



CORNERSTONE
Environmental Group, LLC

Implementation of the Greenhouse Gas Regulations for Landfills

Khaled Mahmood, P.E.
Bolingbrook, Illinois

Green House Gas (GHG) Rule Overview

- Final EPA Rule Signed: September 22, 2009
- Federal Register Publication: October 30, 2009 40 CFR, Part 98
 - Applicable for Landfill : Subpart HH
- Rule Effective on December 29, 2009.
- Affects GHG Sources with 25,000 Metric Tons (MT)/yr carbon dioxide equivalent (CO₂E)
- 31 Source Categories were included

Applicability

- MSW Landfill: Subpart HH
 - Generate 25,000 Metric Tons CO₂e or More Per Year
 - Landfill That Accepted Waste After Jan 1, 1980
 - Excludes C&D, Hazardous and Industrial Landfills

GHG Rule Requirements

- Monitoring
 - Annual Waste Intake/Material Specific Waste
 - Flow Rate, Methane Content
 - Temperature, Pressure, Moisture Content
 - Total Annual Methane Recovered
 - Gas Collection and Control System Operating Hours
 - Area, Average Depth of Waste and Collection Efficiencies of Different Soil Type Covers



GHG Rule Requirements

- Recordkeeping
 - Applicability Determination
 - Continuous/Periodic Monitoring
- Monitoring Plan Development
- Reporting

Compliance Timeline

- January 1, 2010 : Begin Collecting Monitoring Data
- January 28, 2010: Request Use of Existing Monitoring Equipment (Until December 31, 2010)
- April 1, 2010: Development of Written GHG Monitoring Plan

Compliance Timeline (Cont.)

- January 30, 2011: Notify of Designated Representative
- March 31, 2011: First Annual GHG Report Due

Clarification From USEPA

- Common Control/Facility Definition
 - The rule defines “facility” as any physical property, plant, building, structure, source, or stationary equipment located on one or more contiguous or adjacent properties . In the case of a landfill, if one entity owns and operates the landfill and a completely separate entity owns and operates the landfill gas energy equipment, they would be two separate facilities.

Clarification From USEPA (Cont.)

- Scale/Waste Intake
 - Scale is Required for Measuring Waste
 - If Approved by USEPA, Use Best Available Method Until December 31, 2010
- Location of Measurement (Wet/Dry)
- Treatment System

Clarification From USEPA (Cont.)



Clarification From USEPA (Cont.)

- Weekly Monitoring
 - Under Subpart HH of the mandatory GHG reporting rule, “at least weekly” means that measurements must be taken once each calendar week with at least three days between measurements.

Clarification From USEPA (Cont.)

- Flow Meter
 - 8 Different Acceptable Methods Specified in Rule
 - Thermal Mass Flow Meter Acceptable

Clarification From USEPA (Cont.)

- Methane Concentration
 - Acceptable Methods:
 - 1. EPA Method 18
 - 2. ASTM D1945-03 (GC)
 - 3. ASTM D1946-90 (GC)
 - 4. GPA Standard 2261-00 (GC)
 - 5. UOP539-97 (GC)
 - 6. Method 25A or 25B (FID/IR)
 - Portable Analyzer is Acceptable (Landtec GEM-2000/Elkins Envision/IR)

GHG Monitoring Plan

- Must be in Place by April 1, 2010
- Purpose is to Document Process and Procedure
- Identification of Responsible Parties
- Consistent and Accurate Data Collection
- Verification of Collected Data
- Quality Assurance

GHG Monitoring Plan (Cont.)

- Maintenance and Repair of All Equipment
- Plan Can Reference Other Documents/
Existing Plans
- Revise Plan If
 - Change in Data Collection Method or
 - More Experience Evolves to Better



Reporting Requirements

- Initial GHG Report is Due March 31, 2011
- Submitted Electronically to USEPA
- Content of the Report
- Reporting Format and Mechanism are Still Under Development

Thank you!





Khaled Mahmood

Khaled.Mahmood@cornerstoneeg.com

Office: (630) 633-5856

Cell: (586) 588-0484