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Subpart AA - Pulp and Paper Manufacturing

🖶 A printer-friendly version (pdf) (33 pp, 17,027K) of GHG reporting instructions for this subpart

Please select a help topic from the list below:

- Using e-GGRT to Prepare Your Subpart AA Report
 - Subpart AA Summary Information for this Facility
 - Subpart AA Makeup Chemical Usage Information
 - Subpart AA Process Unit Information for Units NOT Monitored by CEMS
 - Subpart AA Process Unit Information for Units Monitored by CEMS
 - Subpart AA Emissions Information for Makeup Chemical Recovery
 - Subpart AA Emissions Information for Units NOT Monitored CEMS
 - Subpart AA Emissions Information for Units Monitored by CEMS
- Using Subpart AA Calculation Spreadsheets
- · Carry forward of data from previous submissions into RY2012 forms
- Subpart AA Rule Guidance
- Subpart AA Rule Language (eCFR)

Additional Resources:

- Part 98 Terms and Definitions
- Frequently Asked Questions (FAQs)
- Webinar Slides

Using e-GGRT to Prepare Your Subpart AA Report

Subpart AA consists of facilities that produce market pulp, manufacture pulp and paper, produce paper products from purchased pulp, produce secondary fiber from recycled paper, and convert paper into paperboard products.

This page provides an overview of subtopics that are central to Subpart AA reporting:

- Subpart AA Summary Information for this Facility
- Subpart AA Makeup Chemical Usage Information
- Subpart AA Process Unit Information
- Subpart AA Emissions Information
- Subpart AA Validation Report

The end of the page contains links you can use for more information on these topics.

Subpart AA Summary Information for this Facility

Subpart AA requires you to report the following data about your facility:

- · The annual steam purchases (pounds)
- The annual production of pulp products (metric tons)
- The annual production of paper products (metric tons)

Subpart AA Makeup Chemical Usage Information

For Makeup Chemical Usage within your facility, Subpart AA requires you to report the following data:

• A unique name or identifier, plus optional description for this unit. See also About Unique Unit Names

Subpart AA Process Unit Information

If you previously reported for Reporting Year (RY) 2011, the Agency has carried some of your RY2011 data forward and entered it in your RY2012 forms to reduce the reporting burden. It is still your responsibility to review and ensure that all of the information in your submission is correct, but the Agency believes that most of the data which is carried forward is unlikely to change significantly from year to year. For more information about carry forward data, please see the Carry forward of data from previous submissions into RY2012 forms help content.

For each process unit at your facility, the following unit information is required:

- A unique name or identifier, plus optional description for this unit. See also About Unique Unit Names.
- The type of unit, selected from the following:
 - Pulp mill lime kiln
 - Chemical recovery furnace
 - · Chemical recovery combustion unit
- An indication of whether the unit is monitored by Continuous Emissions Monitoring System (CEMS)

Subpart AA Emissions Information

The required emissions information and the manner by which required emissions information is entered into e-GGRT is different for makeup chemical usage, process units that are monitored by a CEMS, and process units that are NOT monitored by a CEMS.

As a result, separate help content has been created in this subpart for entering emissions information for makeup chemical usage, process units monitored by CEMS and process units NOT monitored by CEMS.

For makeup chemical usage, the following emissions information is required:

- The annual CO₂ process emissions
- An indication of whether a substitute value was used for CaCO₃
- An indication of whether a substitute value was used for NaCO₂

For each chemical recovery furnace that is NOT monitored by CEMS at your facility, the following emissions information is required:

- The annual biogenic CO₂, CH₄ and N₂O process emissions
- The basis for annual mass of spent liquor solids, selected from the following:
 - TAPPI method
 - On-line metering/measuring system
- An indication of whether a substitute value was used for annual mass of spent liquor solids
- The total annual CO2 mass emissions from fossil fuel
- The total annual CH4 mass emissions from fossil fuel
 The total annual N2O mass emissions from fossil fuel
- The total annual N2O mass emissions from tossil fuel
 Order data annual N2O mass emissions from tossil fuel
- Calculation methodology start date and end date, for each fuel type
 - Calculation methodology used for the emissions calculation period specified, for each fuel type:
 - Tier 1/Equation C-1: Annual fuel combusted, default heating value, and default CO2 emission factor
 - Tier 1/Equation C-1a: Annual natural gas usage from billing records (therms) and default CO2 emission factor
 Tier 1/Equation C-1b: Annual natural gas usage from billing records (mmBtu) and default CO2 emission factor
 - Tier 1/Equation C-1b: Annual natural gas usage from billing records (mmBtu) and default CO2 emission factor
 - Tier 2/Equation C-2a: Annual fuel combusted, measured heating value, and default CO2 emission factor
 - Tier 2/Equation C-2c: Steam generation, ratio of maximum rated heat input capacity to design rated steam output capacity, and default CO2 emission factor (for MSW and solid fuels listed in Table C-1))
 - Tier 3/Equation C-3: Annual mass of solid fuel combusted and average carbon content of the solid fuel
 - Tier 3/Equation C-4: Annual mass of liquid fuel combusted and average carbon content of the liquid fuel
 - Tier 3/Equation C-5: Annual volume of gaseous fuel combusted, average carbon content of the gaseous fuel, and average molecular weight of the gaseous fuel

For each <u>chemical recovery combustion unit</u> that is NOT monitored by CEMS at your facility, the following emissions information is required:

- The annual biogenic CO₂, CH₄ and N₂O process emissions
- The basis for annual mass of spent liquor solids, selected from the following:
 - TAPPI method
 - On-line metering/measuring system
- · An indication of whether a substitute value was used for annual mass of spent liquor solids
- The total annual CO2 mass emissions from fossil fuel
- The total annual CH4 mass emissions from fossil fuel
- The total annual N2O mass emissions from fossil fuel
- Calculation methodology start date and end date, for each fuel type
 - Calculation methodology used for the emissions calculation period specified, for each fuel type:
 - Tier 1/Equation C-1: Annual fuel combusted, default heating value, and default CO2 emission factor
 - Tier 1/Equation C-1a: Annual natural gas usage from billing records (therms) and default CO2 emission factor
 - Tier 1/Equation C-1b: Annual natural gas usage from billing records (mmBtu) and default CO2 emission factor
 - Tier 2/Equation C-2a: Annual fuel combusted, measured heating value, and default CO2 emission factor
 - Tier 2/Equation C-2c: Steam generation, ratio of maximum rated heat input capacity to design rated steam output capacity, and default CO2 emission factor (for MSW and solid fuels listed in Table C-1))
 - Tier 3/Equation C-3: Annual mass of solid fuel combusted and average carbon content of the solid fuel
 - Tier 3/Equation C-4: Annual mass of liquid fuel combusted and average carbon content of the liquid fuel
 - Tier 3/Equation C-5: Annual volume of gaseous fuel combusted, average carbon content of the gaseous fuel, and average molecular weight of the gaseous fuel

For each pulp mill lime kiln that is NOT monitored by CEMS at your facility, the following emissions information is required:

- The total annual CO₂ mass emissions
- The total annual CH₄ mass emissions
- The total annual N2O mass emissions
- Calculation methodology start date and end date, for each fuel type

 - Calculation methodology used for the emissions calculation period specified, for each fuel type: Tier 1/Equation C-1: Annual fuel combusted, default heating value, and default CO₂ emission factor
 - Tier 1/Equation C-1a: Annual natural gas usage from billing records (therms) and default CO₂ emission factor
 - Tier 1/Equation C-1b: Annual natural gas usage from billing records (mmBtu) and default CO₂ emission factor
 - Tier 2/Equation C-2a: Annual fuel combusted, measured heating value, and default CO₂ emission factor
 - Tier 2/Equation C-2c: Steam generation, ratio of maximum rated heat input capacity to design rated steam output capacity, and default CO₂ emission factor (for MSW and solid fuels listed in Table C-1))
 - Tier 3/Equation C-3: Annual mass of solid fuel combusted and average carbon content of the solid fuel
 - Tier 3/Equation C-4: Annual mass of liquid fuel combusted and average carbon content of the liquid fuel
 - Tier 3/Equation C-5: Annual volume of gaseous fuel combusted, average carbon content of the gaseous fuel, and average molecular weight of the gaseous fuel

For each CEMS Monitoring Location, provide the following information:

- A unique unit name or identifier for the CML (see also About Unique Unit Names)
- An optional description or label for the CML
- The configuration of processes or process units that are monitored by the CML:
 - Single industrial process or process unit that exhausts to a dedicated stack
 - Multiple industrial processes or process units share a common stack
 - Industrial process or process unit shares a common stack with one or more stationary fuel combustion units
- The name of each fuel combusted in the unit(s) monitored by the CEMS
- The Tier 4/CEMS methodology start and end dates
- The cumulative total of hourly CO₂ mass emissions for each quarter of the reporting year (in metric tons) (Do not cumulate emissions data between quarters)
- The total annual CO_2 mass emissions measured by the CEMS (in metric tons) •
- An indication whether emissions reported for the CEMS include emissions calculated according to 98.33(a)(4)(viii) for a slipstream that bypassed the CEMS
- The total annual biogenic CO₂ emissions from the combustion of all biomass fuels combined (in metric tons) (if applicable)
- The total annual non-biogenic CO₂ emissions (includes fossil fuel, sorbent, and process CO₂ emissions, in metric tons)
- The total annual CH₄ and N₂O emissions associated with the combustion of all Table C-2 fuels combusted in all processes/process units monitored by the CEMS derived from application of Equation C-10 (in metric tons) (if there are no combustion emissions in this CML, please enter zero)
- The total number of source operating hours in the reporting year
- The total operating hours in which a substitute data value was used in the emissions calculations for the CO₂ concentration parameter
- The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas flow rate parameter
- If moisture correction is required and a continuous moisture monitor is used, the total operating hours in which a substitute data value was used in the emissions calculations for the stack gas moisture content parameter
- An indication of the process units monitored by the CML

Subpart AA Validation Report

The Validation Report assists with the completeness and quality of your reporting data.

We strongly encourage you to use the Validation Report to check your work. The Validation Report performs two types of checks:

- Data Completeness: Data required for reporting that are missing or incomplete.
- Data Quality: Data that are outside of the expected range of values.

You may view the Validation Report at any time.

Note that the Validation Report is intended to assist users in entering data, but it is not an indication that the reporter has A entered all necessary information, nor is it an indication that the reporter is in compliance with part 98. Furthermore a negative finding on the validation report is not a guarantee that a data element was entered incorrectly.

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See Also

Screen Errors Using e-GGRT to Prepare Your Subpart AA Report Subpart AA Summary Information for this Facility Subpart AA Makeup Chemical Usage Information

Subpart AA Process Unit Information for Units NOT Monitored by CEMS Subpart AA Process Unit Information for Units Monitored by CEMS Subpart AA Emissions Information for Makeup Chemical Recovery Subpart AA Emissions Information for Units NOT Monitored CEMS Subpart AA Emissions Information for Units Monitored by CEMS Subpart Validation Report

Subpart AA Summary Information for this Facility

This topic provides a step-by-step description of how to enter Subpart AA summary information about this facility

Adding or Updating Summary Information for this Facility

To add or update Subpart AA Summary Information for this Facility, locate the SUMMARY INFORMATION FOR THIS FACILITY table on the Subpart AA Overview page, and click OPEN.

Click image to expand

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		HG) data required by Subpart AA for ea bpart AA reporting, please use the e-G	
		RMATION FOR THIS FACILITY	
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Subpart AA requires you to report the following data about your facility:

- The annual steam purchases (pounds)
- The annual production of pulp products (metric tons)
- The annual production of paper products (metric tons)

When you have entered the required information, click SAVE.



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See Also

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Subpart AA Makeup Chemical Usage Information

The text below describes how to add a Makeup Chemical Usage. The process to edit an existing Makeup Chemical Usage is essentially similar.

Step 1: Adding or Updating Makeup Chemical Usage Information for this Facility

Starting on the Subpart AA Overview page, click the link titled "ADD Makeup Chemical Use".

To edit an existing Makeup Chemical Usage, click on the edit icon or the Name/ID link, which is the first column in the MAKEUP CHEMICAL USAGE SUMMARY table.

To delete an existing Makeup Chemical Usage, click on the delete icon, which is the last column in the MAKEUP CHEMICAL USAGE SUMMARY table.



Step 2: Enter Required Information

For Makeup Chemical Usage within your facility, Subpart AA requires you to report the following data:

• A unique name or identifier, plus optional description for this unit. See also About Unique Unit Names

When you are finished, click SAVE.

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Subpart AA Process Unit Information for Units NOT Monitored by CEMS

The text below describes how to add a Unit or Furnace. The process to edit an existing Unit or Furnace is essentially similar.

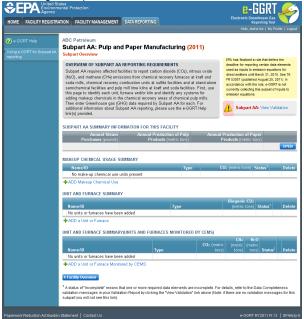
Step 1: Adding, Modifying or Deleting Process Unit Information for Units NOT Monitored by CEMS at this Facility

Starting on the Subpart AA Overview page, click the link titled "ADD a Unit or Furnace".

To modify an existing unit or furnace, click on the edit icon or the Name/ID link, which is the first column in the UNIT AND FURNACE SUMMARY table.

To delete an existing unit or furnace, click on the delete icon, which is the last column in the UNIT AND FURNACE SUMMARY table.

Click image to expand



Step 2: Indicate CEMS Utilization for a Unit

For each unit or furnace indicate that the emissions are not measured by operating and maintaining a Continuous Emissions Monitoring System (CEMS). Click either yes or No.

Note that when adding a new unit you are prompted to answer the CEMS question immediately (the answer to this question will default to "No" for units added using the "ADD a Unit" link and will default to "Yes" for units added using the "ADD a Unit Monitored by CEMS" link)

When you are finished, click NEXT.

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Paperwork Reduction Act Burden S	CANCEL NEXT		e-GORT RY2010.R 44 SPA4(a)-2

Step 3: Enter Required Information for a Unit

For each unit or furnace within your facility, Subpart AA requires you to report the following data:

- A unique name or identifier, plus optional description for this unit (see also About Unique Unit Names)
 - The type of unit, selected from the following:
 - Pulp mill lime kiln
 - Chemical recovery furnace
 - Chemical recovery combustion unit
- · An indication of whether the unit is monitored by CEMS

When you are finished, click SAVE.

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	CANCEL			
Paperwork Reduction Act Burden	statement Contact Us			e-GGRT RY2010 R 44 SPAA(a)-3

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Subpart AA Process Unit Information for Units Monitored by CEMS

This page provides step-by-step instructions on how to enter and edit Subpart AA Pulp and Paper Manufacturing process unit information for units that are monitored by a Continuous Emissions Monitoring System (CEMS).

Step 1: Add, modify or delete a unit

To add a unit that is monitored by a CEMS, find the UNIT AND FURNACE SUMMARY (UNITS AND FURNACES MONITORED BY CEMS) table on the Subpart Overview page and click the link titled "ADD a Unit Monitored by CEMS"

To modify a unit, click the edit icon or the Name/ID link located in the first column of the UNIT AND FURNACE SUMMARY (UNITS AND FURNACES MONITORED BY CEMS) table

To delete a unit, click the delete icon located in the last column of the UNIT AND FURNACE SUMMARY (UNITS AND FURNACES MONITORED BY CEMS) table



Step 2: Indicate CEMS utilization for a unit

For each process unit, confirm whether or not the process unit utilizes CEMS

Note that when adding a new unit you are prompted to answer the CEMS question immediately (the answer to this question will default to "No" for units added using the "ADD a Unit" link and will default to "Yes" for units added using the "ADD a Unit Monitored by CEMS" link)

The CEMS response may be changed here and the unit information will be relocated to the appropriate table on the Subpart Overview page

When finished, click SAVE

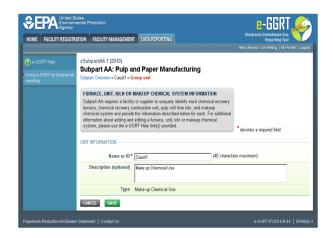
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	CONTINUOUS EMISSIONS MONITORING SYSTEMS (CEMS)	
	Please indicate whether or not the emissions for this chemical recovery furnace, chemical recovery combustion unit or pulp mill lime kiln are measured by a CEMS For additional information about reporting CEMS emissions, please use the e-GGRT Help link(s) provided.	* denotes a required field
	CONTINUOUS EMISSIONS MONITORING	
	Is this unit's emissions * C Yes monitored using a CEMS? © No	
	CANCEL	

Step 3: Enter required information for a unit

For each process unit monitored by a CEMS, report the following required information:

- A unique name or identifier for the unit, plus optional description for this facility (see also About Unique Unit Names)
- The unit type, selected from the following:
 - Chemical Recovery Furnace
 - Chemical Recovery Combustion Unit
 - Pulp Mill Lime Kiln
- · Indicate whether the unit is monitored by a CEMS

When finished, click SAVE



Step 4: Repeat Steps 1-3

Repeat Steps 1-3 until all process units monitored by a CEMS have been added for your facility

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Subpart AA Emissions Information for Makeup Chemical Recovery

This page provides a step-by-step description of how to enter Subpart AA emissions data for makeup chemical recovery.

Adding or Updating Emissions for unit type Make-up Chemical Use

To add or update Subpart AA emissions for unit type **Make-up Chemical Use**, locate the MAKEUP CHEMICAL USAGE SUMMARY table on the Subpart AA Overview page, and click OPEN.



Step 1: Equation AA-3 Summary and Result

The annual CO_2 process emissions for this unit are required. To calculate these values download the spreadsheet by clicking the link titled "Use AA-3spreadsheet to calculate". Fill in the spreadsheet using the instructions in the spreadsheet. After completing the spreadsheet, copy the value of CO_2 , calculated by the spreadsheet to this page in the box next to " CO_2 mass emissions from makeup chemicals".

The Equation AA-3 Summary is presented on the page. You can hover over an element in the equation to reveal a definition of that element.

Step 2: Basis and Substitute value

For each makeup unit or furnace within your facility, Subpart AA requires you to report the following data:

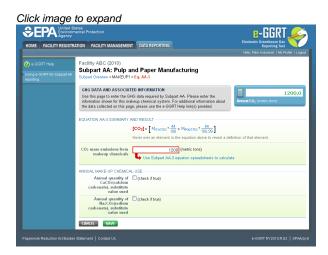
- Indicate a substitute value for CaCO₃
- Indicate a substitute value for NaCO₃

Step 3: Save Your Data

When you have finished entering emission results and substitute data, click SAVE.

After you save the data on this page, the next time you open the page, the calculator on the top of the page will display the CO₂ process emissions, rounded to the nearest 0.1 of a metric ton. The value displayed is for informational purposes only.

When CO₂ emissions has been entered the Status column on the Makeup Chemical Usage Summary will show "Complete" and the background color for that furnace will show as green.



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Subpart AA Emissions Information for Units NOT Monitored CEMS

This page provides a step-by-step description of how to enter Subpart AA emissions data.

Note: Emissions information for Subpart AA depends upon the type of unit.

- Chemical Recovery Furnace requires you to report emissions using Equation AA-1
- Chemical Recovery Combustion Unit requires you to report emissions using Equation AA-1 and AA-2
- · Pulp Mill Lime Kiln requires you to report emissions using Equations from Subpart C

Adding or Updating Emissions Information for a Chemical Recovery Furnace or Combustion Unit

To add or update Subpart AA emissions information for a **Chemical Recovery Furnace** or **Chemical Recovery Combustion Unit**, find the unit or furnace for which you would like to enter emissions information in the UNIT AND FURNACE SUMMARY table on the Subpart AA Overview page, and click OPEN.

Click image to expand

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	Then enter Greenhouse gas (G additional information about Su link(s) provided.	HG) data required by S	Subpart AA for each. F	or	Subpart AA: View Validation
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	Name/ID		Туре	E	liogenic CO2 (metric tons) Status ¹ Dele
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	* Facility Overview				
	¹ A status of "Incomplete" means th validation messages in your Valida subpart you will not see this link).				ls, refer to the Data Completeness re are no validation messages for th
	n Statement Contact Us				e-008T RY2011 R 13 SPA4

Step 1: Equations AA-1 / AA-2 Summary and Result

For each chemical recovery furnace, Subpart AA requires the following emissions information:

• The annual biogenic CO₂, CH₄ and N₂O process emissions

To calculate these values download the applicable spreadsheet by clicking the link titled "Use Subpart AA-1 equation spreadsheet to calculate". Fill in the spreadsheet using the instructions in the spreadsheet. After completing the spreadsheet, copy the values of CO_2 , CH_4 and N_2O calculated by the spreadsheet to this page in the boxes next to "Result (CO_2 from biomass)", "Result (CH_4 from biomass)" and "Result (N_2O from biomass)".

biomass)".

The Equation AA-1 Summary is presented on this page. You can hover over an element in the equation to reveal a definition of that element.

For each **chemical recovery combustion unit**, Subpart AA requires the following emissions information:

The annual biogenic CO₂, CH₄ and N₂O process emissions

To calculate these values download the spreadsheets by clicking the links titled "Use AA-1 spreadsheet to calculate" and "Use AA-2 spreadsheet to calculate". Fill in the spreadsheets using the instructions in the spreadsheets. After completing the spreadsheets, copy the values of CO_2 , CH_4 and N_2O calculated by the spreadsheets to this page in the boxes next to "Result (Biogenic CO_2)", "Result (CH_4 from biomass)" and "Result (N_2O from biomass)".

The Equation AA-1 / AA-2 Summary is presented on this page. You can hover over an element in the equation to reveal a definition of that element.

Step 2: Basis and Substitute value

For each unit or furnace within your facility, Subpart AA requires you to report the following data:

- The basis for annual mass. Select from:
 TAPPI method
 - On-line metering/measuring system
- Indicate if a substitute value was used.
- Note: Steps 3-4 of this section do not apply for spent pulping liquor (the primary fuel for chemical recovery combustion units and recovery furnaces) or other biogenic fuel types. If spent pulping liquor and/or other biogenic fuels are the only fuel combusted by this unit or furnace, skip to Step 5.

Step 3: Identify Fuels Combusted by this Unit (if applicable)

To add a fuel combusted by this unit, click the link titled "ADD a Fuel" below the FUEL EMISSIONS INFORMATION table.

To edit a fuel, click on the edit icon or the Name/ID link, which is the first column in the FUEL EMISSIONS INFORMATION table.

To delete a fuel, click on the delete icon, which is the last column in the FUEL EMISSIONS INFORMATION table.

EPA United S Environm Agency	ates ental Protection		e-GGRT 🚄
E FACILITY REGISTR	ATION FACILITY MANAGEMENT DATA	REPORTING	Electronic Greenhouse Gas Reporting Tool Helio, elaine lee My Profile L
-GGRT Help 3 e-GGRT for Subpart AA ting	ABC Petroleum Subpart AA: Pulp and Pa Subpart Overview = tset = Eq. AA-1	per Manufacturing (2011)	
	information shown for this chemical re the data collected on this page, pleas	DRMATION required by Subpart AA. Please enter the covery fumace. For additional information about e use the e-GGRT Help link(s) provided. reported on this page in the CEMS Monitoring	Annual Biogenic CO ₂ (metric tons)
	Hover ov Result (CO2 from biomass)	H4, or N2O from blomass = (0.90718) * Selic er an element in the equation above to reveal a de (metric tons)	finition of that element.
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	Annual mass of spent (chec liquor solids, substitute value used	ik if true)	
	t Subpart AA Overview CANCEL	SAVE	



On the Add Fuel screen, select a fuel combusted by this unit.

When finished, click SAVE

Click image to expand

HOME FACILITY REGISTR	ATION FACILITY MANAGEMENT DATA REPORTING		Hello, Beverly Coe-Whitin	rting Tool
	zSubpartAA 1 (2010)			
	Subpart AA: Pulp and Paper Manu		g	
	Subpart AA Overview » RF3in_range » Lime Kiln » Add	I Fuel		
	ADD A FUEL			
	Use this page to select a fuel combusted in this star			
	Repeat this process for each fuel consumed by this group over the course of the reporting year. If the fue			
	list, click "ADD an Other Fuel or Blend" to add a new	w fuel type. F	or additional	
	information about reporting fuel information, please u provided.	use the e-GGI	RT Help link(s)	
	provided.			
	COAL AND COKE	HIDE	PETROLEUM PRODUCTS	SHOW
	C Mixed (Electric Power sector)		OTHER FUELS - SOLID	SHOW
	 Mixed (Industrial sector) 		Content deep + Socio	011011
	C Mixed (Industrial coking)		OTHER FUELS - GASEOUS	SHOW
	C Mixed (Commercial sector)			
	C Coke			
	C Lignite			
	C Subbituminous			
	C Bituminous			
	C Anthracite			
	NATURAL GAS	HIDE		
	C Natural Gas (Weighted U.S. Average)			
	If a fuel is not found among those listed, you can	add it to		
	the other fuels and blends list below.			
	OTHER FUELS AND BLENDS	HIDE		
	No other fuels or blends present.			
	ADD an Other Fuel or Blend			

For each fuel combusted by the unit, Subpart AA requires the following fuel information

- Calculation methodology start date and end date, for each fuel type
 - Calculation methodology used for the emissions calculation period specified, for each fuel type:
 - Tier 1/Equation C-1: Annual fuel combusted, default heating value, and default CO2 emission factor
 - Tier 1/Equation C-1a: Annual natural gas usage from billing records (therms) and default CO₂ emission factor
 - Tier 1/Equation C-1b: Annual natural gas usage from billing records (mmBtu) and default CO₂ emission factor
 - Tier 2/Equation C-2a: Annual fuel combusted, measured heating value, and default CO₂ emission factor
 - Tier 2/Equation C-2c: Steam generation, ratio of maximum rated heat input capacity to design rated steam output capacity, and default CO₂ emission factor (for MSW and solid fuels listed in Table C-1))
 - Tier 3/Equation C-3: Annual mass of solid fuel combusted and average carbon content of the solid fuel
 - Tier 3/Equation C-4: Annual mass of liquid fuel combusted and average carbon content of the liquid fuel
 - Tier 3/Equation C-5: Annual volume of gaseous fuel combusted, average carbon content of the gaseous fuel, and average molecular weight of the gaseous fuel

When you have entered the required information, click SAVE

Repeat this step until all fuels combusted by this unit have been added and identified.

Click image to expand

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Step 4: Enter Required Emissions Information for Each Fuel (if applicable)

To select a fuel combusted by this unit for which to enter emissions information, find the fuel in the FUEL EMISSIONS INFORMATION table and click OPEN.

For each fuel type (including biomass fuel(s)) for which you have elected to use a <u>Tier 1 (Equation C-1, C-1a, or C-1b)</u> methodology, you are required to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-1, Equation C-1a, or Equation C-1b in metric tons CO₂ [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH₄ mass emissions derived from Equation C-8, Equation C-8a, or Equation C-8b in metric tons CH₄ and in metric tons CO₂e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N₂O mass emissions derived from Equation C-8, Equation C-8a, or Equation C-8b in metric tons N₂O and in metric tons CO₂e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

For each fuel type (including biomass fuel(s)) for which you have elected to use the <u>Tier 2 (Equation C-2a)</u> methodology, you are required to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-2a in metric tons CO₂ [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH₄ mass emissions derived from Equation C-9a in metric tons CH₄ and in metric tons CO₂e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N₂O mass emissions derived from Equation C-9a in metric tons N₂O and in metric tons CO₂e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- Identification of each month for which HHVs were calculated using one or more substitute data values [98.36(e)(2)(ii)(C)]
- The frequency of the HHV determinations [98.36(e)(2)(ii)(B)]
 - Hourly
 - Daily
 - Weekly
 - Monthly
 - Semiannually
 - Quarterly
 - Once per fuel lot
 - · Upon addition of oil to the storage tank
 - Other (specify)

For each fuel type (including biomass fuel(s)) for which you have elected to use the <u>Tier 2 (Equation C-2c)</u> methodology, you are required to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-2c in metric tons CO₂ [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH₄ mass emissions derived from Equation C-9b in metric tons CH₄ and in metric tons CO₂e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N₂O mass emissions derived from Equation C-9b in metric tons N₂O and in metric tons CO₂e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

For each fuel type (including biomass fuel(s)) for which you have elected to use a <u>Tier 3 (Equation C-3, C-4, or C-5)</u> methodology, you are required to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-3 for solid fuels, Equation C-4 for liquid fuels, or Equation C-5 for gaseous fuels in metric tons CO₂ [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH₄ mass emissions derived from Equation C-8 in metric tons CH₄ and in metric tons CO₂e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N₂O mass emissions derived from Equation C-8 in metric tons N₂O and in metric tons CO₂e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total number of valid carbon content determinations [98.36(e)(2)(iv)(D)]
- The total number of carbon content substitute data values [98.36(e)(2)(iv)(E)]
- The frequency of carbon content determinations [98.36(e)(2)(iv)(B)]
 - Hourly
 - Daily
 - Weekly
 - Monthly
 - Semiannually
 - Quarterly
 - Once per fuel lot
 - Upon addition of oil to the storage tank
- Other (specify)
 The total number of operating hours in the reporting year for which missing data substitution was used for fuel usage [98.3(c)(8)]

For each gaseous fuel at each configuration for which you have elected to use the <u>Tier 3 (Equation C-5)</u> methodology, you are also required to report the following additional information:

- Total number of valid molecular weight determinations [98.36(e)(2)(iv)(D)]
- Total number of molecular weight substitute data values [98.36(e)(2)(iv)(E)]
- Frequency of molecular weight determinations [98.36(e)(2)(iv)(B)]
 - Hourly
 - Daily
 - Weekly
 - Monthly
 - Semiannually
 - Quarterly
 - Other (specify)

Use the red-bordered text boxes to enter the required emissions information.

To calculate the emissions you have the option of using your own resources or alternatively you may use the following tool and set of instructions:

- Download the spreadsheet tool by clicking the link below one of the red-bordered text boxes labeled "Use Tier X spreadsheet to calculate"
- Fill in the spreadsheet completely using the instructions provided in the tool
- After completing the spreadsheet, copy the values calculated by the spreadsheet to the red-bordered text boxes on this page

When you have finished entering emission results for the unit, click SAVE.

Repeat this step until emissions information has been entered for each fuel combusted by the unit.

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e-00RT RY2010 R.44 SPAA-FuelEmin				e-GORT RY2010.R.44 SPAA-FuelEmission

Step 5: Save Your Data

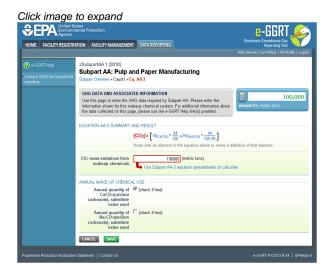
When you have finished entering emission results and substitute data, click SAVE.

After you save the data on this page, the next time you open the page, the calculator on the top of the page will display the CO_2 , CH_4 , and N_2O process emissions, rounded to the nearest 0.1, 0.01, and 0.001 of a metric ton, respectively. The value displayed is for informational purposes only.

When CO_2 , CH_4 and N_2O process emissions have been entered the Status column on the Unit and Furnace Summary will show "Complete" and the background color for that furnace will show as green.

Click image to expand	
United States	

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			Annual CH ₄ from biomass (metric tons)
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			s reporting unit) section does not apply for spent pulping
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	+ ADD a Fuel		
	t Subpart AA Overview	CANCEL	
	1		
			incomplete. For details, refer to the Data Completeness link on the overview page. (Note: if there are no validation
	messages for this subpart you v		
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Adding or Updating Emissions for unit type Pulp Mill Lime Kiln

To add or update Subpart AA emissions for unit type **Pulp Mill Lime Kiln**, find the kiln for which you would like to enter emissions information in the UNIT AND FURNACE SUMMARY table on the Subpart AA Overview page, and click OPEN.

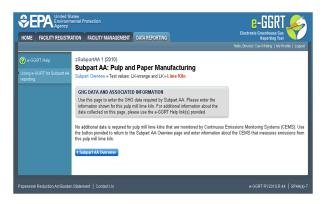
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Johning	OVERVIEW OF SUBPART AA REPO	RTING REQUIREMENTS	EPA has finalized a rule that defers the deadline for reporting certain data elements
		to report carbon dioxide (CO2), nitrous	ovide used as inputs to emission equations for
	(N2O), and methane (CH4) emissions f	from chemical recovery furnaces at kraf	ft and ED E20E2 (withinhad Amount 25, 2011) In
		stion units at sulfite facilities and at star me kilns at kraft and soda facilities. Fir	nd-alone accordance with the rule, e-GGRT is not
	this page to identify each unit, furnace	and/or kiln and identify any systems fi	or emission equations.
		nical recovery areas of chemical pulp m ta required by Subpart AA for each. Fo	tills.
		A required by Subpart AA for each. Fo A reporting, please use the e-GGRT Hi	
	link(s) provided.		· · · · · · · · · · · · · · · · · · ·
	SUBPART AA SUMMARY INFORMATI	ION FOR THIS FACILITY	
	Annual Steam	Annual Production of Pulp	Annual Production of Paper
	Purchases (pounds)	Products (metric tons)	Products (metric tons)
			OPE
	MAKEUP CHEMICAL USAGE SUMMAI	RY	
	Name/ID	Туре	CO2 (metric tons) Status ¹ Dele
	No make-up chemical use units pr	esent	
	+ADD Makeup Chemical Use		
	UNIT AND FURNACE SUMMARY		
	ONT AND TOTALACE SUMMART		Biogenic CO2
	Name/ID	Туре	(metric tons) Status ¹ Del
	No units or furnaces have been adde	d	
	ADD a Unit or Furnace		
	UNIT AND FURNACE SUMMARY/UNIT	S AND EURNACES MONITORED BY	CEMS
	Shiri Hib Fordarde Sommarri (Shiri	O FIND FOR DIGEO MONIFORED DE	CH4 N20
	Name/ID	Туре	tons) tons) tons) Status ¹ Del
	No units or furnaces have been adde		
	ADD a Unit or Furnace Monitored by	UEMS	
		and the second	
	¹ A status of "Incomplete" means that one		mplete. For details, refer to the Data Completeness above (Note: if there are no validation messages for t

Step 1: Identify Fuels Combusted by this Unit

To add a fuel combusted by this unit, click the link titled "ADD a Fuel" below the FUEL EMISSIONS INFORMATION table.

To edit a fuel, click on the edit icon or the Name/ID link, which is the first column in the FUEL EMISSIONS INFORMATION table.

To delete a fuel, click on the delete icon, which is the last column in the FUEL EMISSIONS INFORMATION table.



On the Add Fuel screen, select a fuel combusted by this unit.

When finished, click SAVE

Click image to expand

SubpartAA 1(2010) SubpartAA 1: Pulp and Paper Manu Wath AA: Pulp and Paper Manu Wath AA: Pulp and Paper Manu Wath Paper Safet and And And And And And Paper Interpreter and And And And And And And Head Interpreter and And And And And And And And Interpreter And	Fuel onary combu tationary co you wish to fuel type. Fi	ustion unit or group. mbustion unit or add is not on the or additional	SHOW
group over the course of the reporting year. If the fael list, click XD0 an Other Fuel or Blend' to add a new information about reporting fuel information, please us provided. COAL AND COKE C Mixed (Electric Power sector)	you wish to fuel type. Fi e the e-GGF	add is not on the or additional RT Help link(s)	SHOW
C Mixed (Electric Power sector)	1100	1 Entocedm 1 ttobberts	011011
		OTHER FLIELS - SOLID	SHOW
C Mixed (Industrial sector) Mixed (Industrial sector) C Mixed (Commercial sector) C Cole C Lignite C Subbituminous C Bituminous C Axthractie		OTHER FUELS - SOLID	SHOW
IATURAL GAS	HIDE		
the other fuels and blends list below.			
No other fuels or blends present. ADD an Other Fuel or Blend	HIDE		
	Mixed (Constraint caking) Mixed (Constraint caking)	Mixed (Commercial sector) Mixed (Commercial sector) Mixed (Commercial sector) Gabe Gabe	Mund (Commanial tector) Mund (Commanial tector) Guide Guide

For each fuel combusted by the unit, Subpart AA requires the following fuel information

- Calculation methodology start date and end date, for each fuel type
 - Calculation methodology used for the emissions calculation period specified, for each fuel type:
 - Tier 1/Equation C-1: Annual fuel combusted, default heating value, and default CO₂ emission factor
 - Tier 1/Equation C-1a: Annual natural gas usage from billing records (therms) and default CO2 emission factor
 - Tier 1/Equation C-1b: Annual natural gas usage from billing records (mmBtu) and default CO2 emission factor
 - Tier 2/Equation C-2a: Annual fuel combusted, measured heating value, and default CO₂ emission factor
 - Tier 2/Equation C-2c: Steam generation, ratio of maximum rated heat input capacity to design rated steam output capacity, and default CO₂ emission factor (for MSW and solid fuels listed in Table C-1))
 - Tier 3/Equation C-3: Annual mass of solid fuel combusted and average carbon content of the solid fuel
 - Tier 3/Equation C-4: Annual mass of liquid fuel combusted and average carbon content of the liquid fuel
 - Tier 3/Equation C-5: Annual volume of gaseous fuel combusted, average carbon content of the gaseous fuel, and average molecular weight of the gaseous fuel

When you have entered the required information, click SAVE

Repeat this step until all fuels combusted by this unit have been added and identified.



Step 2: Enter Required Emissions Information for Each Fuel

To select a fuel combusted by this unit for which to enter emissions information, find the fuel in the FUEL EMISSIONS INFORMATION table and click OPEN.

For each fuel type (not including biomass fuel(s)) for which you have elected to use a <u>Tier 1 (Equation C-1, C-1a, or C-1b)</u> methodology, you are required to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-1, Equation C-1a, or Equation C-1b in metric tons CO₂ [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH₄ mass emissions derived from Equation C-8, Equation C-8a, or Equation C-8b in metric tons CH₄ and in metric tons CO₂e (for Table AA-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii), 98.273(c)(2)]
- The total annual N₂O mass emissions derived from Equation C-8, Equation C-8a, or Equation C-8b in metric tons N₂O and in metric tons CO₂e (for Table AA-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii), 98.273(c)(2)]

For each fuel type (not including biomass fuel(s)) for which you have elected to use the <u>Tier 2 (Equation C-2a)</u> methodology, you are required to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-2a in metric tons CO₂ [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH₄ mass emissions derived from Equation C-9a in metric tons CH₄ and in metric tons CO₂e (for Table AA-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii), 98.273(c)(2)]
- The total annual N₂O mass emissions derived from Equation C-9a in metric tons N₂O and in metric tons CO₂e (for Table AA-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii), 98.273(c)(2)]
- Identification of each month for which HHVs were calculated using one or more substitute data values [98.36(e)(2)(ii)(C)]
- The frequency of the HHV determinations [98.36(e)(2)(ii)(B)]
 - Hourly
 - Daily
 - Weekly
 - Monthly
 - Semiannually
 - Quarterly
 - Once per fuel lot
 - Upon addition of oil to the storage tank
 - Other (specify)

For each fuel type (not including biomass fuel(s)) for which you have elected to use the <u>Tier 2 (Equation C-2c)</u> methodology, you are required to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-2c in metric tons CO₂ [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH₄ mass emissions derived from Equation C-9b in metric tons CH₄ and in metric tons CO₂e (for Table AA-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii), 98.273(c)(2)]
- The total annual N₂O mass emissions derived from Equation C-9b in metric tons N₂O and in metric tons CO₂e (for Table AA-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii), 98.273(c)(2)]

For each fuel type (not including biomass fuel(s)) for which you have elected to use a <u>Tier 3 (Equation C-3, C-4, or C-5)</u> methodology, you are required to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-3 for solid fuels, Equation C-4 for liquid fuels, or Equation C-5 for gaseous fuels in metric tons CO₂ [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH₄ mass emissions derived from Equation C-8 in metric tons CH₄ and in metric tons CO₂e (for Table AA-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii), 98.273(c)(2)]
- The total annual N₂O mass emissions derived from Equation C-8 in metric tons N₂O and in metric tons CO₂e (for Table AA-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii), 98.273(c)(2)]
- The total number of valid carbon content determinations [98.36(e)(2)(iv)(D)]
- The total number of carbon content substitute data values [98.36(e)(2)(iv)(E)]
- The frequency of carbon content determinations [98.36(e)(2)(iv)(B)]
 - Hourly
 - Daily
 - Weekly
 - Monthly
 - Semiannually
 - Quarterly
 - Once per fuel lot
 - Upon addition of oil to the storage tank
- Other (specify)
 The total number of operating hours in the reporting year for which missing data substitution was used for fuel usage [98.3(c)(8)]

For each gaseous fuel at each configuration for which you have elected to use the <u>Tier 3 (Equation C-5)</u> methodology, you are also required to report the following additional information:

- Total number of valid molecular weight determinations [98.36(e)(2)(iv)(D)]
- Total number of molecular weight substitute data values [98.36(e)(2)(iv)(E)]
- Frequency of molecular weight determinations [98.36(e)(2)(iv)(B)]
 - Hourly
 - Daily
 - Weekly
 - Monthly
 - Semiannually
 - Quarterly
 - Other (specify)

Use the red-bordered text boxes to enter the required emissions information.

To calculate the emissions you have the option of using your own resources or alternatively you may use the following tool and set of instructions:

- Download the spreadsheet tool by clicking the link below one of the red-bordered text boxes labeled "Use Tier X spreadsheet to calculate"
- · Fill in the spreadsheet completely using the instructions provided in the tool
- After completing the spreadsheet, copy the values calculated by the spreadsheet to the red-bordered text boxes on this page

When you have finished entering emission results for the unit, click SAVE.

Repeat this step until emissions information has been entered for each fuel combusted by the unit.

Step 3: Save Your Data

Once you have entered emissions information for all fuels combusted by the unit, click Subpart AA Overview

After you save the data on this page, the next time you open the page, the calculator on the top of the page will display the CO_2 , CH_4 , and N_2O process emissions, rounded to the nearest 0.1, 0.01, and 0.001 of a metric ton, respectively. The value displayed is for informational purposes only.

When CO_2 , CH_4 and N_2O process emissions have been entered the Status column on the Unit and Furnace Summary will show "Complete" and the background color for that furnace will show as green.

	ates tental Protection		e-GGRT ፉ
OME FACILITY REGISTR	ATION FACILITY MANAGEMENT	DATA REPORTING	Electronic Greenhouse Gas Reporting Tool
) e-GGRT Help	zSubpartAA 1 (2010) Subpart AA: Pulp and	Paper Manufacturing	Hello, Beverly Coe-Wihtling My Profile Logout
		* Lime Kiln » Fuel-specific Emissions	
		GHG emissions information for this fuel. For ta collected on this page, please use the e-GGRT	5,730 Annual CO ₂ (metric tons)
			Annual CH4 (metric tons)
			Annual N ₂ O (metric tons)
	CONFIGURATION-FUEL-PERIOD -		
	Unit or Group Name/ID	RF3in_range	
	Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas	5)
	Reporting Period	01/01/2010 - 12/31/2010	
	Annual CO2 emissions from combustion of the specified fuel	Hover over an element in the equation above to rev 5730 (metric tons) Use Equation C-1/C-8 spreadsheet to calcul	
	EQUATION C-8 SUMMARY AND R	ESULTS	
		CH ₄ or N ₂ O = $1 \times 10^{-3} \times \text{Fuel} \times \text{HHV} \times \text{EF}$	
		Hover over an element in the equation above to rev	eal a definition of that element.
	Annual CH4 emissions from combustion of the specified fuel	0.11 (metric tons)	ate
	Annual N2O emissions from combustion of the specified fuel	0.011 (metric tons)	ste
	CO2 EQUIVALENT EMISSIONS		
	CO2 equivalent value for Annual CH4 emissions	2.3 (metric tons) Use Equation C-1/C-8 spreadsheet to calcul	ate
	CO2 equivalent value for Annual N2O emissions	3.3 (metric tons)	ate
	CANCEL		
perwork Reduction Act Burder			e-GGRT RY2010 R 44 SPAA-FuelEmissio

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See Also

Screen Errors Using e-GGRT to Prepare Your Subpart AA Report Subpart AA Summary Information for this Facility Subpart AA Makeup Chemical Usage Information Subpart AA Process Unit Information for Units NOT Monitored by CEMS Subpart AA Process Unit Information for Units Monitored by CEMS Subpart AA Emissions Information for Makeup Chemical Recovery Subpart AA Emissions Information for Units NOT Monitored CEMS Subpart AA Emissions Information for Units NOT Monitored by CEMS Subpart AA Emissions Information for Units Monitored by CEMS Subpart Validation Report

Subpart AA Emissions Information for Units Monitored by CEMS

This page provides step-by-step instructions on how to enter and edit Subpart AA Pulp and Paper Manufacturing information for process units that are monitored by a Continuous Emissions Monitoring System (CEMS).

Step 1: Add a CEMS Monitoring Location (CML)

To add a CML, click the "Add a CEMS Monitoring Location" link below the CEMS MONITORING LOCATION (CML) SUMMARY table on the Subpart Overview page

1. The screenshot below is from Subpart G and is displayed as an example. The screen for other subparts may differ slightly.

	ATION FACILITY MANAGEMENT	DATA REPOR	TING		Electronic Gr	enhouse Gas
					Hello, Emmanue	Kalluri My Profile Logos
e-GGRT Help Using e-GGRT for Subpart G reporting	Facility ABC Subpart G: Ammoni Subpart Overview	a Manufac	turing <mark>(2</mark>	011)		
	OVERVIEW OF SUBPART R Subpart G requires affected fa emissions from each ammoni identify each ammonia manufi (GHG) data required by Subpa for your facility. For additional e-GGRT Help link(s) provided.	cilities to report a manufacturing acturing process art G for each an	carbon dioxide process unit. unit and then imonia manuf	First, use this page to enter Greenhouse gas acturing process unit and	deadline for report used as inputs to e direct emitters until FR 53057 (publish accordance with t	rule that defers the or contain data elements mission equations for March 31, 2015. See 76 ed August 25, 2011). In ne rule, e-GGRT is not this subset of inputs to
					Subpart Message	S: No Validation
	SUBPART G SUMMARY INFO		THIS FACILI			
	Annual Urea Proc	. (metric tons) 45.0	_	Quantity of CO2 used	to produce urea	(metric tons) 40 OPEN
	UNIT SUMMARY Unit Name/Identifier	Feedstock	_	CO2 (metric t	ons) Status ¹	Delete
	+ ADD a Unit					
	UNIT SUMMARY (Units monito	ored by CEMS) Feedstock	Status ¹	Delete		
	No units have been added					
	ADD a Unit Monitored by CE	MS				
	← Facility Overview					
	¹ A status of "Incomplete" means validation messages in your Valid subpart you will not see this link).					

Step 2: Define a CML and report emissions information

For each CEMS Monitoring Location, provide the following information:

- A unique unit name or identifier for the CML (see also About Unique Unit Names)
- An optional description or label for the CML
- The configuration of processes or process units that are monitored by the CML:
 - Single process or process unit that exhausts to a dedicated stack
 - Multiple processes or process units that share a common stack
 - Process or process unit that shares a common stack with one or more stationary fuel combustion units
- The types of fuel combusted in the unit(s) monitored by the CEMS
- The Tier 4/CEMS methodology start and end dates
- The quarter total of hourly CO_2° mass emissions for each quarter of the reporting year (metric tons) (*Do not cumulate emissions data between quarters*)
- The total annual CO₂ mass emissions measured by the CEMS (metric tons)
- An indication whether emissions reported for the CEMS include emissions calculated according to 98.33(a)(4)(viii) for a slipstream that bypassed the CEMS
- The total annual biogenic CO₂ emissions from the combustion of all biomass fuels combined (metric tons) (*if not applicable, enter '0'*)
- The total annual non-biogenic CO₂ emissions which includes fossil fuel, sorbent, and process CO₂ emissions (metric tons)
- The total annual CH₄ and N₂O emissions associated with the combustion of all Table C-2 fuels combusted in all processes/process units monitored by the CEMS derived from application of Equation C-10 (metric tons) (*if there are no combustion emissions in this CML, please enter '0*)
- The total number of source operating hours in the reporting year
- The total operating hours in which a substitute data value was used in the emissions calculations for the CO2 concentration parameter
- The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas flow rate parameter
- If moisture correction is required and a continuous moisture monitor is used, the total operating hours in which a substitute data value was used in the emissions calculations for the stack gas moisture content parameter
- The total annual CO2 emissions from the CEMS Monitoring Location (CML) Summary attributable to combustion (metric tons)

Do not leave any of these fields blank. If, for example, your facility has no biogenic CO2 emissions, enter '0'.

For assistance in calculating annual CH_4 and N_2O emissions using Equation C-10, access the optional calculation spreadsheet by clicking one of the links titled "Use Equation C-10 spreadsheet to calculate" located below each of the red emissions information data entry boxes and follow the provided instructions

Step 3: Identify process units monitored at a CML

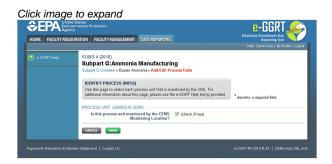
To identify the process units monitored at a CML, first click the link titled "ADD/REMOVE a process unit that exhausts to this CEMS Monitoring Location" at the bottom of the page

The screenshot below is from Subpart G and is displayed as an example. The screen for other subparts may differ slightly.

E FACILITY REGISTRATION	FACILITY MANAGEMENT	DATA REP	ORTING H	ELP DESK	Electronic Greenhouse Gas Reporting Tool		
	lin ARC				Hello, Emmanuel Kalluri My Profile Logi		
St	Facility ABC Subpart G:Ammonia Manufacturing (2011) Subpart G:Gweiter - Add/Edit CEMS Monitoring Location						
c	ONTINUOUS EMISSION M	ONITORING	SYSTEM (CI	MS) MONITO	RING		
L L	OCATION (CML) INFORMA	TION			222		
ai	se this page to uniquely ide nd provide the annual GHG e "ADD/REMOVE a Proces	emissions and	other inform	ation describe	ML) Summary Total CO2 from CEMS (or applicable d below. Use Part 75 methodology) (metric tons) identify the		
D	ocess unit(s) monitored by dditional information about t	this CEMS M	onitorina Loc	ation (CML) Si	ummary, For		
Ĥ	elp link(s) provided.	ne data conec	teo on this p	aye, piease us	Total Biogenic CO2 (metric tons)		
					Total Non-biogenic CO2 (metric tons)		
co	NFIGURATION				(40 characters maximum)		
	CEMS Monitoring* Location Name/ID				(+o characters maximum)		
	Description (optional)						
	Configuration Type*	Select					
т	ypes of fuel combusted in the unit(s) monitored by the CEMS				(200 characters maximum)		
-	R 4 METHODOLOGY INFO	RMATION					
	alculation Methodology* Start Date						
		12/31/2011] 🗰			
QU	ARTERLY CO2 EMISSION	3					
		Quarter 1			(metric tons)		
		Quarter 2			(metric tons)		
		Quarter 3			(metric tons)		
		Quarter 4			(metric tons)		
AN	NUAL CO2 EMISSIONS -						
) measured y the CEMS			(metric tons)		
inc	Check this box to indic emissions reported fo lude emissions calculate o 98.33(a)(4)(viii) for a slip bypassed	ate that the or the CEMS d according stream that					
	Total annual biogeni				(metric tons)		
		emissions			(metric tons)		
en	Total annual non-biogeni hissions (includes fossil fu and process CO:	el, sorbent, emissions)			(mone teno)		
EQ	UATION C-10 SUMMARY A	ND RESULTS					
)1 × (HI)∧ × E			
					tion above to reveal a definition of that element.		
		Enter C If there	H4 and N2O are no comb	emissions fror ustion emissio	m only combustion of Table C-2 Fuels directly below. ons from Table C-2 Fuels in this CEMS Monitoring		
			n, please en		7		
	Total CH	4 emissions	Lise	Equation C-10	(metric tons) spreadsheet to calculate		
	Total No) emissions			(metric tons)		
	Total N25	2 emissions	Use I	Equation C-10	spreadsheet to calculate		
AD	DITIONAL EMISSIONS INF	DRMATION -		hours)			
	Total number of sourc hours in the rep						
•	The total operating hours substitute data value was emissions calculati	in which a used in the ons for CO2 ncentration		hours)			
				hours)			
	The total operating hours substitute data value was emissions calculations for						
	The total operating hours substitute data value was emissions calculations fr	in which a used in the		hours)			
	emissions calculations for moist	ure content					
(i a	f moisture correction is re continuous moisture mon	equired and itor is used)					
	MS MONITORING LOCATI		S UNITS				
-	Process Unit Name/Iden	tifier					
Ih	ere are no process units mo CEMS available for selection	antorea					
	ADD/REMOVE/EDIT a proc						

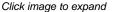
On the CML Process Units Selection page, use the check boxes to select the process unit(s) monitored at this CML. This will indicate that the unit(s) selected vent emission through the stack monitored by this CML.

The screenshot below is from Subpart G and is displayed as an example. The screen for other will differ slightly depending on the number of units with emissions monitored by a single CML at your facility.



 $\textbf{Subpart Y} also collects the CO_2 emissions from this CEMS Monitoring Location that are attributable to process CO_2 emissions from this process$

unit (metric tons).





When finished selecting process unit for the CML and entering additional required information (if applicable), click SAVE. You should then be directed back to the Add/Edit a CML Location form and see the units you selected listed in the CEMS MONITORING LOCATION (CML) PROCESS UNITS table.

Step 4: Save entered data for a CML

When you have finished entering data for a CML, click SAVE. You will then return to the Subpart Overview page. You will see the status of data entry for the CML updated to "Complete" in the Status column in the CEMS MONITORING LOCATION (CML) SUMMARY table.

If you don't have all the data, you can enter some now, save it, and finish later by clicking on the hyperlinked name of the CML in the CEMS MONITORING LOCATION (CML) SUMMARY table.

After you save the data on this page, the next time you open the page, the calculator on the top of the page will display the CO₂ process emissions for the CML, rounded to the nearest 0.1 of a metric ton. The value displayed is for informational purposes only.

1. Note: the screenshot below is from Subpart G and is displayed as an example. The screen for other subparts will differ slightly.

ME FACILITY REGISTRA	TION FACILITY MANAGEMENT	DATA REP		IELP DESK		Electronic Greenhouse Gas Reporting Tool
						Hello, Emmanuel Kalluri My Profile Logor
e-GGRT Help	Facility ABC Subpart G:Ammoni Subpart G Overview » Add/Edir					
	CONTINUOUS EMISSION M	ONITORING	SYSTEM (C	EMS) MONITO	RING	
	LOCATION (CML) INFORMA Use this page to uniquely ide	TION ntify each CE	MS Monitori	ng Location (CN	IL) Summary	Total CO2 from CEMS (or applicable Part 75 methodology) (metric tons)
	and provide the annual GHG the "ADD/REMOVE a Proces	emissions and ss Unit" link at	l other inform the bottom	nation described of the page to in	d below. Use dentify the	Part 75 methodology) (metric tons)
	Use this page to uniquely ide and provide the annual GHG the "ADD/REMOVE a Proces process unit(s) monitored by additional information about the	this CEMS M he data collec	onitoring Loc ted on this p	ation (CML) Su age, please use	immary. For e the e-GGRT	
	Help link(s) provided.					Total Biogenic CO ₂ (metric tons)
						Total Non-biogenic CO2 (metric tons)
	CONFIGURATION				1.40	a barran a second second
	CEMS Monitoring* Location Name/ID				(40	characters maximum)
	Description (optional)				< >	
	Configuration Type*	Select				
	Types of fuel combusted in the unit(s) monitored by the CEMS				(20	0 characters maximum)
	TIER 4 METHODOLOGY INFO					
	Calculation Methodology* Start Date	01/01/2011				
	Calculation Methodology* End Date	12/31/2011				
	QUARTERLY CO2 EMISSION	Quarter 1			(metric tons)	
		Quarter 1			(metric tons)	
		Quarter 3			(metric tons)	
		Quarter 4			(metric tons)	
	ANNUAL CO2 EMISSIONS					
	Total annual CO2 mas	s emissions			(metric tons)	
	(biogenic and non-biogenic b	y the CEMS				
	Check this box to indic emissions reported fc include emissions calculate to 98.33(a)(4)(viii) for a slip bypassed	ate that the or the CEMS				
	to 98.33(a)(4)(viii) for a slip bypassed	stream that the CEMS.				
	Total annual biogeni	c CO2 mass emissions			(metric tons)	
	Total annual non-biogeni				(metric tons)	
	Total annual non-biogeni emissions (includes fossil fu and process CO:	el, sorbent, emissions)				
	EQUATION C-10 SUMMARY A	ND RESULTS				
		CH₄o	r N ₂ O = 0.0	01 × (HI) _A × E		
						al a definition of that element. on of Table C-2 Fuels directly below.
		If there	are no comb	ustion emission ter 0	ns from Table C-	2 Fuels in this CEMS Monitoring
	Total CH	4 emissions			(metric tons)	
			Use Use		spreadsheet to c	alculate
	Total N2	O emissions	L Use		(metric tons) spreadsheet to c	alculate
	ADDITIONAL EMISSIONS INF Total number of sourc hours in the rep	ORMATION e operating		hours)		
	hours in the rep	orting year		hours)		
	The total operating hours substitute data value was emissions calculati co	used in the ons for CO ₂ ncentration		(10010)		
	The total operating hours substitute data value was emissions calculations fo	in which a used in the		hours)		
	The total operating hours	in which a		hours)		
	substitute data value was emissions calculations fi moist (if moisture correction is re	used in the or stack gas ure content				
	(if moisture correction is re a continuous moisture mon	itor is used)				
	CEMS MONITORING LOCATI Process Unit Name/Ident There are no process units mo by CEMS available for selection	tifier	S UNITS			
	ADD/REMOVE/EDIT a proc	ess unit that (exhausts to	this CEMS Mon	nitoring Location	

Step 5: Repeat Steps 1-4

Repeat Steps 1-4 until emissions information has been entered for all CMLs. If you have missed something, the validation report messages will help you identify any incomplete entries.

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See Also

Screen Errors Using e-GGRT to Prepare Your Subpart AA Report Subpart AA Summary Information for this Facility Subpart AA Makeup Chemical Usage Information Subpart AA Process Unit Information for Units NOT Monitored by CEMS Subpart AA Process Unit Information for Units Monitored by CEMS Subpart AA Emissions Information for Makeup Chemical Recovery Subpart AA Emissions Information for Units NOT Monitored CEMS Subpart AA Emissions Information for Units NOT Monitored CEMS Subpart AA Emissions Information for Units Monitored by CEMS Subpart Validation Report

Using Subpart AA Calculation Spreadsheets

These optional spreadsheets are provided to assist reporters in calculating emissions and in keeping records of these calculations.

Reporters are required to keep records of these calculations under 40 CFR 98.3(g) and additional subpart-specific provisions, but are not required to use these spreadsheets or to submit any spreadsheets to EPA.

Spreadsheets may include inputs to emission equations, reporting some of which EPA deferred until 2015. (See 76 FR 53057, published August 25, 2011, http://www.gpo.gov/fdsys/pkg/FR-2011-08-25/pdf/2011-21727.pdf).

Overview

This help page provides guidance for working with the supplemental Subpart AA calculation spreadsheet. The guidance provides step-by-step instructions for the following tasks:

- Selecting the Appropriate Spreadsheet
- Downloading a Spreadsheet
- Using the Equation AA-1 Calculation Spreadsheet
- Using the Equation AA-2 Calculation Spreadsheet
- Using the Equation AA-3 Calculation Spreadsheet

Specific information on each of the spreadsheet tools is provided below:

Calculation Spreadsheet (click to download)	Calculation Results	Instructions (click to view)
Equation AA-1 Calculation Spreadsheet.xls	${\rm Biogenic}~{\rm CO}_2,~{\rm CH}_4,~{\rm N}_2{\rm O}$	AA-1 Help
Equation AA-2 Calculation Spreadsheet.xls	Biogenic CO ₂	AA-2 Help
Equation AA-3 Calculation Spreadsheet.xls	CO ₂	AA-3 Help

Selecting the Appropriate Spreadsheet

Subpart AA requires a facility to report annual biogenic CO_2 , CH_4 , and N_2O emissions from the combustion of spent liquor solids and annual CO_2 emissions from make-up chemical use. To calculate the emissions, use the three equations below. Use different spreadsheet tools for different furnaces or combustion units as required.

For each kraft or soda mill chemical recovery furnace, calculate annual biogenic CO₂, CH₄, and N₂O emissions from the combustion of spent liquor solids, using Equation AA-1 and the Equation AA-1 Calculation Spreadsheet. Equation AA-1 is provided below:

(Equation AA-1)
$$CO_2$$
, CH_4 , or N_2O from biomass = (0.90718) *Solids *HHV *EF

For each chemical recovery combustion unit, users should calculate annual CH_4 , and N_2O emissions from the combustion of spent liquor solids using Equation AA-1 and the Equation AA-1 Calculation Spreadsheet and should calculate annual biogenic CO_2 emissions from the combustion of spent liquor solids using Equation AA-2 and the Equation AA-2 Calculation Spreadsheet. Equation AA-2 is provided below:

(Equation AA-2)
Biogenic CO₂ =
$$\frac{44}{12}$$
 * Solids * CC * (0.90718)

For each facility with make-up chemical use, users should calculate annual CO₂ emissions from make-up chemical use using Equation AA-3 and the Equation AA-3 Calculation Spreadsheet. Equation AA-3 is provided below:

(Equation AA-3)

$$CO_{2} = \left[M_{(C_{a}CO_{3})} * \frac{44}{100} + M_{(N_{a},CO_{3})} \frac{44}{105.99} \right] * 1000 \ kg \ / \ metric \ ton$$

Downloading a Spreadsheet

Calculation spreadsheets for Subpart AA may be downloaded by clicking one of the links in the first column of the table below. Users may also jump to instructions for each spreadsheet by clicking one of the links in the third column.

Calculation Spreadsheet (click to download)	Calculation Results	Instructions (click to view)
Equation AA-1 Calculation Spreadsheet.xls	${\rm Biogenic}~{\rm CO}_2,~{\rm CH}_4,~{\rm N}_2{\rm O}$	AA-1 Help
Equation AA-2 Calculation Spreadsheet.xls	Biogenic CO ₂	AA-2 Help
Equation AA-3 Calculation Spreadsheet.xls	CO ₂	AA-3 Help

Using a Spreadsheet to Make Calculations

The guidance provided in this section applies to each of the calculation spreadsheets for Subpart AA. Additional guidance is provided for each individual spreadsheet in the sections below.

Color coding

The calculation spreadsheets contain green input cells, gray informational cells, and red-bordered results cells filled with yellow or white. Users should use green input cells to enter all data specific to their facility, unit, or process. Gray informational cells contain parameter names, column and row headings, equation constants and subtotals. Calculation results are displayed in red-bordered results cells filled with yellow or white. For red-bordered, yellow-filled results cells, the values in these cells should be entered in the appropriate and separate calculation spreadsheet (as directed below cell) where additional calculations will be made. For red-bordered, white filled results cells, the values in these cells should be entered in e-GGRT for the appropriate process units. All cells that are not green input cells are locked and cannot be modified.

Green input cell (data entry)
Gray informational cells (locked)
Red-bordered, yellow-filled results cells (enter in appropriate and separate calculation spreadsheet)
Red-bordered, white filled results cells (enter in e-GGRT)

Stop and Warning Messages

The calculation spreadsheets will display a stop message if the user enters a value that is invalid or a warning message if the user enters a value outside the EPA estimated range for a particular data element. For invalid data entries, the stop messages will not allow a user to proceed and the user must reenter valid data before moving forward. For data entries that are outside the EPA estimated range for a particular data element, the warning messages will allow a user to proceed if the user deems the entered value to be accurate.

Multiple Furnaces or Combustion Units

Users with multiple furnaces or combustion units should use separate spreadsheets for each furnace or combustion unit. Users should not aggregate data for multiple furnaces or combustion units when using these spreadsheets.

Using the Equation AA-1 Calculation Spreadsheet

Use the Equation AA-1 Calculation Spreadsheet to calculate the annual biogenic CO_2 , CH_4 , and N_2O emissions from the combustion of spent liquor solids for each kraft or soda mill chemical recovery furnace. Also use the Equation AA-1 Calculation Spreadsheet to calculate the annual CH_4 , and N_2O emissions from the combustion of spent liquor solids for each chemical recovery combustion unit. A separate spreadsheet should be used for each furnace or combustion unit. The Equation AA-1 Calculation Spreadsheet performs the calculations using Equation AA-1, provided below.



Begin by entering the facility name, your name, the unit name or identifier, reporting period, and any additional comments in the green cells of the

general information table located immediately below the equation in the spreadsheet. This is for your records.

Facility Name:	
Reporter Name:	
Unit Name/ ID:	
Reporting Period:	
Comments:	
Unit Type:	

Next, enter the requested information in the green cells in the Input Data table.

Input Data

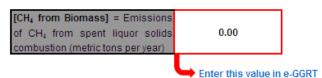
[Solids] = Mass of spent liquor solids combusted (short tons per year) determined according to §98.274(b)		
[HHV] = Annual high heat value of the spent liquor solids (mmBtu per kilogram) determined according to §98.274(b)		
[CO ₂ EF] = Default or site-specific emission factor for CO ₂ , from Table AA-1 of this subpart (kg CO ₂ per mmBtu)		The default values for [CO2 EF] are listed on the Table AA-1' tab
[CH ₄ EF] = Default or site-specific emission factor for CH ₄ , from Table AA-1 of this subpart (kg CH ₄ per mmBtu)	0.03	The default value for [CH4 EF] is 0.03
$[N_2O EF]$ = Default or site-specific emission factor for N ₂ O, from Table AA-1 of this subpart (kg N ₂ O per mmBtu)	0.005	The default value for [N2O EF] is 0.005

The spreadsheet will calculate the annual biogenic CO_2 , CH_4 , and N_2O emissions from the combustion of spent liquor solids. These calculated values will be displayed in the red-bordered cells at the bottom of the spreadsheet. These values should be entered in e-GGRT for this furnace or combustion unit.

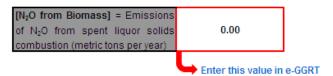
Annual Biogenic CO₂ Emissions (metric tons) from Equation AA-1



Annual Biogenic CH₄ Emissions (metric tons) from Equation AA-1



Annual Biogenic N₂O Emissions (metric tons) from Equation AA-1



Using the Equation AA-2 Calculation Spreadsheet

Use the Equation AA-2 Calculation Spreadsheet to calculate the annual biogenic CO_2 emissions from the combustion of spent liquor solids for each chemical recovery combustion unit. Use a separate spreadsheet for each combustion unit. The Equation AA-2 Calculation Spreadsheet performs the calculation using Equation AA-2, provided below.

(Equation AA-2)
Biogenic CO₂ =
$$\frac{44}{12}$$
 * Solids * CC * (0.90718)

Begin by entering the facility name, your name, the unit name or identifier, reporting period, and any additional comments in the green cells of the general information table located immediately below the equation in the spreadsheet. This is for your records.

Facility Name:	
Reporter Name:	
Unit Name/ ID:	
Reporting Period:	
Comments:	
Unit Type:	Chemical Recovery Combustion Unit

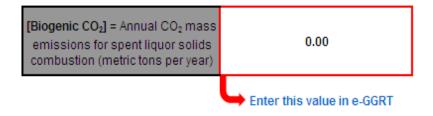
Next, enter the requested information in the green cells in the Input Data table.

Input Data

[Solids] = Mass of the spent liquor solids combusted (short tons per year) determined according to §98.274(b)	
[CC] = Annual carbon content of the spent liquor solids, determined according to §98.274(b) (percent by weight, expressed as a decimal fraction, e.g., 95% = 0.95)	

The spreadsheet will calculate the annual biogenic CO_2 emissions from the combustion of spent liquor solids. This calculated value will be displayed in the red-bordered cells at the bottom of the spreadsheet. This value should be entered in e-GGRT for this combustion unit.

Annual Biogenic CO₂ Mass Emissions (metric tons) from Equation AA-2



Using the Equation AA-3 Calculation Spreadsheet

Use the Equation AA-3 Calculation Spreadsheet to calculate the annual CO₂ emissions from make-up chemical use. The Equation AA-3 Calculation Spreadsheet performs the calculation using Equation AA-3, provided below.

(Equation AA-3) $CO_{2} = \left[M_{(C_{a}CO_{3})} * \frac{44}{100} + M_{(N_{a_{2}}CO_{3})} \frac{44}{105.99} \right] * 1000 \ kg \ / \ metric \ t$
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Begin by entering the facility name, your name, the unit name or identifier, reporting period, and any additional comments in the green cells of the general information table located immediately below the equation in the spreadsheet. This is for your records.

Facility Name:	
Reporter Name:	
Unit Name/ ID:	
Reporting Period:	
Comments:	
Unit Type:	Makeup Chemical Use

Next, enter the requested information in the green cells in the Input Data table.

Input Data

[M _(CaCO3)] = Makeup quantity of	
CaCO ₃ used for the reporting year	
(metric tons per year)	
[M(Na2CO3)] = Makeup quantity of	
Na ₂ CO ₃ used for the reporting year	
(metric tons per year)	

The spreadsheet will calculate the annual CO₂ emissions from make-up chemical use. This calculated value will be displayed in the red-bordered cells at the bottom of the spreadsheet. This value should be entered in e-GGRT for this combustion unit.

Annual CO₂ Mass Emissions from Equation AA-3 in Units of Kilograms

[CO ₂] = CO ₂ mass emissions from	0.00
makeup chemicals (kilograms/yr)	0.00

Annual CO₂ Mass Emissions from Equation AA-3 in Units of Metric Tons



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