



COUNTY of YOLO

Department of Community Services Division of Integrated Waste Management

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Anthy Alexiadis
Short-Lived Climate Pollutant Policy Section
California Air Resources Board,
1001 I Street
Sacramento, California 95814

Subject: Comments on Proposals to Update the Landfill Methane Regulation,
Title 17 California Code of Regulations, Sections 95460 to 95476

Dear Ms. Alexiadis:

The purpose of this letter is to provide comments and suggestions on updating the Landfill Methane Regulation (LMR) based on discussions during the two workshops put on by the California Air Resources Board staff. We support and appreciate the overarching goals of the LMR. Our feedback targets what we believe will help move this goal forward as effectively as possible considering the intrinsic nuances and variability of landfill operations. There are three sections to this letter: (1) general comments to the LMR and LMR Goals, (2) comments on areas that need attention that are beyond the scope of the LMR, and (3) specific comments on CARBs proposed changes to LMR regulations.

General Comments on LMR and Goals

- Direct surface emissions monitoring (SEM) is limited as a tool for monitoring landfill methane emissions. A diligent operator can do a reasonably good job, but there isn't currently a way for regulators to ensure an operator is not doing a poor job. Under the best circumstances, the grid itself can only cover a very small percentage of the overall landfill surface area. Recommend replacing current SEM approach to one that uses remote monitoring methods, on a more frequent basis, with ground SEM follow up for all plumes identified, and subsequent reporting and repairs.
- A large portion of landfill methane emissions come from active area that are currently excluded from monitoring under current regulations. Improvements to the LMR regulations should target these areas of the landfill. This could include supporting landfill owners with best practices for improving early capture of

methane in newer landfill cells, best practices for minimizing the risk of air intrusion,. These issues are discussed in several of the following specific sections.

- The County agrees that it would be good to have LMR language match federal requirements for all landfill sizes and landfill gas generation potential.
- Reporting exceedances and leak investigations. Updates to this reporting should allow for flexible reporting as investigations and corrective actions do not always fit into a set procedure.
- The County generally prefers this type of regulation to be goal and standard driven, rather than proscriptive requirement driven. Another County preference in regulation is a general ability for an alternative compliance program. While this does place additional burden on the regulatory agencies to review alternative requests, the site-specific nature of landfills warrants a general ability to propose a program that meets the goals of the regulation, while maybe not the specifics.

Comments on Specific Sections and Issues

Section 95464. Gas Collection and Control System Requirements. Among the items discussed in the workshops regarding Gas Collection and Control Systems (GCCS) are: Limits to individual collection point downtime, minimization of emissions during component downtime, maintaining consistent vacuum/collection volumes, managing declining generation from closed landfills. Many of these items seem appropriate to be included in the site specific GCCS Design Plan.

A proscriptive time frame on component downtimes does not allow for the site-specific operational differences between large and small landfills. Generally, landfill gas collection wells near the active filling area at a landfill are taken offline, to reduce the potential for pulling oxygen into the waste and starting a landfill fire, and to operate heavy equipment without damage to the GCCS. There are likely opportunities to manage these situations to reduce the area of landfill affected by component downtimes, but they will be quite site specific in nature.

For closed landfills or landfill cells, a guide or target of landfill gas production or gas production decline for when it is appropriate to update a closed landfill or landfill cell from continuous collection to reduced or intermittent collection of landfill gas is needed. Another item as part of this review is how to propose a positive pressure alternative for closed landfill cells with an impermeable membrane cover. The regulation should also include a provision (in Section 95471) for appropriate changes to SEM monitoring of closed landfills or cells.

Section 95465. Surface Methane Emissions Standards

Potential changes to exceedance limits. We don't have any issue with changes to the exceedance limits from 500 ppm to 200 ppm. We do think keeping the grid average

exceedance limit at 25 ppm is a good level. Our experience is that a low exceedance that wouldn't require a corrective action often results in a grid average exceedance that does require corrective action. The net effect of this is that the change from 500 to 200 won't change the amount of exceedance corrective action very much.

How to work remote results into the exceedance standard? Remote results are typically presented as a concentration at a distance (ppm*m). This needs to be decided for use of remote monitoring for areas where follow-up SEM type monitoring is not available (into the active face, on top of covered lagoons, along unsafe slopes). This might be an area where a site-specific monitoring plan will need to be developed, as large landfills and small landfills will have different areas and timescales for active filling areas to be unavailable for direct SEM.

Section 95469 Monitoring Requirements.

How to monitor exceedances to evaluate if corrective action is complete? At YCCL, we mark instantaneous exceedance locations in the field and try to evaluate the extent during monitoring. After corrective action is done, we typically also re-scan not just the exceedance area but the entire grid to ensure we have corrected the exceedance.

How to confirm, evaluate, and correct emissions detected from wide area remote sensing programs? We understand that CARB is developing agreements and procedures to use satellite and other wide area remote sensing to monitor for methane emissions. Due to communication and data review delays, there may be substantial time delays before operators are notified of an observed emissions event. The updated LMR should include reporting requirements for these based on when the operator was notified of the excess emissions, not when the excess was observed by the remote sensing program.

Section 95469(b) Positive Pressure component monitoring. Due to the very site-specific arrangement of LFG control equipment, a very prescriptive monitoring program is potentially going to either miss important areas to monitor or be overly burdensome on some operations. The suggestion for a site-specific positive pressure monitoring plan seems good. The plans should include procedures for monitoring blowers, valves, sample ports, flanges, flow meters, and control equipment; and a site plan with specific monitoring points called out and a layout of the positive pressure areas.

For this section, we would not like to see the standard changed from 500 ppm for exceedances requiring corrective action. Our observations and monitoring have shown that repairable leaks in our positive pressure systems generally are substantially over 500 ppm.

Section 95469(c) Wellhead Monitoring

Issues and Process for automated well field monitoring. We are conducting a long-term test with a vendor of automated well field monitoring equipment. This is being funded as an experiment to use 45Q tax credits to pay for the activity, which our vendor indicates is not a profitable model. Currently, it is prohibitively expensive for a landfill to buy and operate this equipment. We would not like to see a requirement for automated monitoring, but rather incentives to use these systems. As part of the compliance use of automated well field monitoring equipment, instantaneous or short duration positive pressure results should not be counted as a positive pressure exceedance requiring corrective action.

Update the corrective action greater than 15 days section. For those landfills that are part of a local government, getting a public works contractor in place to install additional landfill gas wells in 120 days is very challenging. We would recommend that a time frame for a written plan submitted to the local regulatory agency (the local AQMD, or ARB if not a local agency) that includes a reasonable timeline for the major modifications that would be included in this sort of corrective action. The written plan should also include a section on monitoring the affected area and reporting on the corrective action after completion.

Section 95470. Record Keeping and Reporting.

Standardized report forms. We worry that an online report format doesn't allow for site specific discussion of issues and compliance, or where an alternative compliance standard is approved. For example, in our air district prevailing winds often make surface scanning difficult to stay within the 5 mph average/10 mph gusts limit in the regulation and so there are some alternative compliance options approved to manage the wind restrictions.

Compliance clarification for third party control operators. The clarification that third party control operators or others have compliance requirements under the LMR could be more easily provided in guidance documentation rather than in the regulation itself.

Section 95741(e)

Models used to generate gas generation rates.

The specified model to generate the expected gas generation flow rate (the IPCC 2006 model) and a specified recovery rate of 75% do not accurately reflect the gas generation and recovery of landfills around the state. Among items not taken into consideration are how final cover affects the recovery rate, changes to the potential methane generation capacity, changes to the methane generation rate during an active landfill cells methane life cycle. While there has been some investigation of how to improve these models, we are not aware of an approach with widespread evaluation.

Longer term gas generation and collection modelling once the SB1383 Organics reduction starts to have a larger impact on gas generation rates will make the IPCC model even less

accurate. The IPCC model has set parameters for waste type organic content and potential generation capacity. Reduction in landfilling of organics based on implementation of SB1383 will have an impact of the methane generation potential for landfills. Updating the model used to allow for more site specific input parameters (rainfall or landfill moisture, available carbon fraction, cover types, depth of waste, etc) would help with more accurate generation estimates and potential emissions estimates.

One suggestion is to use the model or a similar one that the EPA uses as part of the Greenhouse Gas Reporting Program (GHGRP). Both use differing models for gas generation and can get some substantially different results of methane generation, recovery, and potential emissions. While the LMR is focused on reducing uncontrolled emissions, the GHGRP is trying to estimate uncontrolled emissions and uses some factors like changing cover types that are not part of the IPCC model. In addition, a method for calculating site specific collection efficiency is probably warranted as well.

We at Yolo County Central Landfill appreciate the outreach and willingness to gather information from the experiences of those implementing the existing regulation by CARB staff. If you have follow up questions or would like clarification, please contact me at jborrego@yolocounty.gov, or 530-666-8854.

Sincerely,



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cc: