# Subpart D - Electricity Generation

A printer-friendly version (pdf) (11 pp, 1,423K) of GHG reporting instructions for this subpart

Please select a help topic from the list below:



Additional Resources:

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

## Using e-GGRT to Prepare Your Subpart D Report

This page provides an overview of subtopics that are central to Subpart D Electricity Generation reporting:

- Unit Information
- Unit Emissions Information
- Fuel Information
- Fuel Emissions Information
- Subpart Validation Report

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

> 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.

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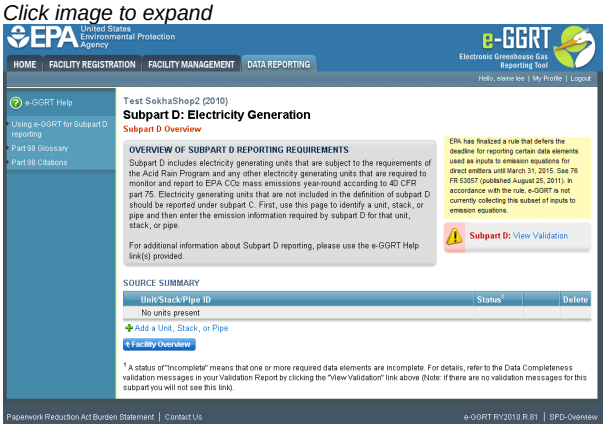


### Unit Information

Starting on the Subpart D Overview screen, click the link titled "ADD a Unit or Group" below the UNIT-LEVEL SUMMARY table.

*Click image to expand*


For each unit, stack, or pipe at your facility, subpart D requires the following information:

- A unique unit, stack, or pipe name or identifier (e.g., a unit ID number) as reported under 40 CFR 75.64 [98.36(d)(1)(i)]
- An optional unit or stack description or label [optional]
- The Part 75 methodology used to determine the $CO_2$ mass emissions [98.36(d)(1)(v)]
    - CEMS
    - Appendix G, Equation G-1
    - Appendix G, Equation G-4
    - Low Mass Emissions (LME) (§75.19(c)(4)(iii))
- The methodology start date and end date [98.36(d)(1)(vi)-(vii)]
- An indication of participation in the Acid Rain Program [98.36(d)(1)(viii)]
- Each type of fuel combusted in the configuration during the reporting year (Table C-2 fuels only) [98.36(d)(1)(iii)]

## Unit Emissions Information

For each unit, subpart D requires the facility to provide the following aggregated fuel emissions data:

- The total annual $CO_2$ emissions at the monitored location in short tons (as reported in part 75) [98.36(d)(1)(ii)]
- The total annual $CO_2$ emissions at the monitored location in metric tons (conversion from the short ton value reported in part 75) [98.36(d)(1)(ii)]
- The total annual biogenic $CO_2$ emissions. This includes both $CO_2$ emissions from the combustion of biomass fuels and the biogenic portion of $CO_2$ emissions from fuels with a mixed biogenic and fossil component [98.36(d)(1)(ix)]

For each unit for which the facility selects "**CEMS**" as the Part 75 methodology used to determine $CO_2$ mass emissions, subpart D requires the facility to provide the following additional information [98.3(c)(8)]:

- The total number of operating hours during the year that $CO_2$ concentration was missing
- The total number of operating hours during the year that stack gas flow rate was missing
- The total number of operating hours during the year that moisture content was missing (only if a continuous moisture monitor was in use)

For each unit for which the facility selects "**Appendix G, Equation G-1**" as the Part 75 methodology used to determine $CO_2$ mass emissions, subpart D requires the facility to provide the following additional information [98.3(c)(8)]:

- The total number of operating hours during the year that fuel carbon content was missing

For each unit for which the facility selects "**Appendix G, Equation G-4**" as the Part 75 methodology used to determine $CO_2$ mass emissions, subpart D requires the facility to provide the following additional information [98.3(c)(8)]:

- The total number of operating hours during the year that fuel flow rate was missing
- The total number of operating hours during the year that high heating value was missing

For each unit for which the facility selects "**LME calculation methods in §75.19(c)(4)(iii)**" as the Part 75 methodology used to determine $CO_2$ mass emissions, no additional information is required.

## Fuel Information

For each unit, subpart D requires the facility to report each type of fuel combusted in the configuration during the reporting year (for Table C-2 fuels only) [98.36(d)(1)(iii)].

## Fuel Emissions Information

Subpart D requires the entry of the total heat input for each fuel type listed in Table C-2 combusted in each unit (except as otherwise provided in 98.33(c)(4)(ii)(B)) in units of mmBtu. Enter this value in the text box provided in the EQUATION C-10 SUMMARY AND RESULTS section. [98.36(d)(1)(iv)]

e-GGRT will calculate $CH_4$ and $N_2O$ emissions from the total heat input entered using Equation C-10 and display the results under ANNUAL CH4 EMISSIONS and ANNUAL N2O EMISSIONS, respectively. [98.36(d)(1)(iii)]

If you calculated $CH_4$ and $N_2O$ emissions for a blended fuel according to 98.33(c)(6)(ii), you can override the automatically calculated emissions values by selecting the "Enter my own result (value will be rounded)" radio buttons under ANNUAL CH4 EMISSIONS and ANNUAL N2O EMISSIONS. Enter the $CH_4$ and $N_2O$ values you calculated in the "Report this value" fields.

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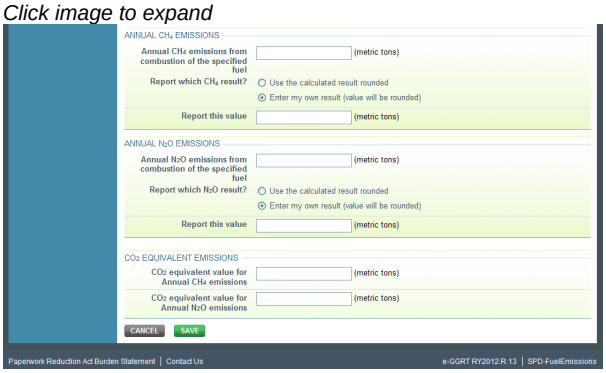


## Subpart Validation Report

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 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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Subpart D Fuel Information
Subpart D Fuel Emissions Information
Subpart Validation Report

# Subpart D Unit Information

This topic provides a step-by-step description of how to enter subpart D Electricity Generation unit information for this facility.

## Adding or Updating Unit Information for this Facility

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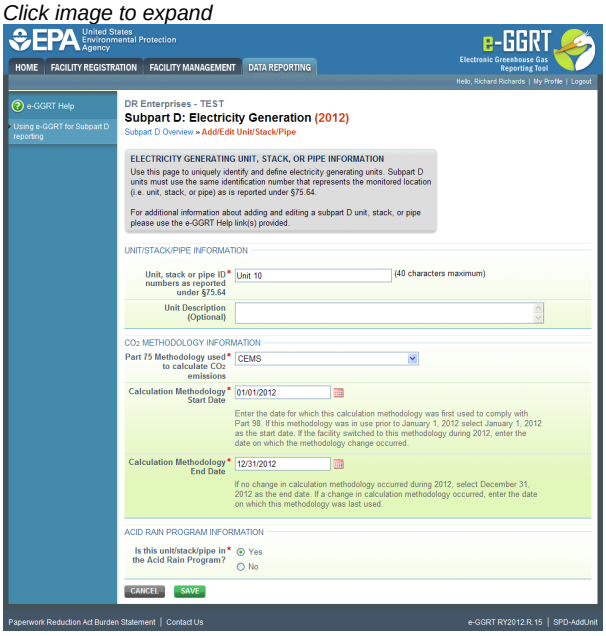
Starting on the Subpart D Overview screen, click the link titled "ADD a Unit or Group" below the UNIT-LEVEL SUMMARY table.

*Click image to expand*




For each unit, stack, or pipe at your facility, subpart D requires the following information:

- A unique unit, stack, or pipe name or identifier (e.g., a unit ID number) as reported under 40 CFR 75.64 [98.36(d)(1)(i)]
- An optional unit or stack description or label [optional]
- The Part 75 methodology used to determine the $CO_2$ mass emissions [98.36(d)(1)(v)]
    - CEMS
    - Appendix G, Equation G-1
    - Appendix G, Equation G-4
    - Low Mass Emissions (LME) (§75.19(c)(4)(iii))
- The methodology start date and end date [98.36(d)(1)(vi)-(vii)]
- An indication of participation in the Acid Rain Program [98.36(d)(1)(viii)]
- Each type of fuel combusted in the configuration during the reporting year (Table C-2 fuels only) [98.36(d)(1)(iii)]

Use the text boxes, drop-down menu and, radio buttons to enter the required information.

When finished, click NEXT.

Once you have entered the required unit information for all units at your facility, you will have finished entering the required unit information for your facility.

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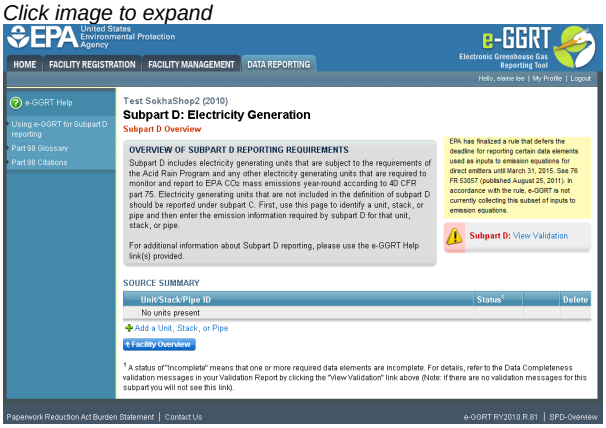
## See Also

# Subpart D Unit Emissions Information

The text below describes how to enter subpart D Electricity Generation emissions information for each unit at your facility. The process to edit an existing unit is essentially similar.

### Adding or Updating Unit Emissions Information

*Click image to expand*




Starting on the Subpart D Overview page, find the unit for which you would like to enter emissions information in the SOURCE SUMMARY table and click OPEN.

*Click image to expand*


To edit the configuration information for this unit or group, click the “Edit this Unit or Group Information link above the UNIT/STACK/PIPE EMISSIONS INFORMATION table.

*Click image to expand*


Use the text boxes, drop-down menu, and radio buttons to update the entered information.

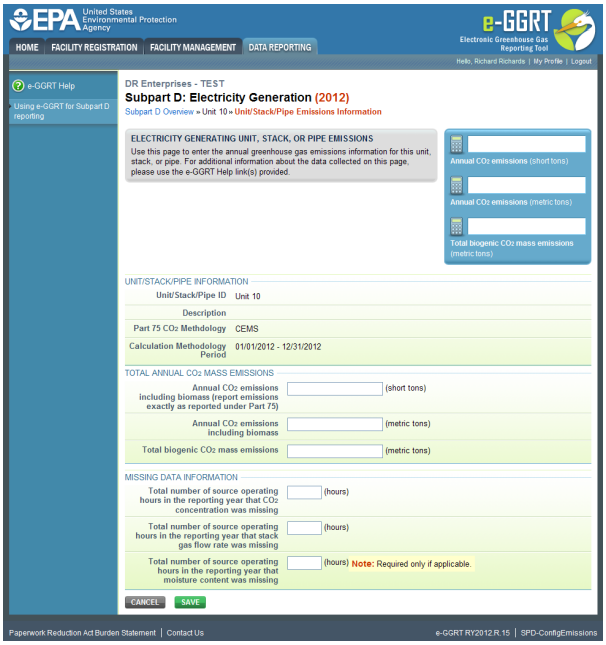
When finished, click SAVE.

*Click image to expand*


To enter emissions information for this configuration, find the UNIT/STACK/PIPE EMISSIONS INFORMATION table and click OPEN.

The unit emissions data entry screen will vary slightly depending on the Part 75 methodology selected for each unit.

*Click image to expand*




For each unit, subpart D requires the facility to provide the following aggregated fuel emissions data:

- The total annual $CO_2$ emissions at the monitored location in short tons (as reported in part 75) [98.36(d)(1)(ii)]
- The total annual $CO_2$ emissions at the monitored location in metric tons (conversion from the short ton value reported in part 75) [98.36(d)(1)(ii)]
- The total annual biogenic $CO_2$ emissions. This includes both $CO_2$ emissions from the combustion of biomass fuels and the biogenic portion of $CO_2$ emissions from fuels with a mixed biogenic and fossil component [98.36(d)(1)(ix)]

For each unit for which the facility selects "**CEMS**" as the Part 75 methodology used to determine $CO_2$ mass emissions, subpart D requires the facility to provide the following additional information [98.3(c)(8)]:

- The total number of operating hours during the year that $CO_2$ concentration was missing
- The total number of operating hours during the year that stack gas flow rate was missing
- The total number of operating hours during the year that moisture content was missing (only if a continuous moisture monitor was in use)

For each unit for which the facility selects "**Appendix G, Equation G-1**" as the Part 75 methodology used to determine $CO_2$ mass emissions, subpart D requires the facility to provide the following additional information [98.3(c)(8)]:

- The total number of operating hours during the year that fuel carbon content was missing

For each unit for which the facility selects "**Appendix G, Equation G-4**" as the Part 75 methodology used to determine $CO_2$ mass emissions, subpart D requires the facility to provide the following additional information [98.3(c)(8)]:

- The total number of operating hours during the year that fuel flow rate was missing
- The total number of operating hours during the year that high heating value was missing

For each unit for which the facility selects "**LME calculation methods in §75.19(c)(4)(iii)**" as the Part 75 methodology used to determine $CO_2$ mass emissions, no additional information is required.

Use the text boxes to enter the required information.

When finished, click SAVE.

Once you have entered the required unit emissions information for all units and groups at your facility, you will have finished entering the required unit emissions information for your facility.

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# Subpart D Fuel Information

The text below describes how to enter subpart D Electricity Generation fuel information for each unit at your facility. The process to edit fuel information for an existing unit is essentially similar.

## Adding or Updating Fuel Information for Each Unit

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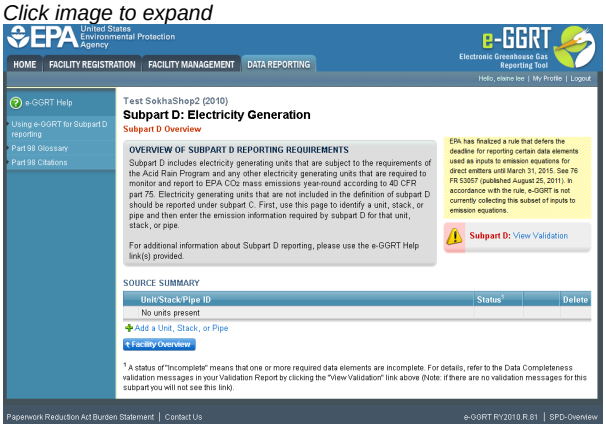


Starting on the Subpart D Overview page, find the configuration type for which you would like to enter emissions information in the UNIT-LEVEL SUMMARY table and click OPEN.

*Click image to expand*


To add a fuel type for this configuration, click the “ADD a Fuel” link below the FUEL EMISSIONS INFORMATION table.

*Click image to expand*


For each unit, subpart D requires the facility to report each type of fuel combusted in the configuration during the reporting year (for Table C-2 fuels only) [98.36(d)(1)(iii)].

Use the radio buttons to select a fuel type for this unit.

When finished, click SAVE.

Once you have entered the required fuel information for all units at your facility, you will have finished entering the required fuel information for your facility.

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## Subpart D Fuel Emissions Information

The text below describes how to enter subpart D Electricity Generation fuel emissions information for each unit at your facility. The process to edit fuel emissions information for an existing unit is essentially similar.

### Adding or Updating Fuel Emissions Information for Each Unit

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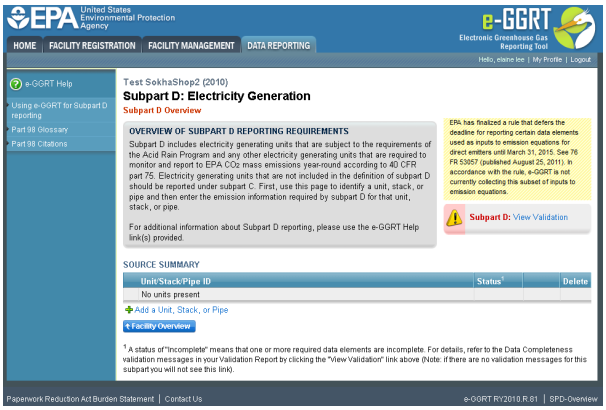


Starting on the Subpart D Overview page, find the configuration type for which you would like to enter emissions information in the UNIT-LEVEL SUMMARY table and click GO.

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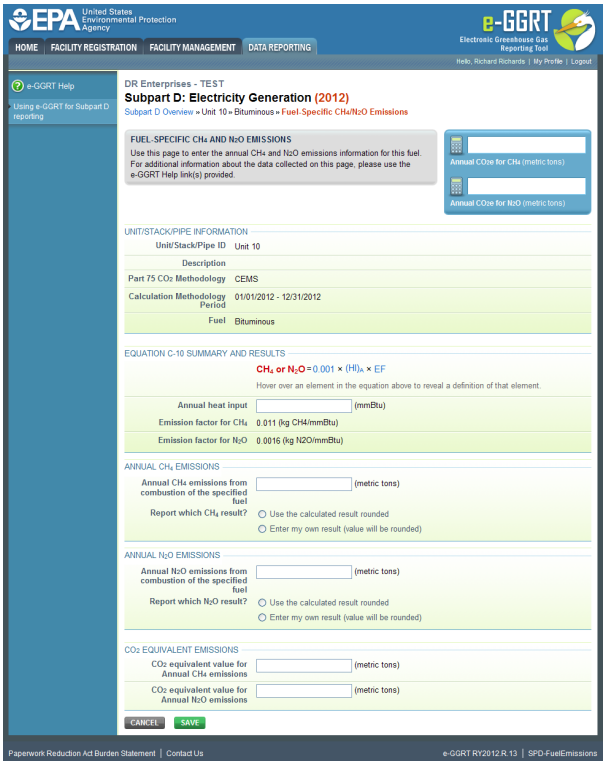
To enter emissions data by fuel type, find the fuel type for which you would like to enter fuel emissions data in the FUEL EMISSIONS INFORMATION table and click GO.

*Click image to expand*

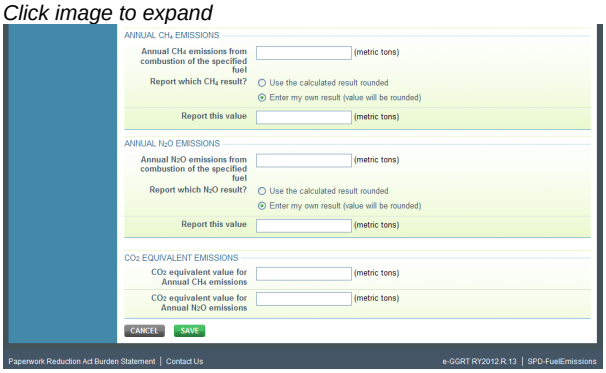



Subpart D requires the entry of the total heat input for each fuel type listed in Table C-2 combusted in each unit (except as otherwise provided in 98.33(c)(4)(ii)(B)) in units of mmBtu. Enter this value in the text box provided in the EQUATION C-10 SUMMARY AND RESULTS section. [98.36(d)(1)(iv)]

e-GGRT will calculate $CH_4$ and $N_2O$ emissions from the total heat input entered using Equation C-10 and display the results under ANNUAL CH4 EMISSIONS and ANNUAL N2O EMISSIONS, respectively. [98.36(d)(1)(iii)]

If you calculated $CH_4$ and $N_2O$ emissions for a blended fuel according to 98.33(c)(6)(ii), you can override the automatically calculated emissions values by selecting the "Enter my own result (value will be rounded)" radio buttons under ANNUAL CH4 EMISSIONS and ANNUAL N2O EMISSIONS. Enter the $CH_4$ and $N_2O$ values you calculated in the "Report this value" fields.

*Click image to expand*




When finished, click SAVE.

Once you have entered the required fuel emissions information for all units at your facility, you will have finished entering the required fuel emissions information for your facility.

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# Subpart D - Inputs Whose Reporting Deadline Was Deferred Until 2013

In August 2011, EPA deferred the reporting deadline for inputs to equations until either March 31, 2013 or March 31, 20151 to allow time to fully evaluate the potential impact from the release of this data. EPA has evaluated the 2013 inputs following the process that was outlined in the final inputs deferral rule. EPA does not plan to take further action regarding the 2013 inputs. Therefore, inputs to equations whose reporting was deferred until 2013 must be reported to EPA by April 1, 2013, for reporting years 2010, 2011, and 2012 as applicable. For Subpart C, the defrred data elements which will now be collected includes:

| Citation | Data Element |
|---|---|
| 98.36(d)(1)(iv) | For stationary combustion units that are subject to subpart D: The total heat input from each fuel listed in Table C-2 of subpart C combusted during the year (except as otherwise provided in 98.33(c)(4)(ii)(B)), expressed in mmBtu |
| 98.36(d)(2)(ii)(G) | For subpart D units that use the alternative methods specified in §98.33(a)(5)(i) and (ii) to monitor and report heat input data year-round according to appendix D to Part 75 or §75.19: Report annual heat input from each type of fuel listed in Table C-2 of subpart C combusted during the reporting year, expressed in mmBtu |
| 98.36(d)(2)(iii)(G) | For subpart D units with CEMS that use the alternative methods specified in §98.33(a)(5)(iii) to monitor and report heat input data year-round according Part 75: Report annual heat input from each type of fuel listed in Table C-2 of subpart C combusted during the reporting year, expressed in mmBtu. |
| 98.36(e)(2)(iv)(G) | The value of the molar volume constant (MVC) at standard conditions used in Eq. C-5 |
| 98.36(e)(2)(viii)(A) | The amount of sorbent used in acid gas control devices during the reporting year. |
| 98.36(e)(2)(viii)(B) | The molecular weight of the sorbent. |
| 98.36(e)(2)(viii)(C) | The ratio (“R”) in Equation C-11. This is the ratio of moles of $CO_2$ released per mole of the acid gas species removed (a default factor of 1 is used where the sorbent is $CaCaO_3$ and the acid gas is $SO_2$) |
| 98.36(e)(2)(x)(A) | When ASTM methods D7459-08 (incorporated by reference, see 98.7) and D6866-08 (incorporated by reference, see 98.7) are used in accordance with 98.34(e) to determine the biogenic portion of the annual CO2 emissions from a unit that co-fires biogenic fuels (or partly-biogenic fuels, including tires if you are electing to report biogenic CO2 emissions from tire combustion) and non-biogenic fuels: Report the results of quarterly sample analysis |
| 98.36(e)(2)(xi) | When ASTM methods D7459-08 (incorporated by reference, see 98.7) and D6866-08 (incorporated by reference, see 98.7) are used in accordance with 98.34(e) to determine the biogenic portion of the annual CO2 emissions from a unit that co-fires biogenic fuels (or partly-biogenic fuels, including tires if you are electing to report biogenic CO2 emissions from tire combustion) and non-biogenic fuels: Report the results of quarterly sample analysis |

### *Summary of changes in e-GGRT (deployed in February 2013) to accommodate the above data elements*

This section contains screenshots and descriptions for how the new data element will be collected in e-GGRT.

The newly collected data elements for RY2012 enable emissions calculations to be executed within e-GGRT for certain subpart equations. As a result, affected Optional Calculation Spreadsheets will become obsolete. The Optional Calculation Spreadsheets associated with the equations below will become obsolete for this subpart beginning RY2012:

- Equation C-10 (note that subpart D references Eq. C-10 from subpart C)

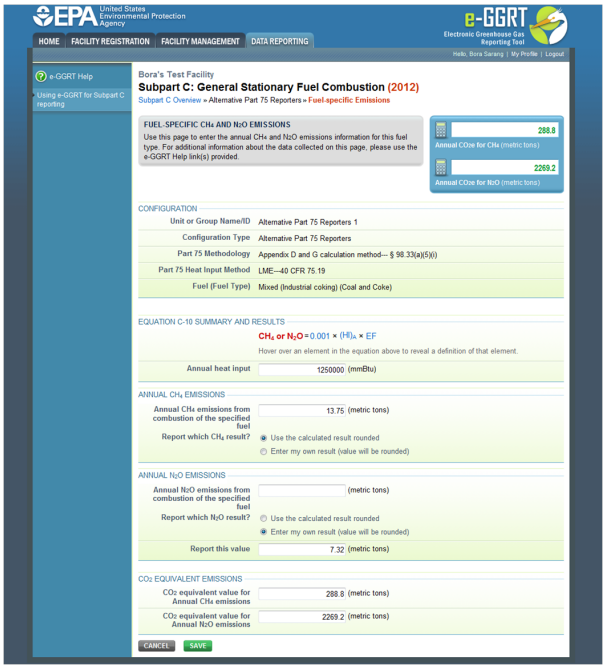
Copies of these spreadsheets can be downloaded at the Calculation Spreadsheet Archive.

**98.36(d)(1)(iv):**
For each fuel type listed in Table C-2 combusted in each unit or stack, e-GGRT will require the facility to enter the total heat input (except as otherwise provided in 98.33(c)(4)(ii)(B)) in units of mmBtu. This reporting element is only required for fuels listed in Table C-2.

**98.36(d)(2)(ii)(G) and 98.36(d)(2)(iii)(G):**
For each fuel type listed in Table C-2 combusted during the year in each configuration of type #6 (“Part 75 Alternate” Methodology), e-GGRT will require the facility to enter the annual heat input in units of mmBtu. This reporting element is only required for fuels listed in Table C-2.

In e-GGRT, a new data entry field has been added for Annual Heat Input; plus related fields for Equation C-10. The calculated result field is read-only. The CO2e values at the bottom of the page are read-only. To override the calculated result and report an alternate value, select the “Enter my own result” radio button and a new “Report this value” field will appear. Enter the alternate value you wish to report in the "Report this value" field. The blue calculator panel shows the rounded result calculated by the system (or as entered by the user in an ‘override’ case).

*Click image to expand*




**98.36(e)(2)(iv)(G):**
For each gaseous fuel at each configuration where the facility uses a “Tier 3” methodology, e-GGRT will require the facility to report the value of the molar volume constant (MVC) used in Equation C-5 in units of scf per kg mole. Selections will be limited to 836.6 or 849.5.

To make a selection, use the provided radio buttons.

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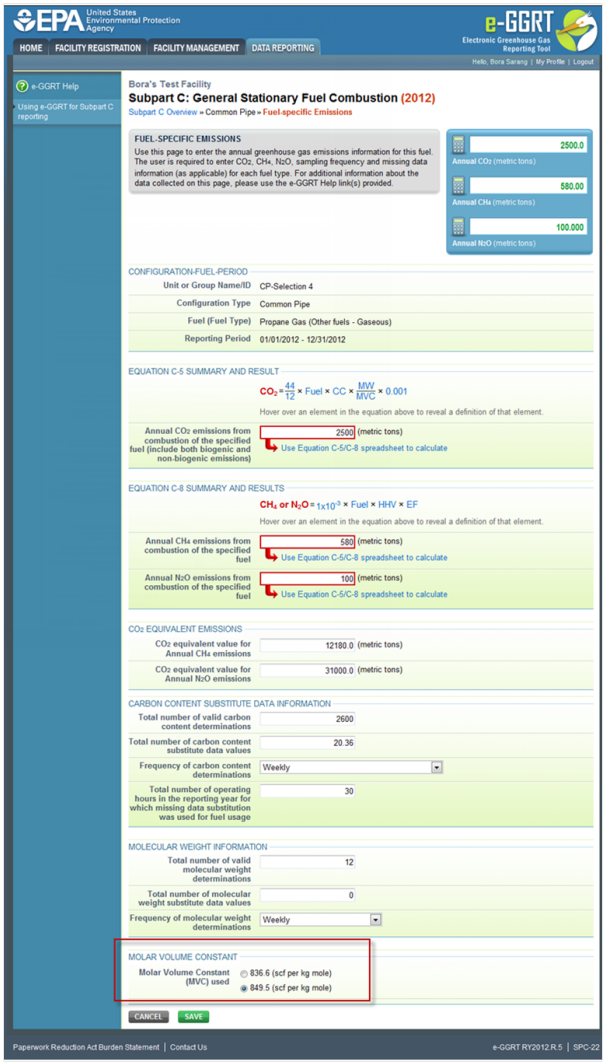


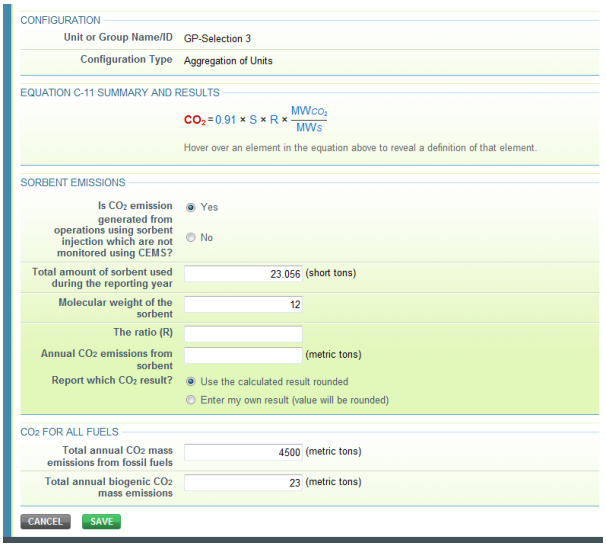

**98.36(e)(2)(viii)(A), 98.36(e)(2)(viii)(B), and 98.36(e)(2)(viii)(C):**
For configuration types #1 and #3, e-GGRT will require the facility to identify if CO2 emissions are generated from operations using sorbent injection which are not monitored using CEMS. This is a "Yes" or "No" answer. If "Yes", e-GGRT will require the facility to report:

- The total amount of sorbent used during the reporting year in short tons;
- The molecular weight of the sorbent;
- The ratio “R” in Equation C-11.

For configuration types #1 and #3 in which CO2 emissions are generated from sorbent injection, e-GGRT will calculate the annual CO2 emissions according to Equation C-11 and round the result according to e-GGRT rounding rules. e-GGRT will store the unrounded value and the rounded value (in metric tons) in the database.

The reporter will either click "Yes" or "No" on the radio button buttons to indicate if CO2 emissions were generated from operations using sorbent that are not monitored by CEMS. If "No", nothing further is needed. If "Yes", the reporter must enter three new Equation C11 inputs into the data entry fields. The “Annual CO2 emissions from sorbent” field is read-only. To override the calculated result and report an alternate value, select the “Enter my own result” radio button.

*Click image to expand*




**98.36(e)(2)(x)(A):**
For configuration types #1, #2, #3, and #5 (regardless of Tier or CO2 methodology selected), if municipal solid waste (MSW) is combusted and ASTM methods D7495-08 and D6866-08 are used to determine the biogenic portion of the annual CO2 emissions from MSW combustion as described in 98.34(d), e-GGRT will require the facility to provide:

- The sample analysis results for each quarter as a decimal fraction;
- The annual biogenic CO2 mass emissions from MSW combustion in metric tons/yr (This relates to MRR Reference 98.36(e)(2)(x)(B)).

To display properly, MSW must be selected as a fuel type. There is a check box at the bottom of the page to indicate whether the reporter used ASTM methods D7495-08 and D6866-08. If the box is checked, four additional data entry fields will appear along with a field for the annual biogenic CO2 mass emissions from MSW combustion. In those fields, enter the sample results for each quarter during the reporting year and the MSW combustion emissions data.

*Click image to expand*


**98.36(e)(2)(xi):**
For configuration types #1, #2, #3, #4, and #5 (regardless of Tier or CO2 methodology selected), if ASTM methods D7495-08 and D6866-08 are

used in accordance with 98.34(e) to determine the biogenic portion of the annual CO2 emissions from a unit that co-fires biogenic fuels (or partly-biogenic fuels, including tires if you are electing to report biogenic CO2 emissions from tire combustion) and non-biogenic fuels, e-GGRT will require the facility to provide the sample analysis results for each quarter as a decimal fraction.

There is a check box to indicate whether the reporter used ASTM methods D7495-08 and D6866-08. If the box is checked, four additional data entry fields will appear. In those fields, enter the sample results for each quarter during the reporting year.

*Click image to expand*