

Subpart II, Greenhouse Gas Reporting Program

Under the Greenhouse Gas Reporting Program (GHGRP), owners or operators of certain facilities that use anaerobic processes to treat industrial wastewater and wastewater treatment sludge must report emissions from processes present at the facility if aggregate annual greenhouse gas (GHG) emissions are equal to or more than 25,000 metric tons of carbon dioxide equivalent (CO₂e). Owners and operators are required to collect wastewater characterization and biogas emissions data, calculate GHG emissions, and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting per the requirements of 40 CFR Part 98 Subpart II – Industrial Wastewater Treatment.

How Is This Source Category Defined?

The industrial wastewater treatment source category consists of anaerobic processes used to treat industrial wastewater and wastewater treatment sludge at facilities that perform the following operations:

- Pulp and paper manufacturing;
- Food processing (fruits, vegetables, meat, and poultry processing only);
- Ethanol production; and
- Petroleum refining.

The category does *not* include anaerobic processes used to treat wastewater and wastewater treatment sludge at other industrial facilities. It also does not include emissions from:

- Municipal wastewater treatment plants;
- Separate treatment of sanitary wastewater at industrial facilities;
- Oil/water separators; or
- Aerobic and anoxic treatment of industrial wastewater.

Anaerobic processes use microorganisms to degrade organic matter in wastewater, wastewater treatment sludge, or other material in the absence of oxygen, resulting in the generation of carbon dioxide and methane (CH₄). The anaerobic treatment processes included in this category are:

- Anaerobic reactors;
- Anaerobic lagoons;
- Anaerobic sludge digesters; and
- Biogas destruction devices.

What Greenhouse Gases Must Be Reported?

Facilities that are subject to the rule must report:

- Annual mass of CH₄ *generated*, CH₄ *emitted*, and CH₄ *recovered* from the treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor.
- Annual mass of CH₄ *emitted* and CH₄ *recovered* from each anaerobic sludge digester.
- Annual mass of CH₄ *emitted* and CH₄ *destroyed* by each biogas collection and biogas destruction device.

In addition, each facility must report GHG emissions for any other source categories for which calculation methods are provided in other subparts of the rule, as applicable.

How Must Greenhouse Gas Emissions Be Calculated?

The mass of CH₄ generated, recovered, and emitted must be calculated using the following inputs:

- Measured wastewater flow into each anaerobic process;
- Measured concentration of chemical oxygen demand (COD) or biochemical oxygen demand (BOD₅) in wastewater flow into each anaerobic process;
- Measured flow of biogas recovered from each anaerobic process;
- Measured CH₄ concentration of the biogas recovered from each anaerobic process;
- Appropriate values for methane producing potential, methane conversion factor, biogas collection efficiency, and biogas destruction device destruction efficiency;
- Calculated value of CH₄ leakage at the anaerobic process; and
- Operating time of the biogas recovery system and biogas destruction devices per year.

For anaerobic wastewater treatment processes, each week that the process is operating, facilities must collect 24-hour composite samples of the wastewater flowing into the process and analyze it for COD or BOD₅ concentration. Facilities must also measure the flow rate of wastewater for the same 24-hour period for which they collect samples. Using these measurements and appropriate values for methane producing potential and methane conversion factor, facilities must then calculate the CH₄ generated by each anaerobic wastewater treatment process during the week. Weekly values must be summed to calculate the annual mass of CH₄ generated.

For all anaerobic treatment processes (reactors, lagoons, and sludge digesters) from which some biogas is recovered, facilities must calculate the annual quantity of CH₄ recovered based on continuous monitoring of the biogas flow rate; continuous or weekly monitoring of CH₄ concentration, temperature, pressure, and moisture content; and appropriate biogas collection efficiencies as specified in the rule. They must also calculate the annual quantity of CH₄ emitted, based on calculated values for biogas leakage and values for biogas destruction device destruction efficiency. CH₄ destruction efficiency must be based on either the manufacturer's specified efficiency or 99 percent, whichever is less.

A checklist for data that must be monitored is available at: <https://www.epa.gov/ghgreporting/monitoring-checklist-subpart-ii-industrial-wastewater-treatment>.

What Information Must Be Reported?

In addition to the information required by the General Provisions at 40 CFR 98.3(c), each facility must report the following information:

- Identification of the anaerobic processes used in the industrial wastewater treatment system, a unique identifier for each process, an indication of the average depth in meters of each anaerobic lagoon, and an indication as to whether biogas generated by each process is recovered. Each anaerobic processes must be identified as:
 - Anaerobic reactor;
 - Anaerobic deep lagoon (depth more than 2 meters);
 - Anaerobic shallow lagoon (depth less than 2 meters); or
 - Anaerobic sludge digester.

- A description or diagram of the industrial wastewater treatment system, identifying the processes used; indicating how the processes are related to each other and providing the unique identifier for each process.
- For each anaerobic wastewater treatment process (reactor or lagoon), facilities must report:
 - Weekly average COD or BOD₅ concentration of wastewater entering each anaerobic wastewater treatment process, for each week the anaerobic process was operated.
 - Volume of wastewater entering each anaerobic wastewater treatment process for each week the anaerobic process was operated.
 - Maximum CH₄ production potential (B₀) used to calculate CH₄ generation.
 - Methane conversion factor (MCF) used to calculate CH₄ generation.
 - Annual mass of CH₄ generated by each anaerobic wastewater treatment process.
 - If the facility performs an ethanol production processing operation, an indication if the facility uses a wet or dry milling process.
- For each anaerobic reactor, anaerobic lagoon, and anaerobic sludge digester from which some biogas is recovered, facilities must report:
 - Annual quantity of CH₄ recovered from the anaerobic treatment processes.
 - Total weekly volumetric biogas flow for each week that biogas is collected for destruction.
 - Weekly average CH₄ concentration for each week that biogas is collected for destruction.
 - Weekly average temperature for each week at which flow is measured for biogas collected for destruction, or statement that temperature is incorporated into monitoring equipment internal calculations.
 - Whether flow was measured on a wet or dry basis, whether CH₄ concentration was measured on a wet or dry basis, and if required, weekly average moisture content for each week at which flow is measured for biogas collected for destruction, or statement that moisture content is incorporated into monitoring equipment internal calculations.
 - Weekly average pressure for each week that flow is measured for biogas collected for destruction, or statement that pressure is incorporated into monitoring equipment internal calculations.
 - CH₄ collection efficiency used to calculate biogas recovery.
 - Whether destruction occurs at the facility or off-site. If destruction occurs at the facility, facilities must also report whether a back-up destruction device is present, the annual operating hours for the primary destruction device, the annual operating hours for the back-up destruction device (if present), the destruction efficiency for the primary destruction device, and the destruction efficiency for the backup destruction device (if present).
 - Annual quantity of CH₄ emitted from the process.
- The total mass of CH₄ emitted from all anaerobic processes, including anaerobic processes from which biogas is not recovered and anaerobic processes from which some biogas is recovered.

When and How Must Reports Be Submitted?

Annual reports must be submitted by March 31 of each year, unless the 31st is a Saturday, Sunday, or federal holiday, in which case the reports are due on the next business day. Annual reports must be submitted electronically using the [electronic Greenhouse Gas Reporting Tool \(e-GGRT\)](#), the GHGRP's online reporting system. Additional information on setting up user accounts, registering a facility and submitting annual reports is available at <https://ccdsupport.com/confluence/>.

When Can a Facility Stop Reporting?

There are several scenarios under which a facility may discontinue reporting. These scenarios are summarized in the [Subpart A Information Sheet](#) as well as in an [FAQ](#).

For More Information

For additional information on Subpart II, visit the [Subpart II Resources](#) webpage. For additional information on the Greenhouse Gas Reporting Program, visit the [Greenhouse Gas Reporting Program Website](#), which includes information sheets on other rule subparts, [data](#) previously reported to the Greenhouse Gas Reporting Program, [training materials](#), and links to [frequently asked questions](#).

This document is provided solely for informational purposes. It does not provide legal advice, have legally binding effect, or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits in regard to any person. The series of information sheets is intended to assist reporting facilities/owners in understanding key provisions of the Greenhouse Gas Reporting Program.