State of California

California Environmental Protection Agency

M E M O R A N D U M

To: Heather Raven
California Climate Action Registry

Date: July 25, 2008

From: _____

Brenda Smyth, Division Chief
Statewide Technical & Analytical Resources
CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

Subject: **COMMENTS ON THE LOCAL GOVERNMENT OPERATIONS PROTOCOL**

The following are some overarching comments on the Local Government Operations Protocol for GHG inventories as well as some specific comments offered by CIWMB staff. We would like to include the proviso that the comments do not represent an official position of the California Integrated Waste Management Board.

Generally speaking, the concepts in the Local Government Operation Protocol advanced to date provide a framework to begin measuring the emissions footprint of local government activities. The LGO Protocol does not provide sufficient opportunity for local governments to account and report GHG emissions from recycling and waste management and calculate the true perspective of reductions by comparing emissions over time. It appears that local governments will be able to account for the vehicle fleet emissions from recycling and waste management collection vehicles and landfill operation equipment and will be able to account for emissions from landfills, materials recovery facilities, and compost facilities (with guidance included in a subsequent iteration).

However, we see no method to account for the energy savings realized from year to year increases in the amount of landfill gas (LFG) that is converted to compressed natural gas or liquefied natural gas as an alternative to fossil-derived diesel fuel. We see no method to calculate GHG emission reductions over time that could result from diverting methane-generating organic materials from the landfill to composting operations. And, on the other hand, if production of compost is reduced, we see no method to account for the leakage that could result due to the increased need for petrochemical fertilizer and irrigation water to maintain crop yields, i.e. the increased GHG emissions associated elsewhere with the production of petrochemical fertilizers and energy consumption of moving water. We see no method to account for leakage that would occur if currently recycled materials are disposed and not available as feedstock to reduce GHG emissions from manufacturing processes by supplanting raw material extraction, processing, and transportation to markets that are realized by the use of recycled feedstock. We see no method to account for leakage that may result if waste currently disposed in a publicly owned landfill is exported out of state for disposal in a landfill with less stringent landfill gas capture requirements. It also appears that the emissions inventory required in Chapter 7 (Vehicle Fleet), Chapter 9 (Solid Waste Facilities) could result in double-counting with the CO2 from LFG-derived transportation fuels.

We believe the protocol needs to be more holistic and look at the entire infrastructure which includes benefits/offsets associated with recycling and compost application as well as LFG-derived fuels. As

currently structured, the protocol penalizes local governments for these efforts which, from a GHG reduction point of view, may incentivize landfilling of these recyclable and compostable materials. This will have a negative effect on current law, AB 939, that requires diversion of materials from landfills. While the Local Government Operations Protocol is designed to quantify emissions inventories, without the full context of emission reductions provided by a broader perspective of the waste management and recycling industry, we are concerned that this protocol provides an incomplete picture of local government GHG impacts and is therefore not a full accounting and could result in increased emissions elsewhere. Plans to complete the Community-Scale GHG Inventory Development Protocol may include and address some of these concerns but without marrying the two protocols, the potential remains for them to be referred to as stand-alone documents that do not account for the full picture which could lead to local government actions on climate change resulting in unintended consequences of increased emissions.

In addition to these general comments on the overall Protocol, we have specific comments to offer on the following sections:

Section 9.3.2, Page 90 and Subsequent References

Please provide clarification why a value of "0.00" is the assigned oxidation factor for landfills with synthetic covers. This value implies that a landfill with a synthetic cover would emit more emissions that one with a soil cover that is allowed an oxidation factor of "0.10," when a synthetic cover is actually a better barrier to emissions. In addition, landfills with synthetic covers also require a vegetative soil layer. Therefore, methane that escapes the synthetic cover could potentially be oxidized by this vegetative soil layer.

In a case where a landfill has a synthetic cover system, would it be possible to allow them a higher collection efficiency if they have a system in place?

Section 9.3.3, Page 92

The equation for calculating emissions from landfills with partial systems is confusing. Why are all the factors applied to the amount actually collected instead of the amount generated minus the amount collected since the system is partial? This equation implies that by using the "AF" factor (calculated by dividing the uncovered area of the landfill by the total area, which will be less than 1.0) the amount emitted will be further reduced by the AF factor when actually, a landfill with a partial system emits more than one that is comprehensive.

A possible solution may be to scale-up the emissions by applying a factor based on the system's coverage. For example, given a 100 acre landfill where waste has been placed. Of the 100 acres, 10 acres have an operating system that collects 100 scfm. As such, 90 acres are uncontrolled. So:

$$\frac{\text{CH4 Collected (Actual)}}{\text{Controlled Area}} = \frac{\text{X (CH4 Potentially Uncontrolled)}}{\text{Uncontrolled Area}}$$

or:

X = CH4 Collected x (Uncontrolled Area / Controlled Area)

CH4 Potentially Uncontrolled = 100 scfm x (90 acres/10 acres) = 900 scfm

Then the oxidation factor could be applied to obtain emissions. Then this value could be added to the first part of the equation above to get total emissions.

However, this approach has inherent problems as well because some partial systems may not be in waste. So, it may be sensible to change the approach to treat the entire landfill like it has no system by

calculating the CH4 GEN, then subtract the amount that is actually being collected to determine the emissions. This way, the 75% collection efficiency is unessential.

Section 9.4, Page 94

The description of "composting" is minimal and does not include a full discussion of the beneficial offsets. We would like to work with you to provide a more robust description of composting.

We look forward to collaborating with you on the continued development of this protocol.

cc: Margo Reid Brown
Mark Leary
Howard Levenson
Cara Morgan
Stephanie Young
Clark Williams
Teri Wion