

Manure Management Systems



Proposed Rule: Mandatory Reporting of Greenhouse Gases

Under the proposed Mandatory Reporting of Greenhouse Gases (GHGs) rule, owners or operators of facilities that contain a manure management system (as defined below) that emits at least 25,000 metric tons of GHGs per year (expressed as carbon dioxide equivalent) would report emissions from all source categories located at the facility for which emission calculation methods are defined in the rule. Owners or operators would collect emission data; calculate GHG emissions; and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting.

Who Would Be Required to Report Emissions?

A facility that emits 25,000 metric tons of carbon dioxide equivalent (CO₂e) or more per year from its manure management system would be required to report. A manure management system stabilizes or stores livestock manure in one or more of the following system components:

- Uncovered anaerobic lagoons
- Liquid/slurry systems
- Storage pits
- Digesters
- Solid manure storage
- Manure composting
- Feedlots and other drylots
- High-rise houses for poultry production
- Other poultry production with litter
- Deep bedding systems for cattle and swine

GHG emissions from sources at livestock facilities unrelated to the stabilization or storage of manure, other than flares used at digesters, would not have to be reported. GHG emissions from enteric fermentation from cattle, field application of manure, or manure deposited by livestock on pasture/range would NOT be covered under this rule, and these emissions would not be reported. EPA's modeling estimated that approximately 85 to 95 of the largest manure management systems at beef, dairy, poultry, and swine facilities across the nation would be required to report under the proposal.

What GHGs Would Be Reported?

Under the proposal, for all manure management systems that meet or exceed the reporting threshold, facilities would report aggregate methane (CH₄) and nitrous oxide (N₂O) emissions from the system components listed above. For those manure management systems that include digesters, CH₄ generated and destroyed at the digester would also be reported. CO₂, CH₄, and N₂O emissions from the combustion of fossil fuels in boilers, water heaters, engines, flares, or other combustion equipment would also be reported by following the requirements of 40 CFR part 98, subpart C (General Stationary Fuel Combustion Sources). The information sheet on general stationary fuel combustion sources summarizes the proposal for calculating and reporting emissions from these units. Emissions from the combustion of digester gas in flares would not be reported.

How Would GHG Emissions Be Calculated?

Detailed methods for calculating GHG emissions are included in the proposed regulation and are briefly described below. Under the proposal, for each manure management system component other than digesters, owners or operators would calculate CH₄ mass emissions using the following inputs and data:

- Type of system component.
- Average annual animal population.
- Percent of manure handled in each component.
- Annual average volatile solids (VS) value calculated from monthly manure samples sent to a laboratory for analysis.
- Maximum CH₄-producing potential of the managed manure and CH₄ conversion factors provided in look-up tables.

For anaerobic digesters, facilities would estimate CH₄ emissions and the annual mass of CH₄ generated and destroyed based on the following inputs and data:

- Continuous monitoring of CH₄ concentration, flow rate, temperature, and pressure of the digester gas.
- Methane destruction efficiency of the burned digester gas (based on the manufacturer's specified efficiency or 99 percent, whichever is less), and fugitive emissions.
- CO₂, CH₄, and nitrous oxide (N₂O) emissions from the combustion of supplemental fuels (not digester gas) used in flares at digesters.

For each manure management system component, N₂O emissions would be estimated using the following inputs:

- Type of system component.
- Average annual animal population.
- Percent of manure handled in each component.
- Average annual nitrogen (N) value calculated from monthly manure samples sent to a laboratory for analysis.
- N₂O emission factors provided in look-up tables.

Each facility would report annual aggregate CH₄ and N₂O emissions from all of the components of the manure management system if the total was equal to or above 25,000 metric tons of CO₂e per year. The reports would include any of the above information used to estimate GHG emissions.

For More Information

This series of information sheets is intended to assist reporting facilities/owners in understanding key provisions of the proposed rule. However, these information sheets are not intended to be a substitution for the rule. Visit EPA's Web site (www.epa.gov/climatechange/emissions/ghgrulemaking.html) for more information, including the proposed preamble, rule and additional information sheets on specific industries including the *Guide for the Agriculture and Livestock Sectors*, go to www.regulations.gov to access the rulemaking docket (EPA-HQ OAR-2008-0508). For questions that cannot be answered through the Web site or docket, call 1-877-GHG-1188.