



Overview of Greenhouse Gas Reporting Requirements for Solid Waste Facilities

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Background

- EPA published the proposed rule in the Federal Register on April 10, 2009.
- The GHG reporting methods were built upon existing GHG reporting programs and guidance documents including those developed by the private sector, state and regional programs, and national voluntary programs.
- Final Rule signed September 22, 2009.
- Became effective December 29, 2009.

Source Applicability

Facilities:

- 17 facility categories are required to report (includes MSWLFs).
- 7 facility categories that emit 25,000 tons CO₂e in combined emissions from stationary fuel combustion (metals, glass, hydrogen, paper production.)

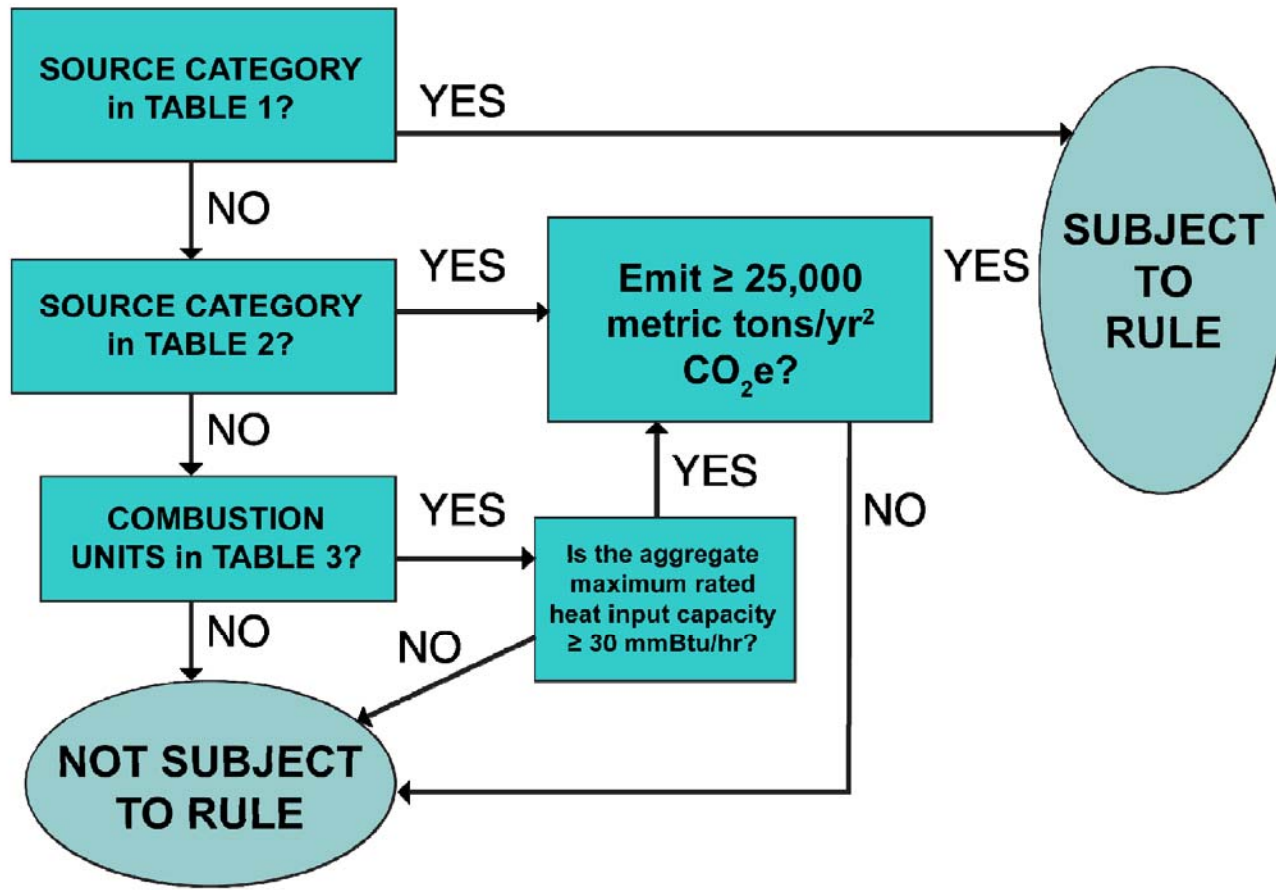
Note: 24 sources listed for the first two categories.

- Other facilities that have an aggregate stationary combustion heat input capacity of over 30 mmBtu/hr and emit greater than 25,000 tons CO₂e from stationary fuel combustion sources

Suppliers:

- Listed product suppliers (various fossil fuel producers)

Facilities subject to the rule



Differences from Western Climate Initiative Reporting Requirements

- Certain facilities must report regardless of emission levels
- 25,000 ton CO₂e threshold vs. 10,000 tons CO₂e
- Self verification instead of third-party verification.
- Facility level reporting only (no entity level reporting)
- Oil/gas reporting at supplier-level only.

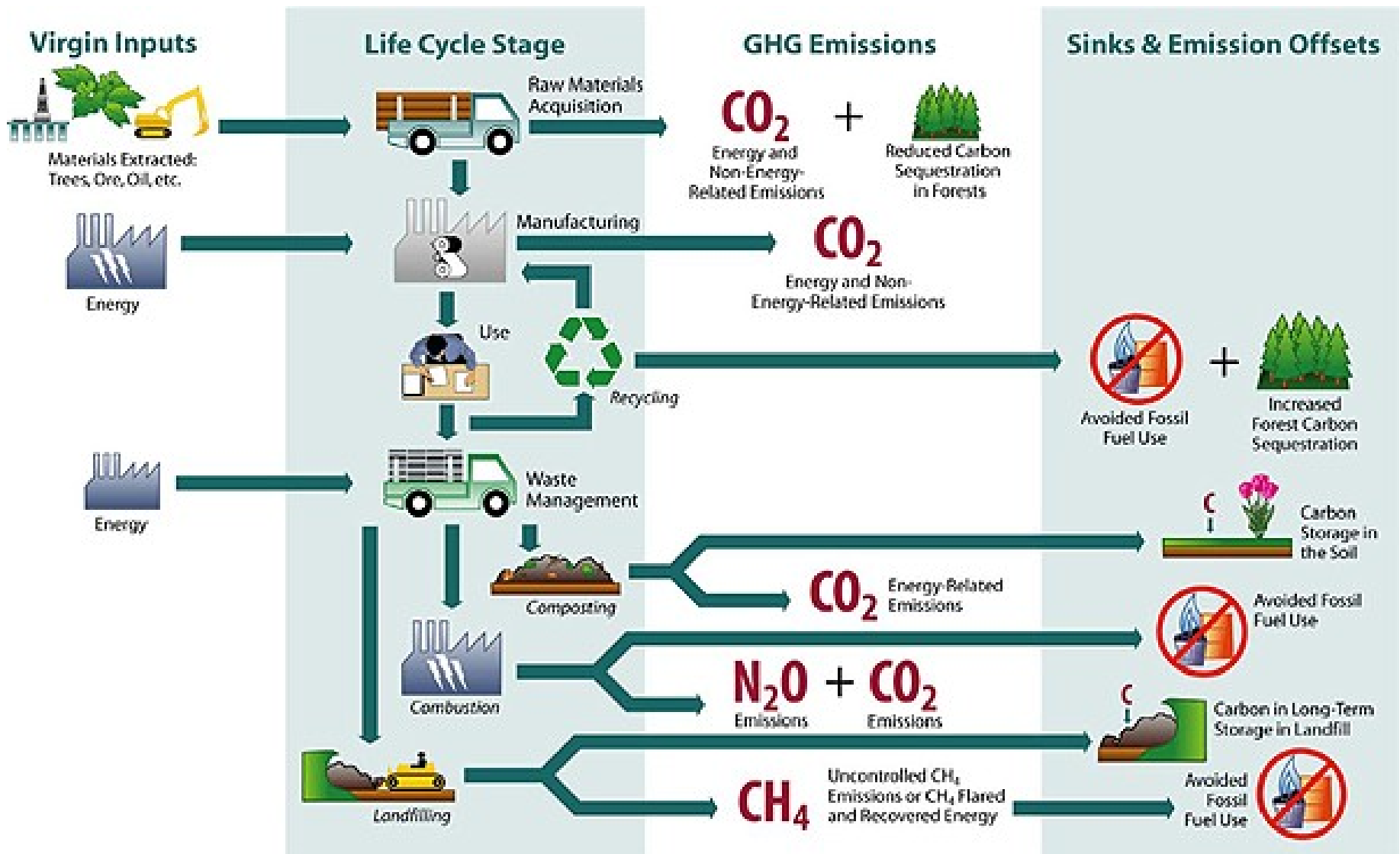
Emissions Coverage

- Covers 85% of all emissions in the US, approx. 10,000 facilities (according to EPA.)
- Municipal solid waste landfills that *generate* 25,000 tons CO₂e are required to report (EPA estimates about 2,500 landfills)
- Does not include vehicle fleets
- Does not include hazardous waste, C&D, or industrial landfills.
- Effectively all WTE operations would be reporting (stationary fuel combustion source.)

Not subject to reporting

- Indirect emissions (electricity use)
- Fleet emissions
- Emissions offsets
- Carbon sequestration
- Emergency generators, portable sources, and flares (unless required by a separate source category).

GHG emissions and waste cycle



Municipal Solid Waste Landfill Facilities

- Applies only to MSWLFs that accepted waste after January 1, 1980.
- Exempts hazardous waste landfills, C&D landfills, and industrial landfills.
- Applicable sources:
 - landfilled waste
 - landfill gas collection systems
 - landfill gas destruction devices
 - Other stationary sources

Assessing Applicability

“If a capacity or generation reporting threshold in paragraph (a)(1) of this section applies, the owner or operator shall review the appropriate records and perform any necessary calculations to determine whether the threshold has been exceeded.”

40 CFR 98.2(g).

Threshold:

Did the MSWLF accept waste after 01/01/1980?

GHGs to Report

- Annual CH₄ generation/emissions
- Annual CH₄ destruction
- Annual CO₂, CH₄ and N₂O emissions from general stationary combustion sources.
 - Note: For emissions from combustion of biomass (including LFG), exclude CO₂ emissions but include CH₄ and N₂O emissions.

GHG Generation Calculation

Facilities calculate CH₄ generation based on:

- Measured or estimated values of historic annual waste disposal. Three options for estimated:
 - Assume prior year amount for all previous years
 - Estimated population served
 - Use an average based on capacity & active life.
- Waste characterization data
- Appropriate values for first-order decay equation (based on waste/climate characteristics).

GHG Emissions Calculation

- Facilities without collection systems:
 - Adjust for soil oxidation (10%).
- Facilities with collection systems:
 - Annual quantity of CH₄ recovered/destroyed based on either continuous or weekly monitoring of gas flow rate, CH₄ concentration, temperature, and pressure.
 - Must calculate gas generation both with first-order decay model and system efficiency.

Monitoring Requirements

- Waste quantities must be determined using commercial weighing equipment specified in NIST Handbook 44 (2009).
- For LFG collection systems, requires a gas composition monitor capable of measuring CH₄ concentration by gas chromatography method (e.g., EPA 18) or TOCs with a FID or infrared analyzer (e.g., EPA 25A, 25B) with a calculated non-methane organic carbon correction factor.
- Gas flow meters must correct for temperature, pressure, and moisture content (if CH₄ on dry basis).
- Preference to make all measurements after moisture knockouts and blowers

Reporting Data – All MSWLFs

- Annual aggregate biogenic emissions (from LFG)
- CO₂, CH₄, and N₂O emissions from stationary combustion devices and other sources, both for each GHG individually and as an aggregate
- Operating status (open or closed)
- Surface area of landfill
- Method for estimating waste quantity
- Waste composition
- First order decay equation parameters
- Percent methane
- Modeled methane generation and estimated methane emissions

Reporting Data – LFGCCS

- location of destruction device (on or off site)
- Annual operating hours (primary and back-up devices)
- Total volumetric flow, methane concentration
- Monthly average temp/pressure in collection system (where not incorporated into measurements from flow monitoring equipment)
- Annual quantity of recovered methane
- Annual quantity of methane destroyed
- Description of the collection system
- Correction for oxidation
- Methane emissions calculated by:
 - (1) comparing modeled methane emissions with measured methane recovery and
 - (2) comparing measured methane recovery with an estimated LFG collection system efficiency.

Recordkeeping

- List of all emissions sources
- Date used to calculate emissions for each source
- Annual GHG emission reports
- Missing data computations
- GHG monitoring plan (organization, processes, quality assurance)
- Maintenance records, certifications

Calibration Requirements

- Measurement devices (e.g., flow meters) calibrated by April 1, 2010.
- Calibrated to an accuracy of 5%
- LFG composition monitors recalibrated annually or as specified by manufacturer
- LFG flow meters recalibrated biannually or as specified by manufacturer.
- Fuel billing meters are exempt (if separate fuel supplier)
- Provision for extension for continuously operating equipment.

Certification by a Designated Representative

- Rule does not require 3rd party certification.
- Each facility shall designate a representative responsible for certifying and submitting GHG emissions reports.
- EPA to independently review submittals.
- Same individual as for facilities subject to acid rain emissions reporting (40 CFR 75).
- Individual selected with a binding agreement on the owners/operators.
- Decisions of representative are binding on owner/operator.

Exiting the Program

- Cease reporting after 5 consecutive years of emissions below 25,000 tonnes CO₂e/yr.
- Cease reporting after 3 consecutive years of emissions below 15,000 tonnes CO₂e/yr.
- Cease reporting if the GHG-emitting processes or operations are shut down.

Implementation Timeline

- September 22, 2009 – final rule signed by EPA Administrator
- October 30, 2009 – final rule published
- December 29, 2009 – effective date of the rule
- January 1, 2010 - All covered facilities must begin monitoring their applicable GHG emissions
- January 31, 2010 – extension requests were due
- January 1 – March 31, 2010 – facilities may use “best available monitoring methods”
- April 1, 2010 – must begin monitoring.
- March 31, 2011 – first emissions report due

Contact Information

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EPA web site:

<http://www.epa.gov/climatechange/emissions/ghgrulemaking.html>