Landfills and the Mandatory Greenhouse Gas Reporting Rule

Matt Lamb
Richardson Smith Gardner and Associates
Who is Required to Report?

- “Large” greenhouse gas (GHG) emitters
- 25,000 metric tonnes of carbon dioxide equivalent
- Stationary fuel combustion (Subpart C)
- Electric Generating Units subject to Acid Rain Program under Subpart D
- Specific industries under Subparts E-PP
Affected Landfills

- Subpart HH – Municipal Solid Waste Landfills
- Accepted waste on or after 1/1/1980
- Closed as well as open MSW landfills

NOTE: C&Ds may be added in the future
Applicability Tool – Open Landfill

1. Is this a closed landfill? Yes →
   - Did the landfill receive waste on or after Jan. 1, 1980? Yes →
     - Is the 30-yr waste-in-place < 350,000 metric tons? Yes →
       - You do not report
     - No →
       - Is the landfill capacity < 350,000 metric tons? Yes →
         - Is the 30-yr waste-in-place < 350,000 metric tons? Yes →
           - You must report
         - No →
           - Do you have landfill recovery, and collect 900 metric tons CH4/yr? Yes →
             - Enter:
               - Quantity waste in place: 350000 Mg
               - Year Open: 2000
             - Is adjusted generation in the box on the right < 20,000 metric tons CO2e? Yes →
               - Adjusted CH4 Generation: 30,668 metric tons CO2e
             - No →
               - Is adjusted generation > 50,000 metric tons CO2e? Yes →
                 - Adjusted CH4 Generation: 30,668 metric tons CO2e
               - No →
                 - You must do more detailed modeling
   - No →
     - Is the landfill capacity < 350,000 metric tons? No →
       - You do not report
     - No →
       - Is the 30-yr waste-in-place < 350,000 metric tons? No →
         - Enter:
           - Quantity waste in place: 350000 Mg
           - Year Open: 2000
         - Is adjusted generation in the box on the right < 20,000 metric tons CO2e? Yes →
           - Adjusted CH4 Generation: 30,668 metric tons CO2e
         - No →
           - You must do more detailed modeling
Passive Flares ≠ Collection/Control
Subpart C Reporting

- If reporting under Subpart HH
- Report Subpart C combustion devices
- Unless exempt:
  - Portable equipment
  - LFG flares
  - Emergency generators
  - Non-Title IV/Non-40 CFR 75 generators
Waste Acceptance Rates

- First year of waste acceptance
  - If unknown, assume 50 years prior to reporting date

- Annual waste acceptance
  - If unknown, use one of three methods
    - Assume prior rates equal first recorded year
    - Use population data
    - Calculate average rate (Capacity ÷ Age)

- NIST Handbook 44 Compliant scales starting 2010
Landfill Gas Flow

- Measured continuously
- 5% accuracy required
- EPA approved thermal mass meters
  - Standardize flow using 60°F/14.7 psi
  - Specify when ordering or during calibration
  - OR
  - Measure LFG temperature and pressure weekly
Landfill Gas Methane Content

- Measured continuously OR weekly
- 5% accuracy required
- EPA approved NDIR meters
  - Portable handhelds or in-line analyzers

**NOTE:** Correct for moisture content

- Typically with in-line analyzers measuring “dry” gas
- Relative humidity measurement of LFG approved by EPA
Default Values/Factors

- **Destruction Efficiency**
  - If Landfill owns destruction device, lower of:
    - Manufacture rating, or
    - 99%
  - If Landfill DOES NOT own destruction device:
    - Assume 100%

- **Collection Efficiency based on cover type**
  - Daily cover = 60%
  - Intermediate cover = 75%
  - Final cover with geomembrane = 95%

- **10% oxidation (uncaptured methane)**
Deadlines

- 1/28/2010 – Request extended BAMM deadline
- 3/31/2010 – Implement compliant metering/calibration practices
- 4/1/2010 – Implement GHG Monitoring Plan
- 1/30/2011 – Submit designation to EPA of person(s) responsible for reporting
- 3/31/2011 – Submit 2010 GHG report
Clarifications from EPA

- C&D Likely to report in the future
- Passive vent flares are not reported
- Standard temperature = 60°F
- Relative humidity in lieu of moisture content
- 10% methane oxidation applied to all fugitive LFG, regardless of cover type
Questions?

For additional info:

http://www.epa.gov/climatechange/emissions/subpart/hh.html

Contact:

Matt Lamb

(919) 828-0577

matt@rsgengineers.com

www.rsgengineers.com