# Technical Bulletin

## 2013 Revisions to Federal Greenhouse Gas Reporting Rule Affect Landfill Data Collection and Reporting

On November 29, 2013, the U.S. Environmental Protection Agency (EPA) published the final version of revisions (Technical Corrections) to the federal Greenhouse Gas (GHG) Reporting Program (GHGRP). The revisions will become effective on January 1, 2014, and changes must be incorporated into the reporting of calendar year 2013 GHG emissions (due March 31, 2014).

### Background

Municipal solid waste (MSW) landfills are categorically required to report annual GHG emissions under 40 Code of Federal Regulations (CFR) Part 98, Subpart HH of the GHGRP if they meet the definition of the source category under Subpart HH and their methane generation exceeds 25,000 metric tons of carbon dioxide equivalent ($MTCO_2e$). Other types of facilities emitting more than 25,000 $MTCO_2e$ of GHGs must report annual GHG emissions to the EPA under the GHGRP.

Landfills required to report under the GHGRP must also meet general reporting requirements (Subpart A), report all stationary combustion (Subpart C), and report other applicable sectors, if present.

The GHGRP requires that landfill operators monitor information used to calculate GHG emissions, including landfill gas (LFG) flow and methane content when an active LFG collection and control system (GCCS) is present. Prior to the promulgation of the Technical Corrections, landfill operators must collect LFG flow and methane content measurements at least weekly.

### Major Changes

Major changes in the Technical Corrections which will affect MSW landfills include:

- Changing the global warming potential (GWP) of methane from 21 to 25
- Adding LFG as a fuel type separate from biogas
- Adding oxygen correction to the first-order methane generation equation
- Reducing the methane monitoring requirement frequency from weekly to monthly
- Allowing variable methane oxidation values based on methane flux through landfill cover
- Refining the emission calculation equations to explicitly allow multiple LFG destruction devices

### Summary and Impact of Changes

#### Methane GWP

The increase in the methane GWP effectively increases the methane emissions from MSW Landfills by 19%. While this may initially appear to result in more sites being required to report, the definition of the source category under Subpart HH has also been modified to exclude closed sites that had not already reported GHG emissions under the GHGRP, so closed sites that had not previously reported will not be made subject to the GHGRP due to the GWP changes.

The increase in the methane GWP is retroactive to previous reporting years and will result in an increase in the emissions from reporting years 2010-2012. In the preamble to the Correction Rule, EPA has stated that while re-submittal of previous reports will not be required, a separate version of the GHG emissions estimates will be published by the EPA.

This will have the net effect of increasing landfill GHG emissions by 19%, while not allowing re-reporting to take advantage of other Technical

Corrections, which might lower GHG emissions, for reporting years 2010-2012.

In addition, it should be noted that the modification of GWP will also affect future facility/device permitting.

### Landfill Gas Fuel Type

Prior to the Technical Corrections, sites reporting combustion of LFG in stationary combustion devices such as engines or turbines using the Tier 1 (default) emission factors were required to use the biogas fuel type. The biogas fuel type was developed for use with wastewater digesters and similar processes with significantly higher heating values than LFG, which resulted in corresponding higher reported emissions from stationary combustion devices than the combustion of LFG.

The addition of LFG to the available fuel types with an appropriate heating value will result in significantly lower emissions from sites with LFG-fired stationary combustion in engines and turbines. The addition of the fuel type also reduces the incentive to use measured heating value (Tier 2) in reporting emissions for LFG to energy (LFGTE) facilities.

### Methane Monitoring Frequency

The Technical Corrections also included a modification of methane monitoring frequency from weekly to monthly. This modification will not directly impact 2013 GHGRP reporting, but it will reduce monitoring requirements from 2014 forward. The monthly monitoring frequency is in line with the methane monitoring frequency in the MSW Landfill New Source Performance Standard (NSPS) to which most sites with a GCCS are already subject. In addition, note that a change in methane monitoring requirements may result in a need to update your facility's GHG Monitoring Plan.

### Methane Oxidation

The Technical Corrections provide an option for MSW landfill owners to determine a site-specific methane oxidation value other than than the current default value of ten (10) percent. The new oxidation values are based on methane flux through the landfill cover, and range from 10 percent for sites with high flux to 35 percent for sites with low flux. While flux is calculated based on landfill surface area data that are already reported under the GHGRP, it is important to note that EPA has added several caveats to the flux calculations, which include use of alternate oxidation values if there is a soil cover of at least 24-inches over a majority of the landfill and/or geomembrane cover with at least 12 inches of cover soil. These caveats will likely make it more difficult for landfills to make use of the site-specific oxidation factor options.

### Equations Revisions

The Technical Corrections update equations that were based on LFG recovery measurements, to explicitly allow multiple destruction devices. Previously, reporters with more than one destruction device or monitoring point were required to average or combine flows from multiple devices into single values for reporting under the GHGRP. Under the revised equations, the method for handling multiple devices has been standardized and made explicit.

## Resources

Federal Register - GHG Technical Corrections

## How SCS Can Help

SCS can help your facility/facilities determine applicability under the revised GHGRP and how best to comply with the rule. We can also determine the impact the Technical Corrections will have on your reported emissions, and assist you in choosing the best course of action to meet your needs. SCS can also help with monitoring and reporting under the GHGRP.

SCS's LFG practice is among the largest in the world. SCS is an expert in air quality and GHG issues for landfills. We developed one of the models used by EPA in its GHG rules, and worked extensively with EPA to develop certain of these Technical Corrections. We would be pleased to put this experience to work for you.

## For more information contact:

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Or contact your local SCS Engineers office.

http://www.scsengineers.com/