

Proposed GHG Emission Standards for Crude Oil and Natural Gas Facilities



California Environmental Protection Agency

 **Air Resources Board**

March 23, 2017

Overview

- * Background
- * Proposed Regulation, with 15-Day Changes
- * Environmental Analysis
- * Implementation
- * Staff's Recommendation

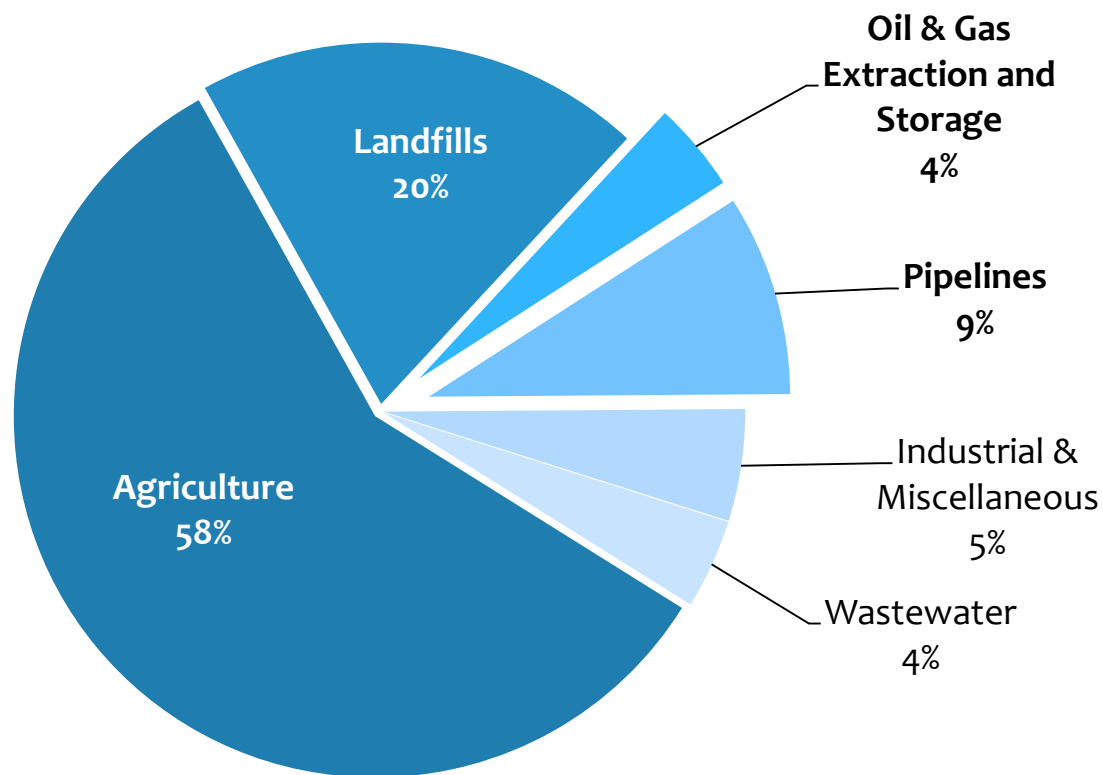
Background



Policy Drivers

- * Climate Change Scoping Plans identify oil & gas sector as large source of GHG emissions.
- * Short-Lived Climate Pollutant (SLCP) Strategy includes a target of 40-45 percent reduction in methane from oil & gas sector as a whole by 2025.
- * SB 4's focus on well stimulation addressed, as is SB 887's focus on underground storage monitoring.
- * Over 5 million people in California live within one mile of at least one oil or gas well.

California 2013 Methane Emission Sources (118 MMTCO₂e)



Other State and Local Regulations

- * DOGGR Natural Gas Underground Storage air monitoring requirements transition to ARB.
- * CPUC developing best practices per SB 1371 to be consistent with ARB's regulation.
- * Districts regulate oil & gas for VOC purposes.
 - * ARB's proposed regulation covers leaking equipment not already covered by air district rules.

Federal Actions on Oil & Gas

- * ARB proposal covers **new and existing** sources, and is generally more stringent and broader than federal requirements.
- * Worked to harmonize with federal regulations as much as possible.
- * Some rules being challenged. We plan to closely monitor status of those programs and implications.

Proposed Regulation with 15 Day Changes



Progress on Regulation

- * Since August 2014, have had 5 workshops and dozens of meetings with working groups and stakeholders.
- * July 2016: Proposed regulation presented to the Board with recommended 15-day changes.
- * February 3, 2017: Released revised regulation for 15-day public comment.
- * March 23, 2017: Presenting revised regulation for Board consideration of adoption.

Applicability

- * The proposed regulation addresses fugitive and vented emissions of methane from both new and existing oil and gas facilities.
- * The covered facilities include:
 - Oil and Gas Production, Processing, and Storage
 - Gathering and Boosting Stations
 - Natural Gas Underground Storage
 - Compressor Stations

Proposed Regulation Standards

Separator and Tank Systems

- * Applies to systems at all regulated facilities.
- * Require flash testing to determine annual methane emissions.
- * Require systems with annual emissions above 10 MT methane to install vapor collection.
- * Exemptions for low throughput systems and small gauge tanks.



Proposed Regulation Standards

Circulation Tanks

- * Tanks used as part of a well stimulation treatment.
- * Operators submit a Best Practices Management Plan, followed by a control equipment technical assessment.
- * If technical assessment proves out, tanks controlled for emissions by January 1, 2020.



Proposed Regulation Standards

Leak Detection & Repair (LDAR)

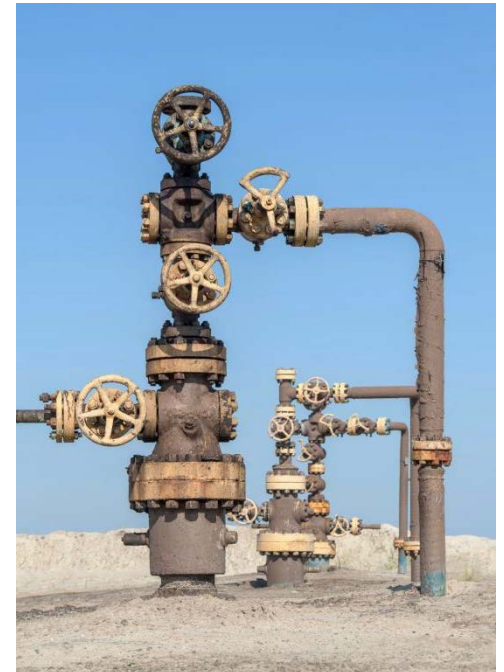
- * Requires daily inspections and quarterly testing to check components for leaks.
- * Builds on current requirements by some districts to control VOCs.
- * Regulation would extend testing to methane at natural gas facilities.
- * FSOR will clarify implementation; may also issue guidance.



Proposed Regulation Standards

Underground Gas Storage

- * Monitoring program designed for the early detection of leaks:
 - Ambient air monitoring
 - Daily or continuous monitoring at injection/withdrawal wells.
 - Incorporates SB 887 requirements.
- * Operators submit monitoring plans to ARB for approval.



Proposed Regulation Standards

Natural Gas Compressors

- * Emission standards for reciprocating compressor rod packings and centrifugal compressor wet seals.
- * Requires either (1) replacement of high-emitting rod packing or wet seal, or (2) collection of leaking gas.
- * All compressors subject to LDAR.



Proposed Regulation Standards

Pneumatic Devices & Pumps

- * Continuous to no-bleed:
 - Air or electricity to operate; or,
 - Controlled with a vapor collection system



Other Measuring and Reporting Requirements

Proposed Implementation Dates

* **January 1, 2018:**

- Flash testing
- LDAR inspections
- Natural gas storage monitoring plans
- Registration and permitting

* **January 1, 2019:**

- Vapor collection on separator & tank systems
- Pneumatic devices and compressor seal change-outs
- Circulation tank technology assessment

* **January 1, 2020:**

- Circulation tank vapor collection, pending technology assessment

GHG Emission Reductions & Costs

- * Overall estimated annualized cost, with natural gas savings, of \$27,300,000
- * Estimated continuing reductions of more than 1.4 million MT of CO₂e per year, using a 20 year Global Warming Potential for methane.
- * Estimated overall cost-effectiveness of \$19 per MT of CO₂e reduced.

Emission Reduction Co-Benefits

- * Over 3,600 TPY of VOC reductions statewide.
- * Over 100 TPY of reductions statewide of Toxic Air Contaminants, such as Benzene, Toluene, Ethyl-Benzene, and Xylenes.
- * Neutral statewide NOx impact.

Environmental Analysis



Environmental Analysis

- * Draft Environmental Analysis (EA) 45-Day comment period June 3, 2016 – July 18, 2016.
- * Final EA and written responses to comment on the Draft EA released on March 10, 2017.

Implementation



Implementation

- * Regulation allows both ARB and the districts to implement; district implementation is preferred.
- * ARB is developing a registration program for equipment not covered by districts.
- * Districts can charge fees and retain enforcement penalties.
- * Working on additional resource options to aid with personnel and test equipment.

Implementation

(continued)

- * ARB and districts developed a model Memorandum of Agreement (MOA) to specify roles and responsibilities.
 - Enforcement coordination, and support information and data sharing
 - MOAs may be tailored for specific district needs.
- * Expect MOAs to be finalized this summer, prior to implementation of the regulation.

Implementation

(continued)

- * Review data being reported under program.
- * Update ARB Oil and Gas webpage throughout program implementation.
- * Work with CAPCOA and stakeholders to develop implementation guidance.
- * Monitor program implementation.
- * Periodically update Board on status and propose adjustments as necessary.

Staff's Recommendation



Staff's Recommendation

- * Adopt Board Resolution 17-10 to:
 - Approve written responses to EA comments, certify Final EA, and make required CEQA findings.
 - Adopt Final Regulation Order.
 - Direct staff to continue working with districts to finalize MOAs.