SWANA
CALIFORNIA CHAPTERS
Legislative Task Force



November 10, 2025

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

RE: SWANA LTF Comments on 45 day Proposed Landfill Methane Regulation

To Whom it May Concern,

On behalf of the Solid Waste Association of North America's (SWANA) California Chapters Legislative Task Force (LTF), I write to provide feedback on the Board's proposed update to the Landfill Methane Regulation (LMR). SWANA is the world's largest association of solid waste professionals (more than 10,000 members). SWANA's three California chapters represent approximately 1,000 of those members. SWANA represents the solid waste industry, including many of the local governments responsible for implementing waste diversion and recycling programs. The LTF is responsible for representing the California Chapters on legislative and regulatory issues and advocates for environmentally- and economically sound management of municipal solid waste.

The solid waste industry worked closely with the California Air Resources Board (CARB) in the development of the Landfill Methane Regulation (LMR) and have been complying with this rule since 2010, and as such have valuable insight and expertise that would be critical for CARB as they consider potential revisions to the LMR.

We respectfully offer the following comments listed below and in greater detail in Attachment 1.

**General LMR Issues**

- The LTF believe it critical that California gain full approval from the U.S. Environmental Protection Agency (EPA) for the LMR to be equivalent to their Emissions Guidance. This approval will ensure consistent implementation of the proposed regulation by local air districts. CARB needs to provide a timeline for re-submittal of the LMR to EPA for approval.
- The revised LMR should not become effective until full delegation and guidance is provided to the local air districts through Memorandums of Understandings (MOUs) or other means. This will also allow time for the regulated landfills to effect the necessary changes to implement the amended regulation.
- The proposed amendments to the LMR are extensive, expensive, and in many instances, may be ineffective in further reducing methane. The efforts to amend the LMR should focus on general clean-up and establishing requirements on landfills and practices that have been found to be generating

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excess methane emissions beyond what was original envisioned in the original LMR. In many cases, these are the "bad actor" landfills.

- Diverting organics from landfills has been identified by CARB as the most effective and cost-efficient long-term solution for reducing methane emissions from landfills. The landfill industry and wastewater sector have been attempting for years to work with regulators and legislators to address a host of issues and needs, such as increased funding for infrastructure, permit and regulatory streamlining, and programs for utilizing biomethane. These challenges have stalled efforts to meet the SB 1383 organic diversion mandates. The Little Hoover Commission in their report entitled "Reducing California's Landfill Methane Emissions: SB 1383 Implementation – June 8, 2023" has urged the State to provide funding, improve coordination among State agencies and better share the responsibility for SB 1383 implementation, and expand market opportunities for recycled organic waste, including biomethane. CARB should make all efforts to be consistent with these recommendations.

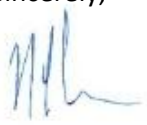
**Specific Issues with Proposed LMR Amendments**

- Eliminating applicability for active landfills with 450,000 tons in place will have a significant impact on smaller landfills and municipalities by imposing additional monitoring and reporting that is not warranted. The original LMR language should stay in place.
- Requiring a separate cover integrity program is very costly and duplicative of current cover inspection required in the surface gas monitoring program and could conflict with approved cover design and operation requirements established and approved by CalRecycle and the State Water Resources Control Board.
- Enhanced surface gas monitoring should only apply to the integrated monitoring program since it directly affects problems with the gas collection system. The original LMR language for the instantaneous monitoring program, as well as monitoring at closed landfill, should remain the same. There is no direct evidence that enhancing these programs will result in additional methane reduction.
- Requiring remote sensing of unsafe areas is presented as the only approach to take the place of monitoring exclusions of these areas. The LTF recommends an alternative monitoring plan to allow operators to look for real issues with the landfill collections system in these areas by using conventional monitoring in accessible adjacent areas or allow proposals of alternative sensing methods subject to approval of the local air districts. All efforts must be made to keep workers safe by keeping them out of the unsafe areas.
- The LTF supports the promising approach of notifying landfills of remotely detected methane plumes, however, CARB should produce a separate report within three years evaluating the effectiveness, as well as potential recommendations for improvements to the program.
- Very extensive temperature monitoring requirements are added for all landfills subject to the amended LMR. It is recommended that landfills regulated under the LMR should comply with only with the provisions required under the respective Federal Landfill Regulations. If exceedances of the respective standards impacting temperature result in either detection of offsite landfill gas, or the local air district

verification of a public nuisance that results in the issuance of a notice of violation (NOV), then the more enhanced provisions outlined in Section 95469 (e)(3) may apply.

Thank you for the opportunity to provide feedback on this important issue. If you have any questions about our feedback or suggested amendments, we would be happy to discuss them further.

Sincerely,



Curtis Larkin
Chair
SWANA California Chapters Legislative Task Force

# Attachment 1

## Focus of the Proposed Amendments to the LMR

As currently proposed to be written, the updated LMR attempts to enhance efforts established in the original, as well as adding a remote sensing component to the regulation. However, CARB's focus should be to identify practical and cost-effective strategies for further reducing methane emissions from landfills in achieving its short-lived climate pollutant methane reduction goals. The original LMR's goal was a reduction of 1.5 MTCO2E over a 10-year period, which we believe has been achieved. The LTF believes that most efforts to reduce methane in the waste sector should be focused on organics diversion from landfills through SB 1383. The efforts of the current proposal to amend the LMR should be general clean-up and requirements on landfills and practices that have been found to be generating excess methane emissions beyond what was envisioned in the original LMR. This was demonstrated by CARB, working with NASA's Jet Propulsion Laboratory (JPL), in its remote sensing program. The remote monitoring effort examined 436 landfills with only 30 large landfills showing methane plumes, and the remaining 406 landfills were operating in compliance with the original LMR requirements. As such, we question the appropriateness of imposing enhanced LMR regulations on the remaining 406 landfills. Our comments address areas of the amended LMR that we believe can be modified to address landfills that may be considered "bad actors".

## Delegating Authority to the Local Air Districts

The proposed amendments to the LMR are very extensive in terms of enhanced efforts in monitoring which will require new and expensive equipment deployment, enhanced field work and remediation efforts, additions to regulatory notifications and reports, as well as recordkeeping. The effectiveness of the original LMR was largely due to the successful delegation of authority to implement the LMR by the local air districts. This was a critical step and required by the following CARB Resolution when the LMR was adopted in 2009:

> "*BE IT FURTHER RESOLVED that the Board directs ARB staff to work with local air districts to: (1) develop a guidance document to assist MSW landfill owners and operators in complying with the requirements of the proposed regulation, (2) develop and consider agreements with local air districts to implement and enforce the proposed regulation, (3) establish an implementation workgroup that meets periodically to discuss implementation issues and promote statewide consistency regarding the implementation and enforcement of the proposed regulation, and (4) modify the regulation to clarify, as discussed in the ISOR/Staff Report, that the regulation is a regulatory floor."*

The effort to finalize delegation through the memoranda of understanding (MOUs) took time, with some air districts, like the South Coast Air Quality Management District (SCAQMD), amending their Landfill Rule 1150.1 to fully incorporate the LMR requirements. Using the SCAQMD as an example, CARB adopted the LMR in 2009, which became effective in June 2010, the SCAQMD Board adopted the revised Rule 1150.1 in April 2011, and the MOU between the two agencies signed in May 2012; an effort that took almost three years. Of the 22 air districts that established MOUs with CARB, the last one was signed in May 2015; six years after CARB adopted the LMR.

This critical issue of delegation has not been addressed by CARB staff.

We recommend that the revised LMR not become effective 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.

### Submission of the Proposed Amendments to the LMR to U.S. EPA to Gain EG Equivalence

In 2016, the U.S. Environmental Protection Agency (U.S. EPA) published the Municipal Solid Waste Landfill Emission Guidelines and Compliance Timelines for Municipal Solid Waste Landfills (Emission Guidelines-EG), which require the installation of a landfill gas collection and control system at certain landfills. California utilized the Landfill Methane Regulation (LMR) for California's State Plan to implement the Emission Guidelines. In early 2020, U.S. EPA partially approved and partially disapproved California's State Plan. In May 2021, U.S. EPA finalized a Federal Plan to implement the Emission Guidelines for existing municipal solid waste landfills, which includes specific reporting requirements in addition to those required by CARB under LMR.

The LTF believes it is critical that California gain full approval from U.S. EPA for the LMR to be equivalent to the EG, which will streamline reporting and mitigation efforts. CARB needs to provide a timeline for re-submission of the LMR to EPA for approval.

### Eliminating Applicability for Active Landfills with 450,000 tons in Place

The LMR as originally written provided control and regulation of greater than 94% of landfill gas generated in the State of California. Going after the remaining 6% (likely smaller landfills) was not practical nor cost effective. The use of 450,000 tons of waste in place was an effective threshold for characterizing when landfills should determine if a landfill gas collection system is needed. Effected smaller landfills are generally operated by small municipalities where, given their financial constraints, are helped by indicators that may be easily measured, such as "waste-in-place". If instead, the starting point is calculating landfill gas heat input capacity for any active landfill below the 450,000 tons of waste in place level, that may result in excessive cost to small municipalities with no evidence that these sites are contributing problematic levels of methane to the environment. In fact, a "tons in place" threshold is used because installing gas collection systems on very small landfills is not cost effective and is often problematic to operate because of the low methane quality of the gas, as well as the possibility of pulling in too much oxygen due to the shallow nature of these sites.

We recommend that Section 95463 not be modified.

### Enhanced Monitoring Requirements

Cover Integrity:

Section 95464 (b)(6) requires a Cover Integrity Plan to "*to monitor cover integrity and address issues such as exposed waste, leachate breakouts, and erosion gullies.*" The LTF objects to this requirement for two primary reasons. First, as noted in this section, cover requirements are regulated by the California Department of Resource Recycling and Recovery. Landfill operators currently must comply with requirements pursuant to

these regulations. Second, a separate program to require cover integrity checks is unnecessary and may conflict with other programs. Surface monitoring requirements contained in the current LMR already require that landfill technicians walk all parts of the landfill and not only measure but observe cover conditions that can lead to surface emissions. Landfill surfaces, especially at larger landfills, can cover hundreds of acres. A second layer of monitoring through a Cover Integrity Program, over and above existing surface requirements is onerous and unnecessary given the current surface monitoring requirements.

The LTF recommends that all references to a separate Cover Integrity Plan or Program be removed.

## Surface Monitoring:

The updated LMR shortens timelines for remediation of surface monitoring exceedances, both instantaneous and integrated. The LTF has commented previously on the original intent of instantaneous versus integrated monitoring standards. The instantaneous monitoring standard of 500 ppm generally identifies leaks in the landfill cover. In most cases, these leaks are a result of cover cracks that can be quickly remediated, but they do not necessarily indicate problems with the gas collection system. The proposed regulatory enhancements are not needed here since minor leaks do not result in substantial methane emissions. Integrated monitoring measures leaks which are accumulated over a wide area. An exceedance of this standard could be more indicative of a problem with the gas collection system and more problematic methane emissions. This should be the focus of regulatory enhancements which can mitigate methane emissions.

The LTF has the following recommendations regarding the proposed amendments to the routine surface monitoring requirements:

- The instantaneous surface monitoring requirements of Section 95469 (a)(1) should not be modified, except that a landfill operator can, at their discretion, choose to instead of re-monitoring an area where an exceedance is measured, install a new landfill collection well within 120 days (also applies to Section 95469 (a)(2)).
- For Section 95469 (a)(2), Integrated Surface Monitoring, the requirement for corrective action within three days should be removed and allow the landfill operator to decide when in the 10-day re-monitoring time period, to begin corrective actions. Landfills operators can, based upon extensive experience and available resources, choose the time within the 10-days to more efficiently deploy repair crews to affected areas.
- There should be no changes to surface monitoring requirements for closed landfills because there is no evidence that a problem exists that would require enhanced monitoring. CARB admits this in the ISOR that, "*…there is limited data to estimate the effectiveness of any given measure or set of measures*." This is an ineffective use of resources.

## Remote Monitoring of "Unsafe-to-Walk" Areas:

Local air districts, in implementing the LMR, have carefully excluded unsafe areas from monitoring efforts. Before CARB proceeds with modifying this practice, the number of areas excluded should be examined; are the

number of excluded areas extensive enough to cause an overall methane emissions problem? If CARB proceeds with requiring remote monitoring of unsafe areas, landfills operators would have to invest in remote sensing technologies. Is it cost effective to only discover a minor crack in the cover with a single 500 ppm exceedance? Also, an area that is unsafe to walk in will also be unsafe for workers to remediate any problems discovered. Per the discussion above, CARB needs to identify whether the focus is simply mitigation of cracks in the cover or uncovering real gas system problems. It is unlikely a crack in the cover in an unsafe area is worth the danger to workers needed to attempt remediation. However, a gas system problem could be dealt with more effectively by looking for improvements to the gas system and not endangering workers.

The LTF recommends that instead of requiring remote sensing of unsafe areas as the only approach, an alternative monitoring plan should be allowed to look for real issues with the landfill collections system in these areas by using conventional monitoring, or other approved sensing technologies in accessible adjacent areas. All efforts must be made to keep workers safe by keeping them out of the unsafe areas.

### Remote Sensing:

CARB is proposing that landfill operators be notified of methane plumes measured by CARB, and actions be taken as a result.

The LTF generally supports this action but suggest that CARB provide a written report within three years detailing the effectiveness of this approach, as well as suggestions for further regulatory modifications to make the program more effective.

### Semi-Continuous Operation:

Semi-continuous operation of closed sites and inactive areas at active landfills with separate gas treatment systems is an important tool for landfill operators to effectively collect landfill gas of sufficient quality and quantity that can be managed in conventional devices, such as flares. The requirements outlined in the revised LMR are extensive and may discourage this important practice.

The LTF recommends that requirements to allow semi-continuous operation of landfill gas systems at closed sites, or qualified inactive areas at active sites, be streamlined and encouraged, subject to prior approval of the appropriate regulatory agencies.

## Landfill Gas Well Temperature Monitoring

Provisions in the amended LMR for monitoring well head temperature and procedures for mitigating temperature exceedances for every landfill regulated under this provision are excessive. Minor exceedances of wellhead temperature (e.g., 131 degrees) are generally not indicative of any major problems with the gas collection system. The focus should be on situations where major and prolonged temperature excursions cause significant problems on- and off-site.

It is recommended that landfills regulated under the LMR should comply with the provisions required under their respective Federal Landfill Regulation. If exceedances of the respective temperature standards result in

either detection of offsite landfill gas, or the local air district verification of a public nuisance that results in the issuance of a NOV, then the enhanced provisions outlined in Section 95469 (e)(3) can apply.

### SB 1383 – Organic Diversion from Landfills

Diverting organics from landfills has been identified as the most effective long-term solution for reducing methane emissions from landfills. From the SB 1383 Initial Statement of Reasons:

> *Achieving these targets will reduce an increasing amount of greenhouse gas emissions, ultimately achieving annual reductions of at least four Million Metric Tons of CO2 equivalents (MMTCO2e) annually by 2030. In addition, one year of waste diversion avoids 14 MMTCO2e of emissions over the lifetime of waste decomposition*.

This is compared to the LMR methane reduction of 1.5 MTCO2E over a 10-year period. Further, in 2016 the Legislative Analyst Office (LAO) identified programs that promote organics recycling and digester research and development, as the most cost effective (cost per ton) greenhouse gas reduction strategy. As an example, the average cost effectiveness of the top 21 reduction strategies was determined to be $57 per ton reduced with numbers as high as $725 per ton reduced; organics and recycling loans were $4 per ton reduced. However, despite the obvious advantages of focusing on the organics diversion strategy, the draft Little Hoover Commission Report (released June 2023) found that the organic diversion deadlines are not being met and efforts to achieve these mandates must involve significant increase in efforts by regulators working with municipal and industry partners. Municipalities, the landfill industry, along with their partners in the wastewater sector have been attempting to work with regulators and legislators for many years on a host of issues, such as increased funding for infrastructure, permitting, regulatory streamlining and programs for utilizing biomethane. Many of the most important efforts have been met with roadblocks that have stalled efforts to meet the SB 1383 organic diversion mandates. All the efforts and issues are too numerous to summarize here.

The LTF strongly recommends that CARB reach out to associations that have been at the forefront of promoting these issues to fully understand the efforts that will be needed. The LTF will gladly work with CARB staff on identifying these groups.

### Miscellaneous Issues of Concern

- Section 95464 (b)(1)(A)(2): Gas control system downtime is limited to 120 hours per year. Included in the 120 hours should not be issues beyond the control of the operator, such as utility issues, power shutoffs, or natural disasters.
- Section 95464 (b)(1)(D): Requires each control device to have one gas flow rate measuring device. This should not include smaller flares that are part of a flare station. Typically, these flares do not have room for the proper location of a gas flow rate measuring device. In these situations, a gas flow rate measuring device typically serves the entire flare station; flow is balanced to each flare using pitot tubes and pressure measurements to set the flows.

- Section 95464 (b)(3)(A)(1): As written, lean burn internal combustion engines (ICEs) would have to meet a 99% methane destruction efficiency and have an outlet methane concentration less than 3,000 ppm. This should be corrected since these engines do not have to meet the 99% destruction efficiency. It is written correctly in Section 95471 (i).
- Section 95464 (b)(3)(A)(3+4): In subsection 3, ICEs or gas turbines are required to be equipped with an oxygen sensor and temperature sensor in the exhaust stream upstream of any add-on exhaust treatment equipment. These should be installed only if required by the manufacturer. In subsection 4, the requirement to operate a gas control device within the parameters of the most recent source test has been changed to ranges provided by the manufacturer. Very often, manufacturer parameters are modified because of actual field conditions, in which case it is more appropriate to use the parameter range established in a source test. The device should be operated by the most representative range, which is usually parameters established in a source test.
- Section 95467 (d)(3): It is required that one of the conditions for permanent shutdown of a landfill gas collection system is that the measured methane collection is below 125 metric tons of methane. It is not clear what the significance of this value is and how it relates to issues of a declining gas collection that cannot be operated effectively anymore. This should be clarified.
- Section 95468 (a): Subsection (4) should not be deleted. Per earlier comments, it may be practical, that in lieu of remote sensing in unsafe to walk areas, alternative walking patterns may be suitable.
- Section 95469 (b)(1)(B): It is proposed to notify a landfill operator of a remotely detected emission plume by an email address supplied in required reports. If a person with that email address is no longer employed, or for other reasons the email does not reach the appropriate individuals, the landfill operator can be found out of compliance. It is recommended that additional means, such as phone or mailing address be utilized.