CALIFORNIA
AIR RESOURCES BOARD

Overview: Proposed Amendments to the Landfill Methane Regulation

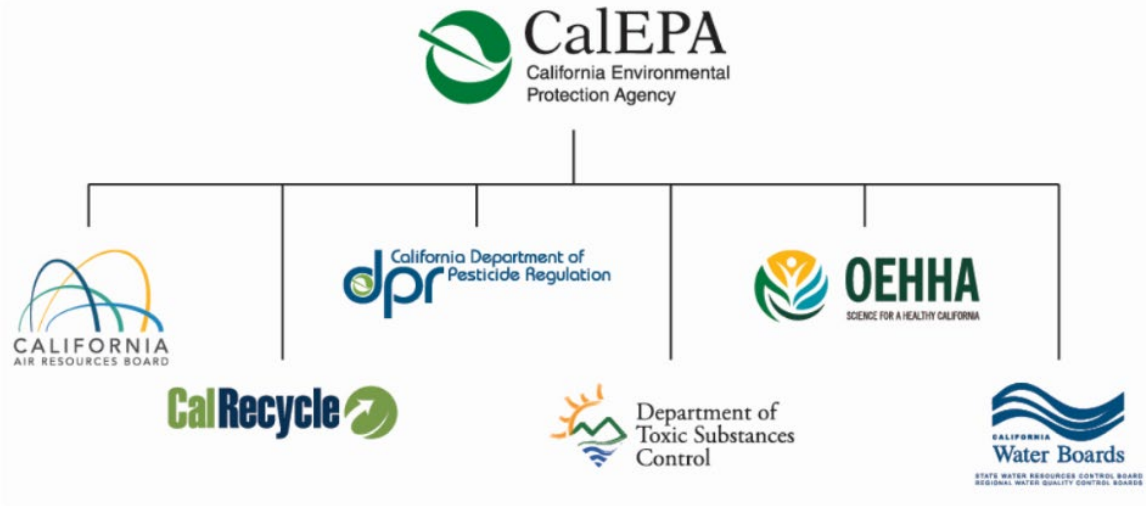
October 2025

Landfill Methane Regulation (LMR)

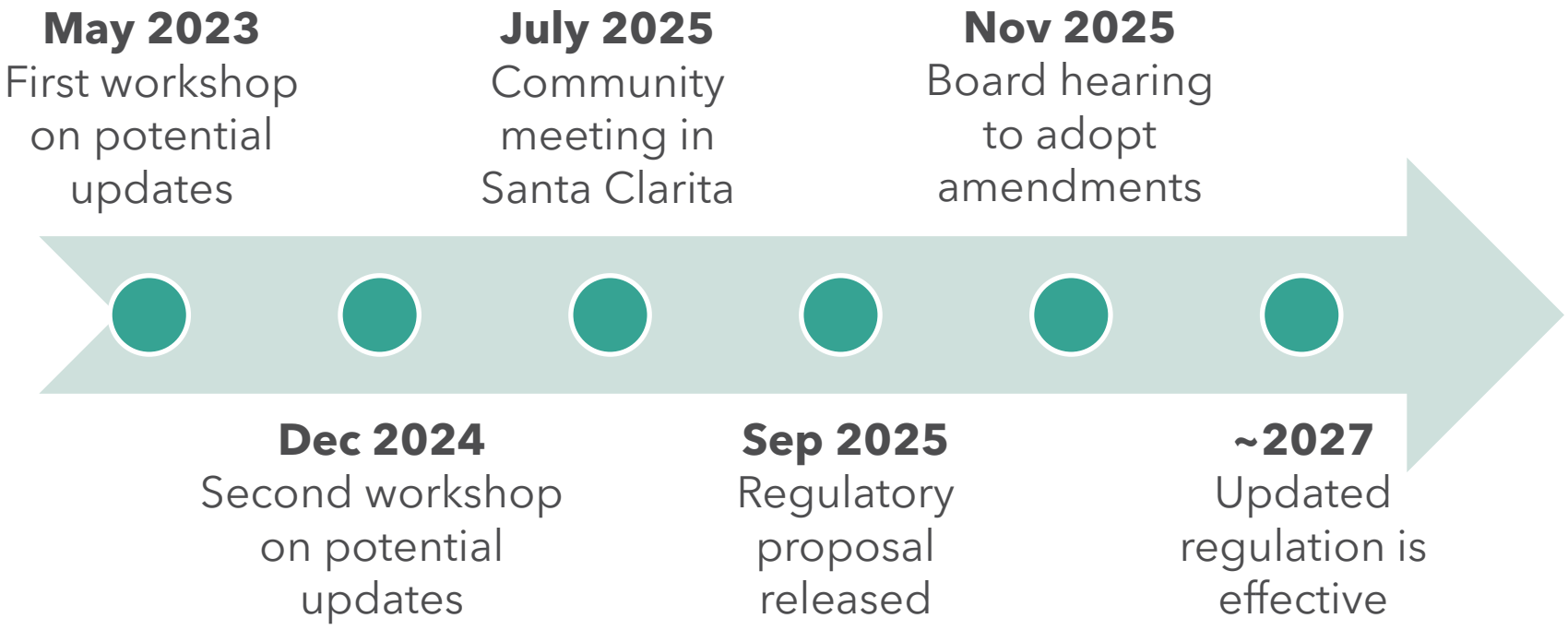
- The Landfill Methane Regulation (LMR) was initially adopted in 2010 as an early action measure in response to AB32
- The LMR set the most stringent threshold in the nation for landfill methane control
- Requires landfills owners and operators to:
  - Install and optimally operate landfill gas collection and control systems (GCCS)
  - Perform routine monitoring for surface emissions and other performance parameters
  - Remediate leaks and other issues
  - Keep records of these actions/data and report to CARB and local air districts
- 22 air districts have MOUs with CARB to primarily implement and enforce the LMR
- 190 landfills are subject to the LMR and 150 operate a GCCS

California Air Resources Board's Role in Landfill Regulation

CARB staff work together with other state, local, and federal agencies who lead efforts on air pollutants, landfill permitting/design, toxics, and water pollution, including local air districts, the U.S. Environmental Protection Agency, and other departments within the California Environmental Protection Agency



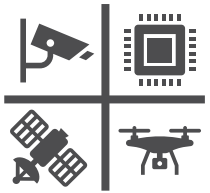
Timeline


May 2023
First workshop on potential updates
Dec 2024
Second workshop on potential updates
July 2025
Community meeting in Santa Clarita
Sep 2025
Regulatory proposal released
Nov 2025
Board hearing to adopt amendments
~2027
Updated regulation is effective

Goals and Scope of Proposed LMR Updates

Increase Stringency to Achieve CA's Ambitious Climate Targets

Harness Technological Advances



Incorporate Research and Lessons Learned

Improve Alignment with Federal Rules

Streamline Reporting

Set Example for Other Jurisdictions

Expected Outcomes of Proposed LMR Updates

- Greater role for advanced leak detection technologies
- More and faster leak repairs through improved monitoring practices
- Earlier and more comprehensive identification of issues in wellhead monitoring data for prevention and early intervention
- Targeted additional action to address frequent or recurring issues
- Improved gas collection through earlier expansion and less downtime of the GCCS
- Better oversight by CARB and air districts through improved reporting and satellite plume notifications

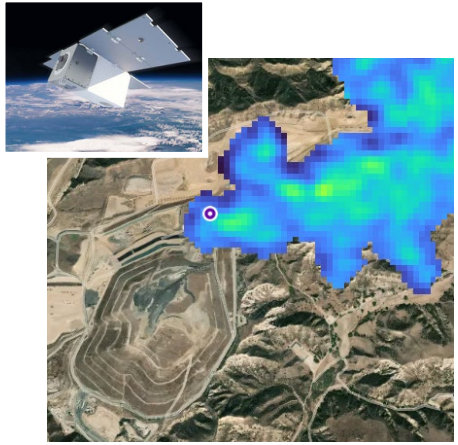
GCCS Operations – Proposed Updates

Proposed measures to improve gas collection and control system (GCCS) operations:

- Limit periods of GCCS downtime and mitigate emissions from unavoidable downtime
- Early gas collection system installation in areas of new waste deposition
- Additional wellhead monitoring parameters and response actions
  - Temperature, oxygen, methane, carbon dioxide, gas flow rate, and liquid level
- Additional monitoring, analysis, and mitigation measures in areas with persistent leaks or other issues
- Manage declining gas generation at closed landfills

Remotely-Detected Emission Plumes

- A decade of research demonstrates effectiveness of methane plume detection and notification
- CARB is already notifying landfills when methane plumes are detected by satellites
- Concept: Require operator to take action when notified by CARB of a remotely-detected methane plume



Source: Carbon Mapper Data Portal

CARB alerts operator of plume → Operator inspects for leaks → Operator reports findings → Operator repairs any leaks found → Operator reports repairs

Monitoring – Proposed Updates

Proposed measures to improve monitoring of methane emissions:

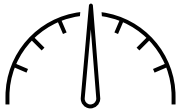
- Operator inspection and repair requirements when notified of a remotely-detected plume
- Several changes to increase stringency, frequency, and coverage of leak monitoring
- Process to evaluate alternative technologies for leak detection

Wellhead Monitoring Update – Framework

Landfill operator action is needed when measurements show

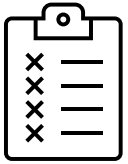
Trend changes

Action required for large changes compared to well's average value



Above a limit

Action required when a value is above a limit



Repeated issues

Additional action required when readings repeatedly over a limit

Targets prevention and early intervention by landfill operator

Wellhead Monitoring Updates: Enhanced Monitoring

- **Enhanced monitoring** means increasing from monthly to weekly, and measuring a wider range of information at all surrounding wells, including:
  - Downwell temperature measurement (every 10 feet) is the most reliable way to determine what is happening below the surface
  - Measuring carbon monoxide (CO) and visual indicators such as smoke indicate if a thermochemical reaction is occurring

Weekly monitoring ensures operators and regulators have all the information needed to inform decision making and appropriate early intervention

Applicability, Reporting, and Other Proposed Updates

Additional proposed measures:

- Clarify responsibilities of third-party gas control system operators
- Support advanced monitoring and automated wellhead tuning
- Standardize and streamline reporting format
- Add reporting parameters to improve CARB's ability to confirm compliance
- Minor miscellaneous changes to clarify certain provisions, update data, improve processes, and improve enforceability