



**Public Workshop:
Potential Amendments to the Oil and
Gas Methane Regulation - Draft Text**

January 20, 2023

Agenda

- Background
- Motivation
- Potential Amendments
 - Overview
 - Alignment with EPA Control Techniques Guidelines
 - Regulatory Text Cleanup and Clarification
 - Provision for Remotely Detected Leaks
- Feedback/Q&A/Next Steps

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Why Reduce Oil and Gas Methane Emissions?

- Methane is a potent greenhouse gas (GHG)
- Short-lived: emission reductions have large near-term benefits
- Many cost-effective emission reduction measures
- Other pollutants with potential health implications are often emitted along with methane (e.g., VOCs, BTEX)
 - Reducing methane emissions can reduce co-pollutant emissions

VOCs = Volatile organic compounds

BTEX = Benzene, toluene, ethylbenzene, and xylenes

Oil and Gas Methane Regulation

Adopted in 2017 to address methane from oil and gas facilities

Builds off local air district rules targeted at volatile organic compounds (VOCs)

CARB and the local air districts have collaborated to implement the regulation since 2018

Where this Regulation Applies

Crude Oil and Natural Gas Industry

Regulation Applies

Production & Processing

1. Onshore and offshore well sites
2. Storage tank batteries
3. Gathering and boosting compressor stations
4. Natural gas processing plants

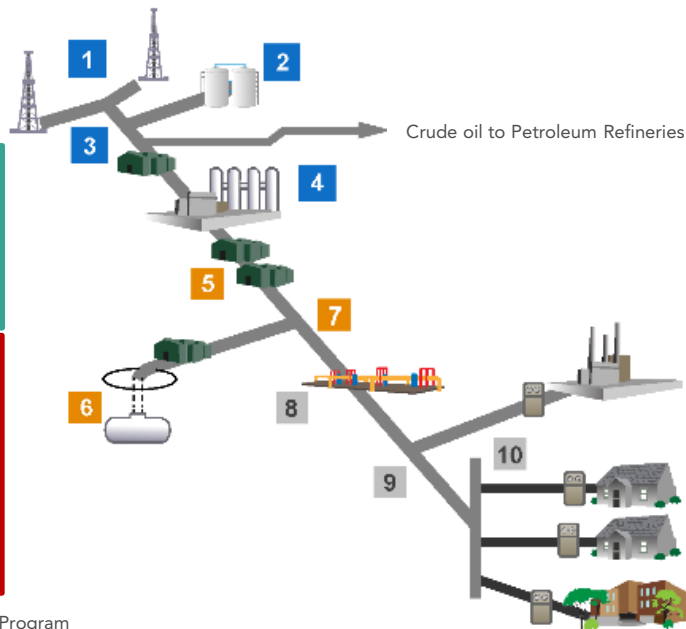
Natural Gas Transmission & Storage

5. Transmission compressor stations
6. Underground storage
7. Transmission pipeline

Regulation Does Not Apply

Distribution

8. City Gate
9. Distribution mains/services
10. Regulators and meters for customers



Source: Adapted from American Gas Association and U.S. EPA Natural Gas STAR Program

Regulatory Requirements

- Quarterly leak detection and repair (LDAR)
- Vapor control on tanks above an emission threshold
- Replacement of high-emitting seals on compressors
- Zero-emitting pneumatics (some exceptions)
- Additional monitoring for natural gas underground storage facilities (UGSFs)
- Measuring liquids unloading and well casing vent emissions
- Record keeping and reporting

Regulation Accomplishments

- All separators, tanks, and compressors subject to CARB's regulation are complying
- No high-bleed pneumatics left; few low-bleed left
- Air monitoring plans for all 12 UGSFs have been approved
 - 34 new ambient air monitors installed
- Emission reductions of ~225,000 MT CO₂e* in 2019

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Control Techniques Guidelines for the Oil and Natural Gas Industry (CTG)

2016

US EPA issues CTG

CTG sets requirements for states to revise their State Implementation Plans (SIPs) for ozone nonattainment areas

2018

CARB Submits Oil and Gas Methane Regulation into SIP

Intended to meet CTG for California
Regulation references some air district rules; EPA also evaluated those

US EPA's SIP Decision



- US EPA issued a *limited approval, limited disapproval**
 - Some aspects of the rule met the CTG
 - In some areas there were deficiencies

Addressing Deficiencies

Amendments

to CARB's rule and
Air District rules

AND

Demonstrations

that some identified
items *are* as stringent
as the CTG



Sanctions deadline to
address deficiencies*

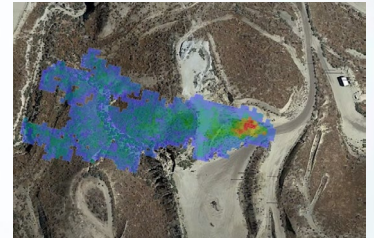
Regulatory Text Cleanup and Clarification

- Clarification of provision interpretation
 - E.g., as clarified in FAQs
- Deletion of past dates
- Correction of minor typos



Upcoming Satellite Data

- Two satellites to be deployed in 2023 through Carbon Mapper partnership
 - California to purchase additional satellites in future
- Data expected to be available early 2024
- Satellites can play important role detecting methane leaks in California and beyond



Source: Carbon Mapper
([upper](#)) ([lower](#))

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Potential Amendments Presented at Last Workshop

- Amendments to align with EPA's CTG
- Clarifications/cleanup
- Inspection/repair of remotely detected leaks
- Ban venting pneumatic controllers
- Ban associated gas venting
- Allow alternative LDAR programs
- Remove heavy oil LDAR exemption

Potential Amendments in Draft Text

In Draft Text

- ✓ Amendments to align with EPA's CTG
 - ✓ Clarifications/cleanup
 - ✓ Inspection/repair of remotely detected leaks
-

Assessing for Future or Other Avenues

- Ban venting pneumatic controllers
- Ban associated gas venting
- Allow alternative LDAR programs
- Remove heavy oil LDAR exemption

Reasoning for Text Modification

- ✓ CTG alignment → Required by EPA to avoid near-term sanctions
- ✓ Clarifications/cleanup → Ensure accurate and uniform implementation
- ✓ LDAR of remotely detected leaks → Substantial mitigation potential
Satellites to be launched soon

Why Assessing for Future Amendments or Other Avenues

- Ban venting pneumatics →
 - Ban assoc. gas venting →
 - Allow alternative LDAR →
 - Remove heavy oil LDAR exemption →
- Need more time for analysis, discussion, and development than sanctions deadline allows
- E.g., recommendations from the CARB/CalGEM Methane Task Force
- Awaiting clarity in finalized US EPA Emissions Guidelines*

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Operators Develop LDAR Plans

- Operators required to develop facility LDAR plans
 - Surveying procedures
 - Sitemaps
 - Lists of equipment and components to be monitored
 - Lists of equipment and components designated as “inaccessible” or “unsafe to monitor”
 - Frequency of surveys and repair timeframes for equipment

New Requirements Added for Separator and Tank Systems

- Additional separator and tank system requirements in new Appendix D
 - Cover requirements
 - Process for removing and returning tanks to service
 - Compliance demonstrations
 - Additional recordkeeping

New Requirements Added for Vapor Collection Systems and Control Devices

- Analysis and testing of vapor collection and control systems in new Appendices E and F
 - Locks or flow indicators on bypass valves
 - Assessment of vapor collection system size adequacy
 - Requirements for vapor control devices
 - Monthly inspections (e.g., audio-visual-olfactory)
 - Compliance demonstrations (including periodic performance tests)
 - Additional recordkeeping

Specific Air District Rules Qualifying for Exemptions Listed

- In current regulation, air district rules can provide exemptions to separator/tank standards and LDAR
- In draft amendments, exemptions are based on specific listed district rules for non-attainment areas
 - US EPA must be able to assess rules used as exemptions to ensure CTG compliance

Other Draft Changes Made to Align with CTG

- Removal of some extended/unbounded repair timeframes
- Removal of small stainless steel fitting LDAR exemption
- Repair timeframe changed from 14 days to 5 days for leaks between 1,000-9,999 ppm
- Reduced annual maintenance time for vapor collection systems
- Tagging of some pneumatic controllers
- Additional minor changes

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Removed Dates in the Past

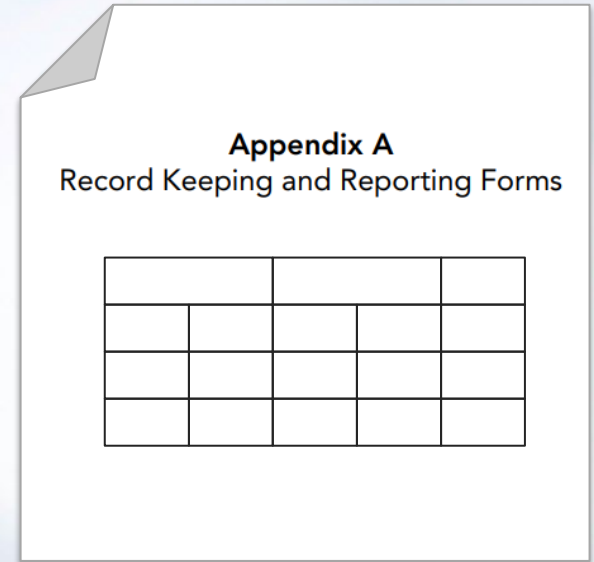
- Removed deadlines in the past
 - E.g., "~~By January 1, 2018...~~"
 - E.g., "~~Beginning January 1, 2019...~~"
- Removed items for time periods in the past
 - LDAR specifications for 2018-2019
- Restructured separator and tank system section

Updated Underground Natural Gas Storage Monitoring Plans

- Operators to notify CARB when ambient or wellhead monitoring systems taken offline
- Existing facilities to revise plans to match minor changes to plan elements
- Process specified for new facilities

Existing Recordkeeping Tables Expanded

- Reflects changes from implementation experience
- Conforms to Cal e-GGRT reporting



Harmonized Delay of Repair Provisions

- Delay of repair requests harmonized in one section
 - Requestor provides:
 - Justification (including supporting documentation)
 - Estimated time to complete repairs (sets the deadline)
 - Notification once repairs have been completed
 - Acceptable justifications listed
 - Maintain records underlying request

Production-sector Reciprocating Compressors Follow LDAR Section Provisions

- Standards section currently calls to LDAR section for inspection of these compressors
 - Contains provisions for extended repair timeframes
- In draft amendments, only Section 95669 LDAR provisions are followed
 - Same repair timeframes as other components

Other Draft Amendments

- Produced water downstream of exempt separator and tank systems also exempt from LDAR
- Well casing vent emission measurement explanations
- Report well production status for leaks found on wells
- Greater specificity on documentation for critical component requests
- Reporting through Cal e-GGRT for many provisions
- Changes in facility ownership reported within 30 days

Draft Clarification Amendments

- No emission rate measurements of controlled rod packings/seals
- LDAR must be performed on idle wells
- Requirements for CARB EO inspections vs. operator LDAR
- Leaks found in Q4 operator LDAR inspections are not a violation if repaired in allowed time periods
- “Successful repair” requires remeasurement
- Many others as shown in draft text

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Remotely Detected Leaks: CARB Notifies Operator

- CARB obtains remote sensing data indicating a leak
- CARB sends operator a notification, including:
 - Coordinates of the leak location
 - Image of the plume
 - Date of detection

Operator Inspection and Repair of Remotely Detected Leaks

- Operator must inspect facility within 3 days
 - Can use optical gas imaging (OGI) or Method 21
- If cannot find leak (after two inspections) or it is determined to be allowable venting:
 - Operator reports inspection information and findings to CARB
- If a fugitive leak, operator:
 - Measures leak concentration
 - Repairs within timeframes specified in LDAR section
 - Reports inspection information and findings to CARB

Operator Reports Findings of Remotely Detected Leaks

All inspections:

- Facility information
- Inspection date
- Emission ID and date of notification by CARB
- Instrument used
- Calibration date
- Type of emission (or none)

If allowable venting, also:

- Description of venting (source, why it occurred)

If fugitive leak over leak threshold, also:

- Equipment emitting (ID/description, type)
- Component emitting (ID/description, type)
- Active or idle well (if leaking from a well)
- Initial leak concentration
- Post-repair concentration
- Repair date
- Report w/ quarterly LDAR data

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Feedback Requested: Amendments to Align with CTG

- Are there other options to address deficiencies identified by US EPA?
 - Deficiencies described in US EPA's [decision](#) and [technical support document](#).

**ENVIRONMENTAL PROTECTION
AGENCY**

40 CFR Part 52

[EPA-R09-OAR-2022-0416; FRL-9820-02-R9]

**Limited Approval, Limited Disapproval
of California Air Plan Revisions;
California Air Resources Board**

AGENCY: Environmental Protection
Agency (EPA).

ACTION: Final rule.

Feedback Requested: Clarifications and Cleanup

- Are the clarifications adequate?
- Do any of the clarification or cleanup changes introduce new ambiguity or issues?
- Are there additional clarification or cleanup changes that should be made?
 - Please be as specific as possible

Feedback Requested: Remote Sensing Provision

- What types of remote sensing technology should be included?
- What requirements should be included for eligibility of data sources?
- What information should be provided to operators in notifications?

Cost Data Requested

- Cost to perform source testing (i.e., Appendix F)
- Cost of a Professional Engineer's vapor collection system sizing assessment (in Appendix E)
- Ability to install locks or flow indicators on vapor control device bypass valves as currently configured, or cost to retrofit those valves if necessary
- Were any vapor collection systems (VCS) installed to control pneumatic controllers and pneumatic pumps as a result of the regulation?
 - If so, how many controllers/pumps were routed to a single VCS?

Recent and Ongoing Processes Expected to Inform Future Amendments



**CARB/CalGEM
Methane Task Force**



**US EPA's Proposed
Emissions Guidelines**

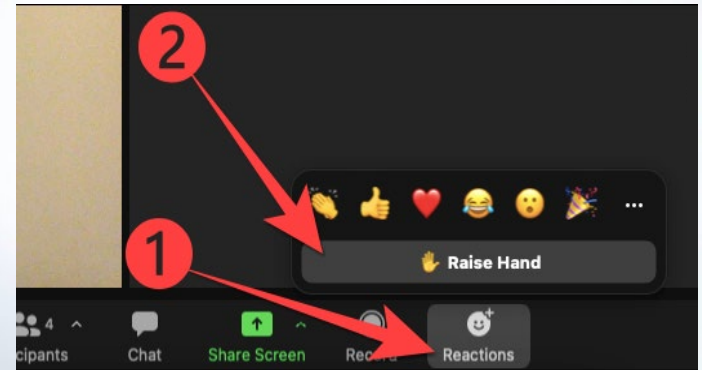


**CARB's 2022
Scoping Plan**

CARB to assess outcomes for additional changes in a subsequent round of amendments

Questions or Comments?

- To ask a question or give a comment:
 - Click "Reactions" at the bottom of your screen
 - Select "Raise Hand"
 - When staff call your name, click "unmute" in the popup box and introduce yourself



Next Steps

- Submit written feedback online through February 10, 2023 (5 pm Pacific Time)
 - Link to submit written feedback on the [Meetings & Workshops](#) section of our Oil and Natural Gas Production, Processing, and Storage webpage
 - [Sign up](#) for email updates
- Board Meeting tentatively planned for Q2 2023

Contact Information

Questions?

Contact Quinn Langfitt:

Quinn.Langfitt@arb.ca.gov

We are available for individual meetings by request