



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:
 - o Oil and Gas Production, Processing, and Storage Facilities;
 - Natural Gas Gathering and Boosting Stations;
 - Natural Gas Underground Storage Facilities, and
 - o Natural Gas Transmission Compressor Stations.
- · Regulation includes standards for:
 - Separator and tank systems;
 - o Circulation tanks;
 - Leak Detection and Repair (LDAR);
 - Underground natural gas storage monitoring;
 - Natural gas compressors;
 - o Pneumatic devices and pumps; and
 - Reporting requirements.

REGULATION STANDARDS

Separator and tank systems:

- o Requires flash testing to determine annual methane emissions.
- o Requires systems with annual emissions above 10 MT methane to install vapor collection.

Circulation tanks used in Well Stimulation Treatments:

- Operators institute a Best Practices Management Plan, followed by a control equipment technical assessment by January 1, 2019.
- If technical assessment proves out, tanks controlled for emissions by January 1, 2020.

Leak Detection and Repair (LDAR):

- o Requires daily audio/visual inspections and quarterly leak measurements of components.
- o Builds on current requirements by many districts to control VOCs.
- o 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:

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

FACT SHEET



Pneumatic devices and pumps:

- o Continuous bleed to be changed to no-bleed.
- o Air or electricity to operate, or controlled with a vapor collection system.

Reporting requirements:

- o Facility and equipment information;
- Flash test results;
- Annual LDAR results;
- Underground natural gas storage monitoring plan reporting;
- o Annual concentrations or flow rates for compressors and pneumatics; and
- o 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 responsibilites, 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;
- o 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.