

Pulp and Paper Manufacturing

Subpart AA, Greenhouse Gas Reporting Program

OVERVIEW

Subpart AA of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR 98.270 – 98.278) applies to any facility that contains a pulp and paper manufacturing process and that meets the Subpart AA 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 98.271 and the GHGRP [Applicability Tool](#).

This Information Sheet is intended to help facilities reporting under Subpart AA 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 Subpart AA source category consists of facilities that produce market pulp (i.e., stand-alone pulp facilities), manufacture pulp and paper (i.e., integrated mills), produce paper products from purchased pulp, produce secondary fiber from recycled paper, convert paper into paperboard products (e.g., containers), or operate coating and laminating processes. The source category consists of the following processes:

- Chemical recovery furnaces at kraft and soda mills (including recovery furnaces that burn spent pulping liquor produced by both the kraft and semichemical process).
- Chemical recovery combustion units at sulfite (SO₃²⁻) facilities.
- Chemical recovery combustion units at stand-alone semichemical facilities.
- Pulp mill lime kilns at kraft and soda facilities.
- Systems for adding makeup chemicals (calcium carbonate (CaCO₃), sodium carbonate (Na₂CO₃)) in the chemical recovery areas of chemical pulp mills.



What GHGs Must Be Reported?

Pulp and paper manufacturing facilities must report:

- Carbon dioxide (CO₂), biogenic CO₂, methane (CH₄), and nitrous oxide (N₂O) emissions from each kraft or soda chemical recovery furnace.
- CO₂, biogenic CO₂, CH₄, and N₂O emissions from each SO₃²⁻ chemical recovery combustion unit.
- CO₂, biogenic CO₂, CH₄, and N₂O emissions from each stand-alone semichemical chemical recovery combustion unit.
- CO₂, biogenic CO₂, CH₄, and N₂O emissions from each kraft or soda pulp mill lime kiln.
- CO₂ emissions from addition of makeup chemicals (CaCO₃, Na₂CO₃) in the chemical recovery areas of chemical pulp mills.
- CO₂, CH₄, and N₂O combustion emissions from each stationary fuel combustion unit. Calculate and report these emissions under Subpart C of this part (General Stationary Fuel Combustion Sources)

by following the requirements of Subpart C.

- Facilities must also report greenhouse gas (GHG) emissions from other source categories for which calculation methods are provided in other parts the rule, as applicable.

If multiple Greenhouse Gas Reporting Program (GHGRP) source categories are co-located at a facility, the facility may need to report 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?

Pulp and paper manufacturing facilities must calculate GHG emissions as follows:

- Calculate CO₂ emissions from fuel combustion using direct measurement of fuels consumed and default emission factors (EFs) according to the Tier 1 Calculation Methodology for stationary combustion sources in Subpart C, found at 40 CFR 98.30 – 98.38. Tiers 2 or 3 may be used to calculate CO₂ emissions if the respective monitoring and quality assurance/quality control (QA/QC) requirements are met.
- Calculate biogenic CO₂ emissions from combustion of biomass in spent liquor solids using:
 - Measured quantities of spent liquor solids fired, site-specific high heating value (HHV), and default EFs for each chemical recovery furnace located at kraft or soda facilities. Biogenic CO₂ from the conversion of CaCO₃ to calcium oxide (CaO) in kraft or soda pulp mill lime kilns is accounted for in the biogenic CO₂ EF for the recovery furnace.
 - Measured quantities of spent liquor solids fired and the carbon (C) content of the spent liquor solids for each chemical recovery unit at SO₃²⁻ or stand-alone semichemical facilities.
- Calculate CH₄ and N₂O emissions as the sum of emissions from the combustion of fuels and the combustion of biomass in spent liquor solids, as follows:
 - For fuel emissions, use direct measurement of fuels consumed, default or site-specific HHV, and default EFs according to the methodology for stationary combustion sources in 40 CFR 98.33(c).
 - For biomass emissions, use measured quantities of spent liquor solids fired, site-specific HHV, and default EFs.
- Calculate CO₂ emissions from the use of makeup chemicals using direct or indirect measurement of the quantity of chemicals added and ratios of the molecular weights of CO₂ and the makeup chemicals.
- Calculate biogenic CO₂ emissions from combustion of biomass (other than spent liquor solids) with other fuels according to the applicable methodology for stationary combustion sources in 40 CFR 98.33(e).

A checklist for data that must be monitored is available here: [Subpart AA 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:

- Annual emissions of CO₂, biogenic CO₂, CH₄, and N₂O (metric tons per year).
- Basis for determining the annual mass of the spent liquor solids combusted (whether based on T650 om-05 Solids Content of Black Liquor, TAPPI (incorporated by reference, see 40 CFR 98.7) or an online measurement system).

- Default EF for CO₂, CH₄, or N₂O, used in Equation AA-1 of this subpart (kilograms (kg) CO₂, CH₄, or N₂O per million British thermal units (mmBtu)).
- Annual steam purchases (pounds (lbs) of steam per year).
- Annual production of unbleached virgin chemical pulp produced on-site (air-dried metric tons per year). This is the sum of all kraft, semichemical, soda and SO₃²⁻ pulp produced onsite, prior to bleaching. Do not include mechanical pulp or secondary fiber repulped for paper production in the virgin pulp production total.
- Quantity of CaO produced (metric tons), and the percent of annual heat input, individually for each fossil fuel type, for each pulp mill lime kiln.



What Records Must Be Maintained?

Reporters are required to retain records that pertain to their annual GHGRP report for at least three years after the date the report is submitted. Please see the [Subpart A Information Sheet](#) and 40 CFR 98.3(g) for general recordkeeping requirements. Specific recordkeeping requirements for Subpart AA are listed at 40 CFR 98.277.



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 AA, please visit the [Subpart AA 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.