



November 10, 2025

Clerks' Office
California Air Resources Board
1001 I Street
Sacramento, California 95814

RE: Recology Comments on 45-Day Proposed Landfill Methane Regulation

Dear Quinn,

Thank you for the opportunity to comment on the extensive proposed updates to the Landfill Methane Regulation (LMR), issued on September 20, 2025. I am writing on behalf of Recology, one of the state's leading recycling, composting, and waste collection companies.

Recology, an employee-owned company with over a century of history, operates active and closed landfills that will be impacted by the regulation. We also operate composting and material recovery facilities and provide curbside collection in more than 88 Northern California communities. We have played a leading role in waste diversion efforts, including pioneering San Francisco's first 3-bin system and supporting statewide recycling and emissions reduction mandates such as AB 939, AB 1826, AB 341, and SB 1383.

Consistent with our mission, Recology supports the robust effort California has undertaken to reduce landfill emissions and combat climate change. We support the intent of the LMR and regulatory changes to make the program more effective and efficient. With this in mind, we believe the goals of the LMR are best served through fair, workable regulations that consider the operational intricacies and significant costs faced by entities operating in this sector. CARB should view the efforts undertaken by individual landfills in totality and avoid a one-size-fits-all approach for landfills. We offer the following comments in that spirit.

That said, while these comments reflect our best efforts to address the issues, as set forth below, we believe that 45 days is too brief for stakeholders to fully review—and for CARB to be fully informed of—the complex challenges of implementing CARB's vision. We look forward to continued dialogue with staff and believe an additional comment period will be necessary and would benefit CARB, the industry, and the public.

Please feel free to contact me with any questions. We remain committed to working with CARB to ensure the intent of the updated Landfill Methane Regulation is fulfilled while also ensuring that the requirements remain practical for landfill operators and owners.

Respectfully,

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Recology Comments on Proposed Landfill Methane Regulation

Timing of the Rulemaking Process

The comments below reflect our best efforts to address our concerns about CARB's proposed updates to the LMR. However, given the complexities, we believe that forty-five (45) days is not sufficient time to fully review this draft rule and to provide comments to assure that CARB is fully informed about the challenges we foresee in implementing CARB's vision. The proposed changes and additions are significant and will have major impacts on how landfills design, build, operate, and monitor their LFG systems, cover, disposal operations, and other landfill infrastructure. These changes have significant financial and operational implications for landfill operators and ratepayers across the state.

Recommendation: We strongly recommend CARB staff provide another (45) day comment period after changes have been made by CARB, so they can continue consulting with landfill owners/operators in the state to better understand the impacts of the proposed changes and their associated costs, so that the proposed changes reflect real-world conditions and realities.

Section 95464(a)(5) – Gas Collection and Control System Requirements – Working Face

While we recognize the intent of enhancing timelines for gas collection system installation within active areas of landfills, there are practical limitations and concerns with some of the timeframes and activities being proposed in this section. Installation of gas control infrastructure in the working area of landfills while waste is being placed presents operational and safety challenges.

The draft rule notes that horizontal collectors or caisson wells shall be installed in areas of new waste placement. The operation of these features is required to begin after 15 feet of waste has been placed, and positive pressure is detected in either component.

When addressing the issue of gas collection in areas where waste is placed, some of the primary concerns are employee and contractor safety, efficient traffic control, and adverse impacts from oxygen intrusion into the gas collection system or subsurface oxidation. Limiting the types of gas collection or control options that may be used limits the ability of facilities to select infrastructure that meets the unique needs and safety considerations of the landfill.

Recommendation: Rather than creating prescriptive requirements around the types of components that may be used, set timelines for installation of sufficient gas collection or control components relative to the commencement of waste placement. These could include caisson wells or horizontal collectors during cell construction or as waste is placed but would also allow for installation of vertical wells depending on site conditions. Providing operators the flexibility to expand the gas collection system to be most compatible with site conditions would avoid the safety and oxygen intrusion issues inherent in aggressive prescriptive system expansion and gas collection while meeting the intent of earlier collection of methane.

Section 95464(b)(1)(A) – Gas Collection and Control System Requirements – System Shut Down

The amended rule allows for 120 hours of gas control system shutdown annually. We presume this allowance is for total system shutdown, but that is unclear. Additionally, there is no indication as to whether this threshold is net of any uncontrollable circumstances such as earthquakes, fires or planned/unplanned power system shutdowns. The exclusions allowed in subsection (e) – *Repairs and Temporary Shutdown of Gas Collection System Components*, refer only to "individual components" and not an entire system shutdown due to these occurrences.

With many landfills experiencing power outages, including power safety shutdowns for fire prevention, which can last multiple days, 120 hours a year is not a reasonable limit. Currently, only the Bay Area Air District has a rule with a similar provision limiting total hours for system shutdown, allowing for a total of 240 hours for total system shutdown. The proposal in the LMR is more restrictive than the Bay Area Air District's Rule and lacks adequate justification and understanding of what is practical, net of any uncontrollable circumstances such as earthquakes, fires or planned/unplanned power system shutdowns.

Recommendation: We request that CARB reconsider creating total hour limits across all landfills. If CARB believes that these limits are warranted, we request that a more reasonable timeframe, such as 240 hours of total system downtime, be allowed. Additionally, we suggest the text be edited to clearly reflect this threshold be reflective of total system downtime, and includes provisions for exclusion of the uncontrollable circumstances outlined above.

Section 95464(c)(2)(b) – Wellhead Gauge Pressure Requirements

This section states, "The full radius of influence (ROI) of the decommissioned well is covered by the radii of influence of other wells such that active gas extraction is maintained in the area". However, there is no accepted testing procedure or calculation method for determining the ROI of an extraction point. Further, there is no process or specific requirements outlined in the proposed rule for operators to reference when determining well coverage or how to prove that a specific area is being collected by another extraction point.

Recommendation: We suggest CARB base the allowance for well decommissioning on the subsequent SEM conducted within the area of the removed well, which is a much better determinant as to whether a well in location was necessary. In addition, other references to ROI should be removed from the rule as well.

Section 95464(e) – Repairs and Temporary Shutdown of Gas Collection System Components

The draft rule proposes to limit the amount of well downtime to no more than five wells or five percent of the total number of wells at the landfill, whichever is greater, except in cases where wells are being shut down to prevent or extinguish fire. While we appreciate the intent of the requirements, there are additional activities occurring at landfills that should be included in the exemption, including during construction activities at active landfills, with ongoing active face operations.

Recommendation: We request the exemption for the well downtime limit to be expanded to include cases where construction activities are occurring at active landfills.

Section 95467(a)(d)(f) – Semi-Continuous Operation and Permanent Shutdown of the Gas Collection and Control System

In the proposed rule, CARB added extensive requirements that must be met for both semi-continuous operation and for permanent shutdown. These new requirements are not only more costly and time-consuming but also create significant challenges in meeting the necessary criteria. In some instances, compliance may prove infeasible for some closed landfills.

Recommendation: We request that CARB meet with landfill operators and technical experts to evaluate whether closed landfills can reasonably fulfill these requirements and to consider more feasible alternatives.

Section 95468 – Alternative Compliance Options

In the proposed rule, CARB plans to eliminate several alternative compliance options (ACOs), tighten requirements for others, and require landfills to resubmit previously approved ACOs, which may be revoked. The proposed rules do not set approval timelines, making it unreasonable to delay implementation of an ACO—even if previously approved—until new approval is granted.

Recommendation: We strongly suggest that ACOs that have already been approved by CARB or the Executive Officer be grandfathered in, meaning operators would not be required to resubmit.

Section 95469(a) – Surface Emissions Monitoring Requirements

CARB is proposing more stringent and, at times, arbitrary components within the SEM requirements.

Key changes include:

- Limiting the exemption period for active areas to 180 days after initial waste acceptance.
- Reducing the corrective action initiation period to three days.
- Introducing further criteria and compressed deadlines for requesting alternative remedies for SEM exceedances not resolvable through new or replacement gas wells.
- Imposing additional obligations for areas with *Recurring Surface Exceedances* (95469(a)(4)).

For instance, in *Section 95469(a)(4)- Recurring Surface Exceedances*, the provision requiring an assessment of the collection system's condition and the performance of monthly surface emissions monitoring in grids adjacent to those exhibiting recurring surface emissions exceedances may be considered burdensome and disproportionate. By definition; adjacent grids themselves have not demonstrated persistent exceedances. Surface emissions typically represent localized issues, best addressed by adjusting nearby wells or repairing covers at the specific point of exceedance.

Recommendation: We suggest that CARB meet and confer with landfill operators and technical experts to determine alternative solutions that are less stringent and burdensome.

Section 95469(a), 95471(d), and 95475(a)(40) – Surface Emissions Monitoring for Unsafe-to-Walk Areas

Under the current rule, “unsafe-to –walk” areas are exempt from monitoring for the period of time that they remain “dangerous.” Under the proposed rule, these areas are only exempt from standard SEM if they are unsafe to walk during the entire quarterly period of monitoring. And even if this requirement is met, the area is still required to be monitored by alternative means as described in (Sections 95469(a) - *Surface Emissions Monitoring*).

While we are generally supportive of the requirement to make sure all areas are monitored each quarter, there are limitations due to safety, access, and availability of technology, which may prevent these screening technologies from being deployed in the same quarter when an area was unsafe.

Recommendation: We request that the rule provide an allowance for monitoring to be conducted within a subsequent quarter if monitoring can't be conducted for the current quarter based on

safety concerns, site conditions and/or availability, as long as all reasonable efforts were made to conduct screening in the same quarter.

Section 95469(a)(1&2) – Instantaneous Surface Monitoring and Integrated Surface Monitoring Requirements

CARB has not provided a quantitative basis for making the surface emissions monitoring (SEM) requirements for inactive landfills or inactive landfill areas more stringent. The proposed rule introduces new provisions, including a requirement that inactive landfills/areas have final cover, changing the monitoring frequency from annual to every three quarters, and removing the option to remediate an exceedance within the first 10 days without losing the annual or 100-foot spacing monitoring options.

The original LMR rulemaking included a 10-day remediation allowance to address situations where a large landfill or landfill area might otherwise lose reduced monitoring due to a single event-related exceedance, particularly when it could be resolved within 10 days. This allowance was intended to prevent any unnecessary financial or operational burden and should remain.

Recommendation: We strongly recommend that there be no changes made to the inactive landfill/area SEM requirements until sufficient justification for changes is presented by CARB.

Section 95469(b) – Remotely Detected Emission Plumes

The proposed rule introduces new obligations for owners and operators when a methane emission plume is detected. Historically, CARB encouraged landfills to perform these assessments on a voluntary basis. While the inclusion of this requirement is understandable, the area of investigation is too broad and there are no exceptions for unsafe-to-walk areas. Additionally, we find that the stipulated response time for corrective actions may not adequately consider challenges such as site access limitations or contractor availability.

Recommendation: First, we request CARB limit the area of investigation and provide an allowance for unsafe walking areas, which would allow flexibility for operators to investigate in a way that is consistent with industry experience and ensures employee safety. Secondly, we request additional time to initiate corrective actions after receiving a notification. The timeline for completing the remote sensing field validation should be extended from the proposed 5 days to at least 20 days and the re-monitoring requirement should be removed to instead rely on the routine quarterly SEM and leak component checks. Lastly, remotely detected emissions in this subpart should not constitute a violation or the basis for enforcement action. Instead, the remote sensing program should be part of the effort to assist landfill owners and operators in the early identification and correction of potential sources of methane emissions.

Section 95469(e)(2) – Recurring Pressure Exceedances

The draft rule adds new and stringent monitoring requirements for recurring pressure exceedances. The recurring pressure exceedance requirements are triggered if, within any 12-month period, there are three positive pressure readings in the monthly monitoring at a particular well, excluding months when corrective actions are underway. It is common for certain wells – particularly those adjusted to meet temperature or oxygen requirements or used for migration control – to operate at low vacuum settings. Consequently, transient positive pressure reading may occur, for instance, due to fluctuations in barometric pressure. These short-term exceedances, provided they can be resolved on the day of the occurrence with a simple valve adjustment, should not contribute toward the three-event threshold. Additionally, the mandate to install continuous pressure monitors in wells based on a 15% positive pressure is unnecessary. Continuously monitoring pressure will not resolve underlying reasons for wells exhibiting

positive pressure, and landfill owners and operators already perform root cause analysis and corrective action analysis when other parameters are exceeded.

Recommendation: We request CARB include allowances for short-term exceedances that can be corrected on the same day. Additionally, we suggest CARB remove the requirement to continuously monitor pressure based on a 15% threshold.

Section 95469(e)(3&4) – Wellhead Monitoring

CARB's intent is to have the revised LMR contain enhanced monitoring, reporting, and assessment of wellheads as well as prompt initiation of corrective measures. It is imperative that the remedies associated with exceedances of certain thresholds are reasonable, do not conflict with one another, and are based on the latest guidance.

The current draft of the revised LMR would appear to require an operator to initiate corrective actions, cover integrity assessments, and collection system assessments immediately following the occurrence of a single elevated temperature reading (i.e., greater than 131 F and 145 F). Operators are also required to follow prescriptive requirements for oxygen content. The timeframes proposed to remedy an elevated temperature or oxygen content reading do not consider unique circumstances such as seasonal access issues or subcontractor availability that may warrant additional time.

Together, these proposed requirements are excessive and unduly burdensome. Intermittent high temperature or oxygen content readings may occur sporadically at any facility, and a single elevated reading is not an immediate indicator of a problem. Many landfills have individual or small numbers of wells that continually function above the 145-degree F and 5% oxygen content thresholds, while no other impacts are present.

U.S. EPA's NESHAP rulemaking approach is illustrative and provides a better alternative. U.S. EPA studied the wellhead temperature issue during the rulemaking for the NESHAP rule and concluded that LFG extraction system components, including high-operating-value (HOV) wells, are capable of safely operating at temperatures up to 145°F without posing a combustion or subsurface fire risk. As a result, EPA elected to establish a 145 F wellhead temperature limit to replace the 131 F limits found in earlier New Source Performance Standard (NSPS) and Emission Guideline (EG) rules. This change is expected to reduce the monitoring and reporting burden on regulated entities and the administrative and review requirements for the agency.

Finally, the proposals present significant concerns about timing. While some elevated readings can be mitigated in a short period of time, others may take an extended period due to location, access issues at certain times of the year, and subcontractor availability. The regulation does not allow for operators to request additional time in the event of a single temperature reading that exceeds 131 F (either instantaneous or over a 60-day period), however, it does allow requests for temperature readings above 145 F (Section 95469(e)(4)D). It is also important to note that the balance between oxygen, carbon monoxide content and temperature (and other variables) is such that attempting to mitigate one variable could cause the other to move in a negative direction. As such, mitigating all the parameters being considered within the 60-calendar day period noted above may not be practical or achievable.

Recommendation 1: We request that CARB change the proposed rule to align the temperature thresholds with federal rules. This would mean that the corrective actions outlined in this subsection are triggered at 145 F. Should CARB feel that corrective actions are warranted at

131 F, we suggest limiting any required actions to increased monitoring of the specific well and adjacent wells.

Recommendation 2: We suggest that all corrective actions be triggered if, and only if, an elevated temperature reading occurs consistently over a 60-day period, as demonstrated by multiple measurements, as opposed to a single data point.

Recommendation 3: We recommend the addition of an express textual provision for requesting and granting additional time for corrective actions related to an exceedance of the 131 F temperature threshold. While the provisions contained within *Section 95468 – Alternative Compliance Options* would appear to anticipate such requests, we believe a specific reference such as the text included for corrective actions associated with temperatures above 145 F should be included in *Section 95469 – Monitoring Requirements (e)*³.

Recommendation 4: We request that the timeframes proposed to remedy an elevated temperature or oxygen content reading be reassessed. Additionally, we request that an operator be given the opportunity to provide an alternative compliance approach to a specific situation versus being bound to mitigate the situation in its entirety within a 60-calendar day period. We understand CARB's intent is to have prompt initiation of corrective measures, to which we agree. However, as operators we have extensive knowledge of our facilities and understand that situations can differ vastly and may require a different corrective approach.

Section 95469(e)(3 & 5) – Wellhead Monitoring with Reference to Section 95471(k)

This and other subsections refer to the initiation of cover integrity assessments if certain temperature and oxygen thresholds are exceeded. While initiating a cover integrity assessment is a reasonable next step in some cases, there is concern that the requirements of the cover integrity assessments within *Section 95471(k)* are impractical and may conflict with the requirements in Title 14 and 27 regulations administered by CalRecycle or with final cover requirements from Regional Water Boards.

Specifically, the references relative to measuring thickness of cover, grain size and fines content are not specific to any particular location and could be interpreted to cover an undetermined expansive area. On their own, they are impractical to assess even within a limited spatial extent. Further, the material that landfills receive for cover is highly variable and dependent on availability from surrounding areas.

The intent of the cover integrity assessment is to identify areas that may be deficient and augment them, so the occurrence that led to the assessment is mitigated. Incorporating prescriptive provisions as outlined in the draft rule is excessive, as many of the proposed requirements may not be plausible given availability of on-site material sources and spatial expanses that a cover integrity assessment could involve.

Recommendation: We request that the prescriptive cover requirements be removed from the rule to allow facility operators to determine the means by which the occurrence is remedied. Instead, the rule may require operators to initiate a cover integrity assessment, in consultation with a professional engineer, to make improvements to cover based on site-specific conditions and considerations.

Section 95469 (e)(7) – Wellhead Parameter Trend Analysis

This section requires operators to review monthly records for each well and initiate several unnecessary and burdensome follow-on actions. The values prescribed in this section appear

arbitrary with no scientific basis as to why these specific values were selected, how it was determined that those values are relevant to proper wellfield operations and maintenance (O&M), and how these prescriptive numbers will improve compliance. For example, if a well temperature increases by 20 degrees, enhanced monitoring is required, even if the temperature remains below the compliance limit. It is very common that set points change frequently due to operational changes (flares/engines online/offline, etc.) and this should be taken into consideration.

Recommendation: We suggest removing this section in its entirety. These additional requirements add a significant amount of unnecessary additional reporting and monitoring, especially if the site is in full compliance and does not have SEM exceedances or sub-surface migration issues.

Section 95470 – Recordkeeping and Reporting Requirements

The updated rule has greatly increased monitoring and reporting criteria. While we appreciate the need for comprehensive data capture, analysis and reporting, it is important to achieve a balance between extensive data capture and corrective measures while maintaining the primary focus of gathering information that is causal and meaningful. We are also concerned about subdivisions (b) and (c) of section 95470, which require submission of quarterly reports within 15 days of the quarter's end. This does not allow enough time to validate, perform quality assurance/control, or make any corrections. This could result in errors and inefficiencies in the process by triggering the need for submission of corrections or amendments.

Finally, it is unclear from the regulations whether facilities may rely on information from local weather stations for windspeed and barometric pressure for reporting purposes, rather than having to purchase and install special equipment for this purpose. The former would be more efficient with no loss of reliability.

Recommendation: We ask that CARB reassess these requirements to limit monitoring and reporting to what is necessary and meaningful. We also recommend that any deadline for a quarterly report be extended to at least 45 days following the close of the quarter. Finally, we recommend language that would allow facilities to rely on local weather stations for purposes of reporting windspeed and barometric pressure.

Section 95471 – Test Methods and Procedures

Subsection (d) could be read to infer that the tools used to monitor surface emissions in unsafe-to-walk areas are capable of measuring methane volumetric or column concentration. Discussions to date on use of remote sensing tools have centered upon their application being directional and not as quantitative measurement devices. While some of these tools (e.g. satellite imagery, flyover drones, etc.) are highly efficient at detecting methane emissions, the accuracy of these technologies to measure concentrations of emissions has not been adequately proven.

Recommendation: We request that CARB clarify that the primary objective of these tools should be identification of emissions for unsafe-to-walk areas. The regulation should allow for multiple approaches to meet the stated criteria for these areas, including equipment or methods that don't necessarily include volumetric or concentration measurement capabilities. Instead, if emissions are detected, follow-on verification monitoring could be accomplished via standard handheld equipment or using sniffer drones that would assist in determining the specific location of where the emissions are originating from.

Effective Date of the Regulations

The proposed amendments to the LMR are extensive and will require additional equipment deployment, enhanced field work and corrective action as well as additional regulatory notifications and reporting. The functionality of the original LMR was largely due to the successful delegation of authority to implement its provisions to the local air quality management districts (AQMDs). This was a critical step required by the following Board Resolution when the LMR was adopted in 2009.

Discussions with representatives of various air districts have indicated that the resources required for proper oversight and enforcement of the revised LMR will be extensive. This will in turn require thoughtful updates to the MOUs to ensure the AQMDs are properly resourced, trained, and the scope of the new regulations is fully incorporated into the revised agreements.

Recommendation: The revised LMR should not take effect until full delegation and guidance is provided to the local air districts through MOUs or other means. This will also allow time for the regulated landfills to effect the necessary changes to implement the amended regulation in a manner that is consistent with the expectations of the amended MOUs.