CARB’s Oil and Gas Methane Regulation

BACKGROUND

• Adopted by the Board in March 2017.

• Reduces fugitive and vented emissions of methane from both 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.

• Regulation includes standards for:
  ▪ Separator and tank systems;
  ▪ Circulation tanks;
  ▪ Leak Detection and Repair (LDAR);
  ▪ Underground natural gas storage monitoring;
  ▪ Natural gas compressors;
  ▪ Pneumatic devices and pumps; and
  ▪ Reporting requirements.

REGULATION STANDARDS

• Separator and tank systems:
  ▪ Requires flash testing to determine annual methane emissions.
  ▪ Requires systems with annual emissions above 10 MT methane to install vapor collection.

• Circulation tanks used in Well Stimulation Treatments:
  ▪ If technical assessment proves out, tanks controlled for emissions by January 1, 2020.

• Leak Detection and Repair (LDAR):
  ▪ Requires daily audio/visual inspections and quarterly leak measurements of components.
  ▪ Builds on current requirements by many districts to control VOCs.
  ▪ Regulation extends testing to methane at natural gas facilities.

• Underground gas storage monitoring program:
  ▪ Ambient air monitoring.
  ▪ Daily or continuous leak monitoring at injection/withdrawal wellheads.
  ▪ Operators submit monitoring plans to CARB for approval.

• 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.
• **Pneumatic devices and pumps:**
  - Continuous bleed to be changed to no-bleed.
  - Air or electricity to operate, or controlled with a vapor collection system.

• **Reporting requirements:**
  - Facility and equipment information;
  - Flash test results;
  - Annual LDAR results;
  - Underground natural gas storage monitoring plan reporting;
  - Annual concentrations or flow rates for compressors and pneumatics; and
  - Additional annual reporting for liquids unloading of natural gas wells, and for well casting vents.

### REGULATION IMPACTS

- Overall estimated annualized cost, with natural gas savings, of $27,300,000.
- Estimated continuing reductions of more than 1.4 million MT of CO2 equivalent per year, using a 20 year Global Warming Potential for methane.
- Estimated overall cost-effectiveness of $19 per MT of CO2 equivalent reduced.
- Over 3,600 tons per year (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 Oxides of Nitrogen (NOx) impact.

### IMPLEMENTATION

- Regulation allows both CARB and the districts to implement; district implementation is preferred.
- For most districts, CARB is handling the one-time facility and equipment reporting; districts handling “on the ground” enforcement. For district-specific responsibilities, see [Memoranda of Agreements page](#).

  - **January 1, 2018**
    - Leak Detection and Repair (LDAR) begins;
    - Underground natural gas storage facilities’ monitoring plans due; and
    - Equipment reporting and flash testing data due.

  - **July 1, 2018**
    - CARB staff will decide to approve or request modifications of underground natural gas storage facilities’ monitoring plans.

  - **January 1, 2019**
    - Vapor collection on separator and tank systems installed;
    - Pneumatic devices and compressor seal change-outs required; and
    - Circulation tank technology assessment complete.

  - **July 1, 2019**
    - Annual reporting of LDAR results, compressor and pneumatic concentrations or flow rates, and liquids unloading and well casing vent reporting all due.
    - CARB is working with a contractor to develop a web-based tool for this reporting.

  - **January 1, 2020**
    - Circulation tank vapor collection installed, pending technology assessment.