

# Proposed GHG Emission Standards for Crude Oil and Natural Gas Facilities



California Environmental Protection Agency

 **Air Resources Board**

March 23, 2017

# Overview

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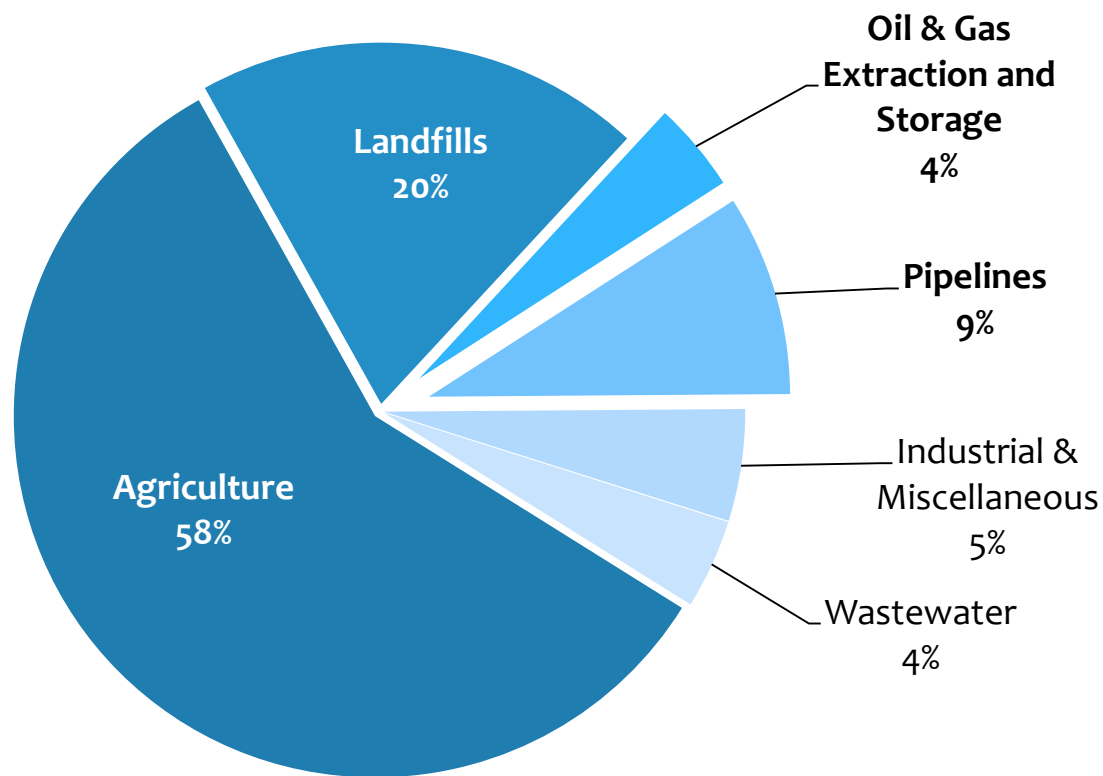
# Background



# 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 MMTCO<sub>2</sub>e)



# 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)

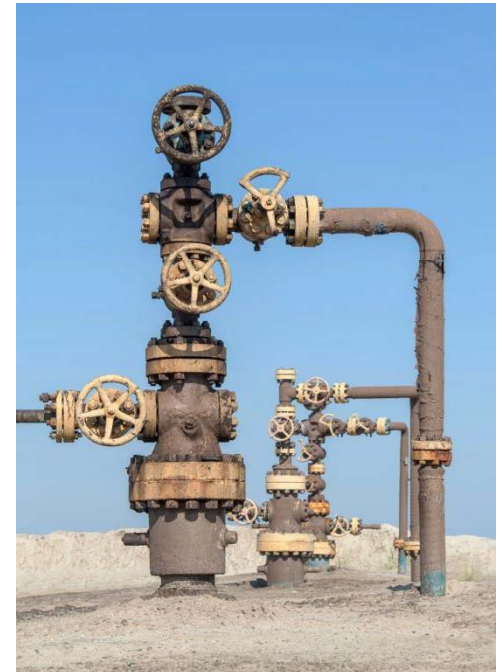
- \* Requires daily inspections and quarterly testing to check components for leaks.
- \* Builds on current requirements by some districts to control VOCs.
- \* Regulation would extend testing to methane at natural gas facilities.
- \* FSOR will clarify implementation; may also issue guidance.



# 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 CO<sub>2</sub>e per year, using a 20 year Global Warming Potential for methane.
- \* Estimated overall cost-effectiveness of \$19 per MT of CO<sub>2</sub>e 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.