Comments of CalRecovery, Inc. Comments are indicated within brackets "[ ]" below and highlighted in yellow shading for ease of reference.

2 The GHG Reduction Project

2.1 Background

Methane (CH_4), a potent Greenhouse Gas (GHG), can be formed as a by-product of microbial respiration reactions that occur when organic materials decompose in the absence of oxygen (i.e., under anaerobic conditions). Organic waste deposited in Municipal Solid Waste (MSW) landfills will decompose primarily under anaerobic conditions, producing significant quantities of methane gas and biogenic carbon dioxide (CO_2), as well as other trace gases. The resulting CH_4 component of the landfill gas, if not oxidized by landfill cover material or captured and destroyed by a gas collection system, will eventually be released to the atmosphere. In the United States, the Environmental Protection Agency (EPA) has concluded that landfills are thesecond largest source of anthropogenic emissions of CH_4, accounting for almost 25 percent of total CH_4 emissions.[2]

When rapidly decomposing organic materials, such as food waste, are deposited in landfills, significant emissions of methane will occur. Even landfills that utilize gas collection and combustion systems are generally unable to capture the majority of the methane that is generated from the anaerobic decomposition of food waste, as the majority of the biodegradable material decomposes before the landfill gas collection and combustion systems can be installed and operating efficiently on the open cell of the landfill. *[If food waste decomposes "rapidly" as indicated in the first sentence, and the first 2 years of the new fill is generally considered to provide an aerobic environment for the wastes (i.e., it takes 2 years for that portion of the landfill to reach full anaerobiosis (the methane production phase)), then most of the carbon in the food waste would seem to have been emitted as carbon dioxide and, therefore, most of the carbon in the food waste would not be present later to form methane. Is that the intent of this paragraph?]*

When organic waste is composted, the material decomposes under primarily aerobic conditions. By diverting rapidly degrading food waste away from landfills to aerobic composting operations, significant emissions of methane to the atmosphere are avoided. Biogenic CO_2 is the primary decomposition byproduct from aerobic composting, although composting systems also emit trace amounts of nitrous oxide (N_2O) and CH_4 to the atmosphere *[But "trace amounts" of these two gases multiplied by their respective large GHG warming potentials may result in relatively large emission rates of CO2 equivalents. Are the "trace amounts" described in the second sentence of this paragraph in reference to mass emission rates of the gas specie or equivalent rates based on global warming potential of each gas?].* The degree to which N_2O and CH_4 are released to the atmosphere depends on the environmental conditions under which the decomposition occurs at the composting facility.

4 The GHG Assessment Boundary

[GHG assessment diagram and GHG Assessment Boundary does not acknowledge or account for GHG emissions from process liquids which are very likely generated as a result of aerobic composting operations, particularly liquids captured in surface impoundments (leachate storage ponds), which in many cases are anaerobic (generating CH4 and CO2) or aerobic (generating CO2). Ponds, etc. for control and treatment of compost leachate are usual environmental control measures required by environmental regulations or as a result of other requirements. If the liquid GHG emissions are considered insignificant to the total from other sources within the Boundary, then the basis of that judgment and the supporting data, it would seem, should be part of this protocol. Include Temporary On-site Storage within the Assessment Boundary: See comment within Table 4.1.] **Figure 4.1.** General illustration of the GHG Assessment Boundary

5 . Temporary On-Site Storage	GHG emissions may result if waste is stored for long periods of time under anaerobic conditions prior to active composting [*Most food wastes would be at least 48 hours old (and anaerobic) before they even arrive at the composting facility, and could be up to 7 days old. Thus, after 48 hours storage on the composting facility site (not an unusual occurrence), the food waste could have been anaerobic for 4 to 11 days before "aerobic composting" is finally initiated. Under these circumstances, how is the emission of CH4 and N2O judged insignificant or very small? It would seem that the statement needs support.]*	CO_2	E	N/A	*Biogenic emissions are excluded.*
		CH_4	E	N/A	*Excluded, as projects are required to mix food waste into the composting system within 48 hours following delivery of the material. Thus, CH_4 emissions are likely to be very insignificant.* [General Comment: What is meant by "insignificant" and "very small" where mentioned in this column--less than 0.1%, 1%, 10%? Some context or preferably the percentage should be stated in the protocol.]
		N_2O	E	N/A	*Excluded, as this emission source is assumed to be very small. N_2O is unlikely to be produced until later stages of the active composting cycle.*