Attention: Rajinder Sahota  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

Re: CARB LCFS workshop revisions  
  
Subject matter: Maximum CH4 potential method from the Diary and Swine protocols

The maximum CH4 Potential referenced in the Dairy and Swine methane avoidance protocols on the Manure-to-Biogas (LOP Inputs) tab in line B15 references the Reference tab table A1 and A2 in column D lists all Dairy cows, milking or not milking as having a 0.24 m3 CH4/Kg VS (240 ml CH4 per g VS).

Through extensive testing over the last several years and referencing numerous independent studies it is our belief that this number is inaccurate and altogether underestimating the methane potential in raw manure. The BioChemical Methane Potential test that this was referenced from was an EPA study originating in 1976, and reperformed in 2001. However, since 1976, science has improved for animal nutrition as well as for capture of methane from manure.

We have referenced several documents that show BMP values of over 0.4 m3 CH4/Kg VS when taken out over a period of 200+ days (typical residence time in a lagoon in many cases). We have many reference documents which show that trace elements in proper levels can obtain these methane levels in the 30 day BMP period of time that could otherwise take 200+ days. Digester Doc repeated one of these studies and found a 0.390 M3 CH4 per KG VS BMP when run for 200 days. We then found the same dairy manure sample when treated with trace element package was able to get 0.386 M3 CH4/KG VS in 35 days. The impact of this more recent development in science (understanding the full impact of trace elements and their role in accelerated methane production) has made it so that BMPs can now more fully represent the full methane potential in the typical 30-45 day BMP processing time.

It is our findings that very few manure samples are capped at or near this 0.24 m3 CH4/KG VS level. Most are significantly higher. We have witnessed several clients who in effort to maintain a lower CI score, will try to reduce the retention times of their digesters to minimalize the impact to their CI score. They seem incentivized to provide a lower CI score that matches their published numbers and not allow them to go higher. This has provided a negative impact on the methane avoidance efforts of CARB and left an increased amount of potential methane avoidance untapped.

It is our hope that farms be permitted to submit independent laboratory testing more in line with the term BMP as opposed to a number that is set in place of a BMP.

Thank you,  
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