

To : Derek Markolf  
From : Brian Bahor  
Subject: Draft Landfill Project Reporting Protocol  
Date : November 12, 2007

Thank you for the opportunity to comment on the draft protocols. There are two general themes to our comments:

1. Methane from landfilling of MSW is an anthropogenic emission that should not be rewarded with GHG credits when some of it is captured some of the time. Any and all methane emissions should be counted as GHG emissions. Any methane that is collected and converted to CO<sub>2</sub> would be carbon neutral and all other methane releases should be included in the inventory as a source.
2. A lifecycle analysis is required to fully account for methane emissions due to the long-term (greater than 100 year) period necessary for the anaerobic decomposition process.

The proposed approach rewards landfills that have escaped state and federal regulations instead of creating a mechanism that would reduce emissions. We agree that capturing methane is a positive endeavor but rewarding it as a GHG mitigation process is wrong because it should never have existed.

With these thoughts in mind, please consider the following detailed comments.

## **1.0 IV. The Project Boundary**

### **1.1 Physical Boundary**

#### **Issue**

The draft only considers the fraction of landfill gas that is collected that otherwise would have been emitted to the atmosphere. The decision to limit the physical boundary to the actual landfill gas collection system ignores landfill gas (including methane and air toxics) that is being emitted.

#### **Comment**

Landfills are known sources of methane and should be regulated as such during all phases of operation. The best approach to avoid emissions of methane and air toxics is to minimize landfilling of biodegradable municipal waste in a manner similar to that adopted by the European Union. This approach has yielded a significant reduction in methane emissions.

If the Registry decides to reward landfills for collecting some of the methane some of the time - the boundary should recognize the fugitive losses and only consider a credit if the amount captured and destroyed is greater than the fugitive losses.

## **1.2 Temporal Boundary**

### **Issue**

An annual accounting cycle is proposed.

### **Comment**

An annual cycle may be convenient for account purposes but it does not explicitly address the fact that the bacterial decomposition process described in Section II occurs over a 100 year period or longer.

A lifecycle analysis is proposed as a more accurate approach that recognizes that landfill gas is created and emitted over all operating periods of a landfill – not only those when a landfill gas collection system is installed.

## **1.3 Table 1**

### **Issue**

The following footnote \*\* Methane emissions that escape from the cap, or from leaking valves or seals do not need to be included within the project boundary because these methane emissions would have occurred absent the project.

### **Comment**

Methane emissions only occur because MSW was landfilled. The note essentially states that methane emissions are okay and an incomplete LFG collection system is better than no system at all. This approach towards regulating methane does not promote a better environment and it certainly does not create an enforceable situation where a LFG operator is motivated to maintain the best possible system.

## **2.0 V. GHG Reductions Calculations Methods**

### **2.1 Introduction**

#### **Issue**

“At this time, no widely accepted method exists for determining the total amount of uncontrolled landfill gas emissions to the atmosphere from landfills”

#### **Comment**

The statement may be true due to the large uncertainties in the chemical, biological and physical processes in a landfill however EPA Other Test Method 10 is a certified procedure for measuring fugitive emissions from an area source. The uncertainty of a theoretical model can be removed by requiring landfills to employ a demonstrated test method.

### **2.2 Baseline Emissions**

#### **Issue**

In the baseline scenario all uncontrolled methane emissions are considered to be released to the atmosphere except for the 10 % which is oxidized by bacteria in the soil.

#### **Comment**

The assumed oxidation factor does not apply to modern landfills that are equipped with liners. If a liner is engineered and installed correctly, landfill gas will not come into contact with soil and if there is a break in the liner, the amount of oxidation from this situation is unknown and should be considered to be a release to the environment.

## 2.3 Project emissions reductions

### **Issue**

As shown in Equation 1, project GHG emissions reductions equal:

- The total amount of uncontrolled methane collected from the landfill and combusted by the project landfill gas control system, minus
- The portion of methane oxidized in the baseline scenario, minus
- Carbon dioxide emissions from fossil fuel consumption, minus
- Indirect carbon dioxide emissions from the use of electricity from the grid if applicable

### **Comments**

AB 32 requires that GHG reductions are real, permanent, quantifiable, verifiable and enforceable. The proposed equation and its inherent parameters do not fulfill these requirements. More specifically:

- A Real reduction would be one that considers the entire regulated source. The regulated source according to the permit is the entire landfill – not the arbitrary boundary limit proposed in the protocol.
- The Quantifiable parameter is not met due to the absence of any certified method to continuously measure and record methane emissions. This statement applies to the landfill gas system and fugitive losses.
- The Enforceable parameter is not being met due to the absence of any state or federal provision that requires an affirmative demonstration of compliance.
- The Permanent parameter is met for methane that is affirmatively collected and destroyed but that does not consider the methane that is being generated and not collected.
- The Verifiable parameter has little meaning given the above – what value is there in verifying a value from a system that is operated in accordance with manufacturers standards and there are not any enforceable provisions.

## **3.0 VI Project Monitoring**

### **3.1 Issue**

“Project developers are responsible for monitoring the performance of the project and operating the landfill gas and combustion system in a manner consistent with the manufacturer’s recommendations for each component of the system.”

### **Comment**

Manufacturers recommendations are not defined and will vary from one manufacturer to another and will also vary depending on the purpose and objective of the system.

### 3.2 Issue

”Monitoring instruments should be calibrated at least once per year”

This calibration statement does not meet the standard of any continuous emission monitoring system.

**Comment**

The calibration and certification standards for all instruments including but not limited to LFG meter and flare or engine exhaust (CO<sub>2</sub>, NO<sub>x</sub>, CO, CH<sub>4</sub>, temperature, etc.).