5 calendar days as described in section 95673.

Subsection (2) applies when the owner or operator uses Method 21 for the inspection and determines that the emission source is an unintentional source over the leak threshold in section 95669, in which case the owner or operator reports specific information to CARB within 5 calendar days as described in section 95673.

Subsection (3) applies when the owner or operators uses OGI for the inspection and determines the emission source is an unintentional source. In this case, the leak concentration must be measured using Method 21 within 2 calendar days (or 14 calendar days if the component is inaccessible or unsafe to monitor). If the Method 21 measurement shows a leak concentration over the limits in section 95669 (1,000 ppm), then the leak must be repaired according to those timeframes with follow-up reporting within 5 calendar days of the repair. If the Method 21 measurement shows the leak concentration is below the limit in section 95669 (1,000 ppm), then only reporting is required within 5 calendar days of the Method 21 measurement.

Subsection (4) applies when the owner or operator finds that the emission source is an unintentional emission source that is not a component, in which case the owner or operator must repair the emission source within 2 calendar days and report specific information to CARB within 5 calendar days of repair as described in section 95673.

Rationale

This section ensures that action is taken to mitigate unintentional component sources above the leak threshold and unintentional non-component sources, to provide CARB with valuable data about what types of sources are responsible for remotely-detected plumes, and to allow CARB to verify compliance with the requirements of the Regulation.

Only reporting is required for venting sources and unintentional sources below the leak concentration threshold because these sources are not considered “leaks” under the Regulation. Repair of leaks over the leak concentration threshold or for unintentional non-component sources is necessary to mitigate emission. Follow-up Method 21 measurements for component sources identified with OGI is necessary to determine the severity of the leak (or whether it is a leak) and the required repair timeframes. No follow-up Method 21 measurement is performed for non-component sources because these sources may not be conducive to performing a Method 21 measurement. A repair period of 2 days is selected for these sources to align with the shortest repair period for leaks specified in section 95669.

The allowable timeframe to follow-up an optical gas imaging detection with a Method 21 measurement is consistent with the pre-existing requirements in the current Regulation for OGI inspections in section 95669(g)(1). The five-calendar day reporting time periods

following inspections, Method 21 measurements, and repairs reflects a balance between the need for CARB to know relatively quickly what the final outcome was to determine compliance with the Regulation, with the time required to assemble the data that needs to be reported.

Sections 95669.1(e)-(f)

Purpose

These proposed sections require owners or operators to maintain, and make available, records associated with remotely detected emission plumes and follow-up activities. These include information about each notification (and follow-up action) and information about each leak discovered (according the definition of a "leak" in section 95667). This information must also be reported annually.

Rationale

This section is necessary to ensure there is a full accounting of the follow-up actions occurring from each remotely detected emission plume notification and each leak detected. These records are necessary to determine compliance with the Regulation, for CARB to be able to estimate emission reductions from this provision, and to determine the need for potential future changes to the Regulation. Annual reporting is specified because these data are to be reported in Cal e-GGRT and this is consistent with the reporting cycle for most other Cal e-GGRT reporting.

Section 95669.1(g)

Purpose

This proposed section provides an option for an owner or operator to request a delay of repair following the procedure in section 95670.1.

Rationale

This section is necessary to account for justifiable circumstances under which the owner or operator is not able to repair the component or equipment within the normally allowable timeframe.

G. Section 95670. Critical Components

Section 95670(a)

Purpose

This section specifies that critical components must be pre-approved by the CARB Executive Officer to claim any critical component exemptions. The Proposed Amendments remove January 1, 2018, or within 180 days of installation, as the time by which critical components designations must be made. Under the Proposed Amendments, there is no cutoff for when a critical component request can be made based on the calendar date or amount of time that has elapsed since installation of the component.

Rationale

Removing the date and time period by which critical component exemptions must be requested is necessary to allow for situations where a component is initially not critical, but changes to the facility, equipment, or operations result in the component becoming part of a critical process unit later (e.g., by a normal process unit becoming critical).

Section 95670(a)(1)

Purpose

This section outlines conditions under which components designed as "critical components" under air district rules can be automatically considered "critical components" for the Regulation. The amendments change the requirement from any existing local air district program in effect as of January 1, 2018, to only those that comply with the requirements of section 95669(c)(1), which outlines exemptions to the Regulation's LDAR provisions based on components being subject to air district rules. The Proposed Amendments also clarify that this change is in reference to pre-approval requirements in section 95670. A clause is added to clearly specify that this process is automatic.

Rationale

The previous language could potentially allow any form of air district LDAR program to be used as the basis for this automatic critical component approval process. The amendments are necessary to ensure that automatic critical component approval is based on only rules that CARB and US EPA have been able to review for SIP purposes. This also clearly establishes to regulated parties which specific rules can be used as foundation for this critical component designation pathway. The reference to section 95669(c)(1) is necessary because those are the rules providing LDAR exemptions and critical components are a classification only relevant to LDAR.

The changes to reflect that this passage is in reference to the pre-approval process clarifies the role of this section. The clause specifying that this process is automatic is necessary to communicate that no action is required for this pathway of automatic critical component designation.

Section 95670(a)(2)

Purpose

This new section specifies that pre-approved critical components do not qualify for special treatment if the process unit they are associated with no longer meets the requirements to be considered a critical process unit, per the definition in section 95667(a)(14).

Rationale

Once a process unit no longer meets the definition of a critical process unit, there is no longer a reason why components associated with it should be allowed special repair provisions. Therefore, it is necessary to add this section to ensure that repairs are completed in the normally allowed time periods given the now non-critical nature of a previously critical process unit.

Section 95670(b)

Purpose

This section specifies how an owner or operator demonstrates that a component is a critical component. The Proposed Amendments require owners or operators to identify each critical component when demonstrating that is it a critical component. The Proposed Amendments also specify that a critical component designation can be based on either (1) being part of a critical process unit or (2) that shutting down the component or process unit would impact safety and reliability of the natural gas system. In the current Regulation, both must be true.

Rationale

The first change is necessary to ensure that CARB knows that owners or operators are attempting to designate specific, identified components as critical components. The second change is necessary to prevent a potential reading that a component could only be classified as critical if shutting it down would affect the reliability of the natural gas system. Such a requirement is not part of the definition of a critical process unit or critical component in section 95667.

Sections 95670(b)(1)-(2)

Purpose

These proposed new sections further define the requirements for documentation that must be submitted to CARB by owners or operators requesting critical component designations. Section 95670(b)(1) requires the documentation to specifically identify the component in question and show why the component should be classified as critical. Section 95670(b)(2) further scopes the documentation that must be provided to accomplish this.

Rationale

These sections are necessary to provide CARB with sufficient details to both make a determination as to whether the component qualifies as a critical component and to be able to identify which components have been given such a designation. The additional documentation in section 95670(b)(2) is necessary to understand the impacts of removing a component from service and gives CARB the amount of detail necessary to uniquely identify components in the field, if the need arises, such as during enforcement action.

Section 95670(c)

Purpose

This section specifies what documentation must be sent to CARB to request a critical component approval and how to send that documentation. The Proposed Amendments specify that this documentation must include the items in section 95670(b) and that the submission is to be made by email with the subject line "O&G Critical Components Request." Previously, email or postal mail were allowed for submissions and no subject line was specified.

Rationale

The first change ensures that regulated parties know that the newly expanded list of documentation for critical components requests must be submitted to CARB through the process specified. Email with a specific subject line is now required for submissions to ensure

that CARB can more quickly receive and categorize these submissions than a submission made by postal mail or an email without a specific subject line.

Section 95670(d)

Purpose

This section requires owners or operators to maintain and make available certain documentation about critical components or process units. The Proposed Amendments add a new section requiring that records of the approved requests, including all supporting documentation, be maintained and made available upon request. Minor language changes were also made to accommodate adding subitems in this section.

Rationale

Maintaining records of approved requests is important to ensure that owners and operators have continued access to information they may need to track critical component designation. Making those records available to CARB is necessary in case CARB needs to recover files or compare their own records to that of the owner or operator, such as in the case of a dispute over the status of a component.

H. Section 95670.1 Delay of Repair

Section 95670.1(a)

Purpose

Section 95670.1(a) is added to consolidate, harmonize, and further describe the specific requirements and circumstances that allow for a delay of repairing a component or equipment beyond the timeframes specified elsewhere in the subarticle. It replaces language in the Regulation in other sections that had previously described delay of repair provisions. Section 95670.1 specifically allows the CARB Executive Officer to grant delays of repair when owners or operators notify the CARB Executive Officer, provide an acceptable justification including specific documentation (as described in further sections), and provide an estimated repair timeline that serves as the repair deadline (unless the reason for the delay is that in section 95670.1(a)(3)(E)). The CARB Executive Officer's decision to approve or deny a delay of repair request is based on whether the information submitted supports one of the acceptable justifications listed in section 95670.1(a)(3) and whether the estimated repair date is as soon as practicable based on their best engineering judgement and any dates contained in the submitted documentation.

Rationale

In the current Regulation, the parameters around delay of repair are defined separately in various sections of the Regulation. Harmonizing those repair requirements in the new section 95670.1 in the Proposed Amendments provides greater consistency to owners and operators and sets forth a more rigorous process to ensure that delays of repair are necessary, supported by documentation, and do not have open-ended repair deadlines. The allowable justifications include reasons previously specified in other sections of the Regulation and new reasons that have been encountered by owners or operators over the course of regulatory

implementation and communicated to CARB or which were explained to be allowable in the FSOR (CARB 2017b) of the original Regulation.

US EPA identified several instances where repair delay parameters were given that they stated "may not meet RACT." Section 95670.1 fixes those potential issues by removing allowable delay of repair timeframes that were too long, requiring repair by a specified date (or time period after the reason for delay is resolved in the case of the justification in section 95670.1(a)(3)(E)), enumerating specific reasons for allowable delays, and requiring owners or operators to justify delay of repair requests including with documentation. These provisions are necessary to meet RACT and achieve SIP approval.

Section 95670.1(a)(1)

Purpose

This proposed new section specifies that the CARB Executive Officer shall approve or deny the delay of repair request within 5 calendar days of receipt. It further specifies that if a delay of repair request is denied, the allowable repair timeframe is extended to account for the number of days that the CARB Executive Officer took to make the decision.

Rationale

This section is necessary to ensure that all parties have the same expectations about how quickly the CARB Executive Officer will render a decision. Five calendar days is selected to give the CARB Executive Officer sufficient time to review the documentation and apply their engineering judgement, while ensuring a relatively quick decision that is in line with the amount of the time normally allowed for repair of a moderately-sized leak (leaks with a concentration of 10,000-49,999 ppm). The extended repair timeframe for a denied request is necessary because otherwise, some leaks could surpass the allowable repair timeframe while the owner or operator is uncertain whether the request will be approved. Adding the number of days that the request is under review is sensible instead of starting the repair clock after the decision to prevent excessively long repair timeframes in the case where the request is submitted near the end of the normally allowable repair timeframe.

Section 95670.1(a)(2)

Purpose

This proposed new section requires repairs to be completed by the estimated repair date after a delay of repair request is approved. This does not apply to delays of repair for section 95670.1(a)(3)(E) (wildlife delays), where instead the repair must be completed by within the normally allowed repair timeframe starting from the day the reason for the delay is resolved. Additionally, this section requires owners or operators to notify the CARB Executive Officer within 3 calendar days upon successful repair of equipment or components with an approved delay of repair, along with the date and post-repair concentration or flowrate.

Rationale

The requirement that repairs be completed by the estimated repair date is necessary to avoid an open-ended repair timeframe where once the delay is approved, there is no mechanism to ensure reasonably timely repair. This requirement is necessary to address a deficiency identified by US EPA and achieve approval in the SIP. Wildlife delays cannot be

treated the same way as the other justifications because in many cases there may be no reasonable way to determine how long the delay may continue because the owner or operator is unlikely to have any control over resolving the situation.

This follow up notification is necessary for CARB to track and verify that owners or operators fix equipment or components that were granted delays of repair and when that occurred. The repair leak concentration or emission flow rate is necessary to document that the repair was successful to verify compliance. A reporting period of 3 calendar days is selected to ensure CARB knows in a timely manner whether the repair was actually made, while allowing for repairs made on a Friday to be reported on a Monday to reduce burden associated with weekend reporting.

Section 95670.1(a)(3)

Purpose

This proposed new section lists the five acceptable justifications for requesting a delay of repair. In summary, these include that (A) the parts or equipment to make the repair have been ordered but will not arrive in time, (B) a specialized crew is needed which has been scheduled but cannot arrive in time, (C) emissions resulting from the repair within the specified timeframe would lead to more emissions than delaying the repair, (D) the equipment is part of a gas utility system that has been temporarily classified as critical to public gas system operation, or (E) wildlife is present and work must be halted to comply with wildlife regulations.

For each provision, specific information and documentation that must be submitted with the request are specified. For parts or equipment ordering, the documentation includes proof of order and shipping information (or an estimate of when the part will be available to ship or arrive, if not yet shipped). For specialized crews, the documentation must show that a specialized crew has been scheduled and when they will arrive. For delays of repair to reduce emissions, the information submitted must demonstrate using calculations and emission flow rate measurements (or correlations to concentration measurements) that delaying repair will reduce overall emissions. Updated calculations must be submitted if the delay continues into the next measurement period and the flow rate has increased by greater than 20%. For systems temporarily classified as critical to reliable public gas system operation, the documentation must demonstrate such an order from the utility's gas control office. For wildlife delays, the information submitted must include the type of wildlife and the relevant wildlife regulations.

Rationale

The justifications in sections (A) and (D) are present in the current Regulation in delay of repair provisions spread throughout other sections of the Regulation. Parts or equipment delays are necessary to provide for cases where the parts or equipment are not available within the normal repair timeframe. Temporary classification as critical to a public gas system addresses special conditions where a gas utility must be able to supply gas to the public or other end users, such as during periods of heavy demand. This requirement is necessary to ensure that natural gas is supplied in a safe and reliable manner.

The justification in section (B) for delaying repair for specialized personnel is necessary to account for cases where the owner or operator cannot make a repair in the allowable

timeframe because the personnel or their specialized equipment that able to do so are unavailable on the allowable timeline. These types of delays have already been approved in the current Regulation under the umbrella of equipment delays, but separate specification here more fully describes this justification option and differentiates it for the purposes of documentation underlying the request.

The justification in section (C) for when delaying repair will result in emission reductions is necessary to avoid excessive emissions occurring from repair activities. For example, it is sometimes the case that making a repair requires blowing down equipment or piping systems, and the amount of emissions that occur during blow down could be higher than allowing the repair to be delayed and bundled with other maintenance. This is consistent with California Public Utilities Commission recommendations to bundle work whenever possible to prevent multiple blowdowns and the associated GHG emissions (CPUC 2017). The requirement for recalculation if the emission rate changes by more than 20% is necessary to ensure that if the emission source has become larger, the delay will still reduce emissions.

The justification in section (B) for delaying repair for specialized personnel is necessary to account for cases where the owner or operator cannot make a repair in the allowable timeframe because the personnel or their specialized equipment that able to do so are unavailable on the allowable timeline.

The justification in section (E) for wildlife regulations is necessary to recognize that in some instances the presence of wildlife may preclude making repairs, and to set up a specific process for that set of circumstances to avoid ambiguity when regulations are in conflict with one another.

The required documentation and calculations are necessary for the CARB Executive Officer to verify the justification provided by the owner or operator and to provide a means for the CARB Executive Officer to assess whether the estimated repair date is as soon as practicable.

Section 95670.1(a)(4)

Purpose

This proposed new section requires owners or operators to submit a new delay of repair request if they cannot make repairs by the estimated repair date in an approved request.

Rationale

This section is necessary to account for situations when the reason for the delay of repair is not resolved in the timeframe originally anticipated, such as if there are delays in shipping or the availability of a specialized crew.

Section 95670.1(a)(5)

Purpose

This proposed new section requires owners or operators to maintain records that document the conditions that justify the delay of repair request.

Rationale

Requiring owners or operators to maintain records demonstrating the conditions justifying a delay of repair request ensures that CARB can verify that such a request was based on actual conditions to confirm compliance with the Regulation.

Section 95670.1(b)

Purpose

This proposed new section specifies the method for submitting delay of repair requests and for reporting when a repair has been made following a delay of repair.

Rationale

This section is necessary to ensure that owners or operators know how to submit requests and follow-up reports for delays of repair, and specification of the subject line ensures that CARB is able to easily categorize and process these communications.

I. Section 95671. Vapor Collection Systems and Vapor Control Devices

Section 95671(a)

Purpose

This section specifies that the requirements of section 95671 apply to equipment that were controlled as a result of section 95668 of the Regulation. The date on which this provision went into effect (January 1, 2019) is removed in the Proposed Amendments.

Rationale

The starting date for these requirements is no longer necessary because it is in the past and the requirements are in effect. Removing it streamlines the Regulation making it easier to understand.

Section 95671(c)(2)

Purpose

This section outlines requirements for the fate of collected vapors if no sales gas system, fuel gas system, or gas disposal well is available, but the facility does have an operating vapor control device. The Proposed Amendments change the language describing the type vapors being controlled in this provision from "additional vapors" to "vapors collected."

Rationale

The term "additional vapors" is unclear because there is no defined basis of vapors beyond which vapors would become "additional." The term "vapors collected" is more clear because it makes no presumption about the vapors being directed to the system being in excess of any amount.

Sections 95671(d)(1)-(2)

Purpose

These sections specify what requirements vapor control devices must meet in areas classified as in attainment with all state and federal ambient air quality standards (95671(d)(1)) and areas not in attainment with all of those standards (95671(d)(2)). The Proposed Amendments specify which types of pollutants are relevant to this determination. The phrase "or which has not been classified as in attainment of, all" is changed to "or "unclassifiable" for, any" when describing the regions for section 95671(d)(2). The Proposed Amendments also add a requirement that the performance of the vapor control devices must be tested in accordance with the proposed new Appendix F beginning April 1, 2024 (or the effective date if it is later).

Rationale

Vapor control devices control ozone precursors (volatile organic compounds or VOCs) and may produce particulate matter and nitrogen dioxide as products of combustion. A listing of which pollutant air quality standards are relevant to these provisions is necessary to ensure that air quality standards only affect the determination of the performance criteria for vapor control devices when they may meaningfully contribute to that type of pollutant. Specifically listing ozone non-attainment in this list also ensures that these requirements cover vapor collection systems and vapor control devices subject to the CTG for CARB's SIP submittal.

The language in the current Regulation for areas not in attainment of all air quality standards could potentially be interpreted to mean the region must be classified as not in attainment of every state and federal ambient air quality standard. The new language is necessary to be more precise in referring to areas in non-attainment and "unclassifiable" for any state or federal ambient air quality standard. This more clearly fills out the totality of the areas not included in section 95671(d)(1).

The requirement for vapor control devices to be tested in accordance with Appendix F ensures that owners or operators are aware that these devices must be performance tested. Those performance tests are necessary to verify that the regulatory requirements for vapor control device performance metrics are being achieved. This is important considering a recent study on flaring efficiency that found the average flaring efficiency across three US basins to be 91.1 percent (Plant et al. 2022), which is below the required 95% efficiency in this Regulation. The start date is selected to ensure these requirements are in place ahead of the US EPA's sanctions deadline of April 30, 2024 (or as soon as possible if the effective date is later than April 1, 2024).

Section 95671(e)

Purpose

This new proposed section requires owners or operators to comply with bypass valve requirements, design analysis, testing, and other requirements related to vapor collection systems and vapor control devices as outlined in Appendix E starting April 1, 2024 (or the effective date if it is later). This requirement applies to vapor collection systems and vapor control devices that were installed pursuant to this regulation, whether they were installed before or after April 1, 2024 (or the effective date if it is later).

Rationale

This requirement ensures that vapor collection systems and vapor control devices are properly designed and functioning as intended, and that use of the bypass is not

unintentional/unauthorized (and there is documentation when it is used). This passage ensures that owners and operators are aware of the need to do such requirements and understand that vapor control devices and vapor collection systems are subject to Appendix E even if the systems or devices were installed prior to the effective date of the Appendix E requirements. All systems, regardless of the installation date, must follow the Appendix E requirements for initial and continuous compliance demonstration to gain SIP approval, as lack of those requirements was a deficiency identified by US EPA.

Section 95671(f)

Purpose

This section specifies that equipment subject to vapor collection and control requirements must be removed from service if it does not comply with the requirements of section 95671(b)-(e). The Proposed Amendments remove previously existing dates by which this must occur for most systems and for circulation tanks specifically and replace them with a time period of 180 days after testing that indicated the need for control of vapors. The lettering of this section is also changed to reflect the addition of a previous new subsection.

Rationale

The dates by which collection and control systems had to be installed are in the past (January 1, 2019, and January 1, 2020), so if new testing indicates that equipment must be controlled the time period to comply with the requirements is not clear. The change to a defined time period is necessary to address this issue and make clear the time period allowable for compliance with the requirements of section 95671(b)-(e) for systems where new testing indicates the need for control. A period of 180 days is selected because this is a long enough period of time to design, permit, and install equipment to replace the equipment that cannot be controlled, but short enough to not allow systems to vent for an excessive period of time adding to emissions, and is consistent with the amount of time allowable for adding vapor control to tanks exceeding the emission rate limit in the current Regulation. The lettering change is necessary to maintain continuous alphabetical order.

Section 95671(g)

Purpose

This section allows for vapor collection systems and vapor control devices to be taken out of service for a limited period of time for maintenance. The Proposed Amendments reduce the number of days per year allowed from 30 to 14. The lettering of this section is also changed to reflect the addition of a previous new subsection.

Rationale

Owners or operators need to be able to perform routine maintenance on vapor collection systems to prevent them from falling into a state of disrepair. However, the US EPA determined that number of days automatically allowed in the current Regulation does not meet the requirements of the CTG. The allowable number of repair days is reduced to 14 to meet the requirements of US EPA for SIP approval, as US EPA communicated this timeline is acceptable when compared to typical repair timelines within the CTG. The lettering change is necessary to maintain continuous alphabetical order.

Section 95671(g)(1)

Purpose

This section provides a means to obtain an extension of maintenance time. The Proposed Amendments add more specification to the process of how an owner or operator can request this additional time and what criteria the CARB Executive Officer will use to assess the request. The process includes submitting the request with a specific number of additional days by email before all normal maintenance days have been used, providing justification for the maintenance and number of days requested, a decision from the CARB Executive Officer within 5 calendar days based on demonstrating a need for the maintenance and days requested, and a follow-up notification within 3 days once the maintenance is complete and the system returned to service.

Rationale

These changes are necessary to ensure that any extensions in maintenance time are needed and are based on specific criteria, because the US EPA identified the lack of a justification requirement as a deficiency for approval of the Regulation in the SIP. Five calendar days is selected to give the CARB Executive Officer sufficient time to review the justification provided and apply their engineering judgement, while ensuring a relatively quick decision since any time that the system is out of operation could result in increased methane emissions. This is also consistent with the decision time period selected for the delay of repair provision. A follow-up notification is necessary for CARB to verify that the system has been placed back into service within the allowable timeframe to verify compliance with the Regulation. The email address and subject line requirement are consistent with other similar reporting under the Regulation and ensure a clear process is in place for how to submit these requests.

Sections 95671(g)(2)-(4)

Purpose

Section 95671(g)(2) specifies recordkeeping requirement for the number of days these systems are out of service. This section is moved from the capital letter heading level to the parenthetical number heading level because the requirement to maintain records of the number of days that systems are out of service for maintenance applies whether or not an extension is used.

Sections 95671(g)(3)-(4) specify situations in which downtime of a vapor collection system does not count toward the number of allowable maintenance days. The Proposed Amendments change the reference to the number of allowable days from 30 to 14 in subsections (3)-(4). The numbering of each of these subsections is adjusted to maintain numerical order.

Rationale

The change in numbering of section 95671(g)(2) is necessary to ensure records are maintained regardless of whether an extension of maintenance time is used. These records are necessary to CARB even in cases where an extension is not granted to better understand how many days per year these systems typically undergo maintenance for purposes of

potential future updates to the Regulation and to verify compliance with the number of allowed maintenance days.

The changes from 30 days to 14 days are necessary because the number of allowable maintenance days is changed in section 95671(g). Renumbering is necessary to maintain continuous numerical order.

J. Section 95672. Record Keeping Requirements

Section 95672(a)

Purpose

This section specifies that owners or operators shall maintain and make available to the CARB Executive Officer copies of certain records. The date by which this provision begins (January 1, 2018) is removed in the Proposed Amendments. Additionally, the new section 95669.1 is added to the list of sections which define applicability of facilities.

Rationale

The starting date is longer necessary because it is in the past and the requirements are in effect. Removing it streamlines the Regulation making it easier to understand. Section 95669.1 is added to the sections list to ensure that all facilities notified of remote leak detections must follow the record keeping requirements listed in section 95672.

Section 95672(a)(1)

Purpose

This section specifies recordkeeping requirements for flash analysis and the Proposed Amendments add at "least" to the five-year record keeping requirement to address a typo in the current Regulation.

Rationale

The grammar of the current Regulation in this section demonstrates that a word is missing. Adding "least" is necessary to correct the grammar and is consistent with other subsections of 95672(a) that specify record keeping for "at least five years."

Section 95672(a)(4)

Purpose

This new section requires records to be maintained as specified in Appendix D(j).

Rationale

Appendix D(j) contains record keeping requirements specific to the requirements of that appendix. Addition of this new section ensures that owners or operators are aware that there are additional record keeping requirements in Appendix D(j), which are necessary for the CARB Executive Officer to determine compliance with the Regulation.

Section 95672(a)(5)

Purpose

The numbering of this section is changed from 95672(a)(4) to 95672(a)(5).

Rationale

The numbering change is necessary to maintain continuous numerical order.

Current Regulation section 95672(a)(5)

Purpose

This section describes record keeping requirements for reciprocating compressor rod packing leak measurements and is removed in the Proposed Amendments.

Rationale

The leak measurements referenced in this section are no longer separately called for in the Standards section of the Regulation under the Proposed Amendments, so it is necessary to delete this section. Now, these are simply treated as components under the leak detection and repair provisions in section 95669. Therefore, removal of this passage does not affect the requirement to maintain records since those same records are required in the Leak Detection and Repair portion of section 95672.

Section 95672(a)(6)

Purpose

The Proposed Amendments add "initial and final, if applicable" to the types of reciprocating compressor emission flow rates for recordkeeping and add "or seal" to the type of elements where the flow rate measurement may have been taken.

Rationale

Specifying "initial and final" is necessary to ensure that not only one or the other flow rate record is kept. The qualifier "if applicable" is necessary because there will only be a "final" flow rate measurement if the initial measurement was over the flow rate limit and repair, replacement, or control was necessary. Both flow rates are needed in the case where a repair is made to understand what level of emissions were occurring prior to the measurement and to verify compliance with the repair provisions ensuring the final flow rate is below the allowable standard.

Addition of "or seal" is necessary to conform with the requirements in the Standards section (95668), in case the compressor is using a seal instead of a rod packing.

Section 95672(a)(7)

Purpose

The Proposed Amendments remove "leak concentration or" from the requirement to maintain records of the dates and hours of reciprocating compressor operation.

Rationale

It is necessary to remove "leak concentration or" because reciprocating compressor leak concentration measurements are now solely housed within the leak detection and repair section of the Proposed Amendments (95669). These leak concentration measurements are still maintained per leak detection and repair record keeping requirements in the Proposed Amendments.

Current Regulation sections 95672(a)(8) and 95672(a)(11)

Purpose

The Proposed Amendments remove these sections, which required retaining proof of ordering for delays of repair of reciprocating and centrifugal compressors.

Rationale

It is necessary to remove these sections because delays of repair are no longer described in the Standards section, and now these record keeping requirements are housed under the heading "Delay of Repair" in section 95672 in the Proposed Amendments.

Section 95672(a)(8)

Purpose

The Proposed Amendments add "initial and final, if applicable" to the types of centrifugal compressor emission flow rates for record keeping. The numbering of this section is also changed.

Rationale

Specifying "initial and final" is necessary to ensure that not only one or the other flow rate record is kept. The qualifier "if applicable" is necessary because there will only be a "final" flow rate measurement if the initial measurement was over the flow rate limit and repair, replacement, or control was necessary. Both flow rates are needed in the case where a repair is made to understand what level of emissions were occurring prior to the measurement and to verify compliance with the repair provisions ensuring the final flow rate is below the allowable standard. The numbering change is necessary to maintain continuous numerical order.

Section 95672(a)(10)

Purpose

This new section in the Proposed Amendments specifies that location and manufacturing specifications of each pneumatic controller subject to section 95668(e)(2)(A) must be kept, including the format of the location coordinates. These must be maintained while the controller is in service and for at least five years after removal from service.

Rationale

Maintenance of the location and manufacturer's specifications are called for in section 95668(e)(2)(A)(6.) in the Proposed Amendments, so addition here is necessary for consistency and completeness. The format of the coordinates is necessary to ensure there is sufficient

accuracy to uniquely locate the equipment, and mirrors requirements in the CTG. A five-year period is selected for consistency with other recordkeeping provisions.

Section 95672(a)(11)

Purpose

The Proposed Amendments add "initial and final, if applicable" to the types of pneumatic controller emission flow rate measurements for recordkeeping. The numbering of this section is also changed.

Rationale

Specifying "initial and final" is necessary to ensure that not only one or the other flow rate record is kept. The qualifier "if applicable" is necessary because there will only be a "final" flow rate measurement if the initial measurement was over the flow rate limit and repair, replacement, or control was necessary. Both flow rates are needed in the case where a repair is made to understand what level of emissions were occurring prior to the measurement and to verify compliance with the repair provisions ensuring the final flow rate is below the allowable standard. The numbering change is necessary to maintain continuous numerical order.

Section 95672(a)(12)

Purpose

This new section in the Proposed Amendments specifies that location and manufacturing specifications of each pneumatic pump must be kept, including the format of the location coordinates. These must be maintained while the pump is in service and for at least five years after removal from service. The section also has a new header for "Natural Gas Powered Pneumatic Pumps."

Rationale

Maintenance of the location and manufacturer's specifications are called for in section 95668(e)(4)(A) in the Proposed Amendments, so addition here is necessary for consistency and completeness. The format of the coordinates is necessary to ensure there is sufficient accuracy to uniquely locate the equipment and mirrors requirements in the CTG. The new header is needed for consistency with the format of other sections now that pneumatic controllers and pumps are no longer combined under the header "natural gas powered pneumatic devices." A five-year period is selected for consistency with other recordkeeping provisions.

Section 95672(a)(13)

Purpose

This section requires recordkeeping of liquids unloading emission measurements or calculations. The Proposed Amendments add that the manual method used must be specified, if a manual (instead of automatic) liquid unloading method is used.

Rationale

This change is necessary to reflect the changes in section 95668(f)(3) in the Proposed Amendments.

Section 95672(a)(14)

Purpose

This section requires recordkeeping of well casing vent flow rates. The Proposed Amendments add recordkeeping for the percentage of the calendar year that the well casing is open to the atmosphere.

Rationale

This change is necessary to reflect changes in section 95668(g)(2) of the Proposed Amendments.

Section 95672(a)(16)

Purpose

This section requires recordkeeping of meteorological and air monitoring data for natural gas underground storage facilities. The Proposed Amendments fix a typo in the callout to the section where the air monitoring plans are described. The heading above this section is also changed to adjust the order of the words "Natural Gas" and "Underground" to match the order used elsewhere in the Regulation.

Rationale

This change is necessary to accurately point to a section, as the current Regulation's section callout does not specify a number at the heading level below the lowercase letter. The change in wording order in the header to match the order of wording elsewhere in the Regulation is necessary to ensure the regulated community understands the type of facilities being referred to.

Section 95672(a)(17)

Purpose

This proposed new section requires recordkeeping, for five years, of when continuous air monitoring systems at underground natural gas storage facilities are inactivated, are reactivated, and the reason for the system being inactivated.

Rationale

This change is necessary to reflect changes in section 95668(h)(4)(A)(10.) that imposes a recordkeeping requirement. Including this requirement here ensures that the CARB Executive Officer may request the records to verify compliance with the Regulation. A five-year retention period is selected for consistency with other recordkeeping provisions.

Section 95672(a)(18)

Purpose

This proposed new section requires recordkeeping, for five years, of when continuous leak screening systems at underground natural gas storage facilities are inactivated, are reactivated, and the reason for the system being inactivated.

Rationale

This change is necessary to reflect changes in section 95668(h)(4)(B)(2.)(g.) that imposes a recordkeeping requirement. Including this requirement here ensures that the CARB Executive Officer may request the records to verify compliance with the Regulation. A five-year retention period is selected for consistency with other recordkeeping provisions.

Section 95672(a)(19)

Purpose

This new section requires maintaining a current leak detection and repair plan.

Rationale

This change is necessary to reflect the new requirements in section 95669(d)(1) and ensures that owners or operators maintain plans for their reference and that CARB may request those plans to verify compliance with the Regulation.

Section 95672(a)(20)

Purpose

This new section requires maintaining, for at least five years, records of deviations from the leak detection and repair plan, or a statement that there were no deviations.

Rationale

This change is necessary to ensure that if owners or operators do not follow their plans, there is a record of those deviations, which could be needed to verify compliance with the regulation. A retention period is necessary to ensure records from the past exist in case enforcement or other actions are taken at a later time. A five-year period is selected for consistency with other recordkeeping provisions. A statement of no deviations is necessary if there were not deviations because otherwise, if an owner or operator had no record of deviations it would not be clear whether they did not deviate from their plans or whether they were not performing the required recordkeeping.

Sections 95672(a)(21)-(22)

Purpose

These sections are renumbered to reflect changes in the number of preceding sections.

Rationale

These numbering changes are necessary to maintain continuous numerical order.

Section 95672(a)(23)

Purpose

This proposed section requires maintaining records that demonstrate venting was occurring due to an activity for remotely detected emission sources where no inspection was performed. A five-year retention period is proposed. A new header titled "Remotely Detected Emission Plumes" is also added for this section.

Rationale

This recordkeeping is necessary for CARB to be able to confirm compliance with the Regulation in the case that inspections are not performed pursuant to section 95669.1(b)(1). A five-year retention period is selected for consistency with other recordkeeping provisions. The new header is necessary to conform to the style of the rest of the section.

Section 95672(a)(24)

Purpose

This proposed section requires maintaining records of follow-up activities for each remotely detected methane plume notification. A five-year retention period is proposed.

Rationale

This recordkeeping is necessary for CARB to be able to confirm compliance with the Regulation's follow-up requirements for remotely detected emission plumes. A five-year retention period is selected for consistency with other recordkeeping provisions.

Current Regulation sections 95672(a)(19)-(21)

Purpose

These three sections of the current Regulation specify recordkeeping for delay of repair provisions in the current Regulation and are removed in the Proposed Amendments.

Rationale

Under the Proposed Amendments, delay of repair requests are made through a process described in section 95670.1. It is necessary to remove the recordkeeping requirements in the current Regulation sections 995672(a)(19)-(21) because the delay of repair provisions these sections refer to no longer exist.

Section 95672(a)(25)

Purpose

This new section requires recordkeeping, for at least five years, of the number of days in each calendar year that a vapor collection system or vapor control device is out of service.

Rationale

This information is necessary to maintain accurate records of vapor collection system and vapor control device use and to determine compliance with the proposed allowable downtime for maintenance activities. A five-year retention period is selected for consistency with other recordkeeping provisions.

Section 95672(a)(26)

Purpose

This new section requires records to be maintained as specified in Appendix E(f).

Rationale

Appendix E(f) contains record keeping requirements specific to the requirements of that appendix. Addition of this new section ensures that owners or operators are aware that there are additional recordkeeping requirements in Appendix E(f), which are necessary for the CARB Executive Officer to determine compliance with the Regulation.

Section 95672(a)(27)

Purpose

This new section requires owners or operators to maintain all documentation submitted to the CARB Executive Officer for a delay of repair request for five years. A new header titled "Delay of Repair" is also added for this section.

Rationale

This recordkeeping is necessary to ensure there is a record of documentation submitted, in case a need for review of the previously submitted documentation arises in determining compliance with the Regulation. A five-year retention period is selected for consistency with other recordkeeping provisions. The new header is necessary to conform to the style of the rest of the section.

K. Section 95673. Reporting Requirements

Section 95673(a)

Purpose

This section specifies that owners or operators must report information the subsections of 95673(a) by July 1 of each calendar year (unless otherwise specified). The Proposed Amendments remove the date that this reporting requirement begins (January 1, 2018) and adds the new section 95669.1. All subsections except for 95673(a)(1) are also renumbered to reflect the removal and addition of subsections.

Rationale

Removing the starting date of this provision is necessary to streamline the Regulation because the date in the past and these reporting requirements are in effect. Addition of section 95669.1 to the list of sections is necessary because there are reporting requirements pursuant to the new section 95669.1. The renumbering is necessary throughout this section to maintain continuous numerical order of the subsections.

Section 95673(a)(1)

Purpose

This section requires reporting of flash testing analysis or recalculations for separator and tank systems. The Proposed Amendments change the reporting timeline from within 90 days of the flash analysis or recalculation to annually.

Rationale

The previous 90-day reporting requirement is not necessary because CARB does not immediately use those reported data. Under the Proposed Amendments, the data is reported annually along with most of the other reporting to be more straightforward and less burdensome for regulated parties.

Current Regulation section 95673(a)(2)

Purpose

This section in the current Regulation describes reporting requirements for reciprocating compressor rod packing or seal leak measurements and is removed in the Proposed Amendments.

Rationale

The leak measurements referenced in this section are no longer separately called for in the Standards section under the Proposed Amendments, so it is necessary to delete this section. Now, these are simply treated as components under the leak detection and repair provisions in section 95669. Therefore, removal of this passage does not affect the requirement to report these leak concentrations since that same reporting is required in the Leak Detection and Repair portion of section 95673.

Section 95673(a)(2)

Purpose

The Proposed Amendments add "initial and final, if applicable" to the types of reciprocating compressor emission flow rates for reporting, and add "and the number of compression cylinders" to the reporting requirement.

Rationale

Specifying "initial and final" is necessary to ensure that not only one or the other flow rate record is reported. The qualifier "if applicable" is necessary because there will only be a "final" flow rate measurement if the initial measurement was over the flow rate limit and repair, replacement, or control was necessary. Both flow rates are needed in the case where a repair is made to understand what level of emissions were occurring prior to the measurement and to verify compliance with the repair provisions ensuring the final flow rate is below the allowable standard. The number of compression cylinders is needed to verify compliance because the allowable emission flow rate is dependent on the number of cylinders.

Section 95673(a)(3)

Purpose

The Proposed Amendments add "initial and final, if applicable" to the types of centrifugal compressor emission flow rates for reporting and add "and the number of wet seals" to the reporting requirement.

Rationale

Specifying "initial and final" is necessary to ensure that not only one or the other flow rate record is reported. The qualifier "if applicable" is necessary because there will only be a "final" flow rate measurement if the initial measurement was over the flow rate limit and repair, replacement, or control was necessary. Both flow rates are needed in the case where a repair is made to understand what level of emissions were occurring prior to the measurement and to verify compliance with the repair provisions ensuring the final flow rate is below the allowable standard. The number of wet seals is needed to verify compliance because the allowable emission flow rate is dependent on the number of wet seals.

Section 95673(a)(4)

Purpose

The Proposed Amendments add "initial and final, if applicable" to the types of pneumatic controller emission flow rates for reporting, and the designed emission flow rate threshold is changed from "less than six (6) scfh" to "less than or equal to six (6) scfh" to align with the requirements in section 95668(e)(2)(A)1. "Continuous bleed" is added to describe the types of pneumatic controllers subject to this requirement.

Rationale

Specifying "initial and final" is necessary to ensure that not only one or the other flow rate record is reported. The qualifier "if applicable" is necessary because there will only be a "final" flow rate measurement if the initial measurement was over the flow rate limit and repair, replacement, or control was necessary. Both flow rates are needed in the case where a repair is made to understand what level of emissions were occurring prior to the measurement and to verify compliance with the repair provisions ensuring the final flow rate is below the allowable standard. The change to "less than or equal to" is necessary because section 95668(e)(2)(A)(1.) specifies controllers with an emission rate greater than 6 standard cubic feet per hour (scfh) are not allowed, which means an emission rate of exactly 6 scfh would be allowable. Specifying "continuous bleed" ensures that owners or operators understand that these requirements do not apply to intermittent bleed pneumatics, as set forth in section 95668(e).

Section 95673(a)(5)

Purpose

This section requires reporting of liquids unloading emission measurements or calculations. The Proposed Amendments add that the manual method used must be specified, if a manual (instead of automatic) liquid unloading method is used.

Rationale

This change is necessary to reflect the changes in section 95668(f)(3) in the Proposed Amendments.

Section 95673(a)(6)

Purpose

This section requires reporting of well casing vent flow rates. The Proposed Amendments add reporting of the percentage of the calendar year that the well casing is open to the atmosphere.

Rationale

This change is necessary to reflect changes in section 95668(g)(2) of the Proposed Amendments.

Section 95673(a)(7)

Purpose

This section requires reporting of air monitoring system alarms at natural gas underground storage facilities. The Proposed Amendments add text to ensure that it is clear that the alarm trigger conditions specified are for a leak detected either at 50,000 parts per million by volume (ppmv) in any single measurement or at 10,000 ppmv that persists for five or more days. The five-day requirement is changed from "consecutive" days to "continuous" days for consistency with the requirements of section 95668(h)(4)(B)(6.) in the current Regulation (unchanged in the Proposed Amendments). The heading above this section is also changed to adjust the order of the words "Natural Gas" and "Underground" to match the order used elsewhere in the Regulation.

Rationale

The changes to this section are necessary to align the language in the reporting section with the language in section 95668(h)(4)(B)(6.) of the Proposed Amendments. The change in wording order in the header to match the order of wording elsewhere in the Regulation is necessary to ensure the regulated community understands the type of facilities being referred to.

Section 95673(a)(9)

Purpose

This section specifies reporting requirements for leaks found during daily leak inspections or continuous monitoring at natural gas underground storage facilities. The Proposed Amendments specify that all information from Appendix A, Table A5 must be reported, by removing "initial and final leak concentration measurements."

Rationale

All of the information in Appendix A, Table A5 is necessary to be able to understand at which facility the leak detections occurred, to be able to verify compliance with the leak detection and repair protocols, and to understand which types of components or equipment were leaking for future rule changes or development. This is already how the current Regulation is implemented and the specification of "initial and final leak concentration" was not intended to limit the information reported to just those items.

Section 95673(a)(10)

Purpose

This new section in the Proposed Amendments requires reporting of delays of inspection at natural gas underground storage facilities when those inspections would conflict with wildlife regulations. The parameters of these notifications mirror the requirements specified in sections 95668(h)(4)(B)(1)(a) and 95668(h)(4)(B)(3)(a).

Rationale

This change is necessary to reflect the new reporting requirements in sections 95668(h)(4)(B)(1)(a) and 95668(h)(4)(B)(3)(a) of the Proposed Amendments to ensure that regulated parties are aware of such requirements.

Section 95673(a)(11)

Purpose

This section specifies reporting requirements data gathered by upwind and downwind monitoring sensors at natural gas underground storage facilities. The Proposed Amendments remove "meteorological data" from the specification of data types to be sent, leaving the requirement to simply report "data gathered by the upwind and downwind sensors."

Rationale

"Data gathered" by the sensors includes meteorological data so specifying it separately is not necessary, and it is removed in the Proposed Amendments to streamline the Regulation's language.

Section 95673(a)(13)

Purpose

This section specifies reporting requirements for leaks found during leak detection and repair requirements. The Proposed Amendments specify that all information from Appendix A, Table A5 must be reported, by removing "initial and final leak concentration measurements."

Rationale

All of the information in Appendix A, Table A5 is necessary to be able to understand at which facility the leak detections occurred, to be able to verify compliance with the leak detection and repair protocols, and to understand which types of components or equipment were leaking for future rule changes or development. This is already how the current Regulation is implemented and the specification of "initial and final leak concentration" was not intended to limit the information reported to just those items. The numbering change is necessary to maintain continuous numerical order after the removal of a preceding item under 95673(a).

Section 95673(a)(14)

Purpose

This proposed new section specifies reporting requirements for when an operator has records that venting was occurring at the time of a remote emission detection and therefore does not perform an inspection. These include the date of the notification, the emission ID, and a description of the venting. Reporting must occur within 5 days of receiving the CARB

notification. A new header for "Remotely Detected Emission Plumes" is also added above this subsection.

Rationale

This reporting is necessary to be able to identify which notification is being responded to, allow CARB to understand why the emissions occurred, and verify compliance with the regulation. The reporting period is consistent with the amount of time provided for the inspection such that the notification will be made in time to explain why an inspection did not occur. The new header is necessary to conform to the style of the rest of section 95673.

Section 95673(a)(15)

Purpose

This proposed new section specifies reporting requirements within 24 hours of conducting an inspection following a remotely detected emission plume notification from CARB. The information to report includes the notification date, emission ID, inspection date, inspection type, emission source type, and initial mitigation plan (unless no source is found or it is a venting source).

Rationale

This reporting is necessary for CARB to verify compliance with the inspection requirement in the Regulation. The information requested ensures that CARB is able to identify which notification is being responded to, whether the inspection occurred within the allowable timeline, and what future actions can be expected based on the inspection type, source type, and initial mitigation plan. The reporting timeline aligns with that specified in section 95669.1(c).

Section 95673(a)(16)

Purpose

This proposed new section specifies reporting requirements within 5 calendar days of conducting an inspection that found a venting emission source, including the emission ID and a description of the venting.

Rationale

This reporting is necessary for CARB to identify which notification is being responded to, understand why the venting occurred, determine compliance with the regulation, and determine if future changes to the Regulation are necessary. The reporting timeline aligns with that specified in section 95669.1(d)(1).

Section 95673(a)(17)

Purpose

This proposed new section specifies reporting requirements within 5 calendar days of repairing an unintentional emission source following a remote emission detection notification. In all cases this includes the emission ID, equipment type, and repair date. When the emission source is a component additional reporting is necessary including the

component type, date of the Method 21 measurement, initial leak concentration, and post-repair leak concentration.

Rationale

This reporting is necessary for CARB to verify that unintentional emission sources discovered as a result of this provision were repaired according to the Regulation. The reporting elements are necessary to identify which notification is being responded to, the nature of source, whether timelines required in the Regulation were met, and whether the source was successfully repaired. The reporting timeline aligns with that specified in sections 95669.1(d)(2), 95669.1(d)(3)(B), and 95669.1(d)(4).

Section 95673(a)(18)

Purpose

This proposed new section specifies reporting requirements within 5 calendar days of performing a follow-up Method 21 measurement after locating a remotely detected emission source with optical gas imaging that does not show a leak over the leak concentration threshold. The reporting elements include the emission ID and a statement that the Method 21 measurement did not show a leak.

Rationale

This reporting is necessary for CARB to verify compliance with the Regulation. The notification elements are necessary to communicate which notification is being responded to and what the eventual outcome was. The reporting timeline aligns with that specified in section 95669.1(d)(3)(A).

Section 95673(a)(19)

Purpose

This proposed new section specifies annual reporting requirements of the information in Appendix A, Table A8 for all remote emission plume detection notifications.

Rationale

This reporting is necessary to communicate additional information from Table A8 that is not required in the earlier email follow-up notifications and to provide CARB with a database record of all remote emission detection follow-up activities for purposes of data analysis to determine emission reductions from the provisions in section 95669.1 and the need for future changes to the Regulation. The reporting frequency aligns with that specified in section 95669.1(e).

Section 95673(a)(20)

Purpose

This section specifies that, after a delay of repair has been granted, owners or operators must report the date and final concentration or flowrate (whichever is the applicable standard for the type of repair being delayed) within 3 days of successful repair. A new header for "Delay of Repair" is added above this subsection.

Rationale

This section is necessary to ensure owners and operators are aware of this reporting requirement and aligns with the requirements in section 95670.1(a)(2)(A) in the Proposed Amendments. The new header is necessary to conform to the style of the rest of section 95673.

Section 95673(a)(21)

Purpose

This section specifies that, within 3 days after a vapor collection system or vapor control device has been placed back into service following a maintenance time extension, owners or operators must report the date(s) that the equipment was taken out of and returned to service. A new header for "Vapor Collection Systems and Vapor Control Devices" is added above this subsection.

Rationale

This section is necessary to ensure owners and operators are aware of this reporting requirement and aligns with the requirements in section 95671(g)(1) in the Proposed Amendments. The new header is necessary to conform to the style of the rest of section 95673.

Section 95673(a)(22)

Purpose

This section specifies that reporting requirements in Appendix D shall be completed by the owner or operator. A new header for "Separator and Tank Systems Subject to Appendix D" is added above this subsection.

Rationale

This section is necessary to inform the owner or operator that additional reporting requirement exist in Appendix D and to identify where those requirements exist. The new header is necessary to conform to the style of the rest of section 95673.

Section 95673(b)

Purpose

This section specifies the methods by which to report the information in section 95673(a). The Proposed Amendments remove the option to use physical mail and change to specifying the reporting method separately by provision rather than allowing email for all provisions. In the Proposed Amendments, Cal e-GGRT is specified as the reporting method for most of the routine reporting provisions, while email is used for other provisions, including natural gas underground storage facility reporting, remote emission detection reporting of follow-up activities (but not annual reporting of all detections), and delay of repair and vapor collection system and control device maintenance follow-up reporting. Further reporting is required is Appendix D, as specified there.

Rationale

Physical mail is not fast enough for some of the provisions and otherwise is impractical for purposes of data analysis. Cal e-GGRT is specified as the reporting method for most of the routine reporting provisions because it acts as a centrally located database that enables more efficient and consistent data entry by the owner or operator and make it easier for CARB to organize and perform data analysis. Email is used for items where more rapid notification is important because the email inbox is monitored, while Cal e-GGRT is only accessed as needed. The specification of additional reporting in Appendix D is necessary to communicate where to find the reporting methods for those items.

L. Section 95674. Implementation

Section 95674(a)(3)

Purpose

"May" is changed "shall" in the Proposed Amendments to this section when describing a requirement.

Rationale

"May in no instance" has the same intended meaning as "shall in no instance," but the change to the latter is necessary to clearly communicate that this is a requirement.

Section 95674(b)(2)

Purpose

This section header is changed from "Registration Requirements" to "Facility and Equipment Reporting Requirements."

Rationale

The word "registration" has a specific meaning in some local air district rules and requirements that is different from the intended usage in this Regulation. The change to "facility and equipment reporting" is therefore necessary to avoid confusion about this being a district "registration" requirement, and the new language more accurately describes the content of this section.

Section 95674(b)(2)(A)

Purpose

This section specifies facility reporting requirements. There are several changes in the Proposed Amendments. A new clarification is added that being "regulated by this subarticle" means that the facility or equipment fall under the applicability in section 95666, regardless of exemptions from any specific requirements. These requirements are now described as reporting rather than registration. New facilities must report within 30 days under the Proposed Amendments, whereas there is no specification for how quickly new facilities are required to report in the current Regulation. The reporting method is changed to Cal e-GGRT.

Rationale

The specification of what it means to be regulated by this article is necessary to ensure that owners or operators know to report facility and equipment information even if they are exempt from certain provisions of the Regulation, in order for CARB to have complete statewide information on facilities and equipment. The facility information is also needed in case there is a remote leak detection at the facility.

The requirements are described as reporting rather than registration to be consistent with the change to the header of this section in section 95674(b)(2). A reporting timeline for new facilities is necessary because the current Regulation does not address how long a new facility has to report, and one is needed for regulatory certainty. 30 days is selected to balance giving the facility owner or operator adequate time to perform an inventory of equipment at the facility and estimate annual production throughputs (of oil, condensate, natural gas, and water), with the need for CARB to know about the facility relatively quickly in case there is a remote emission detection at the facility or another reason why CARB needs to communicate with owners or operators.

The change to Cal e-GGRT is necessary to make analysis of the data easier as Cal e-GGRT is a database format that can be more easily sorted and analyzed. Receiving facility reporting in an electronic database also enables quicker and more accurate notifications for remotely detected emission plumes, which is necessary to quickly mitigate large leaks.

Sections 95674(b)(2)(A)(3)(b)-(e)

Purpose

Subsection b. of this section specifies that owners or operators must report information on pressure vessels, tanks, separators, sumps, and ponds at each facility. The Proposed Amendments add a requirement to report whether or not each of these is emission controlled and specify that separator and tank systems qualifying for certain exemptions to section 95668(a) do not need to be listed.

Subsection c. specifies that throughput of the facility must be reported, and the Proposed Amendments add "condensate" to the list of fluids that must be reported.

Subsection d. specifies that a list of all reciprocating and centrifugal compressors at the facility must be submitted. The Proposed Amendments add requirements to specify the size of each compressor, whether each is emission controlled, and the type of seal in each centrifugal compressor.

Section e. specifies facility reporting requirements for natural gas powered pneumatic controllers and pumps. The Proposed Amendments change this requirement from submitting a count to submitting a list of these equipment and require the owner or operator to specify whether each is emission controlled.

Rationale

The requirements to specify whether each piece of equipment is emission controlled, to specify the size of each compressor, to specify the type of seal in each centrifugal compressor, and to report a list of pneumatic controllers and pumps is necessary to verify compliance with the Regulation and to provide data essential for considering future amendments to the Regulation.

The four types of tanks that are exempt from this reporting are two types of temporary tanks, waste tanks with low recovered volume, and gauge tanks with low capacity. These types of tanks are not necessary in the equipment inventories because they are either not a long-term piece of equipment associated with the facility, are not tanks that process throughput of the main products of a facility, or are tanks used for measurement purposes rather than storage.

Condensate is added to the list of fluids for throughput reporting because it may be produced at natural gas facilities and thus is necessary to understand all of the products produced at each facility alongside the required throughputs of crude oil, natural gas, and produced water.

Section 95674(b)(2)(A)5.

Purpose

In this section "in the registration" is changed to "about the facility and equipment" to align with the change from describing the facility information submission as "registration" to describing it as "reporting".

Rationale

This change is necessary to maintain consistent language throughout this section when referring to the information that owners or operator must submit about each facility.

Section 95674(b)(2)(B)

Purpose

This section specifies a requirement for updating the facility reporting. The Proposed Amendments change the annual date by which updates must be submitted from January 1 to July 1 and specify that the method of these updates shall by through Cal e-GGRT. Further the Proposed Amendments add a subsection specifying that for changes in ownership, notification must be made by email within 30 days of the change and reported to Cal e-GGRT and must include the date of the ownership change.

Rationale

The reporting date is changed to align facility reporting with most of the other annual reporting activities in the regulation (as specified in section 95673(a)). This is necessary to reduce the reporting burden on regulated parties. Specifying the use of Cal e-GGRT is required to align with that reporting tool change elsewhere in the regulation and to ensure this data is available in a database form for easier analysis.

Knowing the current owner of a facility is essential when communicating about a facility, for example for an inspection or for a remote leak detection. This is why changes in ownership must be reported more frequently in the Proposed Amendments, and a 30-day reporting period is given to allow enough time for the new owner to become familiar with this requirement and Cal e-GGRT, while balancing that with CARB's need to know who the owner is in a timely manner. Notification by both email and Cal e-GGRT ensures that staff are aware of changes and that owner information is up to date in the database to the extent it is used for looking for information on facility ownership. The date of ownership change is necessary

for the CARB Executive Officer to know who owned the facility on each day within the preceding 30-day period.

Section 95674(b)(3)

Purpose

This section specifies that owners and operators subject to the Regulation must comply with all of its requirements, even if they have not complied with the permitting and facility and equipment reporting requirements in section 95674. The Proposed Amendments add sections 95669.1 and 95670.1 to the list of sections that must be complied with and change "registration" to "facility and equipment reporting."

Rationale

The addition of sections 95669.1 and 95670.1 are necessary because those are new sections in the Proposed Amendments, and this section is intended to ensure all requirements in the regulation are followed.

The change from "registration" to "facility and equipment reporting" is necessary to maintain consistent language throughout this section when referring to the information that owners or operators must submit about each facility.

Section 95674(c)

Purpose

This new section in the Proposed Amendments specifies that for enforcement purposes, significant figures will not be used to round values.

Rationale

This section is necessary to establish whether an owner or operator is in violation of the Regulation, or what provisions equipment is subject to during enforcement, when a numerical value would round a limit in the Regulation.

M. Section 95675. Enforcement

Section 95675(g)

Purpose

The Proposed Amendments remove "or submitting or producing inaccurate information" from the specification that falsifying information or records is a violation of the regulation.

Rationale

This deleted clause is removed because it is duplicative of the existing language in section 95675(f).

N. Section 95676. No Preemption of More Stringent Air District or Federal Requirements

Section 95676(g)

Purpose

The Proposed Amendments change "Air District" to "air district" when specifying no preemption of more stringent requirements.

Rationale

This change is necessary for consistency with the capitalization of "air district" throughout the Regulation.

O. Appendix A. Record Keeping and Reporting Forms

Appendix A, Table A1

Purpose

Table A1 is the flash analysis testing record keeping form. Table A1 in the current Regulation is deleted and replaced with a new Table A1 that requires much of the same information with some items added, some removed, and with updated formatting. The words "and reporting" are removed from the title to reflect that forms in this format will not be used to report as Cal e-GGRT will be formatted differently (but with the same data fields). Similarly, the signature box and associated attestation are removed from the recordkeeping version of this form.

Slight changes are made to the wording/abbreviation of molecular weight, weight percent methane, metric tons of methane per year, and sample temperature, but the new table is calling for the same information for those items as the current Regulation. The new Table A1 adds the sample pressure for both crude oil/condensate and produced water. It also adds the production type and annual throughput of crude oil, condensate, natural gas, and produced water. It removes the counts of pressure vessels, pressure separators, separators, tanks, sumps, and ponds on vapor collection, because this information is required in Table A6 in the Proposed Amendments.

Rationale

Removing "and reporting" from the table title and the signature attestation is necessary to reflect that tables in this format are no longer used for reporting under the Proposed Amendments as Cal e-GGRT is the reporting method. Changes to words and abbreviations are necessary to better format the text within the space allowance in the new table in light of adding units or other descriptive information.

The sample pressure is added to this table to enable CARB to verify the emission rate calculation. The production type and annual throughputs are necessary for CARB to verify compliance with the Regulation and to better understand how flash testing results correlate to production type to assess the potential need for future changes to the Regulation. The counts of each type of equipment are removed because this reporting would be duplicative

of the reporting now required in Table A6 of the Proposed Amendments, and thus is necessary to remove to avoid duplication of reporting work for owners or operators.

Appendix A, Table A2

Purpose

Table A2 is the liquids unloading record keeping form. Table A2 in the current Regulation is deleted and replaced with a new Table A2 that requires largely the same information with updated formatting. The words "and reporting" are removed from the title to reflect that forms in this format will not be used to report as Cal e-GGRT will be formatted differently (but with the same data fields). Similarly, the signature box and associated attestation are removed from the recordkeeping version of this form.

Slight changes are made to the headers requesting the method for determining the vented gas volume and the method or equipment used for the liquid unloading (along with a list of examples). These changes reflect the updates in section 95668(f).

Rationale

Removing "and reporting" from the table title and the signature attestation is necessary to reflect that tables in this format are no longer used for reporting under the Proposed Amendments as Cal e-GGRT is the reporting method.

The change to the headers for the method of gas venting volume and the type of equipment used for liquid unloading are necessary to align with the changes made to section 95668(f) in the Proposed Amendments, to ensure consistency of language across the Regulation.

Appendix A, Table A3

Purpose

Table A3 is the critical component record keeping and reporting form. Table A3 in the current Regulation is deleted and replace with a new Table A3 that requires largely the same information. The words "record keeping and reporting" are added from the title to reflect that this form in this format will be used for both recordkeeping and reporting purposes.

The only change to this table is a column for "Description of Supporting Documentation" and a note describing what this means.

Rationale

The addition of "record keeping and reporting" is necessary to better describe the purpose of this form and differentiate it from forms that are only used for recordkeeping. The new description of supporting documentation column is necessary because the Proposed Amendments add requirements to submit specific types of supporting documentation along with a critical component request, and this column ensures that the documentation submitted is stated and tracked so that the CARB Executive Officer can locate what documentation is associated with each critical component request when assessing the request.

Appendix A, Table A4

Purpose

Table A4 is the leak detection and repair inspection record keeping form. Table A4 in the current Regulation is deleted and replaced with a new Table A4 that requires largely the same information with updated formatting. The words "and reporting" are removed from the title to reflect that forms in this format will not be used to report as Cal e-GGRT will be formatted differently (but with the same data fields). Similarly, the signature box and associated attestation are removed from the recordkeeping version of this form.

The new form is formatted to allow recordkeeping of all four quarterly surveys by adding a quarter column and turning row headers into column headers. Additionally, the column requesting the percentage of total components inspected that were leaking within each leak concentration range is removed because this information can be determined from the other reported information. Finally, the entry for the inspection company name is removed.

Rationale

Removing "and reporting" from the table title and the signature attestation is necessary to reflect that tables in this format are no longer used for reporting under the Proposed Amendments as Cal e-GGRT is the reporting method.

The change in table format to allow for entry of all four quarterly surveys is necessary to reduce the number of forms that the owner or operator must keep. Removal of the column requesting the percentage of components inspected that were leaking within each range is necessary to reduce the burden for owners or operators to perform calculations that do not provide any additional information. Removal of the inspection company name is necessary because this does not provide any useful information for understanding the records or verifying compliance with the Regulation.

Appendix A, Table A5

Purpose

Table A5 is the component leak concentration and repair record keeping form. Table A5 in the current Regulation is deleted and replaced with a new Table A5 that requires largely the same information with some added columns. The words "and reporting" are removed from the title to reflect that forms in this format will not be used to report as Cal e-GGRT will be formatted differently (but with the same data fields). Similarly, the signature box and associated attestation are removed from the recordkeeping version of this form.

The new table constrains the possible options for "component type" with the addition of a column to describe "other" component types. The new table also adds specification of the component ID, an ID or description of the equipment that the component is on, and whether the well is active or idle (if the component is found on a well). Finally, the entry for the inspection company name is removed.

Rationale

Removing "and reporting" from the table title and the signature attestation is necessary to reflect that tables in this format are no longer used for reporting under the Proposed Amendments as Cal e-GGRT is the reporting method.

The change to the component type column and addition of an "other" type column is necessary to ensure consistency with how component types are named across operators to

aid in analyzing the results of LDAR surveys. The addition of an "other" column is necessary for when a component does not fall within any of the specified types and reflects the format that works best in a database system where a dropdown menu is used for component type with an option to separately write a custom "other" type if needed.

The addition of component ID is necessary for CARB to able to confirm compliance with the requirement that components incurring five repair actions within a 12-month period must be replaced (section 95669(n)). The addition of an equipment ID or description is necessary for CARB to be able to cross reference and better understand the characteristics of equipment that are found leaking, to the inform the need for possible future changes to the Regulation.

The addition of the "active or idle well" column conforms with the reporting requirement specified in section 95669(j) of the Proposed Amendments. Removal of the inspection company name is necessary because this does not provide any useful information for understanding the records or verifying compliance with the Regulation.

Appendix A, Table A6

Purpose

Table A6 is the facility and equipment recordkeeping form. Table A6 in the current Regulation is deleted and replaced with a new Table A6 that requires a substantial amount of additional information about the equipment at the facility. The title of the table is changed to reflect the change in terminology in section 95674(b)(2). Because Cal e-GGRT will be used for reporting the information contained in this form, the signature box and associated attestation are removed from the recordkeeping version of this form.

The new table removes the specification of the number of wells separated by the type of throughput (the new form only requests the total number of wells). Table A6 in the current Regulation requests descriptions and counts of various equipment types. Table A6 in the Proposed Amendments instead requires the individual listing of each piece of equipment along with information about those pieces of equipment, as specified in section 95674(b)(2).

Table A6 in the Proposed Amendments also requests an email address for the facility, the production type of the facility, and annual throughput of condensate.

Rationale

Changing the title of this form is necessary to maintain consistency in how this information is referred to in section 95674 and in Appendix A. Removing the signature attestation is necessary to reflect that tables in this format are no longer used for reporting under the Proposed Amendments as Cal e-GGRT is the reporting method.

Removal of the specification of wells by type of throughput is necessary because these types of throughputs are not mutually exclusive (one well could have throughput of multiple products), and thus there may be varied interpretations and inconsistencies in how to fill out those entries in the current Regulation, and the sum of the count of wells reported may then exceed the actual number of wells at the facility. Changing to reporting to the total well count is more consistent, clear, and useful. The individual listing of equipment and associated new data columns are necessary to conform with changes in section 95674(b)(2).

An email address for the facility is necessary to be able to quickly and easily communicate with facility owners or operators. The production type of the facility and throughput of condensate are necessary for CARB to better understand the characteristics of facilities when assessing emissions and the need for future changes to the Regulation.

Appendix A, Table A7

Purpose

Table A7 is the emission flow rate record keeping form. Table A7 in the current Regulation is deleted and replaced with a new expanded and reformatted Table A7. The words "and reporting" are removed from the title to reflect that forms in this format will not be used to report as Cal e-GGRT will be formatted differently (but with the same data fields). Similarly, the signature box and associated attestation are removed from the recordkeeping version of this form.

Table A7 in the Proposed Amendments requires several new items, including repair date, post-repair flow rate (in separate columns for scfm and scfh), number of cylinders (for reciprocating compressors), number of wet seals (for wet seal centrifugal compressors), amount of time the well casing vent has been open (%), and exemption reason for exempt equipment.

Rationale

Removing "and reporting" from the table title and the signature attestation is necessary to reflect that tables in this format are no longer used for reporting under the Proposed Amendments as Cal e-GGRT is the reporting method.

The number of cylinders, number of wet seals, and exemption reason are necessary to confirm compliance with the Regulation while the post-repair flow rate and repair date are necessary to confirm compliance with repair timeframes. The amount of time the well casing vent has been open is necessary to conform to reporting requirements in section 95669(g)(2) of the Proposed Amendments. Separate columns for reporting emission rates in standard cubic feet per minute (scfm) and scfh are necessary to accommodate the fact that each of these units is used for the emission flow rate limits in the Regulation, and creating separate columns avoids confusion about which units to enter flow rates in.

Appendix A, Table A8

Purpose

Table A8 is the remote monitoring technology follow-up inspection recordkeeping form and is a new table in the Proposed Amendments. The form starts with requiring information about the facility, owner or operator, and contact information.

Data columns for each detection are specified based on the circumstances of the follow-up inspections. For all notifications, basic information is required about the CARB's notification, when and how the inspection was conducted (or was not conducted if the result of venting due to an activity), and what type of emission source was found (or not found). For sources classified as venting, a description of the venting and why it occurred is required. For unintentional leaks that exceed the leak threshold (i.e., 1,000 ppm) and unintentional emission sources from non-components, additional information is required about what

equipment was leaking, what component was leaking (for component sources only), the status of a well if the emission source was a well, the initial and final leak concentrations (for component sources only), and the date of repair.

Rationale

This table is necessary to communicate required recordkeeping information for section 95669.1. Basic information about the facility, emission ID, and notification date are necessary to identify which detections are being reported and to track where the detections occurred. The type of instrument used and Method 21 calibration date are necessary to understand how the survey was conducted to better understand how operators are responding and to verify compliance with the Regulation. The type of emission source is necessary for CARB to understand how many of each source type exists and to verify compliance with the additional reporting requirements specific to each source type.

The description of venting is necessary to understand the nature of any venting sources to verify compliance with the Regulation and to help in determining if future changes to the Regulation are necessary.

For unintentional sources requiring repair, the equipment and component types and IDs (or descriptions) are necessary to understand what types of equipment and components are emitting to allow CARB to understand the nature of emission sources, to help in determining if future changes to the Regulation are necessary, and to be able to determine if the same equipment and components are found leaking repeatedly. The well status is necessary for CARB to better understand which types of sources are responsible for what share of the discovered leaks and emissions. The initial leak concentration, final leak concentration, and repair date are necessary to verify compliance with the allowable repair timelines.

P. Appendix C. Test Procedure for Determining Annual Flash Emission Rate of Gaseous Compounds from Crude Oil, Condensate, and Produced Water

Appendix C, Section 2

Purpose

This section describes the principle and summary of the flash analysis test procedure. When listing the two sampling methods for collecting liquid samples, the Proposed Amendments remove a clause stating that these are referenced in GPA Standard 2174-93 Section 2.1c and 2.1a.

Rationale

This change is necessary because the GPA Standard 2174-93 has not been reviewed and approved by US EPA for SIP purposes, and therefore cannot be referenced in a regulation submitted into the SIP. This change does not affect the test method for flash analysis testing.

Appendix C, Section 3.

Purpose

This section establishes definitions for the terms used in Appendix C. Various definitions are added, removed, or amended as described in the following statements of purposes and rationales. Some renumbering occurs in this section due to adding and removing definitions.

Rationale

Renumbering is necessary to maintain a continuous list in alphabetical order and with sequential numbering.

Current Regulation Appendix C, Section 3.1

Purpose

This section of the current Regulation defines "Air Resources Board or ARB" and is removed in the Proposed Amendments.

Rationale

"Air Resources Board" and "ARB" no longer appear in Appendix C of the Proposed Amendments because the agency is now referred to as the "California Air Resources Board" or "CARB." Terms that do not appear in Appendix C should not be defined here.

Current Regulation Appendix C, Section 3.2

Purpose

This section of the current Regulation defines "API Gravity" and is removed in the Proposed Amendments.

Rationale

"API Gravity" no longer appears in Appendix C of the Proposed Amendments." Terms that do not appear in Appendix C should not be defined here.

Appendix C, Section 3.2

Purpose

This new section in the Proposed Amendments defines "CARB" and the "California Air Resources Board."

Rationale

The California Air Resources Board now uses the acronym CARB (rather than ARB), so CARB is now used throughout Appendix C when referring to the California Air Resources Board, and therefore needs to be defined.

Appendix C, Section 3.23

Purpose

This section defines "throughput" of crude oil, condensate, or produced water. The Proposed Amendments add additional specification of how this throughput must be calculated, including the timing and data sources.

Rationale

This change is necessary to ensure that all owners or operators are using a consistent and verifiable methodology and data source to calculate throughput.

Current Regulation Appendix C, Section 10.4(h)

Purpose

This section in the current Regulation provides references to external standards where additional sample preparation guidance can be found and is removed in the Proposed Amendments.

Rationale

This change is necessary because the GPA standards referenced have not been reviewed and approved by US EPA for SIP purposes, and therefore cannot be referenced in a regulation submitted into the SIP. This change does not affect the test method for flash analysis testing because following the sample preparation guidance in the standards is not a requirement in the current Regulation, only a helpful reference.

Appendix C, Section 10.4(j)

Purpose

In the Proposed Amendments, the use of GPA Standard 2286-95 is replaced with ASTM D1945-03 for gas chromatography analysis of the collected gas sample.

Rationale

This change is necessary because the GPA Standard 2286-95 has not been reviewed and approved by US EPA for SIP purposes, and therefore cannot be referenced in a regulation submitted into the SIP. ASTM D1945-03 has been approved by the US EPA for SIP purposes. Both standards are for analysis of natural gas by gas chromatography and ASTM D1945-03 meets the needs of the flash analysis test procedure.

Appendix C, Section 10.6(a)

Purpose

In the Proposed Amendments, octanes, nonanes, and decanes are removed from the list of species that must be evaluated for emission rates. GPA Standard 2286-95 is also removed from the list of test procedures to evaluate these.

Rationale

This change is necessary because the GPA Standard 2286-95 has not been reviewed and approved by US EPA for SIP purposes, and therefore cannot be referenced in a regulation submitted into the SIP. Octanes, nonanes, and decanes are not tested for in ASTM 1945-03 and thus are not available with the remaining test methods.

Appendix C, Section 10.6(b)

Purpose

This section lists various test method options for analysis of BTEX. Two standards from the list of alternatives are removed, including ASTM D7096-16 and GPA Standard 2286-95. In the

list of alternative test methods, "and" is changed to "or" to signify that any of the alternatives can be used alone and do not need to be used together.

Rationale

This change is necessary because the two removed standards have not been reviewed and approved by US EPA for SIP purposes, and therefore cannot be referenced in a regulation submitted into the SIP. As these are just two test method options among a longer list of alternatives, they are not necessary in the flash analysis test method. Replacing "and" with "or" is necessary to prevent regulated parties from performing additional testing when choosing one test method on the list is sufficient to fulfill the objectives of the section.

Current Regulation Appendix C, Sections 10.6(c)-(d)

Purpose

These sections of the current Regulation lists test methods for determining the API gravity of the oil and specific gravity of the produced water, and both sections are removed in the Proposed Amendments.

Rationale

This change is necessary because the standards referenced have not been reviewed and approved by US EPA for SIP purposes, and therefore cannot be referenced in a regulation submitted into the SIP.

Appendix C, Section 10.6(c)

Purpose

This section is re-lettered from 10.6(e) to 10.6(c) due to the removal of the current Regulation's section 10.6(c)-(d).

Rationale

This change is necessary to maintain continuous alphabetical order in the section lettering.

Appendix C, Table 1

Purpose

Table 1 lists the data requirements for laboratory reports. In the Proposed Amendments the specific gravity of produced water and API gravity of oil are removed from the table because the test methods that would determine those properties are removed from the flash analysis test procedure. Additionally, the weight percent speciation of heavier hydrocarbons is removed and replaced with a generalized upper limit of C7+, aligned with changes in Appendix C, Section 10.6(a).

Rationale

These changes are necessary to reflect that the test methods which can determine the removed properties are no longer in the flash analysis test procedure.

Current Regulation Appendix C, Section 13

Purpose

This section in the current Regulation allows for alternative test procedures, sampling methods, or laboratory methods if demonstrated to CARB that the alternative approach is equivalent. This section is removed in the Proposed Amendments, so alternative test procedures, sampling methods, or laboratory methods are not allowable.

Rationale

US EPA identified that the process for CARB approval of alternative test procedures, sampling methods, or laboratory methods unacceptably has director's discretion for approval in the SIP. Therefore, this section must be removed to remove the director's discretion.

Appendix C, Section 13

Purpose

This section lists the references for Appendix C. The references for the following test methods are removed in the Proposed Amendments: ASTM D70-09, ASTM D 287-92, ASTM D4052-09, ASTM D5002-16, ASTM D7096-16, GPA Standard 2174-93, GPA Standard 2177-03, GPA Standard 2261-00, and GPA Standard 2286-95.

Rationale

These test methods are removed from the references list because they no longer appear in Appendix C in the Proposed Amendments.

Q. Appendix D: Additional Requirements for Separator and Tank Systems

On October 31, 2022, US EPA finalized a "limited approval, limited disapproval" of CARB's SIP submittal, based on their determination that CARB's Regulation did not meet all the requirements in US EPA's CTG. The following proposed changes will ensure that the Regulation 1) demonstrates that each source type achieves emissions controls as stringent as CTG and 2) attains full approval in California's SIP.

Appendix D, Section (a)

Purpose

This proposed section specifies that an owner or operator shall reduce emissions from each separator and tank system by 95 percent using a vapor collection system, as required by section 95668(a) of the Regulation.

Rationale

95 percent vapor collection efficiency standard is necessary for consistency with existing requirements in the Regulation.

Appendix D, Section (b)

Purpose

This proposed section provides a description of emission control methods for a separator and tank system using an equipped cover that is connected to a vapor collection system and control device, as required by Appendix E. Some emission control alternatives are available including 1) routing emissions to process, or 2) using a floating roof to reduce emissions. If a floating roof is used, there are additional provisions for installation, operation, monitoring, inspection, recordkeeping and reporting, as outlined in 40 CFR 60.112b(a)(1)-(2) and 40 CFR Part 60, Subpart Kb.

Rationale

These requirements ensure that a separator and tank system with a vapor collection system will achieve emissions control as stringent as those required by CTG.

The additional provisions for the floating roof are provided in Appendix D because emission control methods for this equipment are not covered by the Regulation. The references to the relevant Federal regulations ensure that an owner or operator will acknowledge these other provisions, and attain compliance, if applicable.

Appendix D, Section (c)

Purpose

This proposed section lists the installation and operation requirements for a separator and tank system equipped with a cover that is connected to a vapor collection system. To control emissions, each cover and cover opening (e.g., access hatches, sampling ports, etc.) shall be secured in a closed, sealed position when not in use. Each thief hatch shall also be equipped, maintained and operated with a weight, or other mechanism, to ensure that the lid remained properly seated and sealed under normal operating conditions. Venting liquids, gases or fumes through the vapor collection system must comply with additional requirements in Appendix E.

Rationale

The listed requirements are necessary to ensure proper installation and usage of covers to limit unintentional venting of emissions and align with CTG.

Appendix D, Sections (d)-(f)

Purpose

These proposed sections list the requirements for each separator and tank system using a vapor collection system, including that an owner or operator shall 1) demonstrate initial and continuous compliance, as required in sections (h) and (i) of Appendix D, and 2) perform recordkeeping and reporting, as required by sections (j) of Appendix D and sections 95672 and 95673 of the Regulation.

Rationale

Although these requirements are described comprehensively in other sections (as referenced above), the addition of sections (d)-(f) to Appendix D ensure that regulated entities will acknowledge all existing requirements for a separator and tank system using a vapor collection system and then determine whether the requirements apply to their equipment.

These initial and continuous compliance with emissions controls, recordkeeping and reporting requirements also align with CTG.

Appendix D, Section (g)

Purpose

This proposed section outlines the decommissioning requirements for a separator and tank system that is subject to emissions control and outlines requirements for bringing a separator and tank system back into service. An owner or operator shall notify CARB by email when a separator and tank system is either removed from service or returned to service, when the owner or operator next reports their facility and equipment information pursuant to section 95674(b)(2) of the Regulation. The section also clarifies a separator and tank system is not subject to the requirements of Appendix D for the period that it is removed from service.

Rationale

These requirements establish decommissioning practices that will reduce emissions for a separator and tank system once it is removed from service and establishes requirements for tank systems that returned to service. The notifications to CARB will ensure that an owner or operator reports changes in equipment status and updates the equipment inventory for an affected facility. The clarification that separator and tank systems are not subject to requirements of Appendix D for the period that it is removed from service is necessary for owners and operators to understand that this section does not apply to those systems. Both the decommissioning and notification requirements align with CTG.

Appendix D, Sections (h)(1)-(2)

Purpose

These proposed sections provide the requirements that an owner or operator shall follow to demonstrate initial compliance for each separator and tank system using a vapor collection system. An owner or operator shall determine the annual emissions as specified in section 95668(a)(4) of the Regulation. Section (h)(2) of Appendix D also reiterates that an owner or operator shall equip a cover on each separator and tank system that is connected to a vapor collection system and control device, or alternatively, route the emissions to a process, as required in Appendix E.

Rationale

These sections are necessary for owners or operators to understand the steps required to come into initial compliance with emission control requirements for separator and tank systems. Section (h)(2) is necessary as it specifies vapor control devices must meet specific requirements as outlined in Appendix C and Appendix E(a)-(b). The option of routing vapor collection to a process is also included because this an option in section 95671. These sections ensure that an owner or operator will acknowledge and comply with emissions control requirements that align with CTG.

Appendix D, Section (h)(3)

Purpose

This requirement specifies that an owner or operator shall conduct the initial cover and vapor collection system inspections by April 1, 2024 (or the effective date if that is later), for existing covers and vapor collection systems, or within 180 days of the installation of a new cover and vapor collection system.

Rationale

The April 1, 2024, deadline is selected for the initial inspection of an existing cover and vapor collection system because it ensures that an owner or operator 1) fully acknowledges the requirement and then takes appropriate actions to demonstrate compliance, and 2) attains compliance before (or as soon as possible if the effective date is later) before US EPA's deadline (April 30, 2024) for implementing the necessary changes in the SIP.

A period of 180 days from the date of installation is selected for the initial inspection of a new cover and vapor collection system because it 1) provides a sufficient allotment of time for an owner or operator to design emissions control for the installed equipment, assess their performance and complete any administrative tasks (e.g., permitting, reporting, etc.), and 2) aligns with existing and proposed timeframes (e.g., 180 days) for controlling emissions from new equipment subject to the Regulation.

Appendix D, Sections (h)(4)-(6)

Purpose

These proposed sections list the recordkeeping and reporting requirements that an owner or operator shall follow to demonstrate initial compliance for each separator and tank system using a vapor collection system. An owner or operator shall comply with all applicable reporting requirements specified in sections 95673 and 95674, and 2) maintain records specified in section 95672. If an owner or operator uses a floating roof to reduce emissions from a separator and tank system, they shall submit a statement that they are complying with 40 CFR 60.112b(a)(1)-(2).

Rationale

These recordkeeping and reporting requirements align with CTG.

A submission of a statement for the usage of a floating roof is required because there are no control methods for this equipment under the current Regulation. The statement ensures that an owner or operator acknowledges these existing Federal provisions for reducing emissions from a floating roof.

Appendix D, Section (i)

Purpose

This proposed section lists the requirements that an owner or operator shall follow to demonstrate continuous compliance for each separator and tank system using a vapor collection system. An owner or operator shall 1) reduce emissions from separator and tank system by 95 percent or greater, and 2) comply with all applicable continuous compliance demonstration requirements for a vapor collection system, as specified in Appendix E(d).

Rationale

95 percent is selected for the vapor collection efficiency standard because it is consistent with existing requirements in the Regulation.

This section also ensures that an owner or operator will acknowledge and comply with emissions control requirements in Appendix E(d) that align with CTG.

Appendix D, Section (j)

Purpose

This proposed section lists the recordkeeping requirements for each separator and tank system subject to requirements in Appendix D. An owner or operator shall maintain records for 1) when a separator and tank system was not operated in compliance with requirements in Appendices E and F, for at least five years from the date of deviation, and 2) the number of consecutive days that certain separator and tank systems (either skid-mounted or attached to something mobile) was located at a site in the oil and natural gas production segment, natural gas processing segment, or natural gas transmission and storage segment, for at least five years from the calendar year in which the records refer to (including any system removed from a site which is returned or replaced with a system to serve the same or a similar function within 30 days, including the days the system was removed). Additionally, all records of identification and location of each separator and tank system subject to emissions control requirements shall be maintained.

Rationale

These requirements are necessary for CARB to verify compliance with the Regulation. A 5-year period for maintaining records is consistent with existing recordkeeping requirements in the Regulation and aligns with CTG. The requirement to count the days that a system is removed if it is removed for less than 30 days is consistent with the recordkeeping requirements in the CTG.

R. Appendix E: Additional Requirements for Vapor Collection Systems and Vapor Control Devices

On October 31, 2022, US EPA finalized a “limited approval, limited disapproval” of CARB’s SIP submittal, based on their determination that CARB’s Regulation did not meet all the requirements in US EPA’s Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry. The following proposed changes will ensure that the Regulation 1) demonstrates that each source type achieves emissions controls as stringent as CTG and 2) attains full approval in California’s SIP.

Appendix E, Sections (a)(1)-(2)

Purpose

These proposed sections list the requirements for a vapor collection system using a vapor control device or routing emissions to a process such that 1) its design and operation routes all gases, vapors and fumes emitted from the emission source to a vapor control device or to

a process, and 2) it operates in a leak free condition, as determined using leak detection and repair inspections specified in section 95669 of the Regulation.

Rationale

These requirements ensure that a vapor collection system using a vapor control device or routing emissions to a process will achieve emissions control as stringent as those required by CTG.

Appendix E, Section (a)(3)(A)

Purpose

This proposed section lists additional installation, operation, maintenance and recordkeeping requirements for a vapor collection system that contains one or more bypass devices. An owner or operator shall 1) operate a flow indicator at the inlet to the bypass device that sounds an alarm or initiates a notification via remote alarm when the bypass device is open, 2) maintain records of each time the alarm is activated, and (3) 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.

Rationale

These installation, operation, maintenance and recordkeeping requirements for a vapor collection system that contains one or more bypass devices align with CTG. These sections are necessary to describe requirements associated with vapor collection systems with bypass devices to prevent avoidable emissions from such devices.

Appendix E, Section (a)(3)(B)

Purpose

This proposed section provides a list of equipment or devices (low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices) that are not subject to the requirements in Appendix E.

Rationale

The list of equipment in this section are exempted from Appendix E requirements because these are not considered to be bypass devices in the CTG, and thus these exemptions align with CTG.

Appendix E, Section (a)(4)

Purpose

This proposed section specifies that an owner or operator shall conduct assessments to determine that the vapor collection system and control device are both of sufficient design and capacity for their purposes. The vapor collection system must be able to route all emissions from an emission source to a vapor collection device or process. The vapor collection device must be able to accommodate all emissions from an emission source. The assessments shall be prepared under the direction or supervision of a qualified professional

engineer who signs the certification. Records must be kept of the assessment and the signed certification.

Rationale

These requirements ensure that a vapor collection system using a vapor control device or routing emissions to a process will achieve emissions control as stringent as those required by CTG through an assessment and certification process. The records requirement is necessary for CARB to determine compliance with this provision.

Appendix E, Section (b)(1)

Purpose

This proposed section states that each vapor control device used to meet the emission reduction standards in section 95671 of the Regulation shall be installed in accordance with Appendix E. Alternatively, an owner or operator may install a vapor control device model tested under Appendix F(d), which meets performance test criteria specified in Appendix F(d)(11) and continuous compliance requirements specified in Appendix F(e).

Rationale

This proposed section highlights other requirements in Appendix F that pertains to the installation of a vapor control device and ensures that an owner or operator will acknowledge and comply with those requirements as applicable. The vapor control device installation requirements also align with CTG.

Appendix E, Sections (b)(1)(A)(1)-(2)

Purpose

These proposed sections list the installation and operation requirements for each enclosed combustion device. An owner or operator shall 1) maintain each device in a leak free condition, and 2) use a continuous burning pilot flame.

Rationale

These requirements for an enclosed combustion device ensure that its installation and operation will achieve emissions reductions as outlined by Section 95671 and is as stringent as CTG requirements.

Appendix E, Section (b)(1)(A)(3)

Purpose

This proposed section states that each enclosed combustion device shall 1) operate with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period, and 2) have a visible emissions test performed in accordance with US EPA Method 22 (40 CFR Part 60, Appendix A-7) at least once every calendar month, separated by at least 15 days between each test. There are additional provisions for any device that fails the visible emissions test to ensure it will return to compliant operation as specified in Appendix E.

All inspection, repair and maintenance activities for each device shall be 1) recorded in a maintenance and repair log, and 2) available for inspection. Following return to operation

from maintenance or repair activity, each device shall pass a visual observation that is US EPA Method 22 compliant.

Rationale

These requirements for the operation and testing (including frequency and time allowances) and recordkeeping align with CTG. The monthly visible emissions test requirement is necessary to ensure the enclosed combustion device functions properly. The inspection, repair, and maintenance requirements are necessary for CARB to determine compliance with this provision.

Appendix E, Section (b)(1)(A)(4)

Purpose

This proposed section specifies that each enclosed combustion vapor control device shall be designed and operated in accordance with one of the performance requirements listed in Appendix E

Rationale

This requirement ensures that 1) an owner or operator is aware of all the performance requirements listed to demonstrate compliance and 2) the operation of each enclosed combustion vapor control device will achieve emissions control as stringent as those required by CTG.

Appendix E, Section (b)(1)(A)(4)a

Purpose

This proposed section provides one of the options available to demonstrate compliance with the performance requirements for each enclosed combustion vapor control device. An owner or operator shall reduce the mass content of total hydrocarbons (THC) in the gases vented to the device by 95 percent weight or greater in accordance with Appendix F(b).

Rationale

The "95 percent weight or greater" performance metric for reducing the mass content of THC in the gases vented to the enclosed combustion vapor control device is consistent with CTG.

Appendix E, Section (b)(1)(A)(4)b

Purpose

This proposed section provides one of the options available to demonstrate compliance with the performance requirements for each enclosed combustion vapor control device. An owner or operator shall reduce the concentration of THC in the exhaust gases at the outlet to the device to a level equal to or less than 275 parts per million by volume as propane on a wet basis corrected to 3 percent oxygen as determined in accordance with the applicable requirements of Appendix F(b).

Rationale

This "equal to or less than 275 parts per million by volume as propane on a wet basis corrected to 3 percent oxygen" performance metric for reducing the concentration of THC in the exhaust gases at the outlet to the enclosed combustion device is consistent with CTG and ensures proper functioning of the vapor control device if using this compliance pathway.

Appendix E, Section (b)(1)(A)(4)c

Purpose

This proposed section provides one of the options available to demonstrate compliance with the performance requirements for each enclosed combustion vapor control device. An owner or operator shall operate the device at a minimum temperature of 760°C if the device has demonstrated that the combustion zone temperature is an indicator of destruction efficiency during the performance test specified in Appendix F(b).

Rationale

This minimum operation threshold for temperature (760°C), to demonstrate compliance with the performance requirements for an enclosed combustion vapor control device, is consistent with CTG and ensures the enclosed vapor control device is functioning optimally.

Appendix E, Section (b)(1)(A)(4)d

Purpose

This proposed section states that if a boiler or process heater is used as the vapor control device, then the owner or operator shall introduce the vent stream with the primary fuel or use the vent stream as primary fuel in a boiler or process heater.

Rationale

This requirement to vent steam with the primary fuel or use it as primary fuel for a boiler or process heater aligns with CTG and ensures that the vapors being routed to the boiler or process heater are simply supplementing or replacing the primary fuel and not altering the manner in which the process would otherwise operate.

Appendix E, Section (b)(1)(B)

Purpose

This proposed section specifies that each vapor recovery device or other non-destructive vapor control device shall be designed and operated to reduce the mass content of THC in the gases vented to the device by 95 percent by weight or greater as determined in accordance with Appendix F(b). Additionally, a carbon replacement schedule shall be included in the design of the carbon absorption system. As an alternative to performance testing, owners or operators can choose to perform a design analysis to demonstrate compliance with this requirement as specified in Appendix F(c).

Rationale

95 percent is selected for the vapor recovery or collection efficiency because it is consistent with existing requirements in the Regulation and aligns with CTG. An alternative design

analysis that can show similarly effective control is provided for flexibility and both this option and the elements of such an analysis are aligned with the CTG.

Appendix E, Section (b)(1)(C)

Purpose

This proposed section states that an owner or operator shall 1) design and operate a flare in accordance with the requirements of 40 CFR 60.18(b), and 2) demonstrate compliance by conducting the visible emissions test in accordance with US EPA Method 22.

Rationale

This proposed section highlights relevant Federal requirements for the design and operation of a flare and ensures that an owner or operator will acknowledge and comply with them to achieve emissions control or reduction. Also, these requirements align with CTG.

Appendix E, Section (b)(1)(D)

Purpose

This proposed section specifies that each vapor control device used to comply with the requirements of section 95671 of the Regulation shall always operate when gases, vapors and fumes are vented through the vapor collection system to the device. Also, an owner or operator may vent one or more piece of equipment to a vapor control device.

Rationale

The continuous operation of the vapor control device when the vent stream is present aligns with existing requirements in the Regulation. It also ensures that the vapor control device will achieve emissions control as stringent as CTG.

Appendix E, Section (b)(2)

Purpose

This proposed section lists the carbon management requirements for each carbon adsorption system used as a vapor control device in accordance with Appendix E.

Rationale

These carbon management requirements for each carbon adsorption system align with CTG and ensures the owners and operators maintain carbon management in vapor control devices.

Appendix E, Section (b)(2)(A)

Purpose

This proposed section states that an owner or operator shall replace all carbon in the vapor control device with fresh carbon on a regular, predetermined time interval following the initial startup. The interval shall be 1) no longer than the carbon service life specified in Appendix F(c)(2) or (3), or 2) based on the design of the carbon adsorption system specified in Appendix E. Additionally, an owner or operator shall maintain records 1) identifying the schedule for replacement, and 2) each carbon replacement in accordance with Appendix E.

Rationale

These carbon replacement and recordkeeping requirements for each carbon adsorption system used as a vapor control device align with CTG. Replacement requirements ensure carbon management is maintained while recordkeeping requirements are necessary for CARB to determine compliance with this provision.

Appendix E, Section (b)(2)(B)

Purpose

This proposed section states that an owner or operator shall either regenerate, reactivate or burn the spent carbon removed from the carbon adsorption system in one of the units specified in Appendix E.

Rationale

This requirement ensures that an owner or operator is aware of all methods available for managing spent carbon removed from the carbon adsorption system.

Appendix E, Sections (b)(2)(B)(1)-(2)

Purpose

These proposed sections give two options for regenerating or reactivating spent carbon, including that an owner or operator shall regenerate or reactivate the spent carbon in a 1) thermal treatment unit for which the owner or operator has been issued a final permit under 40 CFR Part 270 that implements the requirements of 40 CFR Part 264, Subpart X, or 2) unit equipped with operating organic air emission controls in accordance with a U.S. EPA emissions standard for volatile organic compounds.

Rationale

The references to relevant Federal regulations are provided to assist an owner or operator with 1) determining the applicability of the requirements in sections (b)(2)(B)(1)-(2) of Appendix E, and 2) attaining compliance. Also, these carbon management requirements for a carbon adsorption system used as a vapor control device align with CTG.

Appendix E, Sections (b)(2)(B)(3)-(6)

Purpose

These proposed sections give four options for burning spent carbon including that an owner or operator shall burn the spent carbon in a/an 1) hazardous waste incinerator, 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), 2) industrial furnace for which the owner or operator has been issued a final permit under 40 CFR Part 270 that implements the requirements of 40 CFR Part 266, Subpart H, or 3) industrial furnace that is designed and operated in accordance with the interim status requirements of 40 CFR Part 266, Subpart H.

Rationale

The references to relevant Federal regulations are provided to assist an owner or operator with 1) determining the applicability of the requirements in sections (b)(2)(B)(3)-(6) of Appendix E, and 2) attaining compliance. Also, these carbon management requirements for a carbon adsorption system used as a vapor control device align with CTG.

Appendix E, Section (c)(1)

Purpose

The proposed section specifies that each vapor collection system shall reduce emissions by 95 percent or greater as required in section 95671 of the Regulation and Appendix F, to demonstrate initial compliance with emission control requirements.

Rationale

95 percent or greater is selected for emission reduction target because it is consistent with existing requirements (i.e., vapor collection efficiency) in the Regulation.

Appendix E, Section (c)(2)

Purpose

This proposed section specifies that an owner and operator shall conduct an initial performance test in accordance with Appendix F by April 1, 2024 (or the effective date if it is later), for existing vapor collection systems or within 180 days of the installation of a new vapor collection system, to demonstrate initial compliance with emission control requirements.

Rationale

The April 1, 2024, deadline is selected for the initial performance test of an existing vapor collection system because it ensures that an owner or operator 1) fully acknowledges the requirement and then takes appropriate actions to demonstrate compliance, and 2) attains compliance before (or as soon as possible if the effective date is later) US EPA's deadline (April 30, 2024) for implementing the necessary changes in the SIP.

A period of 180 days from the date of installation is selected for the initial performance test of a new vapor collection system because it aligns with existing and proposed timeframes (e.g., 180 days) for controlling emissions from new equipment subject to the Regulation.

Appendix E, Section (c)(3)

Purpose

This proposed section specifies that an owner or operator shall conduct an inspection in accordance with Appendix E by April 1, 2024 (or the effective date if it is later), for existing vapor collection systems or within 180 days of the installation of a new vapor collection system, to demonstrate initial compliance with emission control requirements.

Rationale

The April 1, 2024, deadline is selected for the initial compliance inspection of an existing vapor collection system because it ensures that an owner or operator 1) fully acknowledges the requirement and then takes appropriate actions to demonstrate compliance, and 2)

attains compliance before (or as soon as possible if the effective date is later) US EPA's deadline (April 30, 2024) for implementing the necessary changes in the SIP.

A period of 180 days from the date of installation was selected for the initial compliance inspection of a new vapor collection system because it aligns with existing and proposed timeframes (e.g., 180 days) for controlling emissions from new equipment subject to the Regulation.

Appendix E, Section (d)(1)

Purpose

The proposed section specifies that each vapor collection system shall reduce emissions by 95 percent or greater in accordance with both Appendix F and section 95671 of the Regulation, to demonstrate continuous compliance.

Rationale

95 percent or greater is selected for emission reduction target because it is consistent with existing requirements (i.e., vapor collection efficiency) in the Regulation.

Appendix E, Section (d)(2)

Purpose

This proposed section states that an owner or operator shall demonstrate continuous compliance with the performance requirements in Appendix E. An owner or operator is exempt from the requirements if they install a vapor control device model tested in accordance with Appendix F(d)(2) through (10), which meets the performance criteria in Appendix F(d)(11), recordkeeping requirements in Appendix F(d)(12), and continuous compliance requirements in Appendix F(e).

Rationale

This proposed section highlights other requirements in Appendix F that pertains to a vapor control device and ensures that an owner or operator will acknowledge and comply with those requirements as applicable. The requirements also align with CTG.

Appendix E, Section (d)(2)(A)

Purpose

This section provides the requirements that an owner or operator shall follow to demonstrate continuous compliance for each combustion device. An owner or operator shall conduct inspections at least once every calendar month for each device, as specified in Appendix E. Monthly inspections shall be separated by at least 14 calendar days.

Rationale

This requirement to conduct regularly scheduled inspections for each combustion vapor control device is necessary to ensure that the device continues to operate properly and with system integrity. The frequency selected is consistent with CTG.

Appendix E, Section (d)(2)(A)(1)

Purpose

This proposed section provides the visual inspection requirement that an owner or operator shall follow to demonstrate continuous compliance for each combustion vapor control device. An owner or operator shall conduct visual inspections to confirm that the 1) pilot is lit when vapors are being routed to the device, and 2) continuous burning pilot flame is operating properly.

Rationale

This requirement ensures that a combustion vapor control device operates properly and achieves emissions control as stringent as those required by CTG through regularly scheduled visual inspections.

Appendix E, Section (d)(2)(A)(2)

Purpose

This proposed section provides the inspection requirement that an owner or operator shall follow to demonstrate continuous compliance for each combustion vapor control device. An owner or operator shall conduct inspections to monitor for visible emissions from the device using US EPA Method 22. The observation period shall be 15 minutes. Devices shall be operated with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period.

Rationale

Conducting inspections for visible emissions from each combustion vapor control device, using an observation period of 15 minutes, align with CTG. This section provides a reference to US EPA Method 22, so an owner or operator is aware of the existing standardized procedures for determining visible emissions. Lastly, the device operation requirement (no visible emissions) is also consistent with CTG.

Appendix E, Section (d)(2)(A)(3)

Purpose

This proposed section provides additional inspections that an owner or operator shall conduct to demonstrate continuous compliance for each combustion vapor control device. An owner or operator shall conduct olfactory, visual and auditory inspections of all equipment associated with the combustion device to ensure system integrity.

Rationale

This requirement ensures that a combustion vapor control device will operate properly and achieve emissions control as stringent as those required by CTG through regularly scheduled inspections.

Appendix E, Section (d)(2)(A)(4)

Purpose

This proposed section provides additional requirements that an owner or operator shall follow to demonstrate continuous compliance for each combustion vapor control device. An

owner or operator shall ensure a device is returned to proper operation as soon as practicable after any absence of pilot flame, indication of smoking or other improper operation. At a minimum, an owner or operator shall perform the following troubleshooting procedures: 1) check the air vent for obstruction, and 2) check for liquid reaching the combustor. If an obstruction is observed, an owner or operator shall clear the obstruction as soon as practicable.

Rationale

These requirements ensure that a combustion vapor control device will operate properly and achieve emissions control as stringent as those required by CTG.

Appendix E, Section (d)(2)(B)

Purpose

This proposed section provides the inspection requirement that an owner or operator shall follow to demonstrate continuous compliance for each vapor control device. An owner or operator shall conduct inspections at least once every calendar month to ensure physical integrity of each vapor control device according to the manufacturer's instructions. Monthly inspections shall be separated by at least 14 calendar days.

Rationale

These requirements ensure that a vapor control device will operate in accordance with manufacturer's instructions and achieve emissions control as stringent as those required by CTG through regularly scheduled inspections. Also, the frequency of the inspections is consistent with CTG.

Appendix E, Section (d)(2)(C)

Purpose

This proposed section provides the equipment operation requirement that an owner or operator shall follow to demonstrate continuous compliance. Each vapor control device shall be operated following the manufacturer's written operating instructions, procedures and maintenance schedule to ensure good air pollution control practices for minimizing emissions. Also, records of the manufacturer's written operating instructions, procedures and maintenance schedule shall be available for inspection.

Rationale

These requirements ensure that a vapor control device will operate properly and achieve emissions control as stringent as those required by CTG. Recordkeeping requirements are necessary for CARB to determine compliance with this provision.

Appendix E, Section (d)(2)(D)

Purpose

This proposed section provides the requirement that an owner or operator shall follow to demonstrate continuous compliance for each vapor control device. An owner of operator shall conduct a periodic performance test no later than 60 months after the initial

performance test as specified in Appendix F(b)(5)(A) and conduct subsequent periodic performance tests at intervals no longer than 60 months following the previous periodic performance test.

Rationale

The stated frequency of performance tests for each vapor control device in this section is consistent with CTG and ensures the vapor control device is functioning properly to meet the vapor destruction requirements of the Regulation.

Appendix E, Section (e)

Purpose

This proposed section lists the inspection requirements for a vapor collection system and its components (e.g., cover, bypass device) in accordance with Appendix E.

Rationale

This proposed section highlights the inspection requirements and ensures that an owner or operator will acknowledge and comply with them. The requirements also align with CTG and ensures vapor collection systems are properly inspected and maintained.

Appendix E, Section (e)(1)

Purpose

This proposed section states that an owner or operator shall conduct 1) inspections at least once every calendar month, and 2) olfactory, visual and auditory inspections for defects that could result in air emissions (as specified in section (e)(1)(B) of Appendix E), for each vapor collection system that connects to a control device or routes emissions to a process. Monthly inspections shall be separated by at least 14 calendar days. An owner or operator shall maintain records of the inspection results.

Rationale

Vapor collection system inspections, at the above stated frequency are consistent with CTG. Recordkeeping requirements are necessary for CARB to determine compliance with this provision.

Appendix E, Section (e)(2)

Purpose

This proposed section states that an owner or operator shall conduct 1) inspections at least once every calendar month, and 2) olfactory, visual and auditory inspections for defects that could result in air emissions (as specified in section (e)(2)(B) of Appendix E), for each cover connected to a vapor collection system. Monthly inspections shall be separated by at least 14 calendar days. An owner or operator shall maintain records of the inspection results.

Rationale

Cover inspections, at the above stated frequency, are consistent with CTG. Recordkeeping requirements are necessary for CARB to determine compliance with this provision.

Appendix E, Section (e)(3)

Purpose

This proposed section states that an owner or operator shall 1) properly install, calibrate and maintain a flow indicator at the inlet to each bypass device, 2) set up the flow indicator to trigger an audible alarm or initiate notification via remote alarm when the bypass device is open, 3) 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 (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), and 4) maintain records of each time the flow indicator alarm is sounded and when the key for the bypass device is checked out, and 5) maintain records for each visual inspection.

Rationale

These installation, operation, maintenance, and inspection (including frequency of inspection) requirements for a vapor collection system that contains one or more bypass devices are consistent with CTG. Recordkeeping requirements are necessary for CARB to determine compliance with this provision.

Appendix E, Section (e)(4)

Purpose

This proposed section specifies that an owner or operator shall repair any leaks or defects detected. Additional requirements for repairs include 1) any leak that cannot be repaired within 24 hours shall be measured with US EPA Method 21 within 24 hours of detection (or by the end of the next business day for leaks detected outside of normal business hours) and shall be repaired within the timeframe specified in section 95669(h) of the Regulation, 2) any defect shall be repaired within 5 calendar days after the defect is detected, and 3) grease or another applicable substance shall be applied to deteriorating or cracked gaskets to improve the seal while awaiting repair.

Rationale

This section ensures that an owner or operator will acknowledge and comply with the applicable leak repair timeframes established in section 95669(h) of the Regulation. The requirements for measurement of indicated leaks with US EPA Method 21 are necessary to determine the allowable repair timeframe and are consistent with the requirements and timeframes for follow-up of leaks detected during audio-visual inspections performed pursuant to section 95669(f)(3). Also, the additional repair requirements, including the repair timeframe for any defect detected, is consistent with CTG.

Appendix E, Section (e)(5)

Purpose

This proposed section states that a delay of repair may be granted by the CARB Executive Officer as specified in section 95670.1 of the Regulation.

Rationale

Allowance for granting a delay of repair is consistent with existing requirements in the Regulation and ensures that if equipment cannot be repaired within the time periods normally allowed that a specific process is followed to approve of such a delay and to report follow-up information after the repair has been completed.

Appendix E, Section (e)(6)

Purpose

This proposed section states that any components that are designated as inaccessible or unsafe to monitor are exempt from the inspection requirements of Appendix E. Owners or operators shall have a written plan that requires inspection of the inaccessible or unsafe to monitor components at least once per calendar year.

Rationale

This exemption (i.e., inspection frequency reduced from monthly to once per calendar year) for designated inaccessible or unsafe to monitor components is consistent with existing requirements in the Regulation.

Appendix E, Sections (f)(1)(A)-(F)

Purpose

These proposed sections list the recordkeeping requirements for each vapor control device tested under Appendix F(d), which meets both the performance criteria in Appendix F(d)(11) and continuous compliance requirements in Appendix F(e). An owner and operator shall maintain records of 1) make, model and serial number of purchased device, 2) date of purchase, 3) copy or purchase order, 4) location of vapor control device in latitude and longitude coordinates, 5) inlet gas flow rate, and 6) an electronic copy of the performance test results.

Rationale

These sections highlight other requirements in Appendix F that pertains to a vapor control device and ensures that an owner or operator will acknowledge and comply with those requirements as applicable. The recordkeeping requirements in sections (f)(1)(A)-(H) also align with CTG and are necessary for CARB to determine compliance with the provision.

Appendix E, Section (f)(1)(G)

Purpose

This proposed section states that an owner or operator shall maintain records to demonstrate continuous compliance for each vapor control device, for at least 5 years from the calendar year in which the records refer to. Those records shall include 1) documentation that the pilot flame is present at all times of operation, 2) documentation that the device was operated with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period, 3) maintenance and repair log, 4) visible emissions test following return to operation from a maintenance or repair activity, and 5) manufacturer's operating instructions, procedures and maintenance schedule to ensure good air pollution control practices for minimizing emissions.

Rationale

A 5-year period for maintaining records is consistent with existing recordkeeping requirements in the Regulation and are necessary for CARB to determine compliance with the provision. Also, these recordkeeping requirements, to demonstrate continuous compliance for each vapor control device, align with CTG.

Appendix E, Section (f)(1)(H)

Purpose

This proposed section states that an owner or operator may maintain records of digital photographs with the date the photograph was taken, and the latitude and longitude of the vapor control device imbedded within or stored with the digital file, as an alternative to the recordkeeping requirements (i.e., device location) of section (f)(1)(D) of Appendix E.

If latitude and longitude is not imbedded within the digital photograph, the records may consist of a photograph of the device along with a photograph of a separately operating GPS device within the same digital picture, provided that the latitude and longitude output of the GPS unit can be clearly read.

Rationale

This alternative for recording the location of a vapor control device results in the record keeping of equivalent data as that specified in Appendix E(f)(1)(D) and aligns with CTG.

Appendix E, Sections (f)(2)-(5)

Purpose

These proposed sections state that an owner or operator shall maintain records of 1) vapor collection system, cover and bypass device inspections for at least five years from each inspection, 2) each time the key is checked out and alarm is sounded for a bypass device, for at least five years from the date of occurrence, and 3) the carbon replacement schedule (as determined by the design analysis requirements of Appendix F(c)) and each carbon replacement completed (at a time interval that is no longer than the carbon service life specified in Appendix F(c)(2) or (3)) for a carbon absorber, for at least five years from the calendar year in which the records refer to.

Rationale

A 5-year period for maintaining records is consistent with existing record keeping requirements in the Regulation, and is necessary for CARB to determine compliance with this provision. These sections also highlight relevant requirements in Appendix F, which ensures that an owner or operator will acknowledge and comply with those requirements as applicable.

Appendix E, Section (f)(6)

Purpose

This proposed section states that an owner or operator shall maintain records of 1) inspections, 2) any corrective actions taken, and 3) the manufacturers' operating instructions,

procedures and maintenance schedule for each piece of equipment subject to vapor control device requirements in Appendices E and F. Manufacturers' operating instructions, procedures and maintenance schedule shall be available for inspection.

Records of visible emission test results in accordance with Method 22 shall include 1) company, 2) location, 3) company representative (name of the person performing the observation), 4) sky conditions, 5) process unit (type of vapor control device), 6) clock start time, 7) observation period duration (in minutes and seconds), 8) accumulated emission time (in minutes and seconds), and 9) clock end time. Owners or operators shall create their own form for results or use Figure 22-1 in US EPA Method 22 (40 CFR Part 60, Appendix A-7).

All records shall be maintained for at least five years from the date of each inspection, test, or corrective action taken.

Rationale

A 5-year period for maintaining records is consistent with existing recordkeeping requirements in the Regulation and is necessary for CARB to determine compliance with this provision. This section also highlights Figure 22-1, which ensures that an owner or operator is aware of an alternative for recording US EPA Method 22 test results.

Appendix E, Section (f)(7)

Purpose

This proposed section specifies that an owner or operator shall maintain a record log of all inspection, repair and maintenance activities for each vapor control device failing the visible emissions test. Records shall be maintained for at least five years from the calendar year in which the records refer to.

Rationale

A 5-year period for maintaining records is consistent with existing recordkeeping requirements in the Regulation and is necessary for CARB to determine compliance with this provision.

Appendix E, Section (f)(8)

Purpose

This proposed section states that an owner or operator shall maintain records of each vapor collection system design and capacity assessment (required in Appendix E(a)(4)) and keep those records for as long as the system is in service and five years after being removed from service.

Rationale

These records are necessary for CARB to be able to determine compliance with the requirements of Appendix E(a)(4) and a 5-year period is consistent with existing recordkeeping requirements in the Regulation.

Appendix E, Section (f)(9)

Purpose

This section requires owners or operators to maintain records of repairs performed pursuant to Appendix E(e)(4)(A) and (B), including the discovery date, the repair date, and the type of component leaking or had a defect. Those records must be kept for five years from each repair.

Rationale

These records are necessary for CARB to be able to determine compliance with the repair requirements in Appendix E, and a 5-year period is consistent with existing recordkeeping requirements in the Regulation.

Appendix E, Section (f)(10)

Purpose

This section requires owners or operators to maintain records of all initial and periodic performance tests performed, including an equipment ID or description, the type of vapor control device, the date of the performance test, the gas volumetric flow rate, the percent reduction efficiency (if complying with Appendix E(b)(1)(A)(4.)(a.) or the percent reduction efficiency requirement in Appendix E(b)(1)(B)), and the exhaust gas THC concentration (if complying with Appendix E(b)(1)(A)(4.)(b.). Those records must be kept while the device is in service and for five years after removal from service.

Rationale

These records are necessary for CARB to be able to determine compliance with the periodic testing requirements in Appendix E(c)(2) and Appendix E(d)(2)(D), and a 5-year period is consistent with existing recordkeeping requirements in the Regulation.

Appendix E, Section (f)(11)

Purpose

This section requires owners or operators to maintain records of design analyses performed in lieu of performance tests. Those records must be kept while the device is in service and for five years after removal from service.

Rationale

These records are necessary for CARB to be able to determine compliance with the design analysis alternative to performance testing allowed under Appendix E(b)(1)(B), and a 5-year period is consistent with existing recordkeeping requirements in the Regulation.

S. Appendix F: Performance Test Procedures for Vapor Control Devices

On October 31, 2022, US EPA finalized a "limited approval, limited disapproval" of CARB's SIP submittal, based on their determination that CARB's Regulation did not meet all the requirements in US EPA's Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry. The following proposed changes will ensure that the Regulation 1) demonstrates that each source type achieves emissions controls as stringent as CTG and 2) attains full

approval in California's SIP. The requirements in this Appendix are very similar to the requirements for performance testing of vapor control devices in 40 CFR 60.5413a.

Appendix F, Sections (a)(1)-(3)

Purpose

This first section of Appendix F states that each vapor control device shall achieve the applicable performance requirements using the specified test methods and procedures. Certain devices have alternative requirements for testing or compliance demonstration as outlined in Appendix F. An owner or operator may use a design analysis in lieu of a performance test for condensers and carbon adsorbers. Also, a performance test may be conducted by the manufacturer for an enclosed combustion device for compliance demonstration purposes.

Sections (a)(1)-(3) list the vapor control devices that are exempt from the requirements to conduct performance tests and design analyses, including 1) a flare that is designed and operated in accordance with 40 CFR 60.18(b), and is compliant with the determination of visible emissions using US EPA Method 22, 2) a boiler or process heater with a design heat input capacity of 44 megawatts or greater, and 3) a boiler or process heater into which the vent stream is introduced with the primary fuel or is used as the primary fuel.

Rationale

The performance requirements and exemptions from conducting performance tests and design analyses for vapor control devices, as specified in Appendix F, align with CTG. These sections also highlight relevant Federal regulations that pertain to the design, operation and testing of vapor control devices and ensure that an owner or operator will acknowledge and comply with those requirements as applicable.

Appendix F, Section (a)(4)

Purpose

This proposed section states that a boiler or process heater burning hazardous waste is exempt from the requirements to conduct performance tests and design analyses if the owner or operator 1) has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR Part 266, Subpart H, 2) has certified compliance with the interim status requirements of 40 CFR Part 266, Subpart H, 3) has submitted a Notification of Compliance under 40 CFR 63.1207(j) and complies with the requirements of 40 CFR Part 63, Subpart EEE, or 4) complies with 40 CFR Part 63, Subpart EEE and will submit a Notification of Compliance under 40 CFR 63.1207(j) by April 1, 2024 (or the effective date if it is later), for existing vapor control devices or within 180 days of the installation of a new vapor control device.

Rationale

The references to Federal regulations are provided to assist an owner or operator with determining the applicability of the exemptions specified in this section. The exemptions for a boiler or process heater burning hazardous waste also align with CTG.

The April 1, 2024, deadline is selected for the submission of a Notification of Compliance because it ensures that an owner or operator 1) fully acknowledges the requirement and then takes appropriate actions to demonstrate compliance, and 2) attains compliance before (or as soon as possible if the effective date is later) US EPA's deadline (April 30, 2024) for implementing the necessary changes in the SIP.

A period of 180 days from the date of installation is selected because it aligns with existing and proposed timeframes (e.g., 180 days) for new equipment subject to the Regulation.

Appendix F, Section (a)(5)

Purpose

This proposed section states that a hazardous waste incinerator is exempt from the requirements to conduct performance tests and design analyses if the owner or operator 1) has submitted a Notification of Compliance under 40 CFR 63.1207(j), or 2) will submit a Notification of Compliance under 40 CFR 63.1207(j) by April 1, 2024 (or the effective date if it is later), for existing vapor control devices or within 180 days of the installation of a new vapor control device, and the owner or operator complies with the requirements of 40 CFR Part 63, Subpart EEE.

Rationale

The references to Federal regulations are provided to assist an owner or operator with determining the applicability of the exemptions specified in this section. The exemptions for a hazardous waste incinerator also align with CTG.

The April 1, 2024, deadline is selected for the submission of a Notification of Compliance because it ensures that an owner or operator 1) fully acknowledges the requirement and then takes appropriate actions to demonstrate compliance, and 2) attains compliance before (or as soon as possible if the effective date is later) US EPA's deadline (April 30, 2024) for implementing the necessary changes in the SIP.

A period of 180 days from the date of installation is selected because it aligns with existing and proposed timeframes (e.g., 180 days) for new equipment subject to the Regulation.

Appendix F, Sections (a)(6)

Purpose

This proposed section lists additional vapor control devices that are exempt from the requirements to conduct performance tests and design analyses if a device can be demonstrated to meet the performance requirements through a test conducted by the manufacturer, as specified in Appendix F.

Rationale

This proposed exemption aligns with CTG and is designed to demonstrate emission control equivalent to that demonstrated through a performance test.

Appendix F, Section (b)

Purpose

This proposed section states that an owner or operator shall 1) use the performance test methods and procedures specified in Appendix F, as applicable, to demonstrate that a vapor control device meets the requirements of Appendix E(b), and 2) conduct the initial and periodic performance tests according to the schedule specified in Appendix F. Each performance test shall consist of a minimum of 3 test runs. Each run shall be at least 1 hour long.

Rationale

These requirements (including the schedule, number of runs and length of each test) for conducting performance tests in accordance with Appendices E and F are consistent with CTG.

Appendix F, Section (b)(1)

Purpose

This proposed section states that an owner or operator shall use US EPA Method 1 or 1A (40 CFR Part 60, Appendix A-1), as appropriate, to select the sampling sites for performance tests. Sampling site(s) shall be located at the 1) inlet of the first vapor control device and at the outlet of the final vapor control device, to determine compliance with the percent reduction requirement for a vapor control device, and 2) outlet of the combustion device, to determine compliance with the THC exhaust gas concentration limit for an enclosed combustion device.

Rationale

References to US EPA Method 1 or 1A is provided so an owner or operator is aware of the existing standardized procedures for selecting sampling sites for performance tests. This requirement also aligns with CTG.

Appendix F, Section (b)(2)

Purpose

This proposed section states that an owner or operator shall determine the gas volumetric flowrate using US EPA Method 2, 2A, 2C, or 2D (40 CFR Part 60, Appendix A-2).

Rationale

References to US EPA Method 2, 2A, 2C and 2D are provided so an owner or operator is aware of the existing standardized procedures for determining the gas volumetric flowrate. This requirement also aligns with CTG.

Appendix F, Section (b)(3)

Purpose

This proposed section states that an owner or operator shall use 1) US EPA Method 25A (40 CFR 60, Appendix A-7) to determine compliance with the vapor control device percent reduction performance requirement, as required in Appendix E, and 2) US EPA Method 4 (40 CFR Part 60, Appendix A-3) to convert the US EPA Method 25A results to a dry basis.

Equations are provided to calculate the mass rate of THC and the percent reduction in THC. There are additional procedures for determining the weight-percent reduction of total THC 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.

Rationale

References to US EPA Method 25A and 4 are provided so an owner or operator is aware of the existing standardized procedures and will comply as appropriate. These test methods and procedures for determining compliance with the vapor control device percent reduction performance requirement are consistent with CTG.

Appendix F, Section (b)(4)

Purpose

This proposed section states that an owner or operator shall 1) use US EPA Method 25A to measure THC, as propane, to determine compliance with the THC exhaust gas concentration limit (as required in Appendix E), and 2) determine the concentration in parts per million volume on a wet basis and correct it to 3 percent oxygen using the procedures outlined in Appendix F.

Rationale

Reference to US EPA Method 25A is provided so an owner or operator is aware of the existing standardized procedures and will comply as appropriate. The test method and procedures for determining compliance with the THC exhaust gas concentration limit are consistent with CTG.

Appendix F, Section (b)(4)(A)

Purpose

This proposed section states that an owner or operator shall use the emission rate correction factor for excess air, integrated sampling and analysis procedures of US EPA Method 3A or 3B (40 CFR Part 60, Appendix A-2), ASTM D6522-00 (Reapproved 2005), or ANSI/ASME PTC 19.10-1981, Part 10 (manual portion only) to determine the oxygen concentration. The samples shall be taken during the same time that the samples are taken for determining THC concentration. An equation is also provided in this section to correct the THC concentration for percent oxygen.

Rationale

References to US EPA Method 3A or 3B, ASTM D6522-00 or ANSI/ASME PTC 19.10-1981, Part 10 are provided so an owner or operator is aware of the existing standardized procedures and will comply as appropriate. The test methods and procedures for determining compliance with the THC exhaust gas concentration limit are consistent with CTG.

Appendix F, Sections (b)(5)(A)-(B)

Purpose

This proposed section states that an owner or operator shall conduct performance tests according to the schedule specified in Appendix F. An initial performance test shall be conducted by April 1, 2024 (or the effective date if it is later), for existing vapor control devices or within 180 days of the installation of a new vapor control device. The first of the periodic performance tests shall be conducted no later than 60 months after the initial performance test. All subsequent tests shall be conducted at intervals no longer than 60 months following the previous test and anytime a new operating limit is to be established.

Rationale

The April 1, 2024 (or effective date if later) deadline is selected for conducting initial performance tests for existing vapor control devices because it ensures that an owner or operator 1) fully acknowledges the requirement and then takes appropriate actions to demonstrate compliance, and 2) attains compliance before (or as soon as possible if the effective date is later) US EPA's deadline (April 30, 2024) for implementing the necessary changes in the SIP.

A period of 180 days from the date of installation to conduct the initial performance test for a new vapor control device is selected because it aligns with existing timeframes (e.g., 180 days) for testing and controlling emissions from new equipment subject to the Regulation.

The schedule (60-months interval) of periodic performance tests is consistent with CTG.

Appendix F, Section (b)(5)(B)(1)

Purpose

This proposed section states that a vapor control device whose model is tested under and meets the criteria in section (d) of Appendix F is exempt from the performance testing schedule specified in section (b)(5) of Appendix F. An additional requirement is provided for centrifugal compressors (if the gas flow rate is not continuously monitored at the inlet to the control device, and monitoring does not continuously indicate the presence of the pilot flame when emissions are routed to the vapor control device), as specified in Appendix F.

Rationale

Both the exemption for performance testing schedule of a vapor control device and additional requirement for centrifugal compressors are consistent with CTG. The additional specification of requirements for centrifugal compressors ensures that the flow rates entering the control device remain within the allowable range as tested and that the device is functioning correctly and align with requirements in the CTG specific to this source type.

Appendix F, Section (b)(5)(B)(2)

Purpose

This proposed section states that a combustion vapor control device is exempt from the performance testing schedule specified in section (b)(5) of Appendix F if it is tested under section (b) of Appendix F, which meets the outlet THC performance level (specified in Appendix E(b)(1)(A)(4)(b)) and establishes a correlation between firebox or combustion chamber temperature and the THC performance level.

For centrifugal compressors, an owner or operator shall 1) establish a minimum and maximum operating temperature, and 2) install, calibrate, operate and maintain a device equipped with a continuous recorder to measure the temperature. Additional requirements are provided if a condenser is used for the control device, as specified in Appendix F.

Rationale

The combustion vapor control device exemption from the performance testing schedule and the installation, operation, maintenance and monitoring requirements for centrifugal compressors align with CTG. The correlation between the firebox or combustion chamber and the THC performance level is important to ensure that the temperature surrogate for performance is proven and documented for the specific device. For centrifugal compressors, additional requirements for condensers used as control devices are necessary to align with these same additional requirements specified in the CTG.

Appendix F, Section (c)(1)

Purpose

This proposed section states that the design analysis for a condenser shall: 1) include an analysis of the vent stream composition, constituent concentrations, flowrate, relative humidity and temperature, and 2) 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.

Rationale

This design analysis requirement for a condenser used as a vapor control device ensures that it will achieve emissions control as stringent as those required by CTG.

Appendix F, Section (c)(2)

Purpose

This proposed sections states that the design analysis for a regenerable carbon absorption system shall: 1) include the vent stream composition, constituent concentrations, flowrate, relative humidity and temperature, 2) 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, and 3) establish 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.

Rationale

This design analysis requirement for a regenerable carbon absorption used as a vapor control device ensures that it will achieve emissions control as stringent as those required by CTG.

Appendix F, Section (c)(3)

Purpose

This proposed section states that design analysis for a non-regenerable carbon adsorption system shall: 1) include the vent stream composition, constituent concentrations, flowrate, relative humidity and temperature, 2) 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 3) establish design carbon replacement interval based on the total carbon working capacity of the vapor control device and source operating schedule. In addition, these systems will incorporate dual carbon canisters in case of emission breakthrough occurring in one canister.

Rationale

These design analysis and canister requirements for a non-regenerable carbon absorption used as a vapor control device ensures that it will achieve emissions control as stringent as those required by CTG.

Appendix F, Sections (d)(1)-(2)

Purpose

These proposed sections list the requirements for the performance testing of combustion vapor control devices, conducted by the manufacturer, which include: 1) the manufacturer shall conduct a performance test to demonstrate that a specific model of vapor control device achieves performance requirements specified in sections (d)(2)-(10) of Appendix F, and 2) the owner or operator shall maintain records of a test report in accordance with requirements in section (d)(12) of Appendix F.

Performance testing shall consist of three one-hour (or longer) test runs for each of the four firing rate settings specified in sections (d)(2)(A)-(D) of Appendix F, making a total of 12 test runs per test. Propene (propylene) gas shall be used for the testing fuel. All fuel analyses shall be performed by an independent third-party laboratory (not affiliated with the vapor control device manufacturer or fuel supplier).

Rationale

These requirements (e.g., number of tests, run time for each test, testing fuel used and third-party laboratory fuel analyses) for combustion vapor control device performance testing, conducted by the manufacturer, align with test methods and procedures in CTG. Records of these performance tests are necessary for CARB to determine compliance with this provision.

Appendix F, Section (d)(3)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. All models employing multiple enclosures shall be tested simultaneously and with all burners operational. Results shall be reported for each enclosure individually and for the average of the emissions from all interconnected combustion enclosures/chambers. Vapor control device operating data shall be collected continuously throughout the performance test using an electronic Data Acquisition System. A graphic presentation or strip chart of the vapor control device operating data and emissions test data shall be included in the test report in accordance with

section (d)(12) of Appendix F. Inlet fuel meter data may be manually recorded provided that all inlet fuel data readings are included in the test report.

Rationale

These requirements (e.g., data collection and reporting) for the performance testing of combustion vapor control devices, conducted by the manufacturer, align with CTG and are necessary for CARB to determine compliance with Appendix F, Section (d)(12).

Appendix F, Section (d)(4)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. Inlet testing shall be conducted as specified in sections (d)(4)(A)-(B) of Appendix F. The inlet gas flow metering system shall be positioned in accordance with US EPA Method 2A to measure inlet gas flow rate at the vapor control device inlet location. Additional procedures include the 1) placement of fuel sample containers, and 2) specified intervals for recording parameters (e.g., gas pressure, temperature), as required in Appendix F.

Rationale

The inlet testing requirements in this section are 1) consistent with CTG, and 2) ensure that combustion vapor control devices will achieve emissions control through standardized methods and procedures for performance testing.

Appendix F, Section (d)(5)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. Inlet gas sampling shall be conducted as specified in sections (d)(5)(A)-(B) of Appendix F. At the inlet gas sampling location, securely connect a Silonite-coated stainless steel evacuated canister fitted with a flow controller sufficient to fill the canister over a 3-hour period, as specified in sections (d)(5)(A)(1)-(3) of Appendix F. Analyze each inlet gas sample using the methods outlined in sections (d)(5)(B)(1)-(3) of Appendix F. The owner or operator shall include the results in the test report, as required by section (d)(12) of Appendix F.

Rationale

The inlet gas sampling requirements in this section are 1) consistent with CTG, and 2) ensure that combustion vapor control devices will achieve emissions control through standardized methods and procedures for performance testing.

Appendix F, Section (d)(6)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. Outlet testing shall be conducted in accordance with the criteria in sections (d)(6)(A)-(E) of Appendix F. Flow rate shall be

measured using US EPA Method 1 for determining flow measurement traverse point location, and US EPA Method 2 for measuring duct velocity. Additional procedures include the 1) placement of outlet sampling locations, 2) use of a more sensitive manometer for low flow conditions encountered during measurement of flow rate, 3) determination of molecular weight and excess air, as specified in section (d)(7) of Appendix F, 4) determination of carbon monoxide as specified in section (d)(8) of Appendix F, 5) determination of THC as specified in section (d)(9) of Appendix F, and 6) determination of visible emissions as specified in section (d)(10) of Appendix F.

Rationale

The outlet testing requirements in this section are 1) consistent with CTG, and 2) ensure that combustion vapor control devices will achieve emissions control through standardized methods and procedures for performance testing.

Appendix F, Section (d)(7)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. Molecular weight and excess air shall be determined in accordance with the procedures specified in sections (d)(7)(A)-(C) of Appendix F.

Rationale

The test methods and procedures outlined in this section are consistent with CTG and ensure a uniform and complete methodology is used by owners or operators to produce accurate results. These test procedures also align with the requirements in the New Source Performance Standards in 40 CFR 60.5413a(d)(7) which may already be familiar to owners and operators.

Appendix F, Section (d)(8)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. Carbon monoxide shall be determined using US EPA Method 10 (40 CFR Part 60, Appendix A-4). The test shall be run simultaneously with US EPA Method 25A, using the same sampling points.

Rationale

The test methods and procedures outlined in this section are consistent with CTG and ensure a uniform and complete methodology is used by owners or operators to produce accurate results. These test procedures also align with the requirements in the New Source Performance Standards in 40 CFR 60.5413a(d)(8) which may already be familiar to owners and operators.

Appendix F, Section (d)(9)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. THC determination shall be performed as specified in sections (d)(9)(A)-(G) of Appendix F.

Rationale

The test methods and procedures outlined in this section are consistent with CTG and ensure a uniform and complete methodology is used by owners or operators to produce accurate results. These test procedures also align with the requirements in the New Source Performance Standards in 40 CFR 60.5413a(d)(9) which may already be familiar to owners and operators.

Appendix F, Section (d)(10)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. Visible emissions shall be determined using US EPA Method 22. The test shall 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, shall be taken once per test run. A total of 12 photos shall be included in the test report, as required in section (d)(12) of Appendix F.

Rationale

The test methods and procedures outlined in this section are consistent with CTG and ensure a uniform and complete methodology is used by owners or operators to produce accurate results. These test procedures also align with the requirements in the New Source Performance Standards in 40 CFR 60.5413a(d)(10) which may already be familiar to owners and operators.

Appendix F, Section (d)(11)

Purpose

This proposed section applies to the performance testing of combustion vapor control devices that are conducted by the device manufacturer. Performance test criteria are listed in sections (d)(11)(A)(1)-(4) of Appendix F. Additionally, the manufacturer shall 1) determine a maximum inlet gas flow rate which shall not be exceeded for each vapor control device model, to achieve the criteria in section (d)(11)(C) of Appendix F, and 2) demonstrate a destruction efficiency of at least 95.0 percent for total hydrocarbon content (THC), as propane. A destruction efficiency of 95.0 percent for THC (as propane) will meet the control requirement of 95.0 percent reduction in emissions. The performance test criteria and maximum inlet gas flow rate shall be included in the test report, as required by section (d)(12) of Appendix F.

Rationale

A 95 percent emission reduction target is consistent with existing requirements (i.e., vapor collection efficiency) in the Regulation. These performance test criteria for combustion vapor control device model tested under section (d) of Appendix F align with CTG. The

requirement to include performance test criteria and maximum inlet gas flow rate is necessary for CARB to determine compliance with this provision.

Appendix F, Section (d)(12)

Purpose

This proposed section states that an owner or operator of a combustion vapor control device model tested under section (d) of Appendix F shall maintain records of the information listed in sections (d)(12)(A)-(F) of Appendix F.

Rationale

These recordkeeping requirements for a combustion vapor control device model tested under section (d) of Appendix F align with CTG and is necessary for CARB to determine compliance with Appendix F(d).

Appendix F, Section (e)

Purpose

This proposed section lists the requirements to demonstrate continuous compliance for combustion vapor control devices tested by the manufacturer. An owner or operator shall demonstrate that a device achieves performance requirements by complying with the 1) installation requirements specified in section (d) of Appendix F, 2) performance test criteria specified in sections (e)(1)-(8) of Appendix F, and 3) recordkeeping specified in Appendix E(f)(1).

Rationale

These continuous compliance demonstration requirements for combustion vapor control devices tested by the manufacturer align with CTG and is necessary for CARB to determine compliance with this provision.

Appendix F, Sections (e)(1)-(2)

Purpose

These proposed sections list requirements that an owner or operator shall follow to demonstrate continuous compliance for a combustion vapor control device tested by the manufacturer, which include 1) the inlet gas flow rate shall be equal to or less than the maximum specified by the manufacturer, and 2) a pilot flame shall be present at all times of operation.

Rationale

These continuous compliance demonstration requirements for combustion vapor control devices tested by the manufacturer align with CTG.

Appendix F, Section (e)(3)

Purpose

This proposed section lists the requirements that an owner or operator shall follow to demonstrate continuous compliance for a combustion vapor control device tested by the

manufacturer. Devices shall 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, following US EPA Method 22, shall be conducted at least once every calendar month, separated by at least 15 days between each test. The observation period for the visible emissions test shall be 15 minutes.

Rationale

Determining visible emissions, in accordance with the procedures in US EPA Method 22, and using an observation period of 15 minutes for the test ensure that each combustion vapor control device tested by the manufacturer will achieve emissions control as stringent as CTG. The requirements for visible emission testing frequency and device operation (i.e., no visible emissions) are also consistent with CTG.

Appendix F, Sections (e)(4)-(5)

Purpose

These proposed sections list the requirements that an owner or operator shall follow to demonstrate continuous compliance for a combustion vapor control device tested by the manufacturer. Devices failing the visible emissions test shall follow manufacturer's repair instructions, if available, or best combustion engineering practice as outlined in the device inspection and maintenance plan, to return the device to compliant operation. All inspection, repair and maintenance activities for each device shall be recorded in a maintenance and repair log and shall be available for inspection. Following return to operation from maintenance or repair activity, each device shall pass a visual observation in accordance with US EPA Method 22.

Rationale

The inspection, maintenance, repair, testing and recordkeeping requirements for a combustion vapor control device tested by the manufacturer align with CTG. Recordkeeping requirements are necessary for CARB to determine compliance with this provision.

Appendix F, Section (e)(6)

Purpose

This proposed section specifies that an electronic copy of the performance test results for a combustion vapor control device tested by the manufacturer shall be maintained to demonstrate continuous compliance.

Rationale

Maintenance of the performance test result allows CARB to verify that the device being used meets the performance requirements in Appendix F(d).

Appendix F, Sections (e)(7)-(8)

Purpose

These proposed sections list the requirements that an owner or operator shall follow to demonstrate continuous compliance for a combustion vapor control device tested by the

manufacturer. Each device is 1) maintained in a leak free condition, and 2) operated following the manufacturer's written operating instructions, procedures, and maintenance schedule to ensure good air pollution control practices for minimizing emissions.

Rationale

These continuous compliance demonstration requirements ensure that combustion vapor control devices tested by the manufacturer will achieve emissions control as stringent as CTG.

Appendix F, Section (f)

Purpose

This proposed section provides a list of references that are relevant to the performance testing requirements in Appendix F.

Rationale

The references ensure that an owner or operator is aware of the standardized test methods and procedures that are relevant to the performance testing requirements in Appendix F.

T. Appendix G: Procedure for Direct Flow Measurement using High Volume Sampling

The proposed new Appendix G specifies a procedure for collecting direct flow measurements with a high-volume sampler and equations for calculating the emission rate. Inclusion of a test method ensures that these measurements are performed in a uniform way across all owners and operators to certain minimum standards and responds to a deficiency identified by US EPA that needs to be addressed for this regulation to be approved in the SIP. Appendix G is mostly based on a procedure contained in US EPA's proposed Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities (Proposed EG) (US EPA 2022c).

Appendix G, Section (a)

Purpose

This proposed section directs that high-volume sampling be performed according to the sections (a)(1)-(5).

Rationale

This is necessary to communicate that these procedures must be followed for high-volume sampling.

Appendix G, Section (a)(1)

Purpose

This proposed section specifies that the high-volume sampler must be designed to capture all emissions and measure the full range of methane concentrations and volumetric flow rates. It further requires the development of a standard operating procedure.

Rationale

This is necessary to ensure that the high-volume sampler has the minimum capability necessary to measure the emissions from the source and that those operating the instrument will have standard operating procedures to reference to ensure proper and consistent operation.

Appendix G, Section (a)(2)

Purpose

This proposed section specifies the requirements for the methane gas sensor or sensors within the high-volume sampler. These include that the sensor(s) be selective to methane with minimal interference, that the methane sensor(s) can measure the entire expected concentration range (can use a gas divider), and that the measurements can be taken once every second. Minimal interference must be documented by the owner or operator.

Rationale

This is necessary to ensure that the high-volume sampler has the minimum capability necessary to measure the methane concentrations in a way that enables an accurate calculation of the methane emission rate. The interference standard and measurement frequency are selected to be consistent with the Proposed EG.

Appendix G, Section (a)(3)

Purpose

This proposed section specifies the requirements for the flow measurement sensor or sensors within the high-volume sampler. These include that the sensor can measure over the entire expected range of flow rates (can use multiple sensors to achieve this) and that the measurements can be taken once per second.

Rationale

This is necessary to ensure that the high-volume sampler has the minimum capability necessary to measure the total volumetric flow rate in a way that enables an accurate calculation of the methane emission rate. The measurement frequency is selected to be consistent with the Proposed EG.

Appendix G, Section (a)(4)

Purpose

This proposed section specifies calibration procedures for both the methane sensor(s) and flow measurement sensor(s).

Rationale

Calibration is necessary to ensure accurate measurements and specifying the requirements for calibration is necessary to ensure that such calibration meets certain minimum standards across all owners and operators.

Appendix G, Section (a)(4)(A)

Purpose

This proposed section specifies calibration procedures for methane sensor(s). These include (1) determining linearity of the sensor at four points compared to gas calibration cylinder standards initially and semi-annually and (2) challenging each sensor a low point and mid-point prior to each day of testing. In both cases the sensor reading must be within 5 percent of the cylinder value or else corrective action must be performed to meet the requirement.

Rationale

These calibration procedures ensure that the methane sensor(s) are operating correctly and are necessary for accurate measurements. The types of tests and frequency of each are selected to be consistent with the Proposed EG.

Appendix G, Section (a)(4)(B)

Purpose

This proposed section requires that flow measurement sensors meet the requirements in and are calibrated annually according to US EPA Method 2D, and that if ancillary temperature and pressure measurements are used to correct to standard conditions that those sensors be calibrated annually.

Rationale

These calibration procedures ensure that the flow measurement sensor(s) are operating correctly and are necessary for accurate measurements including the correct flow measurement and the correct unit adjustment for consistent reporting. The methods and frequency of each are selected to be consistent with the Proposed EG.

Appendix G, Section (a)(5)

Purpose

This proposed section specifies how to use the high-volume sampler and how to calculate the methane emission rate based on the measurements obtained. The procedures include following manufacturer instructions, background sampling, adjusting the flow rate to achieve proper concentrations, sampling time, data to record, and that the procedure must be performed at least three times and averaged. An equation is also provided that must be used to calculate the emission rate based on the sample and background calculations and the average flow rate of the sampler.

Rationale

This section is necessary to ensure proper and consistent operation of the high-volume sampler and calculation of the methane emission rate. The time to collect each measurement, the minimum concentration above background in the sample, the number of measurements required, and the equation used to calculate the emission rate are all consistent with the Proposed EG.

IV. The Benefits Anticipated from the Regulatory Action, Including the Benefits or Goals Provided in the Authorizing Statute

These Proposed Amendments are necessary to address deficiencies identified by US EPA in their SIP decision and, therefore, to achieve approval of the Regulation in the SIP. The changes made to achieve SIP approval provide benefits by ensuring that potential sources of VOCs have achieved reasonably available control technology (RACT) requirements. The changes that respond to the SIP decision will also help ensure that the originally intended benefits of the Regulation are achieved through increased inspections, testing, design analysis, planning, recordkeeping, and reporting. This improves CARB's assurances that controls and abatement measures in the current Regulation are fully achieving the level of controls required in the Regulation.

Changes related to implementation experience will provide benefits to regulated parties and to CARB. These benefits are a result of streamlining the Regulation, fixing language and provisions to provide greater clarity and consistency in implementation, and providing CARB with additional data to confirm compliance with the Regulation, understand the nature of potential sources, and calculate emissions and emission reductions.

Staff expect that repairs of leaks detected in remote monitoring data will provide emission reductions due to preventing the release of natural gas. The benefits of this include reductions in GHG and VOC emissions, and potential cost savings for owners or operators through recovery of natural gas that would otherwise be lost. However, the extent of emission reductions, and therefore benefits, could not be quantified. Once this provision is in effect, CARB will use the remote monitoring data paired with reporting from owners or operators about their follow-up activities to assess the emission reductions associated with this measure. This will support California's efforts to achieve its mid- and long-term climate goals.

The data that will be generated by owner or operator follow-up inspections and repair activities will be valuable for better understanding the scale and nature of large methane emission sources in California's oil and gas sector. Even when emissions are due to allowable venting, better understanding of the types of equipment and activities that tend to produce remotely detected methane plumes can be instrumental in tailoring future changes to the Regulation. Remote monitoring data alone often does not reveal exactly what type of component or piece of equipment is emitting and why those emissions occurred. The follow-up inspections and reporting required in the Proposed Amendments are necessary to fill in those blanks and provide the full benefits of understanding the nature and origin of these emission sources.

In addition to the impact of reducing emissions associated with remotely detected leaks in California, the inclusion of this measure demonstrates for other jurisdictions a regulatory framework to incorporate remote sensing data to mitigate large emissions sources. CARB's experience with implementing this provision will provide useful data on the efficacy of follow-up inspection and repair efforts.

V. Air Quality

Ozone forms in the atmosphere through complex reactions between VOCs and NOx directly emitted from vehicles, industrial/stationary sources, consumer products and many other sources. Fine particulate matter (PM2.5) can be directly emitted and can also form in the atmosphere through reactions between VOCs, NOx, SOx, and ammonia. For the federal ozone and PM2.5 standards, CARB must work with local air districts to develop SIPs to identify control measures and demonstrate attainment by the required deadlines, as well as meet other requirements. SIPs must describe the control measures being pursued by CARB to reduce precursor emissions from mobile and non-mobile sources under our authority, and also include measures from the local air districts where applicable to reduce emissions from stationary and area sources under their jurisdictions. In CARB's latest SIP Strategy, the *2022 State Strategy for the State Implementation Plan* (CARB 2022e), CARB committed to pursue an unprecedented variety of new measures to reduce emissions from the sources under our authority using all mechanisms available in order to support Statewide attainment of federal standards.

The federal Clean Air Act also requires implementation of RACT for stationary sources in all ozone nonattainment areas classified as Moderate or above. To support implementation of ozone RACT, US EPA periodically releases Control Techniques Guidelines (CTGs) which presumptively define RACT level of control for sources of VOCs including the Control Techniques Guidelines for the Oil and Natural Gas Industry (US EPA 2016). The Proposed Amendments apply to all emissions sources covered in the CTG, and in combination with local air district rules where applicable, achieve equivalent reductions for each source category to the RACT level emission controls required in ozone nonattainment areas classified as Moderate or above. The Regulation was previously submitted to U.S. EPA on December 11, 2018, to fulfill RACT requirements for ozone nonattainment areas across California. On October 31, 2022, US EPA finalized a limited approval, limited disapproval (US EPA 2022a) of the 2018 submittal due to deficiencies that are primarily administrative in nature (as described briefly in Section II and in detail in Section III). The Proposed Amendments correct the administrative deficiencies identified by US EPA, and provide additional assurance that sources in the oil and natural gas sector in nonattainment areas are meeting RACT to minimize emissions.

Additionally, the measure to require inspection of facilities following a remote emission plume detection and to repair certain types of discovered emission sources will provide methane emission reductions. Because criteria pollutant precursors such as VOCs are often co-emitted with methane, these emission reductions are expected to provide air quality benefits. The magnitude of these emission reductions is not quantified in this report. However, staff expect to use remote monitoring data and owner or operator follow-up reporting to quantify these benefits in the future.

VI. Environmental Analysis

A. Introduction

This chapter provides the basis for CARB's determination that no subsequent or supplemental environmental analysis is required for the Proposed Amendments. A brief

explanation of this determination is provided in Section D below. CARB's regulatory program—which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality—has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA) (14 CCR 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. CARB, as a lead agency, prepares a substitute environmental document (referred to as an "Environmental Analysis" or "EA") as part of the Staff Report to comply with CEQA (17 CCR 60000-60008).

This EA serves as a substitute document equivalent to an addendum to the prior EA, *Final Environmental Analysis for the Regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities* (CARB 2017c), [6] to explain CARB's determination that no additional environmental analysis is required for the Proposed Amendments.

B. Prior Environmental Analysis

CARB previously prepared the 2017 EA under its certified regulatory program (Cal. Code Regs., tit. 17, §60000-60008) to comply with the CEQA requirements. The 2017 EA provided an environmental analysis, which focused on reasonably foreseeable potentially significant adverse and beneficial impacts on the physical environment resulting from reasonably foreseeable compliance responses.

The Regulation was first presented to the Board in May 2016. CARB responded in writing to comments received on the Draft EA in a response to comments document that was made publicly available on March 10, 2017. At the second hearing in March 2017, the Board adopted Resolution 17-10, certifying the 2017 EA, and adopting the findings and statement of overriding considerations. A Notice of Decision was filed with the Secretary of State on March 27, 2017, and the Regulation was effective on October 1, 2017. All associated documents are available at *https://www.arb.ca.gov/regact/2016/oilandgas2016/oilandgas2016.htm*.

The 2017 EA provided an analysis of the potentially significant adverse and beneficial environmental impacts resulting from implementation of the Regulation and their associated reasonably foreseeable compliance responses. In addition, the 2017 EA used a conservative approach and considered some environmental impacts as potentially significant because of the inherent uncertainties in the relationship between physical actions that were reasonably foreseeable under the rulemaking and environmentally sensitive resources or conditions that may be affected.

Compliance responses to the Regulation were expected to result in beneficial impacts to reductions of greenhouse gas emissions. Beneficial impacts primarily included long-term

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[6] (CARB 2017c) Final Environmental Analysis for the Regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities. California Air Resources Board, posted 10 March 2017. *https://www.arb.ca.gov/regact/2016/oilandgas2016/oilgasfea.pdf*.

operational methane emission reductions in the following areas: onshore and offshore crude oil/natural gas production; crude oil, condensate, and produced water separation and storage; natural gas gathering and boosting stations; natural gas processing plants; natural gas transmission compressor stations; and natural gas underground storage. Specific activities to reduce GHG emissions ranged from installation of vapor collection systems to replacement of leaking equipment.

The 2017 EA also concluded that there could be less-than-significant impacts to aesthetics, agricultural and forest resources, air quality, biological resources (long-term operational-related), cultural resources (long-term operational-related), energy demand, geology and soils (long-term operational-related), greenhouse gas emissions (short-term construction-related), hazards and hazardous materials, hydrology and water quality (long-term operational-related), land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. In addition it was determined that potentially significant and unavoidable adverse impacts to the following resource areas could occur during short-term construction-related activities: biological resources, cultural resources, geology and soils, and hydrology and water quality. While many of the identified potentially significant adverse impacts could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, authority to do so is beyond the purview of CARB. The authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, causing inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. Consequently, the 2017 EA took the conservative approach in its post-mitigation significance conclusion and disclosures of potentially significant and unavoidable adverse impacts, for CEQA compliance purposes. The significance determinations are discussed in greater detail in the 2017 EA. As discussed below, the proposed amendments would not constitute a substantial change or new information resulting in any new significant effects or a substantial increase in the severity of previously identified significant effects.

C. Proposed Modifications

The Proposed Amendments are primarily designed to ensure that each source type achieves emissions controls at least as stringent as those required by the US EPA to achieve SIP approval. In addition to the proposed amendments to comply with US EPA's CTG, CARB is proposing amendments to achieve additional emission reductions based on remote emission detection data and to make minor corrections or improvements based on experience implementing the Regulation. These amendments are repeated below:

- Additional inspection, testing, and recordkeeping required to verify vapor collection system and control device performance.
- Additional inspections, notifications, and recordkeeping required for separator and tank systems that are emission controlled pursuant to the Regulation.
- Operator requirement to develop and maintain detailed LDAR plans.
- The potential for delay of repair approval if bundling repairs results in significantly lower emissions or if meeting repair timelines conflicts with wildlife preservation regulations, and a more rigorous process for obtaining delay of repair approval.

- Owners or operators must investigate remotely detected emission plumes reported to them by CARB and repair those sources depending on the nature and leak concentration of the source.
- A decrease in CARB Executive Officer discretion in many provisions or clarified by the addition of decision criteria and processes.
- Certain exemptions described in more detail, such as listing specific air district rules that serve as exemptions for equipment or components already covered under requirements in those rules.
- Minor changes to required elements in underground natural gas storage facility monitoring plans.
- Changes to required repair timeframes for some types of equipment and leaks.
- Recordkeeping and reporting requirements expanded, and the reporting method for many provisions changed to an electronic database system.
- Language cleaned up throughout the regulation to correct typos, increase clarity, and remove deadlines and effective dates from the past.

The Proposed Amendments do not change the type of facilities or projects that are permitted under the current Regulation, nor do staff anticipate that they will alter the compliance responses by regulated entities covered by the program. As such, these amendments are not expected to introduce any new environmental impacts that were not already evaluated under the 2017 EA.

D. Analysis

1. Legal Standards

When considering modifications to a regulation for which a substitute document equivalent to an Environmental Impact Report (EIR) or negative declaration had previously been prepared, CARB looks to Public Resources Code section 21166 and CEQA Guidelines section 15162 for guidance on the requirements for subsequent or supplemental environmental review. (17 CCR 60004.4.)

CEQA Guidelines section 15162 states:

> *(a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:*
>
> *(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;*
>
> *(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or*

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

If a subsequent or supplemental EIR or negative declaration is not required, the lead agency may document its decision and supporting evidence in an addendum (14 CCR 15164 (e)). The addendum and lead agency's findings should include a brief explanation, supported by substantial evidence, of the decision not to prepare a subsequent or supplemental EIR or negative declaration (14 CCR 15164(e)). An addendum need not be circulated for public review, but must be considered by the lead agency prior to making a decision on the project (14 CCR 15164(c), (d)).

2. Basis for Determination

CARB has determined that the Proposed Amendments do not involve any changes that result in any new significant adverse environmental impacts or a substantial increase in the severity of the significant adverse impacts previously disclosed in the 2017 EA. Further, there are no changes in circumstances or new information that would otherwise warrant any subsequent or supplemental environmental review. The 2017 EA adequately addresses the implementation of the regulation as modified by the Proposed Amendments and no additional environmental analysis is required. The basis for CARB's determination that none of the conditions requiring further environmental review are triggered by the proposed modifications is based on the following analysis.

(1) There are no substantial changes to the regulation previously analyzed in the Environmental Analysis which require major revisions to the Environmental Analysis involving new significant environmental effects or a substantial increase in the severity of previously identified effects.

As described above under "Prior Environmental Analysis," the 2017 EA determined that potentially significant and unavoidable adverse impacts could result to four resource areas from the short-term construction of new operations or facilities.

The Proposed Amendments make changes to improve recordkeeping and reporting administrative requirements, perform additional inspections and testing, prepare LDAR plans, and adjust exemptions, approval processes, and timelines for consistency with the CTG. These amendments minimally change, but do not substantially change, the reasonably foreseeable compliance responses of the regulated entities covered by the Regulation. The reasonably foreseeable changes resulting from the Proposed Amendments and the associated compliance response summaries are described below. Each of these may cause minimal changes to the amount of activity occurring for activities already covered by compliance responses in the 2017 EA.

- Physical tagging of a small number of pneumatic controllers, which is a minimal amount of additional activity covered by the compliance response of the 2017 EA (Chapter 2.B.7).
- Removal of a leak detection and repair (LDAR) exemption for small stainless steel tube fittings, which is expected to cause a minimal increase in LDAR activities covered in the compliance response in the 2017 EA Chapter 2.C.3. LDAR is already occurring at the facilities where these components would be present, and thus the increase in activity is simply additional measurements by crews that are already onsite. Further, the number of additional components to be measured is expected to be minimal compared to the total number subject to LDAR under the current Regulation because this exemption is either not present in or is present in a significantly narrower form in air district LDAR rules covering the majority of statewide oil and gas components.
- Additional requirements for vapor collection systems and vapor control devices including monthly inspections for leaks or defects, performance testing every 5 years, and installation of bypass alarms/locks. Staff estimate these will apply to approximately 60 systems, with the performance testing applying to potentially fewer systems. The inspections involve a minimal additional amount of additional activity of a type already analyzed in the 2017 EA (Chapter 2.C.3). System testing will only require minor increases in personnel traveling to the sites of these systems to perform the tests every 5 years, which do not otherwise have an impact on the physical environment. If systems are not in compliance with the performance testing requirements and cannot be brought into requirements through repairs, it is possible there could be a minimal amount of replacement of vapor collection system equipment or vapor control devices, as covered in the 2017 EA (Chapter 2.C.1). Addition of bypass locks or alarms would occur on existing infrastructure without the need for earth moving or expansion of the facility footprint.
- Additional requirements for separator and tank systems that are required to have vapor control under the regulation including monthly inspections for defects in certain pieces of equipment. This is expected to be only a minimal additional amount of activity as this is estimated to apply to only 11 separator and tank systems. This type of activity is covered under the compliance responses in the 2017 EA (in Chapter 2.C.3).
- Additional inspections to locate and repair remotely detected emission plumes that CARB reports to the owners or operators. This is expected to result in a slight increase in LDAR activities to respond to emission detection notifications, which is estimated to be approximately a one percent increase in the number of component inspections over the pre-existing LDAR provisions. This activity is covered under the same compliance response as the 2017 EA Chapter 2.C.3.

In addition to the changes described above, the Proposed Amendments would include other changes that are not expected to have an impact on the physical environment:

- The Proposed Amendments provide more detailed provisions for obtaining approval of delay of repair for leaking components or venting equipment over specified limits. These are expected to provide an overall emissions reduction by allowing bundling of repairs in cases where doing so would result in demonstrated lower emissions than performing individual (and sometimes less efficient) repairs within the normally required time period. Other proposed provisions allowing delay of repair for conflicts with wildlife protection regulations reduce the likelihood of impacts to wildlife. Staff expect any additional emissions associated wildlife delays to be minimal because there has only been one instance of a request to postpone activities to comply with wildlife regulations since adoption of the Regulation, and the delay lasted for five days in that instance. Repairs are required as stipulated in the Regulation following the delay of repair.
- The Proposed Amendments shorten repair timeframes for some equipment and leaks. However, this does not affect the compliance responses described in the 2017 EA because equipment must be repaired as specified in the current Regulation; only the timeframe to repair has been changed. Emissions from the reduced repair timeframes are expected to be lower than under the current Regulation, as leaks would be remedied more quickly.
- The Proposed Amendments remove a provision that would have potentially required well stimulation circulation tanks to control emissions. This would not result in any potential environmental impacts because CARB never invoked this provision to potentially require emission control on circulation tanks and well stimulation activities have become minimal in recent years (the most recent well stimulation in California occurred in April 2021).

Because there is no substantive change to the way in which regulated entities operate, the proposed amendments will not result in additional physical changes to the environment beyond what would already occur under current Regulation. The proposed amendments do not incentivize or otherwise drive new project types. Therefore, CARB staff does not anticipate that the Proposed Amendments will cause new significant environmental effects or a substantial increase in the severity of previously identified effects in the 2017 EA.

(2) There are no substantial changes with respect to the circumstances under which the regulation is being undertaken which require major revisions to the previous Environmental Analysis involving new significant environmental effects or a substantial increase in the severity of previously identified effects.

There are no substantial changes to the environmental settings or circumstances in which the proposed amendments to the Regulation are being implemented compared to that analyzed in the 2017 EA. As explained above, the Proposed Amendments also do not substantially alter the compliance responses of the regulated entities or result in any changes that significantly affect the physical environment.

(3) There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous Environmental Analysis was certified as complete, that

changes the conclusions of the Environmental Analysis with regard to impacts, mitigation measures, or alternatives;

No new information of substantial importance has become available to CARB staff since the 2017 EA was certified. Therefore, the conclusions found the 2017 EA about the compliance responses for the Regulation or potential environmental impacts to any resource areas have not changed.

In summary, no supplemental or subsequent environmental analysis is required for these proposed amendments to the Regulation because, as described above, the proposed changes do not result in any new environmental impacts or in a substantial increase in severity to the impacts previously disclosed in the 2017 EA. Further, there are not changes in circumstances or new information that would otherwise warrant an additional environmental review.

VII. Environmental Justice

State law defines environmental justice as the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Gov. Code, § 65040.12, subd. (e)(1)). Environmental justice includes, but is not limited to, all of the following: (A) The availability of a healthy environment for all people. (B) The deterrence, reduction, and elimination of pollution burdens for populations and communities experiencing the adverse effects of that pollution, so that the effects of the pollution are not disproportionately borne by those populations and communities. (C) Governmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision making process. (D) At a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions (Gov. Code, § 65040.12, subd. (e)(2)). The Board approved its Environmental Justice Policies and Actions (Policies) on December 13, 2001, to establish a framework for incorporating environmental justice into CARB's programs consistent with the directives of State law. These policies apply to all communities in California, but are intended to address the disproportionate environmental exposure burden borne by low-income communities and communities of color. Environmental justice is one of CARB’s core values and fundamental to achieving its mission.

Communities located in close proximity to oil and gas operations are already experiencing the impacts of those operations including, but not limited to, odors, noise, and vehicle traffic. Additionally, these communities are at risk for exposure to a variety of volatile organic compounds and toxics, including the BTEX suite of chemicals (benzene, toluene, ethylbenzene, and xylene), which are associated with oil and gas operations. Local air districts currently implement a variety of rules that reduce volatile organic compounds from the oil and gas industry. The purpose of the Regulation is to reduce methane emissions from covered oil and gas operations and facilities with the reduction of additional volatile organic compounds and toxic air contaminants as a co-benefit of the proposed control strategies. Most of the changes in the Proposed Amendments will help to ensure regulatory compliance, to provide CARB with additional data, and to improve clarity. This includes, at a minimum,

greater assurance that systems and processes are operating in compliance through increased testing, monitoring, design analysis, recordkeeping, and reporting. The surrounding communities will benefit from the proposed regulation in that control strategies will continue to provide reductions in emissions of volatile organic compounds and toxic air contaminants.

Remote sensing technologies are generally expected to be capable of detecting large emission sources. For components already covered by quarterly LDAR requirements, the remote sensing provision is expected to reduce emissions from large sources from the time period between when the detection occurs and the next regularly scheduled quarterly LDAR survey. For components not covered by periodic LDAR, the remote sensing provision may result in the repair of leaks that could have continued much longer. However, there is only limited data available that could support a quantitative estimate of these emission reductions, and staff have determined that the uncertainty associated with quantifying emission reductions from this provision preclude performing a quantitative assessment.

There will be no adverse impact to the surrounding communities due to the Proposed Amendments.

VIII. Economic Impacts Assessment

The Proposed Amendments will directly impact businesses involved in oil and gas extraction and processing, utilities that operate natural gas transmission infrastructure, and businesses involved in underground natural gas storage. The Proposed Amendments are not expected to cause any new businesses to become regulated, but rather to strengthen rules for businesses already subject to the current Regulation. In addition, the Proposed Amendments are likely to indirectly impact the management, scientific, and technical consulting services industry due to requiring additional design analysis, testing, LDAR activity, planning documentation, and other recordkeeping and reporting.

The Proposed Amendments are expected to have direct costs of $2,249,702 in the first year and $1,096,472 on-going annually, which is approximately 0.03 percent and 0.01 percent, respectively, of the combined economic output generated by the regulated industries ($7.99 billion for Oil and Gas Extraction and $554 million for Pipeline Transportation of Natural Gas). [7] Of these direct costs, recordkeeping and reporting requirements are estimated to be $674,677 per year. Table 1 summarizes these costs by provision and further methodological details are shown in Appendix B.

[7] These are California industry-level gross domestic product from U.S. Bureau of Economic Analysis, *"SAGDP2N Gross domestic product (GDP) by state 1/"* (accessed Monday, February 13, 2023). (US BEA 2023).

Table 1 Cost of the Proposed Amendments by Provision (in 2021$)

Provision	First-year (2024) Cost	Annual Ongoing Costs Starting the Second Year (2025-2028)	Annual Recordkeeping and Reporting Cost Only (subset of the costs in the other columns)
Pneumatic controller and pump tagging and recordkeeping	$18,658	$0	$10,387 (first year only)
Leak detection and repair plans	$756,690	$104,561	$52,280
Leak detection and repair equipment descriptions	$8,131	$8,131	$8,131
Equipment reporting for vapor collection status	$13,311	$13,311	$13,311
Requirements for separator and tank systems	$3,027	$3,027	$3,027
Requirements for vapor collection systems and control devices	$530,847	$60,787	$26,828
Natural gas underground storage facility recordkeeping	$4,127	$4,127	$4,127
Natural gas underground storage facility air monitoring plan updates	$12,382	$0	$0
Audio-visual leak detection and repair recordkeeping	$477,059	$477,059	$477,059
LDAR well production status recordkeeping	$49,584	$49,584	$49,584
Investigation and repair of remotely detected emission sources	$375,886	$375,886	$40,331
Total	***$2,249,702***	***$1,096,472***	***$674,677 (annual only)***

Note: Totals may not add up to exactly the column sums due to rounding.

Using an analysis time horizon of five years, the total statewide cost over that period is estimated at $6,635,591. Staff chose a five-year time horizon for this analysis because performance testing for vapor control devices occurs on a five-year cycle, while all other costs occur either in the first year only or annually. Staff estimate that 91% of these costs will be incurred by the Oil and Gas Extraction sector, while 9% will be incurred by the Pipeline Transport of Natural Gas sector (including natural gas underground storage facilities), as shown in Appendix B.

Businesses Subject to Regulation

CARB staff estimate that there are 302 businesses subject to the Proposed Amendments. All 302 businesses are located in California. No small businesses are directly subject to the Proposed Amendments because oil and natural gas companies cannot be considered small businesses per California Government Code 11342.610(b).

Estimated Cost to a Typical Business

The costs to a typical business are estimated by dividing the total cost by the number of businesses. Using this approach, the initial cost to a typical business is $7,449 ($2,249,702/302) and the annual ongoing cost to a typical business is estimated at $3,631 ($1,096,472/302). Of the annual ongoing costs, recordkeeping and reporting requirements are expected to comprise $2,223 per business ($674,677/302).

Labor Costs

Labor costs are a major factor for many of the proposed provisions such as planning, inspection, recordkeeping, and reporting requirements. In most instances where increases in labor requirements are projected, staff used a labor cost of $68.79 per hour, as derived in Appendix B.

Provisions

Detailed assumptions, data sources, and calculation methodologies for estimating the costs of each provision are included in Appendix B. The following is a summary of the methods and results by provision.

Pneumatic Controller and Pump Tagging and Recordkeeping

The Proposed Amendments will require continuous low-bleed pneumatic controllers to be physically tagged with the month and year of installation and other information to enable traceability. In addition to physical tagging, operators will be required to maintain records of the locations and manufacturer's specification for each continuous bleed pneumatic controller and each pneumatic pump.

Regulatory reporting showed that 60 pneumatic controllers and 91 pneumatic pumps were in operation in 2019. The pneumatic controller and pump tagging and recordkeeping requirement is expected to cost $18,658 in the first year including both the labor and tag material costs.

LDAR Plans

Under the Proposed Amendments, owners or operators will be required to develop detailed plans for how LDAR activities will be carried out. Costs were estimated using the hourly labor

rate, number of facilities and operators, and an estimated labor time requirement per operator and per facility. The development of LDAR plans is expected to cost $756,690 in the first year and $104,561 per year in subsequent years.

LDAR Equipment Descriptions

The Proposed Amendments will require owners or operators to include detailed equipment descriptions for all leaks that do not have an associated equipment ID. Regulatory reporting in 2019 included 1,182 leaks that did not include an equipment ID. This requirement is expected to add $8,131 per year in annual expenses.

Equipment Reporting for Vapor Collection Status

Under the current Regulation, owners or operators are required to identify which separator and tank systems are emission-controlled using vapor collection systems. The Proposed Amendments add requirements for owners or operators to identify all equipment that is controlled by a vapor collection system. As a result, owners or operators would be newly required to report pneumatic controllers, pneumatic pumps, and compressors that are using vapor collection systems.

Based on 2019 regulatory reporting, there are 3,870 total devices that may be affected by this requirement, including 3,628 pneumatic controllers, 91 pneumatic pumps, 147 non-production reciprocating compressors, and 4 wet seal centrifugal. Compliance with this requirement is estimated to cost $13,311 per year.

Requirements for Separator and Tank Systems

The Proposed Amendments add new requirements for separator and tank systems that are required to be emission-controlled, including the design of covers, removal and return to service, compliance demonstration, and recordkeeping and reporting. Based on 2019 regulatory data, there were 11 separator and tank systems potentially impacted by these added provisions. Compliance with these requirements is estimated to cost $3,027 per year.

Requirements, Performance Testing, and Recordkeeping for Vapor Collection Systems and Control Devices

New requirements for vapor collection systems and vapor control devices in the Proposed Amendments include locks or flow indicators on bypass valves, a Professional Engineer's assessment of vapor collection and control system sizing adequacy, monthly inspections of vapor control devices and vapor collection systems, performance tests every 60 months, repair of discovered leaks and defects, and additional recordkeeping.

Data is not available on the number of vapor collection systems, but regulatory reporting data does reveal some information about the number of pieces of equipment that are on vapor collection for certain equipment types. For other equipment types that may or may not be controlled by a vapor collection system, staff made assumptions based on their best engineering judgement and counts of those potentially controlled equipment types. The total number of potentially impacted systems was estimated at 60, including 11 for separator and tank systems, 6 for non-production sector reciprocating compressors, and 43 for pneumatic pumps.

Costs for are estimated per system as described in Appendix B. Briefly, the per-system costs estimated included lockout-tagout padlocks ($20.23 per lock) (Brady 2022; Grainger 2022; Total Lockout 2022), sizing certifications ($1,014 per system), 5-year efficiency performance tests ($6,800 per system), monthly audio-visual-olfactory (AVO) inspections (0.55 hr per inspection) and recordkeeping (0.5 hr per inspection). In total, the first-year costs are estimated at $530,847, with annual ongoing costs estimated at $60,787 per year.

Natural Gas Underground Storage Facility Plan Updates and Recordkeeping

The Proposed Amendments add a few clarifications and new requirements for natural gas underground storage facility air monitoring plans, such as a requirement to keep records of when monitoring systems are inactivated and reactivated and the reason why. Additionally, the Proposed Amendments add a requirement to attempt to repair leaks between 1,000-9,999 ppm in a reduced timeframe. Operators will be required to update their plans to reflect these changes. Updating the monitoring plans is estimated to cost $12,382 total for the 12 facilities in the state, as a one-time expense.

Under the Proposed Amendments, owners or operators of underground natural gas storage facilities are required to keep records of when monitoring systems are inactivated and reactivated. One utility that owns underground natural gas storage facilities indicated in written comments that there are a variety of reasons why these monitoring systems may be taken offline, such as during power outages and when performing routine maintenance on wellheads (SoCalGas 2023). Although these events may be frequent, the records are fairly simple, and CARB staff expect this recordkeeping requirement to cost $4,127 per year total for the 12 facilities in the state.

Audio-visual LDAR Recordkeeping

Under the current Regulation, owners or operators are required to conduct daily, weekly, or annual audio-visual inspections of certain types of components for indications of a leak. The Proposed Amendments add that these inspections must be documented with a record of the dates that all audio-visual inspections were conducted at each facility. Staff estimate that 380 facilities would be subject to this provision at a cost of $477,059 per year.

LDAR well production status recordkeeping

Under the Proposed Amendments, operators are required to report the well production status (active or idle) for all leaks found on wellheads. Regulatory reporting for the LDAR provisions of the regulation show 7,208 total leaks were discovered in 2019, and staff use this as a proxy for the number of wellhead leaks that may be discovered annually. This provision is estimated to cost $49,584 per year.

Investigation and Repair of Remotely Detected Emission Sources

The Proposed Amendments require owners or operators to investigate emission plume detections reported to them by CARB based on remote sensing data. Depending on the nature and size of the emission source, the operator could be required to repair it. These follow-up activities resemble traditional LDAR activities but are directed based on knowledge of an emission location, rather than on a regular schedule. Mitigating these emission sources both prevents the release of greenhouse gases (natural gas is typically composed of mostly

methane) and prevents the loss of natural gas as a valuable product that operators could use or sell.

Based on a previous remote sensing study (Duren et al. 2019), approximately 0.1% of infrastructure elements (e.g., wells, compressor stations, tanks, etc.) were found to be leaking in the California oil and natural gas sector. Staff scaled this up by an order of magnitude to 1% to account for the potential that multiple infrastructure elements may need to be surveyed in response to some emission detections and in case more frequent measurements lead to a higher rate of emission detections. Staff also assume that the fraction of statewide components that need to be inspected in response to leak detections will be proportional to the fraction of statewide infrastructure elements that need to be inspected.

Total statewide component counts were derived from CARB's 2007 Oil and Gas Industry Survey (CARB 2013). This results in the total component count estimated at 7,982,198. All of these components will be subject to the remote emission detection provisions in the Proposed Amendments. At an assumed annual inspection rate of 1% of components subject to the provision, this results in an estimated 79,822 components being inspected and subject to possible repair. The estimated total annual cost of this provision, also including inspection costs and recordkeeping and reporting costs, is estimated at $375,886 per year, as described in more detail in Appendix B.

A. The creation or elimination of jobs within the State of California.

The Proposed Amendments are not anticipated to directly result in job creation or elimination but may indirectly have an impact on job creation. It is possible that a small number of jobs may be created related to the performance of follow-up investigations and repair for remotely detected emission sources, development of LDAR plans, compliance demonstration of vapor recovery and control equipment, and administrative tasks.

B. The creation of new business or the elimination of existing businesses within the State of California.

The expansion or elimination of businesses is not anticipated because the costs of the Proposed Amendments to the regulated industries are small relative to their overall output. Secondary industries may be impacted due to increased demand for scientific, technical, and consulting services. Impacts to the secondary industries are expected to be small and are not expected to result in business creation.

C. The expansion of businesses currently doing business within the State of California.

The expansion of current businesses is not anticipated because the costs of the Proposed Amendments to the regulated industries are small relative to their overall output. Secondary industries may be impacted due to increased demand for scientific, technical, and consulting services.

D. Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete

Staff does not expect there to be significant statewide adverse economic impacts as a result of these amendments. Staff expect impacts to competitiveness to be negligible as the Proposed Amendments are expected to have direct first year and annual ongoing costs of approximately 0.03 percent and 0.01 percent (respectively) of the economic output generated by the regulated industries.

E. The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

Most of the changes in the Proposed Amendments will help to ensure that the benefits of the Regulation are being achieved, to provide CARB with additional data, and to improve clarity. This includes, at a minimum, greater assurance that systems and processes are operating in compliance through increased testing, monitoring, design analysis, recordkeeping, and reporting.

Emission Reductions

The provision for inspection and repair of remotely detected emission plumes is expected to achieve methane emissions reductions. Staff have determined that the limited data and high uncertainty associated with quantifying emission reductions from this provision preclude performing a quantitative assessment at this time. However, a qualitative discussion of the benefits of the remote emission plume detection provision follows.

Various studies from across the United States oil and gas sector have found that a disproportionate share of total emissions come from a relatively small subset of large emission sources (Duren et al. 2019; Cusworth et al. 2021; Chen et al. 2021; Omara et al. 2018). For components already covered by quarterly LDAR requirements, the remote emission detection provision is expected to reduce emissions from large sources from the time period between when the detection occurs and the next regularly scheduled quarterly LDAR survey. For components and equipment not covered by periodic LDAR, the remote emission detection provision may result in the repair of leaks that could have continued much longer. Pilot testing performed by CARB using airplane-based sensors, similar to those to be installed on the two methane detecting satellites to be launched in late 2023, showed that operators were able to locate the remotely detected emission sources in follow-up surveys and repair them in a meaningful fraction of cases.

There are likely to be direct cost savings resulting from preventing the release of natural gas, although staff could not currently quantify emission reductions and associated cost savings from reducing the loss of natural gas.

Local and State Government Revenue

Two items in the cost analysis of these Proposed Amendments involve purchasing tangible goods on which sales tax may be collected. Those are the purchases of vapor collection system bypass locks and pneumatic controller tags, and these calculations are shown in Appendix B.

The Proposed Amendments are estimated to result in an increase of revenue of $59.02 in the first year for local government (4.80% local sales tax rate) and $48.44 in the first year for state government (3.94% state sales tax rate), based on sales taxes collected from the purchase of equipment and materials (CARB 2022f).

IX. Evaluation of Regulatory Alternatives

Government Code section 11346.2, subdivision (b)(4) requires CARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives. This section discusses alternatives evaluated and provides reasons why these alternatives were not included in the proposal. As explained below, no alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner than ensures full compliance with the authorizing law. The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

A. Adopting Less Stringent Amendments Alternative

Alternative 1 is to remove the remote emission detection inspection and repair provision. Thus, this alternative would only include changes to address US EPA's SIP decision and to improve clarity based on implementation experience. Alternative 1 would reduce the costs associated with the Proposed Amendments by $375,886 per year.

The remote emission detection provision backstops traditional LDAR efforts by providing a means to frequently check for large emission events. Although CARB staff could not quantify the emission reductions associated with this measure, evidence demonstrates that large emission sources likely contribute substantially to total emissions and a meaningful fraction of remotely detected sources can be mitigated early through follow-up action. Based on this, staff believe that targeting inspection and repair resources to known emission locations from remote emission detection data is likely to be more cost effective than traditional periodic LDAR activities (see Appendix B for additional details). Additionally, costs are only incurred to the extent that emission plumes are detected. Therefore, staff rejected Alternative 1.

B. Adopting More Stringent Amendments Alternative

Alternative 2 is to target additional emission reductions. The added provisions under this alternative include the following:

1. *Prohibit venting pneumatic controllers.* Under the current Regulation, continuous-bleed pneumatic controllers are prohibited from venting gas to the atmosphere, except for low-bleed pneumatic controllers installed prior to January 1, 2016. Intermittent-bleed pneumatic controllers are also currently allowed to vent to the atmosphere when actuating. This measure would require the remaining low-bleed controllers and all intermittent bleed controllers to either be replaced with no-bleed controllers or have their vapors collected.
2. *Remove heavy oil LDAR exemption.* The current Regulation's LDAR provisions do not apply to components used exclusively for oil with an API gravity of less than 20. This

measure would expand the coverage of the LDAR provisions to include components used for oil with an API gravity of less than 20.

Alternative 2 would add approximately $27.4 million to $28.3 million per year in costs, not considering cost savings, over the Proposed Amendments. The additional cost range is reduced to $26.7 million to $27.6 million if considering cost savings. Emission reductions from the additional measures in this alternative are approximately 156,495 MT CO_2e/yr (Appendix B, Table B3). Methods and equations specific to the Alternative 2 cost analysis are shown in Appendix B.

Alternative 2 is significantly more costly than the Proposed Amendments, including on a net cost basis. The statutory deadline from the US EPA to amend the Regulation to comply with the CTG is limited and focusing on those changes instead of a broader package, such as the elements in Alternative 2, will help ensure that the timeline for CTG-related changes can be met and that sanctions can be avoided. Finally, because the details of potential future requirements to prohibit venting pneumatic controllers and require broader LDAR are still being developed in US EPA's Emissions Guidelines, it is prudent to wait until the requirements are finalized before considering the addition of such measures. For these reasons, staff rejected Alternative 2.

C. Small Business Alternative

The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

D. Performance Standards in Place of Prescriptive Standards

Government Code sections 11346.2(b)(4)(A) and 11346.2(b)(1) contain requirements for proposed regulations that would mandate the use of specific technologies or equipment. However, because the Proposed Amendments includes performance-based requirements and does not mandate the use of specific technologies or equipment, these Government Code requirements are not applicable.

The amendments include direction that emission plumes detected by remote sensing must be investigated by operators; operators are given reasonable latitude in how they conduct emission event investigations and how they go about repairing leaks. As such, this direction is not prescriptive.

Other new requirements in the Proposed Amendments focus on planning, inspection, analysis, recordkeeping, reporting, and administrative responsibilities. These requirements are intended to determine whether leaks or defects are present, track when leaks or defects are repaired, ensure that CARB has sufficient information available to it to audit leak detection, ensure that operators are performing leak detection and repair in accordance with plans, and ensure that vapor collection and control systems are functioning properly. Again, operators are given reasonable latitude in how they conduct inspections and how they go about repairing leaks or defects. Specific measurement devices, equipment, or repair procedures are not prescribed.

To the extent that any of the amendments could be considered prescriptive, a performance standard would be very difficult to enforce. In particular, little data exists on the scale of emissions from sources capable of being detected by remote sensing and some owners or operators may be maintaining facilities with little leakage that would be detectable by remote sensing (where, for example, a performance standard based on emissions reductions applied to such facilities may not be appropriate). While operators are given latitude in conducting leak inspections and repairs, CARB must be able to confirm that reasonable steps were taken to prevent or mitigate unintentional emission events.

E. Health and Safety Code section 57005 Major Regulation Alternatives

The Proposed Amendments will not result in a total economic impact on state businesses of more than $10 million in one or more years of implementation. Therefore, this proposal is not a major regulation as defined by Health and Safety Code section 57005.

X. Justification for Adoption of Regulations Different from Federal Regulations Contained in the Code of Federal Regulations

Federal Regulations

Oil and gas operations are subject to the federal Clean Air Act's permitting requirements and the US EPA's performance standards. These regulations, 40 C.F.R. Part 60, Subpart OOOO ("Quad O") limit emissions of volatile organic compounds from new equipment installed at crude oil and natural gas operations. Corresponding air toxics standards for certain pieces of oil and gas equipment are also codified in 40 C.F.R Part 63.

In May 2016, EPA finalized additional methane emission standards under section 111 of the Clean Air Act for new equipment in oil and gas fields, codified at 40 C.F.R Part 60, Subpart OOOOa. This included control techniques guidelines for volatile organic compounds from existing sources, which is the reason for many of the proposed amendments discussed herein. In November 2022, the US Bureau of Land Management (BLM) issued a proposed Waste Prevention Rule to regulate new and existing sources on federal BLM leases and Tribal leases to prevent waste of natural gas. In December 2022, EPA published its supplemental proposed Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources to further reduce methane and volatile organic compound emissions from the oil and gas sector.

These federal rules are less complete than the California rules and do not fully address the universe of sources emitting pollution in this sector. The Proposed Amendments are more stringent than current federal standards and directly addresses methane emissions from existing facilities and equipment. By comparison, the current EPA rules only apply to methane from new facilities. The Proposed Amendments also reach sources beyond federal and Tribal lands, unlike the US BLM rule.

California has authority to set its own standards to reduce emissions further to meet federal and state ambient air quality standards and climate change requirements and goals, and to require additional and separate reporting. The differing requirements in the Proposed

Amendments are necessary to achieve additional benefits for human health, public welfare, and the environment as envisioned by authorizing legislation.

Statutory Requirements/Agency Goals

The Proposed Amendments are primarily based on the statutory authority of the California Global Warming Solutions Act, AB 32, as codified in sections 38500-38599 of the Health and Safety Code and the California Global Warming Solutions Act: Emissions Limit, SB 32, as codified in section 38566 of the Health and Safety Code. It is also based upon CARB's mandates to control short-lived climate pollutants, per SB 1383, as codified in section 39730.5 *et seq*. of the Health and Safety Code, CARB's mandate to regulate methane leakage from underground storage facilities, per SB 887, as codified in section 42710, *et seq.*, of the Health and Safety Code, and CARB's general rulemaking authority, per section 39600 *et seq*. of the Health and Safety Code.

XI. Public Process for Development of the Proposed Action (Pre-Regulatory Information)

Consistent with Government Code sections 11346, subdivision (b), and 11346.45, subdivision (a), and with the Board's long-standing practice, CARB staff held public workshops and had other meetings with interested persons during the development of the proposed regulation. These informal pre-rulemaking discussions provided staff with useful information that was considered during development of the regulation that is now being proposed for formal public comment.

Further information on the pre-rulemaking public process is described in Section I.

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XIII. Appendices

Appendix A-1: Proposed Regulation Order

Appendix A-2: Proposed Regulation Order (Accessible Format)

Appendix B: Economic Analysis