

SCS TECHNICAL BULLETIN

LANDFILL METHANE REGULATION (LMR) UNDER CALIFORNIA AIR RESOURCES BOARD (CARB)

July 15, 2026

Overview of the Regulations

The California Air Resources Board (CARB) has advanced significant amendments to the Landfill Methane Regulation (LMR) that introduce substantial changes to landfill gas (LFG) monitoring, control, and reporting requirements. These revisions expand regulatory applicability, tighten operational thresholds, impose new monitoring requirements and technologies, and accelerate compliance timelines.

Key impacts include:

- Expanded requirements for smaller and uncontrolled landfills
- Accelerated gas collection and control system (GCCS) installation timelines
- Enhanced monitoring requirements for surface emissions, wells, and equipment
- Strict corrective action timelines and reduced downtime allowances
- New planning, reporting, and data management obligations

These changes will require landfill operators to proactively reassess infrastructure, monitoring programs, and compliance strategies. Landfill owners are recommended to complete an evaluation of their landfill against the new standards before the rule takes effect on January 1, 2027.

About SCS Engineers

As an environmental engineering, consulting, and contracting firm with a strong portfolio in LFG collection and control systems (GCCS), SCS Engineers (SCS) can help California landfills with their CARB LMR compliance obligations. We have extensive experience with the federal LFG regulations throughout the United States as well as with state-level LMRs in California, Oregon, Washington, Maryland, and Colorado. In California, SCS has assisted over 80 landfills with LMR compliance.

The SCS team has a long history supporting California landfills and is well positioned to work with you on your LMR compliance. As an initial step, we would recommend evaluating the current status of your landfill relative to the new requirements and developing a long-term compliance strategy, including budgeting considerations, to establish a master plan for LMR compliance.

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SUMMARY OF LMR REGULATION

Regulatory Timeline and Applicability

The amended LMR rule includes key milestones in 2027–2028, with an anticipated effective date of January 1, 2027. Applicability has broadened through language changes and removal of thresholds.

The amended LMR rulemaking process includes:

- Draft rule issued: September 23, 2025
- CARB adoption: November 20, 2025
- 15-day rulemaking: April 2–17, 2026
- Anticipated promulgation: August 2026
- Expected effective date: January 1, 2027

Compliance deadlines are phased, with major milestones in 2027 and 2028.

Applicability Changes

Notable adjustments include:

- Retention of exemptions for hazardous waste-only and CERCLA-regulated landfills
- Continued exemption for closed MSW landfills under 450,000 tons waste-in-place
- Change in wording from “received” to “contain” waste, focusing applicability scope
- Continued exemption for MSW landfills that have not accepted solid waste after January 1, 1977

Expansion of GCCS Applicability

Controlled Landfills

Controlled landfills (those routing gas to a control device with methane destruction) must comply with all requirements regardless of size. The previous threshold for smaller active landfills has been removed.

Uncontrolled Landfills

Uncontrolled sites (e.g., passive vents or carbon adsorption systems) face new obligations:

- Annual reporting of heat input capacity (HIC)
- GCCS installation required if:
 - HIC exceeds 3.0 MMBtu/hr
 - Surface emissions exceed 200 ppm

Additionally, remotely detected emissions may trigger GCCS installation requirements.

GCCS Design, Installation, and Operation

Approval timelines are extended, installation timelines shortened, and early gas collection is required for certain sites. GCCS downtime limits are established.

Design and Approval

- GCCS design plan approval timeline extended from 120 to 180 days
- New Control System Design Plan required at least 6 months prior to operation of new control device

GCCS Installation Timelines

- Active landfills: reduced from 18 to 12 months
- Closed landfills: reduced from 30 to 18 months

Early Gas Collection Requirement

Sites accepting $\geq 200,000$ tons annually must install gas collection within 180 days of waste placement and initiate operation shortly after minimum operational thresholds are met.

Downtime Restrictions

- 120 hours/year for large systems
- 240 hours/year for smaller systems
- Maximum 120 consecutive hours per event

Gas Control and Monitoring Requirements

All control devices must meet 99% methane destruction efficiency, with expanded monitoring for flow, pressure, and temperature.

Control Devices

- Methane destruction requirement increased to 99% DRE
- Venting to atmosphere prohibited
- Expanded applicability to gas routed to pipelines or fuel systems

Monitoring Systems

New requirements include:

- Flow rate and methane content measurement every 15 minutes
- Temperature monitoring for engines/turbines
- Pressure monitoring on blower vacuum side

Surface Emissions Monitoring (SEM)

Corrective action timelines are stricter, and recurring exceedances trigger expanded monitoring and cover and collection system assessments

Key Changes

- Elimination of exemptions for construction activities
- Strict corrective action timelines:
- Initiate action within 5 days
- Re-monitoring within 10 days
- Additional re-monitoring at 1 month

Recurring Exceedances

Threshold triggers:

- 5 instantaneous or 3 integrated exceedances within 12 months
- Required system-wide assessments and increased monitoring frequency, including cover integrity and collection system assessments

Unsafe-to-Walk Areas

- Must use alternative monitoring methods (e.g., drones, robots)
- Defined measurement accuracy and response time criteria

Wellhead Monitoring and Control

New limits for temperature and expanded monitoring requirements are introduced, along with enhanced response actions for exceedances.

Operating Requirements

- Maintain vacuum at all wellheads, with limited exceptions
- New compliance limit: $\leq 145^{\circ}\text{F}$ gas temperature

Enhanced Monitoring Triggers

- Pressure, temperature, and oxygen exceedances trigger escalating responses
- Requirements include:
 - Root cause analysis
 - CO sampling
 - Collection system and cover assessments
 - Enhanced monitoring frequency

Automated and Continuous Wellhead Monitoring

- Automated monitoring systems may be used to collect pressure, temperature,

flow, methane, carbon dioxide, and oxygen data

- Monthly compliance values are based on averaging all readings collected during the calendar month.
- Positive pressure, temperature, and oxygen exceedances triggered when 15% of readings over a 30-day period or five consecutive days.

Liquid Level Monitoring

- Annual monitoring required
- Corrective action triggered if liquid exceeds 50% of screened interval

Operational Controls and Construction Requirements

SEM exemptions during construction are removed, and strict timelines apply to shutdown and repair activities.

Construction Activities

- Removal of SEM exemptions during construction
- Exposed waste areas now subject to emission limits

Shutdown and Repair

- Components must be restored within 5 days or formally reported
- Limit of 10 wells offline simultaneously

New Monitoring and Assessment Programs

New programs include Component Leak Monitoring Plans, Cover Integrity Monitoring Plans, and Collection System Assessments.

Component Leak Monitoring Plan (CLMP)

- Required submission by July 1, 2027
- Includes procedures, timelines, and system inventories

Cover Integrity Monitoring

- Required for active cover areas
- Includes testing and corrective action protocols

Collection System Assessment

- Required for abnormal performance or exceedances
- Must evaluate physical and operational system integrity

Cover Integrity Assessment

- Required for abnormal performance or exceedances
- Must evaluate cover thickness and other parameters

Semi-Continuous Operation and Shutdown

Closed landfills must meet strict criteria for reduced operation or permanent shutdown.

Closed landfills seeking reduced operation must demonstrate:

- ≥3 years of compliant emissions history
- Declining gas generation
- Multiple technical assessments (collection, cover, control devices)

Permanent shutdown requires:

- ≥15 years of GCCS operation
- Low methane generation rates
- Continued SEM compliance

Recordkeeping and Reporting

Significant increases in reporting requirements, including quarterly electronic data submission and expanded annual reporting.

Enhanced Requirements

- Quarterly reporting in electronic (.csv) format
- Detailed SEM, wellhead, and component data
- Expanded annual reporting elements (maps, monitoring routes, unsafe areas)

New Reporting Triggers

- Remotely detected plume responses
- Uncontrolled landfill reporting
- Scheduled SEM notifications

Key Operational Implications

Operators will face increased monitoring, tighter timelines, higher costs, and greater enforcement risk. The amendments introduce several operational challenges:

- Significant increase in monitoring data volume
- Reduced flexibility in operational and maintenance schedules
- Increased capital requirements for system upgrades
- Greater regulatory scrutiny and enforcement risk

Additionally, CARB has introduced mechanisms to revoke previously approved alternative compliance options, requiring operators to revalidate compliance strategies.

Strategic Recommendations

Operators should conduct gap assessments, upgrade infrastructure, enhance monitoring systems, reduce downtime, and plan budgets for compliance. To prepare for compliance, landfill operators should:

Immediate Actions

- Perform gap assessment against new requirements
- Review SEM, wellhead, and downtime data

- Identify non-compliant wells and infrastructure
- Perform a full-site drone methane pre-scan to help identify and document areas that are no longer exempt from monitoring and may require further evaluation or remediation

Infrastructure Planning

- Upgrade GCCS capacity and redundancy
- Install additional monitoring instrumentation
- Evaluate early collection system implementation

Operational Adjustments

- Minimize downtime through improved maintenance planning
- Implement enhanced monitoring and data management systems
- Develop strategies for managing exceedances and corrective actions

Long-Term Planning

- Budget for capital improvements and compliance programs
- Reassess alternative compliance pathways
- Coordinate with third-party gas developers

Conclusion

The proposed CARB LMR amendments represent a substantial evolution in landfill methane regulation. The rule shifts toward comprehensive monitoring, faster corrective action, and broader applicability, requiring landfill operators to fundamentally reassess operational strategies.

Early planning, infrastructure investment, and proactive compliance management will be essential to mitigate regulatory risk and ensure continued facility operation under the updated framework.