

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 manure management systems (as defined below) and that emit at least 25,000 metric tons of GHGs per year (expressed as carbon dioxide equivalents) 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?

Under the proposal, manure management systems that emit 25,000 metric tons of carbon dioxide equivalent (CO₂e) or more per year 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
- Drylots
- Solid manure storage
- Feedlots and other dry lots
- High-rise houses for poultry production (poultry without litter)
- Poultry production with litter deep bedding systems for cattle and swine
- Manure composting

GHG emissions from sources at livestock operations unrelated to the stabilization or storage of manure would not have to be reported. GHG emissions from enteric fermentation from cattle, field application of manure, or pasture/range manure management practices would NOT be covered under this rule, and these emissions would not be reported. EPA modeling estimated that between 40 and 50 of the largest manure management systems at beef, dairy, poultry, and swine operations across the nation would be required to report under the proposal.

What GHGs Would Be Reported?

Under the proposal, for all manure management system types listed above 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 operations that include digesters, CO₂, CH₄, and N₂O emissions from the combustion of supplemental fuels (not digester gas) used in flares would also be reported by following the requirements of 40 CFR part 98, subpart C. CH₄ generated and destroyed at the digester would also be reported.

How Would GHG Emissions Be Calculated?

Under the proposal, for manure management systems other than digesters, owners or operators would calculate CH₄ mass emissions using the following inputs and data:

- Type of system.
- Average annual animal population.
- Percent of manure handled in each manure management system.

- 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.

For all manure management systems, N₂O emissions would be estimated using the following inputs:

- Type of system.
- Average annual animal population.
- 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 CH₄ and N₂O emissions aggregated for each type of manure management system. The reports would include any of the above information used to estimate GHG emissions.

Which Livestock Operations Would Be Required to Report?

Owners or operators are responsible for determining if a facility meets the reporting threshold of 25,000 metric tons of CO₂e per year. Under the proposal, if an owner or operator believes the facility might meet this threshold, he/she might need to conduct monthly sampling of manure and analyze emissions as described in 40 CFR part 98, subpart JJ of the proposed rule. EPA is also taking comment on the advantages and disadvantages of using additional screening tools such as a look-up table or computerized calculator to help owners or operators determine if they meet the reporting threshold. These tools could utilize data such as the type of manure management system and the average number of head necessary to meet or exceed the threshold. Screening devices, if utilized, could assist owners or operators in determining if they are near the threshold for reporting and therefore potentially avoiding costs incurred from monthly manure sampling and analysis.

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 and rule and additional information sheets on specific industries, or 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.