

Updated Informative Digest

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

Sections Affected:

Proposed amendments to California Code of Regulations, title 17, sections 95665, 95666, 95667, 95668, 95669, 95670, 95671, 95672, 95673, 95674, 95675, 95676, 95677, Appendix A, and Appendix C.

Proposed adoption of California Code of Regulations, title 17, sections 95669.1, 95670.1, Appendix D, Appendix E, Appendix F, and Appendix G.

Documents Incorporated by Reference (Cal. Code Regs., tit. 1, § 20, subd. (c)(3)):

The following documents would be incorporated in the regulation by reference:

- ASTM International, 2006. Specification D4891-89: Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion. Reapproved 2006. Copyrighted. Incorporated by reference in Appendix F(d)(5)(B)(3).
- ASTM International, 2000. Specification D6522-00: Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers. February 10, 2000. Copyrighted. Incorporated by reference in Appendix F(b)(4)(A)(1).
- ANSI/ASME, 1981. PTC 19.10-1981: Flue and Exhaust Gas Analyses. Copyrighted. Incorporated by reference in Appendix F sections (b)(4)(A)(1) and (d)(7)(C).
- United States Environmental Protection Agency (U.S. EPA), 2012. Protocol 1: EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards. May 2012. Incorporated by reference in Appendix F(d)(9)(D).
- Title 40 Code of Federal Regulations (CFR), Part 60 – Standards of Performance for New Stationary Sources, section 60.112b. Last amended October 8, 1997. Incorporated by reference in sections 95668(a)(2)(C), 95668(a)(3), 95669(c)(3)(B), Appendix D(b)(2), and Appendix D(h)(6).
- Title 40 CFR, Part 60 – Standards of Performance for New Stationary Sources, section 60.18. Last amended December 22, 2008. Incorporated by reference in Appendix E(b)(1)(C) and Appendix F(a)(1).

- Title 40 CFR, Part 60 – Standards of Performance for New Stationary Sources, Subpart Kb. Last amended January 19, 2021. Incorporated by reference in Appendix D(b)(2).
- Title 40 CFR, Part 60, Appendix A-1 – Test Methods 1 through 2F. Last amended January 14, 2019. Incorporated by reference in section 95667(a)(17)(B), Appendix F sections (b)(1), (d)(4)(A), (d)(4)(B), and (d)(6)(A)(2), and Appendix G section (a)(4)(B).
- Title 40 CFR, Part 60, Appendix A-2 – Test Methods 2G through 3C. Last amended October 31, 2016. Incorporated by reference in Appendix F sections (b)(2), (b)(4)(A), (d)(7)(A)(4), (d)(7)(B), (d)(7)(C), and (d)(9)(F).
- Title 40 CFR, Part 60, Appendix A-3 – Test Methods 4 through 5I. Last amended March 23, 2021. Incorporated by reference in Appendix F sections (b)(3), (d)(7)(A), and (d)(7)(B).
- Title 40 CFR, Part 60, Appendix A-4 – Test Methods 6 through 10B. Last amended December 7, 2020. Incorporated by reference in Appendix F(d)(8).
- Title 40 CFR, Part 60, Appendix A-7 – Test Methods 19 through 25E. Last amended December 7, 2020. Incorporated by reference in Appendix E sections (b)(1)(A)(3), (b)(1)(C), (d)(2)(A)(2), and (f)(6), and Appendix F sections (a)(1), (b)(3), (b)(4), (d)(8), (d)(9)(A), (d)(9)(B), (d)(10), (d)(11)(A)(1), (d)(11)(A)(2), (e)(3), and (e)(5).
- Title 40 CFR, Part 63 – National Emission Standards for Hazardous Air Pollutants for Source, section 63.1207. Last amended October 28, 2008. Incorporated by reference in Appendix E sections (b)(2)(B)(3) and (b)(2)(B)(4), and Appendix F sections (a)(4) and (a)(5).
- Title 40 CFR, Part 63 – National Emission Standards for Hazardous Air Pollutants for Source, Subpart EEE. Last amended October 28, 2008. Incorporated by reference in Appendix E sections (b)(2)(B)(3) and (b)(2)(B)(4), and Appendix F sections (a)(4) and (a)(5).
- Title 40 CFR, Part 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, Subpart X. Last amended February 7, 2020. Incorporated by reference in Appendix E(b)(2)(B)(1).
- Title 40 CFR, Part 266 – Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities, Subpart H. Last amended March 18, 2010. Incorporated by reference in Appendix E sections (b)(2)(B)(5) and (b)(2)(B)(6), and Appendix F section (a)(4).
- Title 40 CFR, Part 270 – EPA Administered Permit Programs: the Hazardous Waste Permit Program. December 9, 2019. Incorporated by reference in Appendix E sections (b)(2)(B)(1) and (b)(2)(B)(5), and Appendix F section (a)(4).

Background and Effect of the Proposed Regulatory Action:

Background on Oil and Gas Methane Regulation

The Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (the Oil and Gas Methane Regulation or the Regulation) is designed to reduce methane emissions from the oil and natural gas sector primarily through equipment replacement, emission control systems, maintenance, and leak detection and repair (LDAR). The Regulation was adopted by the California Air Resources Board (CARB or Board) in 2017 and responds to California's emission reduction goals for greenhouse gases, as codified in Assembly Bill 32¹ and Senate Bill 32.²

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. The Regulation includes requirements for LDAR, vapor control on uncontrolled tanks above an emission threshold, replacement of compressors' high-emitting rod packing or wet seals, no-bleed pneumatic devices and pumps, additional monitoring at natural gas underground storage facilities, measuring of liquids unloading and well casing vent emissions, and recordkeeping and reporting.

Proposed Amendments to the Oil and Gas Methane Regulation and Their Effects

One type of co-pollutant that may be emitted along with methane is volatile organic compounds (VOC), which contribute to the formation of ozone. Because of this, CARB included the Oil and Gas Methane Regulation in its State Implementation Plan (SIP) submittal in 2018 to address emissions in ozone non-attainment areas. In 2022, the United States Environmental Protection Agency (U.S. EPA) finalized a *limited approval, limited disapproval* of the Oil and Gas Methane Regulation as submitted into the SIP.³ Specifically, U.S. EPA identified a number of inconsistencies between the CARB Oil and Gas Methane Regulation and U.S. EPA's 2016 Control Techniques Guidelines (CTG)⁴, which define the level of control required for oil and natural gas sector sources in ozone non-attainment areas. The proposed amendments to the Regulation address areas where the Regulation may be less stringent than the CTG for ozone non-attainment areas to achieve approval in the SIP.

In addition to changes to address the SIP deficiencies, the proposed amendments include changes related to knowledge gained through implementation of the Regulation and the increasing availability of remote leak detection technology. These proposed amendments will add new requirements that will affect the same set of industries and businesses that were already subject to the Regulation. According to reporting data from the Regulation, the proposed amendments will directly impact 302 businesses, including 294 businesses in the oil and natural gas extraction segment and 8 businesses in the natural gas transmission and storage segment. All of these are California businesses. None of the primary industries are small businesses.

¹ AB 32, Nuñez, Chapter 488, Statutes of 2006.

² SB 32, Pavley, Chapter 249, Statutes of 2016.

³ U.S. EPA. (2022). Limited Approval, Limited Disapproval of California Air Plan Revisions; California Air Resources Board. FR Doc 2022-20870. Filed 29 September 2022. <https://www.govinfo.gov/content/pkg/FR-2022-09-30/pdf/2022-20870.pdf>.

⁴ U.S. EPA. (2016). Control Techniques Guidelines for the Oil and Natural Gas Industry. <https://www.epa.gov/sites/production/files/2016-10/documents/2016-ctg-oil-and-gas.pdf>.

The total cost of the proposed amendments over a five-year analysis period is estimated at \$6.6 million, which includes \$2.2 million in the first year and \$1.1 million annually thereafter. The proposed amendments are estimated to cost a typical business \$7,449 in the first year and \$3,631 in subsequent years. For businesses with larger operations, the costs may be higher than the averages presented.

The costs of the proposed amendments are estimated to be approximately 0.03% and 0.01% of the output of the affected industries in the first and subsequent years, respectively. Therefore, there is not expected to be quantifiable changes to the number of jobs or businesses in the primary industries as a result of the proposed amendments. There may be some increase in demand for companies that contract with the primary industries to provide services related to LDAR, vapor collection system testing, and other tasks.

Objectives and Benefits of the Proposed Regulatory Action:

The proposed amendments are designed primarily to comply with U.S. EPA's requirements for California's SIP. U.S. EPA outlined each deficiency in the Oil and Gas Methane Regulation in their decision⁵ and provided further detail in an accompanying technical support document⁶ that was posted with their earlier proposed decision. Most of these changes are minor or administrative in nature. Some of the more substantial provisions in response to the U.S. EPA decision include requiring operators to identify components and equipment subject to LDAR (accomplished through required development of LDAR plans), testing and other provisions to demonstrate that vapor collection and control systems are achieving sufficient control efficiency, and reducing the amount of CARB Executive Officer discretion. These changes are necessary to achieve approval of the SIP and avoid sanctions that would otherwise occur.

Some proposed amendments are based on experience implementing the Regulation or for cleanup reasons. These proposed amendments are mostly administrative in nature, such as changing reporting methods, fixing typos, improving definitions, removing requirements for time periods in the past, and clarifying provisions that have caused confusion. The changes will make it easier for regulated parties to understand and adhere to the Regulation.

The proposed amendments are also intended to utilize the State's investments in improved methane monitoring technologies, including the recently budgeted \$100 million for remote methane monitoring satellite data. A new provision based on this remote monitoring data 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 monitoring provision may also result in the repair of leaks that could have continued much longer.

⁵ U.S. EPA. (2022). Limited Approval, Limited Disapproval of California Air Plan Revisions; California Air Resources Board. FR Doc 2022-20870. Filed 29 September 2022. <https://www.govinfo.gov/content/pkg/FR-2022-09-30/pdf/2022-20870.pdf>.

⁶ U.S. EPA. (2022). Technical Support Document for EPA's Rulemaking for the California State Implementation Plan: California Air Resources Board (CARB) Regulation for Greenhouse Gas Emissions Standards for Crude Oil and Natural Gas Facilities. April 2022. <https://www.regulations.gov/document/EPA-R09-OAR-2022-0416-0002>.

The changes in the proposed amendments will improve the clarity and effectiveness of the Oil and Gas Methane Regulation, will provide CARB with additional data, and will reduce time delays in addressing methane leaks.

Description of Regulatory Action

On April 25, 2023, CARB released the Notice of Public Hearing (45-Day Notice) and Staff Report: Initial Statement of Reasons for Rulemaking (Staff Report), titled "Public Hearing to Consider the Proposed Amendments to the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities," for public review. The Staff Report contains a description of the rationale for the proposed amendments. On April 25, 2023, all references relied upon and identified in the Staff Report were made available to the public. CARB received written comments from 21 commenters during the 45-Day Notice comment period.

On June 22, 2023, CARB conducted a public hearing. CARB staff informed the Board of the proposed amendments to the Oil and Gas Methane Regulation and the Board received written and oral comments from the public. At the conclusion of the hearing, the Board approved Resolution 23-18 for adoption of the proposed amendments.

In accordance with Government Code section 11346.8, the Board directed the Executive Officer to adopt the proposed amendments after making any appropriate conforming modifications, as well as any additional supporting documents and information, available to the public for a period of at least 15 days. The Board further provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make such modifications as may be appropriate in light of the comments received, and shall present the regulation to the Board for further consideration if warranted.

Subsequent to the hearing, CARB released a Notice of Public Availability of Modified Text and Availability of Additional Documents and Information (15-Day Notice) on November 2, 2023. The 15-Day Notice and proposed modified regulatory text was posted on CARB's website at <https://ww2.arb.ca.gov/rulemaking/2023/oil-and-gas-2023>, accessible to all stakeholders and interested parties. These 15-day modifications consisted primarily of improvements to better harmonize the proposed amendments with local air district rules, minor adjustments to timelines, and clarifications. Changes were also made to correct references and augment the record. The list below summarizes the changes in more detail:

- Updated the amended dates of several recently amended local air district rules that provide exemptions⁷ from the proposed amendments.
- Added an additional local air district rule to the exemption list for leak detection and repair to account for changes in local air district rule applicability.
- Removed incorporation by reference of local air district rules for the exemptions in the Regulation.
- Updated all compliance dates that were previously set for April 1, 2024, to July 1, 2024, to align with the compliance dates in some newly amended local air district rules.

⁷ Some equipment is exempt from specific provisions in the proposed amendments if it is covered under certain local air district rules.

- Added requirement for owners or operators to maintain lists of components and equipment exempt from leak detection and repair under the proposed amendments due to being subject to a few specific local air district rules.
- Extended timeline for owners or operators to report results of inspections following notification of remotely detected methane plumes.
- Set a maximum timeline for CARB to send notifications of remotely detected methane plumes after CARB receives the remote monitoring data.
- Corrected various mistakes in grammar, terminology, or phrasing.
- Made additional minor changes for consistency, clarity, or cleanup.

Comparable Federal Regulations:

Oil and natural gas operations are subject to the federal Clean Air Act (CAA), including its permitting requirements. Operations are also subject to U.S. EPA performance standards for oil and natural gas operations. These regulations, 40 C.F.R. Part 60, Subpart OOOO, limit emissions of VOC from new equipment installed at crude oil and natural gas operations. Corresponding air toxics standards for certain pieces of oil and natural gas equipment are also codified in 40 C.F.R Part 63.

In May 2016, U.S. EPA also finalized methane emission standards under section 111 of the CAA for new equipment in oil and natural gas fields. These regulations are codified at 40 C.F.R. Part 60, Subpart OOOOa. U.S. EPA has issued CTG for control of VOCs from existing sources, which is the reason for many of the proposed amendments discussed herein. In December 2022, U.S. 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 VOC emissions from the oil and natural gas sector. Additionally, the U.S. Bureau of Land Management (BLM) issued a proposed Waste Prevention Rule to regulate new and existing sources on federal BLM and Tribal leases to prevent waste of natural gas in November 2022.

However, all of these federal rules do not fully address the universe of sources emitting pollution in this sector in California. The proposed amendments regulate methane emissions from both new and existing facilities and equipment across all land types in California unlike the current U.S. EPA rules, which only apply to methane from new, or newly modified, facilities, and the proposed BLM rule, which only applies to sources on federal BLM leases and Tribal leases. Additionally, the CTG and forthcoming Emissions Guidelines for Existing Sources specifically require (or will require) states to develop measures to achieve the level of stringency defined by those standards.

An Evaluation of Inconsistency or Incompatibility with Existing State Regulations (Gov. Code, § 11346.5, subd. (a)(3)(D)):

During the process of developing the proposed regulatory action, CARB conducted a search of any similar regulations on this topic and concluded these regulations are neither inconsistent nor incompatible with existing state regulations.

Many air districts with significant oil and natural gas production have rules designed to reduce criteria pollutant and criteria pollutant precursor emissions from the oil and natural

gas sector in order to meet federal ambient air quality requirements. Air district rules do not cover methane-specific sources, and the proposed amendments address emissions from equipment and processes not already controlled by those existing air district rules.