

October 30, 2015

Mr. Michael J. Tollstrup, Chief   
Project Assessment Branch   
Industrial Strategies Division  
California Air Resource Board  
1001 I Street  
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Sacramento, CA 95812-2815

Via: Website Post: <http://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=slcpdraftstrategy-ws&comm_period=1>

Subject: Comments of the Solid Waste Industry on the Proposed Short-Lived Climate Pollutant Reduction Strategy

Dear Mr. Tollstrup:

Thank you for the opportunity review ARB’s proposed Draft Short-Lived Climate Pollutant Reduction Strategy (Draft Strategy) and to participate in the various public workshops the ARB has held throughout the state. WM is a co-signer of a solid waste and recycling coalition letter that is being sent to you separately.

I am sending this letter to transmit supplemental information for your consideration in evaluating methane emissions from the solid waste and recycling industry.

Are Suggested Methane Emission and Reduction Levels accurate ?

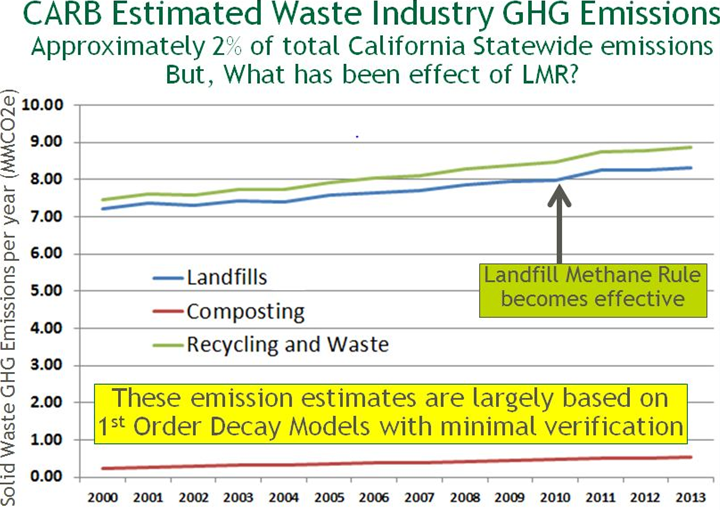
The ARB has not been clear on the assumptions and data that have gone into projecting the methane reduction that are anticipated due to the diversion of organics from landfills.

The ARB still appears to relay on 12-year-old assumptions that landfills, on the average, only collect 75% of the methane produced within the landfill and only 10% of the remaining 25% of uncontrolled methane gets oxidized in landfill cover and cap materials.

The 75% number is based on an informal survey of landfill operators that indicated a collection range of between 50 and 95% -- with the average being 75%. If these numbers are to be believed, it demonstrates that some landfills are able to achieve a very high degree of methane control. It is WM’s view that the LMR Early Action measure was intended to raise the bar on all landfills to ensure maximum control of methane. Published and peer reviewed data collected on landfill methane emissions clearly demonstrate that 90% methane control efficiency is realistically achievable at many landfills (For example, see Attachments).

In addition, the 10% oxidation of methane in cover and cap materials is also woefully out of date. Published and peer review data suggests that, depending on the type of cover and cap materials used, methane oxidation in cover and cap materials can achieve as much as 60% of methane that is not collected by the landfill operator (For example, see Attachments).

The most recent GHG inventory prepared by the ARB for 2000-2013 (April 2015) shows a continuous increase in GHG emissions from the solid waste sector as shown in the following chart:



The preceding chart shows that landfill emissions continued to increase -- even after the full implementation of the LMR rule in 2010. Yet, in a subsequent document, the ARB indicates at least a 1-2 million-ton reduction in landfill methane emissions occurred -- due to the implementation of the LMR. Many of us in the solid waste and recycling industry would very much appreciate a clear and understandable description of expected further methane reductions that are anticipated to be achieved by organic waste diversion – with a full understanding of the assumptions and data that are used to estimate these methane reductions.

Please note that the above date also shows an increase in methane emission from compost operations over the past 10+ years. Compost operations are also a source of N2O, a more potent GHG than methane. How will those emissions change with the advent of significant new composting operations? Will windrow composting continue to be allowed with minimum control of emissions? Alternatively, will Aerated Static Pile (ASP) composting be the required approach with greater capability to control methane and odor emissions?

**Why Isn’t the New CALMIM model being used to estimate and verify emissions?**

The California Energy Commission contributed to the development of a new model by a team of landfill experts led by Dr. Jean Bogner of Landfills+ Inc. This model is available online and can be applied to all California landfills. Further, this model has been field tested and verified to demonstrate its accuracy. CALMIM (California Landfill Methane Inventory Model) is a freely-available, user-friendly JAVA tool which estimates net CH4 emissions to the atmosphere for any landfill cover soil over a typical annual cycle, including (1) the effect of engineered gas extraction; (2) the physical effects of daily, intermediate, and final cover materials to retard emissions; and (3) seasonal soil moisture and temperature effects on both gaseous transport and methanotrophic CH4 oxidation.

At a minimum, this California state sponsored model should be used to at least verify the assumptions and estimates that the ARB (and CalRecycle) are using to estimate landfill methane emissions. For more information on CALMIM, go to:

<http://community.swana.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=cc8f607b-1c2e-422d-aece-620fd74a8b4d>

<http://www.ars.usda.gov/services/software/download.htm?softwareid=300>

It would seem only reasonable that before California embarks on a new effort to manage organic wastes at a cost of over $1 Billion, the state should at least apply the model that was developed with state funding to verify that the emission reductions are realistic and achievable.

The purpose of this letter is to simply request that the CARB consider all the most recent available information to accurately evaluate methane emission from the solid waste and recycling sector. We would hope this assessment occur prior to the advent of new GHG reduction measures that are currently on the books as outlined in the separate solid waste and recycling industry coalition comments also submitted today.

In the time available to prepare this letter by the requested deadline of October 30, 2015, it was impossible to obtain all of the most recent technical literature that has been written on this subject. I have attached few of the most readily available documents. The attached documents supplement the information and presentations provided for our August 6, 2014 seminar with CARB and CalRecycle staff titled: "Landfill Methane Capture Update From the Perspective of the Regulated Community." I have also attached the documentation that was prepared for the August 6, 2014.

WM would be pleased to continue working with the ARB to evaluate all the current information that is available on methane emissions from solid waste operations.

Sincerely,



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Attachments:

1. Estimates of Methane Emissions from Three California Landfills using Two Measurement Approaches; AWMA; Roger B. Green, Gary R. Hater, C. Douglas Goldsmith, Jeffrey P. Chanton, Nathan Swan, Tarek Abichou
2. ESTIMATES OF METHANE EMISSIONS FROM WESTERN LANDFILLS USING OTM-10. Roger B. Green, Gary R. Hater, C. Douglas Goldsmith, Jeffrey P. Chanton, Nathan Swan
3. Greenhouse Gas Inventories for the Waste Industry: The Importance of Measuring Landfill Gas Total Emissions; Gary Hater, Roger Green, Doug Goldsmith, Mort Barlaz, Tarek Abichou and Jeff Chanton.
4. Methane Oxidation in Landfill Cover Soils, is a 10% Default Value Reasonable?; Published in J. Environ. Qual. 38:654–663 (2009).
5. Geotechnics Of Methane Oxidation In Landfill Cover Soils; Jeffrey P. Chanton1, Tarek Abichou, Gary Hater, and Roger Green, and Jean Bogner.
6. Critical Analysis of Literature on Landfill Gas Collection Efficiency Prepared by Morton Barlaz, October 28, 2012
7. Landfill Gas Monte Carlo Model Documentation and Results, June 18, 2014, James Levis and Morton A. Barlaz
8. From California dreaming to California data: Challenging historic models for landfill CH4 emissions, Kurt Spokas, Jean Bogner, Meg Corcoran. Scott Walker; June 2015
9. Landfill Methane Capture Update from the Perspective of the Regulated Community; Scott D. Walker, P.E., C.E.G., Dung Kong & Jilei Shan, Sanitation Districts of LA County, Neil Mohr, Republic Services; Meeting with ARB and CalRecycle Staff ; August 6, 2014
10. Republic Services – Otay Landfill, Inc. California Air Resources Board & CalRecycle, August 6, 2014
11. Estimating LFG Emission Flux/Collection Efficiency -- the LACSD’s Experiences; Dung Kong, Jilei Shan, Mario Iacoboni; California Air Resources Board Sacramento, CA; August 6, 2014