Iron and Steel Production

Subpart Q, Greenhouse Gas Reporting Program

OVERVIEW

Subpart Q of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR 98.170 – 98.178) applies to any facility that produces iron (Fe) and steel and meets the Subpart Q 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 98.171 and the GHGRP Applicability Tool.

This Information Sheet is intended to help facilities reporting under Subpart Q 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?

The iron (Fe) and steel production source category consists of facilities with any of the following processes:

- Taconite Fe ore processing.
- Integrated Fe and steel manufacturing (production of steel from Fe ore or Fe ore pellets).
- Coke-making not co-located with an integrated Fe and steel manufacturing process.
- Direct reduction furnaces not co-located with an integrated Fe and steel manufacturing process.
- Electric arc furnace (EAF) steelmaking not co-located with an integrated Fe and steel manufacturing process.

What GHGs Must Be Reported?

Facilities must report the following emissions annually:

- Carbon dioxide (CO_2) process emissions from each taconite indurating furnace, basic oxygen (O_2) furnace, non-recovery coke oven battery combustion stack, coke pushing process, sinter process, EAF, decarburization vessel, and direct reduction furnace.
- CO_2, methane (CH_4), and nitrous oxide (N_2O) emissions from each stationary fuel combustion unit. Stationary combustion units include, but are not limited to, by-product recovery coke oven battery combustion stacks, blast furnace stoves, boilers, process heaters, reheat furnaces, annealing furnaces, flame suppression, ladle reheaters, and any other miscellaneous combustion sources (except flares). Facilities must report these emissions under Subpart C (General Stationary Fuel Combustion Sources) found at 40 CFR 98.30 – 98.38. The Subpart C Information Sheet summarizes the rule requirements for calculating and reporting emissions from these units.
- CO_2, CH_4, and N_2O emissions from flares according to the requirements of Subpart Y (Petroleum Refineries), found at 40 CFR 98.250 – 98.258, using the default CO_2, CH_4, and N_2O emission factors (EFs) for coke oven gas and blast furnace gas.

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?

For CO_2 process emissions at each taconite indurating furnace, basic O_2 furnace, non-recovery coke oven battery, sinter process, EAF, decarburization vessel, and direct reduction furnace, calculate emissions using one of the following methods, as appropriate:

- Operate and maintain a continuous emission monitoring system (CEMS) to measure the combined process and combustion CO_2 emissions according to the requirements specified in Subpart C (General Stationary Fuel Combustion Sources) found at 40 CFR 98.30 – 98.38.
- Use one of the following two calculation methods:

  Carbon (C) Mass Balance Method. Calculate the mass emissions rate of CO_2 for each process based on the annual mass of inputs and outputs and the respective weight fraction of C in each process input or output that contains C. Use separate procedures and equations for taconite indurating furnaces, basic O_2 process furnaces, non-recovery coke oven batteries, sinter processes, EAFs, decarburization vessels, and direct reduction furnaces. Exclude inputs or outputs that can be documented to contribute less than 1% of the total mass of C into or out of the process.

  Site-specific EF Method. Determine an EF from a performance test that measures CO_2 emissions from all exhaust stacks for the process, and measure either the feed rate of materials into the process or the production rate during the test in metric tons per hour.

For coke oven pushing, use the CO_2 EF provided in the rule and the amount of coal charged to the by-product recovery and non-recovery coke ovens during the reporting period.

A checklist for data that must be monitored is available here: Subpart Q 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 under the circumstances indicated:

- For each unit, report the unit identification number, the type of unit, the annual CO_2 emissions (metric tons), the annual production capacity, and annual operating hours.
- If a CEMS is used to measure CO_2 emissions, report under this subpart the relevant information required by 40 CFR Subpart C (General Stationary Fuel Combustion Sources) for the Tier 4 Calculation Methodology and the annual production quantity (metric tons) for taconite pellets, coke, sinter, Fe, and raw steel.
- If a CEMS is not used to measure CO_2 emissions, specify whether the emissions for the unit were determined using the C mass-balance method or the site-specific EF method.
- If you use the C mass-balance method to determine CO_2 emissions, report the following information for each process:
  - Whether the C-content was determined from information from the supplier, material recycler, or by laboratory analysis, and if by laboratory analysis, the method used.
  - If you used the missing data procedures, report how the mass for each process input or output with missing data was determined and the number of times the missing data procedures were used.
  - The information specified at 40 CFR 98.176(e) aggregated for all process units for which

CO_2 emissions were determined using the mass-balance method.

- If you used the site-specific EF to determine CO_2 emissions, report the measured average hourly CO_2 emission rate during the test (metric tons/hour).
- For flares burning coke oven gas or blast furnace gas, report under this subpart the relevant information required under 40 CFR Subpart Y (Petroleum Refiners) for each flare.

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 Q are listed at 40 CFR 98.177.

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 Q, please visit the Subpart Q 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.