Underground Coal Mines

Subpart FF, Greenhouse Gas Reporting Program

OVERVIEW

Subpart FF of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR 98.320 – 98.328) applies to any underground coal mine that meets the Subpart FF source category definition. Some subparts have thresholds that determine applicability for reporting, and some do not. To decide whether your facility must report under this subpart, please refer to 40 CFR 98.321 and the GHGRP Applicability Tool.

This Information Sheet is intended to help facilities reporting under Subpart FF understand how the source category is defined, what greenhouse gases (GHGs) must be reported, how GHG emissions must be calculated and shared with EPA, and where to find more information.

How is This Source Category Defined?

This source category consists of both underground coal mines under development and underground mines categorized by the Mine Safety & Health Administration (MSHA) as active (where coal is currently being produced or has been produced within the previous 90 days). It includes all underground coal mines that have operational pre-mining and post-mining degasification systems. Abandoned (closed) mines, surface coal mines, and post-coal mining activities are not included in this source category.

This source category consists of the following emission points:

- Each ventilation system shaft or vent hole.
- Each degasification system well or gob gas vent hole, including degasification systems deployed before, during, or after mining operations.

What GHGs Must Be Reported?

Underground coal mine owners and operators must report:

- Methane (CH_4) liberated from ventilation and degasification systems.
- CH_4 destruction from systems where gas is sold, used onsite, or otherwise destroyed (including by VAM oxidation and by flaring).
- Net CH_4 emissions from ventilation and degasification systems.
- The carbon dioxide (CO_2) emissions from coal mine gas CH_4 destruction occurring at the facility, where the gas is not a fuel input for energy generation or use (e.g., flaring and VAM oxidation).
- The CO_2, CH_4, and nitrous oxide (N_2O) emissions from each stationary fuel combustion unit using the calculation methods specified in Subpart C (General Stationary Fuel Combustion Sources) found at 40 CFR 98.30 – 98.38. Report emissions from both the combustion of collected coal mine CH_4 and any other fuels. The Information Sheet on general stationary fuel combustion sources summarizes calculating and reporting emissions from these sources.

An underground coal mine that is subject to this part because emissions from source categories described in Tables A-3, A-4 or A-5 of Subpart A or Subpart C, is not required to report emissions under this subpart unless the coal mine liberates 36,500,000 actual cubic feet (acf) or more of CH_4 per year from its ventilation system.

If multiple Greenhouse Gas Reporting Program (GHGRP) source categories are co-located at a facility, the facility may need to report greenhouse gas (GHG) emissions under a different subpart. Please refer to the relevant Information Sheet for a summary of the rule requirements for any other source categories located at the facility.

How Must GHG Emissions Be Calculated?

Total annual CH_4 emissions are the sum of CH_4 liberated from ventilation shafts and degasification systems, less the quantity of CH_4 that is collected and destroyed. Facilities must use one of the following calculation methods, as appropriate:

- For ventilation shafts, liberated CH_4 is determined by quarterly or more frequent sampling using grab samples or obtaining MSHA quarterly data, or continuous monitoring of flow rate and CH_4 concentration.
- For degasification systems, liberated CH_4 is determined by weekly or more frequent sampling, or continuous monitoring of flow rate and CH_4 concentration.
- CH_4 destroyed is determined by continuous monitoring of flow rate and CH_4 concentration of gas collected to be sold, used on-site, or otherwise destroyed and by applying a destruction efficiency (DE) rate.

CO_2 emissions from CH_4 destruction are estimated by applying a factor to the estimate of CH_4 destroyed.

A checklist for data that must be monitored is available here: Subpart FF Monitoring Checklist.

What Information Must Be Reported?

In addition to the information required by the General Provisions in Subpart A, found at 40 CFR 98.3(c), the following must be reported:

- MSHA identification number for this coal mine.
- Quarterly CH_4 liberated from each ventilation monitoring point (metric tons CH_4). Where MSHA reports are the monitoring method chosen under 40 CFR 98.324(b), each annual report must include the MSHA reports used to report quarterly CH_4 concentration and volumetric flow rate as attachments.
- Weekly CH_4 liberated from each degasification system monitoring point (metric tons CH_4).
- Quarterly CH_4 destruction at each ventilation and degasification system destruction device or point of off-site transport (metric tons CH_4).
- Quarterly CH_4 emissions (net) from all ventilation and degasification systems (metric tons CH_4).
- Quarterly CO_2 emissions from on-site destruction of coal mine gas CH_4, where the gas is not a fuel input for energy generation or use (e.g., flaring) (metric tons CO_2).
- Quarterly volumetric flow rate for each ventilation monitoring point and units of measure (actual cubic feet per minute (acfm) or standard cubic feet per minute (scfm)), date and location of each measurement, and method of measurement (quarterly sampling or continuous monitoring), used in Equation FF-1 of this subpart. Specify whether the volumetric flow rate measurement at each ventilation monitoring point is on dry basis or wet basis; and, if a flow meter is used, indicate whether

the flow meter automatically corrects for moisture content.

- Quarterly CH_4 concentration for each ventilation monitoring point, dates and locations of each measurement, and method of measurement (sampling or continuous monitoring). Specify whether the CH_4 concentration measurement at each ventilation monitoring point is on dry basis or wet basis.
- Weekly volumetric flow rate used to calculate CH_4 liberated from degasification systems and units of measure (acfm or scfm), and method of measurement (sampling or continuous monitoring), used in Equation FF-3 of this subpart. Specify whether the volumetric flow rate measurement at each degasification monitoring point is on dry basis or wet basis; and, if a flow meter is used, indicate whether or not the flow meter automatically corrects for moisture content.
- Quarterly CH_4 concentration (%) used to calculate CH_4 liberated from degasification systems, and if the data is based on CEMS or weekly sampling. Specify whether the CH_4 concentration measurement at each degasification monitoring point is on dry basis or wet basis.
- Weekly volumetric flow rate used to calculate CH_4 destruction for each destruction device and each point of off-site transport, and units of measure (acfm or scfm).
- Weekly CH_4 concentration (%) used to calculate CH_4 flow to each destruction device and each point of off-site transport (C).
- Dates in quarterly reporting period where active ventilation of mining operations is taking place.
- Dates in quarterly reporting period where degasification of mining operations is taking place.
- Dates in quarterly reporting period when continuous monitoring equipment is not properly functioning, if applicable.
- Temperature (ideal gas constant (°R)), pressure (standard atmosphere (atm)), moisture content (if applicable), and the moisture correction factor (if applicable) used in Equations FF-1 and FF-3 of this subpart; and the gaseous organic concentration correction factor, if Equation FF-9 of this subpart was required. Moisture content is required to be reported only if CH_4 concentration is measured on a wet basis and volumetric flow is measured on a dry basis, if CH_4 concentration is measured on a dry basis and volumetric flow is measured on a wet basis; and, if a flow meter is used, the flow meter does not automatically correct for moisture content.
- For each destruction device, a description of the device, including an indication of whether destruction occurs at the coal mine or off-site. If destruction occurs at the mine, also report an indication of whether a back-up destruction device is present at the mine, the annual operating hours for the primary destruction device, the annual operating hours for the back-up destruction device (if present), and the DEs assumed (%).
- A description of the gas collection system (manufacturer, capacity, and number of wells) the surface area of the gas collection system (square meters (m^2)), and the annual operating hours of the gas collection system.
- Identification information and description for each well, shaft, and vent hole, including the following:
    - Indication of whether the well, shaft, and vent hole is monitored individually or as part of a centralized monitoring point. Note if sampling of continuous monitoring was used.
    - Start and close date of each well, shaft, and vent hole. If the well, shaft, and vent hole is operating through the end of the reporting year, December 31st of the reporting year shall be the close date for purposes of reporting.
    - Number of days the well, shaft, and vent hole was in operation during the reporting year. To obtain the number of days, divide the total number of hours that the system was in operation by 24 hours per day.
- For each centralized monitoring point, identification of the wells and shafts included in the point. Note which method (sampling or continuous monitoring) was used.

What Records Must Be Maintained?

Reporters are required to retain records that pertain to their annual GHGRP as described at 40 CFR 98.3(g). Please see the Subpart A Information Sheet and 40 CFR 98.3(g) for general recordkeeping requirements. Specific recordkeeping requirements for Subpart FF are listed at 40 CFR 98.327.

When and How Must Reports Be Submitted?

Reporters must submit their annual GHGRP reports for the previous calendar year to the EPA by March 31st, unless the 31st falls on a Saturday, Sunday, or federal holiday, in which case 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 on the GHGRP Help webpage.

When Can a Facility Stop Reporting?

A facility may discontinue reporting under several scenarios, which are summarized in Subpart A (found at 40 CFR 98.2(i)) and the Subpart A Information Sheet.

For More Information

For additional information on Subpart FF, please visit the Subpart FF webpage. For additional information on the GHGRP, please visit the GHGRP website, which includes additional information sheets, data previously reported to the GHGRP, training materials, and links to Frequently Asked Questions (FAQs). For questions that cannot be answered through the GHGRP website, please contact us at: GHGreporting@epa.gov.

This Information Sheet is provided solely for informational purposes. It does not replace the need to read and comply with the regulatory text contained in the rule. Rather, it is intended to help reporting facilities and suppliers understand key provisions of the GHGRP. It does not provide legal advice; have a legally binding effect; or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits with regard to any person or entity.