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Subpart C - General Stationary Fuel Combustion Sources

 A printer-friendly version (pdf) (58 pp, 13,359K) of GHG reporting instructions for this subpart

Please select a help topic from the list below:

- [Using e-GGRT to Prepare Your Subpart C Report](#)
 - [Subpart C Configurations](#)
 - [Subpart C Configuration-Level Emissions Information](#)
 - [Subpart C Fuel Identification Information](#)
 - [Subpart C Fuel-Level Emissions Information](#)
 - [Configuration types, emission details and their presentation in the summary report](#)
- [Using e-GGRT to Prepare Your Subpart C \(Abbreviated\) Report](#)
- [Using Subpart C Calculation Spreadsheets](#)
 - [Table C-1 to Subpart C](#)
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- [Carry forward of data from previous submissions into RY2012 forms](#)
- [Subpart C Rule Guidance](#)
- [Subpart C Rule Language \(eCFR\)](#)

Additional Resources:

- [Part 98 Terms and Definitions](#)
- [Frequently Asked Questions \(FAQs\)](#)
- [Webinar Slides](#)

Using e-GGRT to Prepare Your Subpart C Report

This page provides an overview of subtopics that are central to subpart C reporting:

- [Configuration Identification Information](#)
- [Configuration-Level Emissions Information](#)
- [Fuel Identification Information](#)
- [Fuel-Level Emissions Information](#)
- [Subpart Validation Report](#)

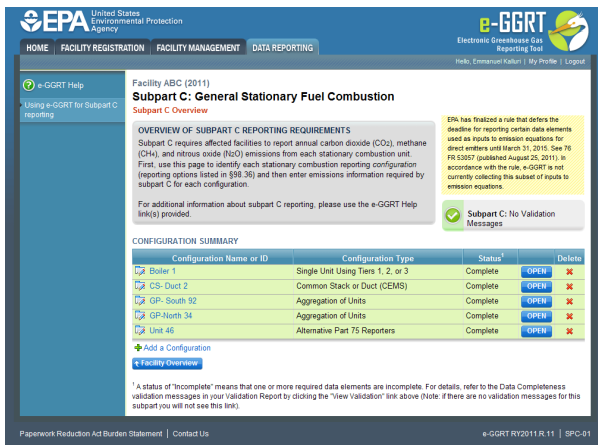
If you previously reported for Reporting Year (RY) 2011, the Agency has carried some of your RY2011 data forward and entered it in your RY2012 forms to reduce the reporting burden. It is still your responsibility to review and ensure that all of the information in your submission is correct, but the 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](#).

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

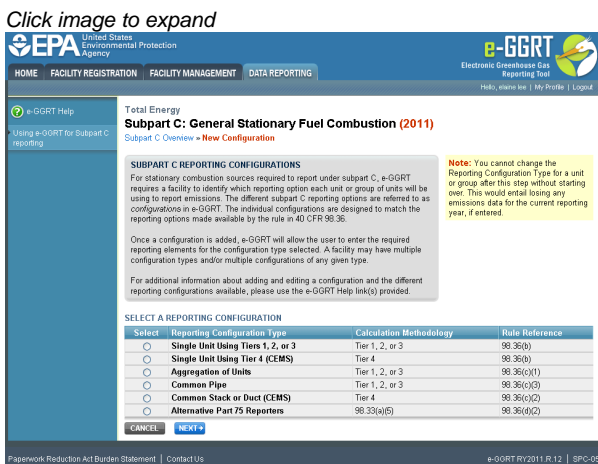
Configuration Identification Information

For stationary combustion sources required to report under subpart C, e-GGRT requires you to identify which reporting option each unit or group of units will use to report emissions. The different subpart C reporting options are referred to as "Configurations" in e-GGRT. The individual configurations are designed to match the reporting options made available by the rule in 40 CFR 98.36. As specified in part 98, each configuration has slightly different reporting requirements. Once a configuration is added, e-GGRT will allow you to enter the required reporting elements for the configuration type selected. A facility may have multiple configuration types and/or multiple configurations of any given type. A single unit may not be reported under multiple configurations.

Click image to expand



Starting on the Subpart C Overview page, click the link titled "ADD a Configuration" below the CONFIGURATION SUMMARY table.



The unit or group configuration types are first briefly identified below with the relevant regulatory citation, and then again in more detail:

- Configuration Type 1 - A single unit using Tiers 1, 2 or 3 to calculate emissions [98.36(b)]
- Configuration Type 2 - A single unit using Tier 4 (CEMS) to calculate emissions [98.36(b)]
- Configuration Type 3 - A group of units using the aggregation of units reporting alternative [98.36(c)(1)]
- Configuration Type 4 - A group of units using the common pipe configurations reporting alternative [98.36(c)(3)]
- Configuration Type 5 - A group of units using Tier 4 (CEMS) to calculate emissions and reporting under the monitored common stack or duct configurations reporting alternative [98.36(c)(2)]
- Configuration Type 6 – Part 75 units using the alternative CO₂ mass emissions calculation methods provided in 98.33(a)(5) [98.36(d)(2)]

Configuration Type 1 - Single Unit Using Tiers 1, 2, or 3 [98.36(b)]

The single unit reporting configuration is the most basic configuration type. Any unit may be reported individually in e-GGRT. If the unit uses Tiers 1, 2, or 3 to calculate CO₂ emissions, Configuration Type 1, 3, or 4 must be used. If the use of Tier 4 is required or elected, Configuration Type 2 or 5 must be used.

A unit under Configuration Type 1 may combust multiple fuels, and it is possible for each fuel to use a different tier. For example, a unit that has a maximum rated heat input capacity of 500 mmBtu/hr is required to use Tier 3 for coal, but may use Tier 1 or Tier 2 for natural gas.

Facilities with numerous units should investigate if Configuration Type 3 (aggregation of units) or Type 4 (common pipe) may be used.

Configuration Type 2 – Single Unit Using Tier 4 [98.36(b)]

Configuration Type 2 is the reporting option for single units that are either required, or elect to use Tier 4 (CEMS). CO₂ emissions are reported for all fuels combined, but CH₄ and N₂O emissions are reported for each fuel individually.

If a unit changes methodology from Tiers 1-3 to Tier 4 during the year, the unit will need to be added as two separate configurations in e-GGRT with different configuration names.

If a single CEMS is used to monitor multiple units (multiple combustion units, or one combustion unit and one or more process units), Configuration Type 5 must be used.

Configuration Type 3 – Aggregation of Units [98.36(c)(1)]

The *aggregation of units* option is a reporting configuration that allows multiple units to be reported as a single entity, provided that certain conditions are met. If this reporting option is selected, emissions from all of the units grouped in this configuration will be reported as combined emissions in e-GGRT.

If a facility contains two or more units, each of which has a maximum rated heat input capacity of 250 mmBtu/hr or less, you may report these units as a Configuration Type 3 in e-GGRT, provided that only Tiers 1-3 are used and the units use the same tier for any common fuels combusted. Fuels of different types may use different tiers, as permitted. There is no limit on the number of units that may be included in this configuration provided the previous criteria are met.

While the use of Tier 3 is permitted to be used in an *aggregation of units* configuration, it is generally not required for configurations of this type as Tier 3 is only required for certain fuels combusted in units larger than 250 mmBtu/hr. Units of that size may not be included in the *aggregation of units* configuration.

Configuration Type 4 – Common Pipe [98.36(c)(3)]

The *common pipe* reporting configuration is another alternative reporting option that allows for multiple units to be reported as a single group entry.

This configuration is different from the *aggregation of units* configuration in that there is no size constraint. The *common pipe* configuration may only be used if two or more stationary combustion units at a facility combust the same type of liquid or gaseous fuel and the fuel is fed to the individual units through a common supply line or pipe.

The *common pipe* configuration may only be used if the units only combust the liquid or gaseous fuel supplied by the common pipe. Units that combust fuel other than the fuel supplied by the common pipe must be accounted for under a separate configuration since a single unit may not be reported under multiple configurations. For example, a unit that burns coal and natural gas may not be included in a common pipe configuration for units that only combust natural gas. In such a situation, you may report the units that only combust natural gas as a *common pipe* configuration and report the unit that combusts coal and natural gas under a separate configuration. To calculate emissions for the common pipe, you may use company records to subtract the quantity of gas diverted to the gas/coal unit from the quantity of gas measured for the common pipe. The diverted gas would need to be accounted for in a separate configuration for the coal/gas-fired unit. If the gas was diverted offsite or to an exempt unit, then it would not have to be accounted for in the facility's annual GHG report.

The tier required for the *common pipe* configuration is based on the maximum rated heat input capacity of the largest unit served by the common pipe.

Configuration Type 5 – Common Stack [98.36(c)(2)]

If multiple units vent to a common stack or duct and Tier 4 is used to calculate the CO₂ emissions for those units, the *common stack* configuration must be used. If only a single combustion unit vents to the stack and no process units are vented to the stack, then Configuration Type 2 (single unit using Tier 4) must be used.

Configuration Type 6 – Alternative Part 75 Reporters [98.36(d)(2)]

This configuration represents the alternative calculation and reporting requirements available to certain units that report heat input year-round to EPA according to part 75. Units subject to subpart D (electricity generating units that are subject to the Acid Rain Program or EGUs that are otherwise required to monitor and report to EPA CO₂ emissions year-round according to Part 75) are not eligible to report under this option. Units subject to subpart D should report following the instructions for subpart D.

If this option is selected in place of using one of the 4 tiers, the applicable calculation methodology specified in 98.33(a)(5) must be used to calculate CO₂ emissions and the reporting requirements specified in 98.36(d)(2) replace the requirements specified in 98.36(b).

Configuration-Level Emissions Information

Once a configuration is added, the user will be prompted to input information that serves to identify the configuration. The identification elements are listed below for each configuration type:

Configuration Types 1, 3 and 4

Note: Configuration Type 1 pictured.

[Click image to expand](#)

The screenshot shows the EPA e-GGRT interface for reporting greenhouse gas emissions. The main heading is "Subpart C: General Stationary Fuel Combustion (2012)". Below this, there is a section titled "CONFIGURATION LEVEL EMISSIONS" with instructions to use the page for entering annual greenhouse gas emissions information. The form is divided into several sections:

- CONFIGURATION:** Includes fields for "Unit or Group Name/ID" (Unit 1) and "Configuration Type" (Single Unit Using Tiers 1, 2, or 3).
- SORBENT EMISSIONS:** A question asks "Are CO₂ emissions that are not monitored by a CEMS generated from sorbent injection?" with radio buttons for "Yes" and "No".
- CO₂ FOR ALL FUELS:** A field for "Total annual biogenic CO₂ mass emissions" with a value of 0 (metric tons).
- BIOGENIC CO₂ VERIFICATION DATA:** A checkbox for "ASTM methods D7495-08 and D6866-08 were used in accordance with 98.34(e) to determine the biogenic portion of the annual CO₂ emissions from a unit that combusts combinations of biomass fuel(s) [or heterogeneous fuels that have a biomass component, e.g., tires] and fossil (or other non-biogenic) fuel(s)".

At the bottom right of the form, there are two buttons: "CANCEL" and "SAVE".

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)**, subpart C requires the following additional configuration-level information:

- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(b)(8)(ii)]
- The total annual CO₂ mass emissions from sorbent [98.36(b)(10)]

For configurations of **Type 3 (aggregation of units)**, subpart C requires the following additional configuration-level information:

- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(c)(1)(vi)]
- The total annual CO₂ mass emissions from the combustion of fossil fuels. This includes both CO₂ emissions from all fossil fuels and the fossil portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(c)(1)(vi)]
- The total annual CO₂ mass emissions from sorbent [98.36(c)(1)(x)]

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)** and **Type 3 (aggregation of units)**, subpart C requires to identify whether CO₂ emissions are generated from operations using sorbent injection that are not monitored using CEMS by selecting the "Yes" or "No" radio buttons for "Is CO₂ emission generated from operations using sorbent injection which are not monitored using CEMS?" If "Yes" is selected, the following information must be reported in the fields provided:

- The total amount of sorbent used during the reporting year in short tons [98.36(e)(2)(viii)(A)]
- The molecular weight of the sorbent [98.36(e)(2)(viii)(B)]
- The ratio "R" in Equation C-11 [98.36(e)(2)(viii)(C)]

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)** and **Type 3 (aggregation of units)**, regardless of Tier or CO₂ methodology selected, additional information must be reported at the configuration level 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, as described in 98.34(d). In the Biogenic CO₂ Verification Data section, use the checkboxes to indicate that the biogenic portion of the annual CO₂ emissions was determined in accordance with 98.34(d), and, provide the sample analysis results for each quarter as a decimal fraction. [98.36(e)(2)(x)(A)]

Click image to expand

The screenshot shows the EPA e-GGRT interface for configuring Subpart C emissions. Key sections include:

- Configuration Level Emissions:** A summary box with a value of 9.2 for Annual CO₂ from Sorbent (metric tons) and 0.0 for Annual CO₂ from biomass fuels (metric tons).
- Configuration:** Unit or Group Name/ID: Unit 1; Configuration Type: Single Unit Using Tiers 1, 2, or 3.
- Sorbent Emissions:** A checkbox for "Are CO₂ emissions that are not monitored by a CEMS generated from sorbent injection?" with "No" selected.
- Equation C-11 Summary and Results:** A table with the following values:

Total amount of sorbent used during the reporting year	23 056 (short tons)
Molecular weight of the sorbent	100 (lb / kg-mole)
The ratio ("R") used in Equation C.11	1 (moles CO ₂ released / mole acid gas removed)
Annual CO ₂ mass emissions from sorbent	9.2 (metric tons)
- CO₂ for All Fuels:** Total annual biogenic CO₂ mass emissions: 0 (metric tons).
- Biogenic CO₂ Verification Data:** A checkbox for "ASTM methods D7495-08 and D6866-08 were used in accordance with 98.34(e) to determine the biogenic portion of the annual CO₂ emissions from a unit that combusts combinations of biomass fuel(s) (or heterogeneous fuels that have a biomass component, e.g., tires) and fossil (or other non-biogenic) fuel(s)" is currently unchecked.

For configurations of **Type 4 (common pipe)**, subpart C requires the following additional configuration-level information:

- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(c)(3)(vi)]
- The total annual CO₂ mass emissions from the combustion of fossil fuels. This includes both CO₂ emissions from all fossil fuels and the fossil portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(c)(3)(vi)]

Use the text boxes to enter the required information for your configuration type.

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)**, **Type 3 (aggregation of units)**, and **Type 4 (common pipe)**, regardless of Tier or CO₂ methodology selected, additional information must be reported at the configuration level if the unit co-fires biogenic fuels (or partly-biogenic fuels) and non-biogenic fuels, and ASTM methods D7495-08 and D6866-08 are used to determine the biogenic portion of the annual CO₂ emissions, as described in 98.34(e). In the Biogenic CO₂ Verification Data section, use the checkboxes to indicate that the biogenic portion of the annual CO₂ emissions was determined in accordance with 98.34(3), and, provide the sample analysis results for each quarter as a decimal fraction. [98.36(e)(2)(xi)]

Click image to expand

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HOME | FACILITY REGISTRATION | FACILITY MANAGEMENT | DATA REPORTING

DR Enterprises - TEST
Subpart C: General Stationary Fuel Combustion (2012)
 Subpart C Overview » Single Unit Using Tiers 1, 2, or 3 » Configuration Level Emissions

CONFIGURATION LEVEL EMISSIONS
 Use this page to enter the annual greenhouse gas emissions information for this stationary combustion configuration. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Annual CO₂ from Sorbent (metric tons) [0.0]
 Annual CO₂ from biomass fuels (metric tons) [0.0]

CONFIGURATION
 Unit or Group Name/ID: Unit 1
 Configuration Type: Single Unit Using Tiers 1, 2, or 3

SORBENT EMISSIONS
 Are CO₂ emissions that are not monitored by a CEMS generated from sorbent injection? Yes No

CO₂ FOR ALL FUELS
 Total annual biogenic CO₂ mass emissions: [0] (metric tons)

BIOGENIC CO₂ VERIFICATION DATA
 ASTM methods D7495-08 and D6866-08 were used to determine the biogenic portion of the annual CO₂ emissions from MSW combustion as described in 98.34(d)
 ASTM methods D7495-08 and D6866-08 were used in accordance with 98.34(e) to determine the biogenic portion of the annual CO₂ emissions from a unit that combusts combinations of biomass fuel(s) for heterogeneous fuels that have a biomass component, e.g., tires and fossil (or other non-biogenic) fuel(s)

Sample Analysis Results for first quarter: [] (decimal fraction)
 Sample Analysis Results for second quarter: [] (decimal fraction)
 Sample Analysis Results for third quarter: [] (decimal fraction)
 Sample Analysis Results for fourth quarter: [] (decimal fraction)

BIOGENIC CO₂ EMISSIONS DATA
 Annual Biogenic CO₂ mass emissions from MSW combustion: [] (metric tons/yr)

CANCEL | SAVE

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When finished, click SAVE.

Configuration Types 2 and 5

Click image to expand

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HOME | FACILITY REGISTRATION | FACILITY MANAGEMENT | DATA REPORTING | HELP DESK

Facility ABC
Subpart C: General Stationary Fuel Combustion (2011)
 Subpart C Overview » Common Stack or Duct (CEMS) » Configuration Level Emissions

CONFIGURATION LEVEL EMISSIONS
 Use this page to enter the annual emissions information for this stationary combustion configuration. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Annual CO₂ from CEMS (for applicable Part 75 methodology) (metric tons) []
 Annual Non-biogenic CO₂ (metric tons) []
 Annual Biogenic CO₂ (metric tons) []

CONFIGURATION
 Unit or Group Name/ID: CS-4512
 Configuration Type: Common Stack or Duct (CEMS)
 Calculation Methodology Period: 01/01/2011 - 12/31/2011

QUARTERLY CO₂ EMISSIONS
 Quarter 1: [] (metric tons)
 Quarter 2: [] (metric tons)
 Quarter 3: [] (metric tons)
 Quarter 4: [] (metric tons)

ANNUAL CO₂ EMISSIONS
 Total annual CO₂ mass emissions measured by the CEMS (include both biogenic and non-biogenic emissions): [] (metric tons)
 Check this box to indicate that the emissions reported for the CEMS include emissions calculated according to 98.33(a)(4)(viii) for a slipstream that bypassed the CEMS.
 Total annual non-biogenic CO₂ mass emissions (includes fossil fuel, sorbent, and process CO₂ emissions): [] (metric tons)
 Total annual biogenic CO₂ mass emissions: [] (metric tons)

ADDITIONAL EMISSIONS INFORMATION
 Total number of source operating hours in the reporting year: [] (hours)
 The total operating hours in which a substitute data value was used in the emissions calculations for CO₂ concentration: [] (hours)
 The total operating hours in which a substitute data value was used in the emissions calculations for stack gas flow rate: [] (hours)
 The total operating hours in which a substitute data value was used in the emissions calculations for stack gas moisture content (if moisture correction is required and a continuous moisture monitor is used): [] (hours)

BIOGENIC CO₂ EMISSIONS
 Biogenic CO₂ emissions were estimated using the methodology described by Equations C-12, C-13, and C-14. See section 98.33(e)(2) (check if true)

CANCEL | SAVE

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For configurations of **Type 2 (single unit using Tier 4)** and **Type 5 (monitored common stack or duct configurations)**, subpart C requires the following additional information aggregated at the configuration level:

- The quarterly CO₂ mass emissions for each quarter during the reporting year. The quarterly value is the sum of hourly emissions for the respective quarter only (for example, for the fourth quarter, the emissions will be summed for the fourth quarter only, not from all four quarters in the year). This includes both biogenic and non-biogenic emissions [98.36(e)(2)(vi)(B)]
- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(b)(9)(ii), 98.36(c)(2)(viii)]
- The total annual non-biogenic CO₂ mass emissions (i.e. CO₂ mass emissions from fossil fuels, sorbent use, and process emissions) [98.36(b)(9)(ii), 98.36(c)(2)(viii)]
- The total annual CO₂ mass emissions measured by the CEMS. This includes both biogenic and non-biogenic emissions [98.36(b)(9)(1)-(ii), 98.36(c)(2)(viii)]
- An indication (check box) if emissions reported for the CEMS include emissions calculated according to 98.33(a)(4)(viii) for a slipstream that bypassed the CEMS [98.33(a)(4)(viii)]
- The total number of source operating hours in the reporting year [98.36(e)(2)(vi)(A)]
- The total operating hours in which a substitute data value was used in the emissions calculations for the CO₂ concentration parameter (if an O₂ monitor is used to calculate CO₂ concentration, report missing data for the O₂ monitor here) [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas flow rate parameter [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas moisture content parameter (if moisture correction is required and a continuous moisture monitor is used) [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- An indication (check box) of whether biogenic CO₂ mass emissions were estimated using the methodology described by Equations C-12, C-13, and C-14 (See section 98.33(e)(2))

If biogenic CO₂ emissions were estimated using the methodology described by Equations C-12, C-13, and C-14, the following additional information is required by subpart C for configurations of Type 2:

- The total annual volume of CO₂ emitted from the combustion of all fuels [98.36(e)(2)(ix)(A)]
- The total annual volume of CO₂ emitted from the combustion of all fossil fuels [98.36(e)(2)(ix)(B)]
- The total annual volume of CO₂ emitted from the combustion of all biomass fuels [98.36(e)(2)(ix)(C)]
- The total annual biogenic CO₂ mass emissions calculated using the procedures in 98.33(e)(2) [98.36(e)(2)(ix)(G)]

Use the text boxes and check box to enter the required information for your configuration type.

For configurations of **Type 2 (single unit using Tier 4)** and **Type 5 (monitored common stack or duct configurations)**, regardless of Tier or CO₂ methodology selected, additional information must be reported at the configuration level 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, as described in 98.34(d), or, if the unit co-fires biogenic fuels (or partly-biogenic fuels) and non-biogenic fuels, and ASTM methods D7495-08 and D6866-08 are used to determine the biogenic portion of the annual CO₂ emissions, as described in 98.34(e). In the Biogenic CO₂ Verification Data section, use the checkboxes to indicate whether the biogenic portion of the annual CO₂ emissions was determined in accordance with 98.34(d) or 98.34(e), and, provide the sample analysis results for each quarter as a decimal fraction. [98.36(e)(2)(x)(A), 98.36(3)(2)(xi)]

Click image to expand

When finished, click SAVE.

Configuration Type 6 (year-round Part 75 heat input reporters)

Click image to expand

The screenshot shows the e-GGRT interface for reporting emissions. The main heading is 'Subpart C: General Stationary Fuel Combustion (2011)'. Below this, there are two input fields for 'Annual CO₂: from CEMS (or applicable Part 75 methodology) (metric tons)' and 'Annual CO₂: from biomass fuels (metric tons)'. The 'CONFIGURATION' section contains a table with the following data:

Unit or Group Name/ID	Unit 12
Configuration Type	Alternative Part 75 Reporters
Part 75 CO ₂ Methodology	CEMS calculation method—§ 98.33(w)(5)(ii)
Part 75 Heat Input Method	CEMS
Calculation Methodology Period	01/01/2011 - 12/31/2011

The 'ANNUAL CO₂ EMISSIONS' section has three input fields: 'Total annual CO₂ mass emissions at the monitored location (include both biogenic and non-biogenic emissions)', 'Total annual biogenic CO₂ mass emissions', and 'Total number of source operating hours in the reporting year that CO₂ concentration was missing'. The 'ADDITIONAL EMISSIONS INFORMATION' section has three input fields: 'Total number of source operating hours in the reporting year that stack gas flow rate was missing', 'Total number of source operating hours in the reporting year that the moisture content parameter was missing', and a note: 'Note: Required only, if applicable.'

For configurations of **Type 6 (year-round Part 75 heat input reporters)**, subpart C requires the following additional information aggregated at the configuration level:

- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(d)(2)(ii)(I), 98.36(d)(2)(iii)(I)]
 - Report zero for this value if the facility elects to use the option specified in 98.3(c)(12) for the 2010 reporting year (where the facility chooses not to separately report biogenic emissions from part 75 units)
- The total annual CO₂ emissions at the monitored location, as calculated by the applicable part 75 methodology. Include both biogenic and non-biogenic CO₂ in this value. [98.36(d)(2)(ii)(F), 98.36(d)(2)(iii)(F)]
- If CO₂ calculation methodology used was CEMS, the following additional elements are required:
 - The total number of source operating hours in the reporting year that the CO₂ concentration parameter was missing (if an O₂ monitor is used to calculate CO₂ concentration, report missing data for the O₂ monitor here) [98.3(c)(8)]
 - The total number of source operating hours in the reporting year that the stack gas flow rate parameter was missing [98.3(c)(8)]
 - The total number of source operating hours in the reporting year that the moisture content parameter was missing (if a continuous monitor is in use) [98.3(c)(8)]
- If CO₂ calculation methodology used was the Appendix D and G (part 75) calculation method, the following additional elements are required:
 - Total number of operating hours during the year that fuel flow rate data was missing [98.3(c)(8)]
 - Total number of operating hours during the year that high heating value data was missing [98.3(c)(8)]

[Additional information comparing configuration level data collected and that data's presentation in the summary report](#)

Fuel Identification Information

For configurations of all types, subpart C requires you to identify the following for each configuration:

- The fuel types combusted during the reporting year [98.36(b)(4), 98.36(c)(1)(v), 98.36(c)(2)(iv), 98.36(c)(3)(iv), 98.36(d)(2)(ii)(A), and 98.36(d)(2)(iii)(A)]

If a configuration type is selected that uses Tiers 1, 2, or 3, you will be required to specify which equation is used to calculate CO₂ emissions. By identifying which equation is used to calculate emissions, e-GGRT is able to determine which data reporting elements are required for each fuel type. The reporter should refer to 98.33(b) to determine which Tier is required for each fuel type at the configuration.

For Configurations of Type 1 (single unit using Tiers 1, 2, or 3), Type 3 (aggregation of units), **and** Type 4 (common pipe), subpart C requires you to identify the methods used to calculate emissions for each fuel type. Include the following information for each fuel type combusted in the unit:

- Calculation methodology start date and end date, for each fuel type [98.36(b)(6)(ix), 98.36(c)(3)(viii) - (ix)]
- Calculation methodology used for the emissions calculation period specified, for each fuel type [98.36(b)(5), 98.36(c)(1)(vii), 98.36(c)(3)(v)]:
 - 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

Fuel-Level Emissions Information

Once the fuel types and CO₂ calculation method are specified, e-GGRT will prompt the user for fuel specific emissions information. Although units using Tier 4 and alternative part 75 methods are not generally required to calculate fuel specific CO₂ mass emissions, such units are required to report fuel specific CH₄ and N₂O mass emissions. Fuel specific missing data information is also reported in this section.

The text below describes how to enter subpart C Stationary Fuel Combustion Sources fuel-level emissions information for each configuration type. The process to edit fuel information for an existing configuration type is essentially similar.

Click image to expand

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

Click image to expand

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

The data entry screen will vary depending on the calculation methodology (tier and equation).

Tier 1 (Equation C-1, C-1a, or C-1b)

Click image to expand

The screenshot shows the EPA e-GGRT interface for reporting greenhouse gas emissions. The main section is titled "Subpart C: General Stationary Fuel Combustion (2011)". It includes a "FUEL-SPECIFIC EMISSIONS" section with input fields for Annual CO₂, Annual CH₄, and Annual N₂O emissions in metric tons. Below this is the "CONFIGURATION-FUEL PERIOD" section with fields for Unit or Group Name/ID, Configuration Type, Fuel (Fuel Type), and Reporting Period. The "EQUATION C-1 SUMMARY AND RESULT" section displays the formula $CO_2 = 1 \times 10^3 \times \text{Fuel} \times \text{HFV} \times \text{EF}$ and a red-bordered text box for Annual CO₂ emissions from combustion of the specified fuel. The "EQUATION C-8 SUMMARY AND RESULTS" section displays the formula $CH_4 \text{ or } N_2O = 1 \times 10^3 \times \text{Fuel} \times \text{HFV} \times \text{EF}$ and red-bordered text boxes for Annual CH₄ and Annual N₂O emissions from combustion of the specified fuel. The "CO₂ EQUIVALENT EMISSIONS" section has input fields for CO₂ equivalent values for Annual CH₄ and Annual N₂O emissions. The interface includes a "CANCEL" and "SAVE" button at the bottom.

For each fuel type (including biomass fuel(s)) for which you have elected to use a **Tier 1 (Equation C-1, C-1a, or C-1b)** methodology, subpart C requires you 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 (this includes both non-biogenic and biogenic CO₂ as applicable) [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). Note that e-GGRT will automatically calculate the CO₂e data value [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). Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

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 Equation C-x/C-y spreadsheet to calculate" (where x indicates the specific Tier 1 equation used to calculate CO₂ emissions and y indicates the specific equation used to calculate CH₄ and N₂O emissions in the spreadsheet)
- 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 finished, click SAVE.

Tier 2 (Equations C-2a and C-2b)

Click image to expand

The screenshot shows the EPA e-GGRT interface for reporting greenhouse gas emissions. The main heading is 'Subpart C: General Stationary Fuel Combustion'. Under 'FUEL-SPECIFIC EMISSIONS', there are input fields for Annual CO₂ (5000), Annual CH₄ (1), and Annual N₂O (1) in metric tons. The 'CONFIGURATION-FUEL-PERIOD' section shows 'Boiler 1' as the unit, 'Single Unit Using Tiers 1, 2, or 3' as the configuration type, 'Natural Gas (Weighted U.S. Average) (Natural Gas)' as the fuel type, and '01/01/2010 - 12/31/2010' as the reporting period. The 'EQUATION C-2a SUMMARY AND RESULT' section displays the formula $CO_2 = 1 \times 10^3 \times \text{Fuel} \times \text{HHV} \times \text{EF}$ and a red-bordered box for 'Annual CO₂ emissions from combustion of the specified fuel' with the value 5000. The 'EQUATION C-9a SUMMARY AND RESULTS' section shows formulas for CH₄ and N₂O emissions and red-bordered boxes for their respective annual values (1 and 1). The 'CO₂ EQUIVALENT EMISSIONS' section shows red-bordered boxes for CO₂ equivalent values for CH₄ (21) and N₂O (310). The 'HHV SUBSTITUTE DATA INFORMATION' section includes checkboxes for months (January, February, March, April, May, June, July, August, September, October, November, December) and a dropdown for 'Frequency of HHV determinations' set to 'Weekly'.

For each fuel type (including biomass fuel(s)) for which you have elected to use the **Tier 2 (Equation C-2a)** methodology, subpart C requires you to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-2a in metric tons CO₂ (this includes both non-biogenic and biogenic CO₂ as applicable) [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). Note that e-GGRT will automatically calculate the CO₂e data value [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). Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- Identification of each month for which the HHV was 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)

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 Equation C-2a/C-9a 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

There are no associated reporting requirements for Equation C-2b, which is used to calculate the average HHV when multiple values are available.

Use the check boxes, plain text box, and drop-down menu to enter the remaining required emissions information.

When finished, click SAVE.

Tier 2 (Equation C-2c)

Click image to expand

The screenshot shows the EPA e-GGRT interface for reporting Tier 2 emissions. Key sections include:

- FUEL-SPECIFIC EMISSIONS:** Input fields for Annual CO₂ (5,000), Annual CH₄ (0), and Annual N₂O (0) in metric tons.
- CONFIGURATION-FUEL-PERIOD:** Unit or Group Name/ID: Unit 71; Configuration Type: Single Unit Using Tiers 1, 2, or 3; Fuel (Fuel Type): Other - liq (Other (liquid)); Reporting Period: 01/01/2010 - 12/31/2010.
- EQUATION C-4 SUMMARY AND RESULT:** Formula: $CO_2 = \frac{44}{12} \times Fuel \times CC \times 0.001$. Annual CO₂ emissions from combustion of the specified fuel: 5000 (metric tons).
- EQUATION C-8 SUMMARY AND RESULTS:** Formula: $CH_4 \text{ or } N_2O = 1 \times 10^{-3} \times Fuel \times HHV \times EF$. Annual CH₄ emissions: 0 (metric tons); Annual N₂O emissions: 0 (metric tons).
- CO₂ EQUIVALENT EMISSIONS:** CO₂ equivalent value for Annual CH₄ emissions: 0 (metric tons); CO₂ equivalent value for Annual N₂O emissions: 0 (metric tons).
- CARBON CONTENT SUBSTITUTE DATA INFORMATION:** Total number of valid carbon content determinations: 4; Total number of carbon content substitute data values: 0; Frequency of carbon content determinations: Quarterly; Total number of operating hours: 100.

For each fuel type (including biomass fuel(s)) for which you have elected to use the **Tier 2 (Equation C-2c)** methodology, subpart C requires you to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-2c in metric tons CO₂ (this includes both non-biogenic and biogenic CO₂ as applicable) [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). Note that e-GGRT will automatically calculate the CO₂e data value [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). Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

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 Equation C-2c/C-9b 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 finished, click SAVE.

Tier 3 (Equation C-3, C-4, or C-5)

Note: Equation C-5 pictured, Equations C-3 and C-4 will not include the MOLECULAR WEIGHT INFORMATION and MOLECULAR VOLUME CONSTANT sections

Click image to expand

The screenshot shows the EPA e-GGRT interface for reporting greenhouse gas emissions. The main content area is titled "Subpart C: General Stationary Fuel Combustion (2012)". It includes sections for "FUEL-SPECIFIC EMISSIONS", "CONFIGURATION-FUEL PERIOD", "EQUATION C-6 SUMMARY AND RESULT", "EQUATION C-8 SUMMARY AND RESULTS", "CO2 EQUIVALENT EMISSIONS", "CARBON CONTENT SUBSTITUTE DATA INFORMATION", "MOLECULAR WEIGHT INFORMATION", and "MOLAR VOLUME CONSTANT". Each section contains input fields and instructions for data entry. The interface is in English and includes a navigation menu on the left and a footer with EPA and e-GGRT logos.

For each fuel type (including biomass fuel(s)) for which you have elected to use a **Tier 3 (Equation C-3, C-4, or C-5)** methodology, subpart C requires you 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 (this includes both non-biogenic and biogenic CO₂ as applicable) [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). Note that e-GGRT will automatically calculate the CO₂e data value [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). Note that e-GGRT will automatically calculate the CO₂e data value [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 **Tier 3 (Equation C-5)** methodology, subpart C requires you 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)
- The molar volume constant (MVC) used in Equation C-5 by selecting the radio button for either 836.6 scf per kg mol or 849.5 scf per kg mol.

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

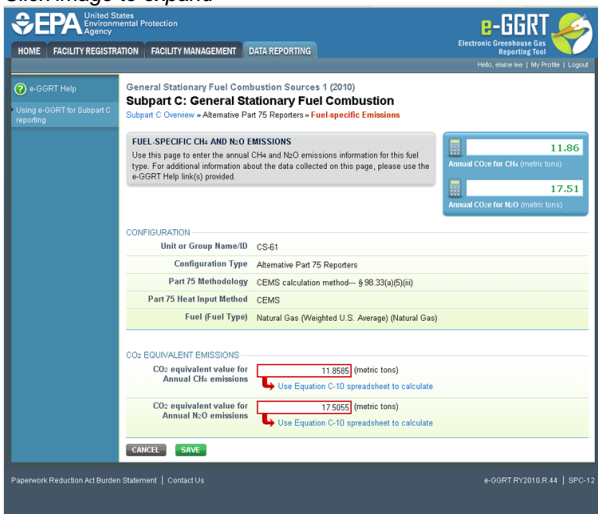
To calculate the emissions you have the option of using your own resources or alternatively you may use the following tool and set of instructions:

- Download the spreadsheet tool by clicking the link below one of the red-bordered text boxes labeled “Use Tier 3 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 finished, click SAVE.

Tier 4 (CEMS)

Click image to expand



When a **Tier 4 (CEMS)** configuration is selected, you are required to report the following information for each fuel type listed in Table C-2 (including biomass fuel(s)):

- The total annual CH₄ mass emissions derived from Equation C-10 in metric tons CH₄ and in metric tons CO₂e. Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(9)(iii), 98.36(c)(2)(ix)]
- The total annual N₂O mass emissions derived from Equation C-10 in metric tons N₂O and in metric tons CO₂e. Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(9)(iii), 98.36(c)(2)(ix)]

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 4 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 finished, click SAVE.

Year-Round Part 75 Heat Input Reporters

Click image to expand

DR Enterprises - TEST
Subpart C: General Stationary Fuel Combustion (2012)
 Subpart C Overview • Alternative Part 75 Reporters • Fuel specific Emissions

FUEL-SPECIFIC CH₄ AND N₂O EMISSIONS
 Use this page to enter the annual CH₄ and N₂O emissions information for this fuel type. For additional information about the data collected on this page, please use the e-GGRT Help links provided.

CONFIGURATION

Unit or Group Name/ID	Unit 3
Configuration Type	Alternative Part 75 Reporters
Part 75 Methodology	Appendix D and G calculation method— § 98.33(a)(5)(i)
Part 75 Heat Input Method	Appendix D
Fuel (Fuel Type)	Bituminous (Coal and Coke)

EQUATION C-10 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 0.001 \times (H)_{in} \times EF$$

Hover over an element in the equation above to reveal a definition of that element.

Annual heat input	450000 (mmmBtu)
Emission factor for CH ₄	0.011 (kg CH ₄ /mmmBtu)
Emission factor for N ₂ O	0.0016 (kg N ₂ O/mmmBtu)

ANNUAL CH₄ EMISSIONS

Annual CH ₄ emissions from combustion of the specified fuel	4.95 (metric tons)
--	--------------------

Report which CH₄ result?
 Use the calculated result rounded
 Enter my own result (value will be rounded)

ANNUAL N₂O EMISSIONS

Annual N ₂ O emissions from combustion of the specified fuel	0.720 (metric tons)
---	---------------------

Report which N₂O result?
 Use the calculated result rounded
 Enter my own result (value will be rounded)

CO₂ EQUIVALENT EMISSIONS

CO ₂ equivalent value for Annual CH ₄ emissions	104.0 (metric tons)
CO ₂ equivalent value for Annual N ₂ O emissions	223.2 (metric tons)

CANCEL SAVE

For configurations using the alternative CO₂ mass emissions calculation methods provided in **98.33(a)(5) (Year-round Part 75 heat input reporters)**, subpart C 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 mmmBtu. Enter this value in the text box provided under Equation C-10 Summary and Results. [98.36(d)(2)(ii)(G) and 98.36(d)(2)(iii)(G)]

e-GGRT will calculate CH₄ and N₂O 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)(2)(ii)(H) and 98.36(d)(2)(iii)(H)]

If you calculated CH₄ and N₂O 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 CH₄ and N₂O values you calculated in the "Report this value" fields.

Click image to expand

ANNUAL CH₄ EMISSIONS

Annual CH ₄ emissions from combustion of the specified fuel	4.95 (metric tons)
--	--------------------

Report which CH₄ result?
 Use the calculated result rounded
 Enter my own result (value will be rounded)

Report this value: (metric tons)

ANNUAL N₂O EMISSIONS

Annual N ₂ O emissions from combustion of the specified fuel	0.720 (metric tons)
---	---------------------

Report which N₂O result?
 Use the calculated result rounded
 Enter my own result (value will be rounded)

Report this value: (metric tons)

CO₂ EQUIVALENT EMISSIONS

CO ₂ equivalent value for Annual CH ₄ emissions	104.0 (metric tons)
CO ₂ equivalent value for Annual N ₂ O emissions	223.2 (metric tons)

CANCEL SAVE

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.

[Back to Top](#)

See Also

[Screen Errors](#)

[Subpart C Configurations](#)

[Subpart C Configuration-Level Emissions Information](#)

[Subpart C Fuel Identification Information](#)

[Subpart C Fuel-Level Emissions Information](#)

[Subpart Validation Report](#)

Subpart C Configurations

This topic provides a step-by-step description of how to add a subpart C Stationary Fuel Combustion Sources configuration for a facility.

For stationary combustion sources required to report under subpart C, e-GGRT requires you to identify which reporting option each unit or group of units will use to report emissions. The different subpart C reporting options are referred to as "Configurations" in e-GGRT. The individual configurations are designed to match the reporting options made available by the rule in 40 CFR 98.36. As specified in part 98, each configuration has slightly different reporting requirements. Once a configuration is added, e-GGRT will allow you to enter the required reporting elements for the configuration type selected. A facility may have multiple configuration types and/or multiple configurations of any given type. A single unit may not be reported under multiple configurations.

Click image to expand

Subpart C: General Stationary Fuel Combustion

OVERVIEW OF SUBPART C REPORTING REQUIREMENTS
Subpart C requires affected facilities to report annual carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) emissions from each stationary combustion unit. First, use this page to identify each stationary combustion reporting configuration (reporting options listed in §98.36) and then enter emissions information required by subpart C for each configuration.

CONFIGURATION SUMMARY

Configuration Name or ID	Configuration Type	Status ¹	Delete
Boiler 1	Single Unit Using Tiers 1, 2, or 3	Complete	OPEN X
CS-Duct 2	Common Stack or Duct (CEMS)	Complete	OPEN X
GP-South 32	Aggregation of Units	Complete	OPEN X
GP-North 34	Aggregation of Units	Complete	OPEN X
Unit 46	Alternative Part 75 Reporters	Complete	OPEN X

[Add a Configuration](#)

¹A status of "Incomplete" means that one or more required data elements are incomplete. For details, refer to the Data Completeness validation messages in your Validation Report by clicking the "View Validation" link above (note: if there are no validation messages for this subpart you will not see this link).

Starting on the Subpart C Overview page, click the link titled "ADD a Configuration" below the CONFIGURATION SUMMARY table.

Click image to expand

Subpart C: General Stationary Fuel Combustion (2011)

Subpart C REPORTING CONFIGURATIONS
For stationary combustion sources required to report under subpart C, e-GGRT requires a facility to identify which reporting option each unit or group of units will be using to report emissions. The different subpart C reporting options are referred to as configurations in e-GGRT. The individual configurations are designed to match the reporting options made available by the rule in 40 CFR 98.36.

Once a configuration is added, e-GGRT will allow the user to enter the required reporting elements for the configuration type selected. A facility may have multiple configuration types and/or multiple configurations of any given type.

SELECT A REPORTING CONFIGURATION

Select	Reporting Configuration Type	Calculation Methodology	Rule Reference
<input type="radio"/>	Single Unit Using Tiers 1, 2, or 3	Tier 1, 2, or 3	98.36(b)
<input type="radio"/>	Single Unit Using Tier 4 (CEMS)	Tier 4	98.36(b)
<input type="radio"/>	Aggregation of Units	Tier 1, 2, or 3	98.36(c)(1)
<input type="radio"/>	Common Pipe	Tier 1, 2, or 3	98.36(c)(3)
<input type="radio"/>	Common Stack or Duct (CEMS)	Tier 4	98.36(c)(2)
<input type="radio"/>	Alternative Part 75 Reporters	98.33(a)(5)	98.36(c)(2)

[CANCEL](#) [NEXT](#)

The unit or group configuration types are first briefly identified below with the relevant regulatory citation, and then again in more detail:

- Configuration Type 1 - A single unit using Tiers 1, 2 or 3 to calculate emissions [98.36(b)]
- Configuration Type 2 - A single unit using Tier 4 (CEMS) to calculate emissions [98.36(b)]
- Configuration Type 3 - A group of units using the aggregation of units reporting alternative [98.36(c)(1)]
- Configuration Type 4 - A group of units using the common pipe configurations reporting alternative [98.36(c)(3)]
- Configuration Type 5 - A group of units using Tier 4 (CEMS) to calculate emissions and reporting under the monitored common stack or duct configurations reporting alternative [98.36(c)(2)]
- Configuration Type 6 – Part 75 units using the alternative CO₂ mass emissions calculation methods provided in 98.33(a)(5) [98.36(d)(2)]

Configuration Type 1 - Single Unit Using Tiers 1, 2, or 3 [98.36(b)]

The single unit reporting configuration is the most basic configuration type. Any unit may be reported individually in e-GGRT. If the unit uses Tiers 1, 2, or 3 to calculate CO₂ emissions, Configuration Type 1, 3, or 4 must be used. If the use of Tier 4 is required or elected, Configuration Type 2 or 5 must be used.

A unit under Configuration Type 1 may combust multiple fuels, and it is possible for each fuel to use a different tier. For example, a unit that has a maximum rated heat input capacity of 500 mmBtu/hr is required to use Tier 3 for coal, but may use Tier 1 or Tier 2 for natural gas.

Facilities with numerous units should investigate if Configuration Type 3 (aggregation of units) or Type 4 (common pipe) may be used.

Configuration Type 2 – Single Unit Using Tier 4 [98.36(b)]

Configuration Type 2 is the reporting option for single units that are either required, or elect to use Tier 4 (CEMS). CO₂ emissions are reported for all fuels combined, but CH₄ and N₂O emissions are reported for each fuel individually.

If a unit changes methodology from Tiers 1-3 to Tier 4 during the year, the unit will need to be added as two separate configurations in e-GGRT with different configuration names.

If a single CEMS is used to monitor multiple units (multiple combustion units, or one combustion unit and one or more process units), Configuration Type 5 must be used.

Configuration Type 3 – Aggregation of Units [98.36(c)(1)]

The *aggregation of units* option is a reporting configuration that allows multiple units to be reported as a single entity, provided that certain conditions are met. If this reporting option is selected, emissions from all of the units grouped in this configuration will be reported as combined emissions in e-GGRT.

If a facility contains two or more units, each of which has a maximum rated heat input capacity of 250 mmBtu/hr or less, you may report these units as a Configuration Type 3 in e-GGRT, provided that only Tiers 1-3 are used and the units use the same tier for any common fuels combusted. Fuels of different types may use different tiers, as permitted. There is no limit on the number of units that may be included in this configuration provided the previous criteria are met.

While the use of Tier 3 is permitted to be used in an *aggregation of units* configuration, it is generally not required for configurations of this type as Tier 3 is only required for certain fuels combusted in units larger than 250 mmBtu/hr. Units of that size may not be included in the *aggregation of units* configuration.

Configuration Type 4 – Common Pipe [98.36(c)(3)]

The *common pipe* reporting configuration is another alternative reporting option that allows for multiple units to be reported as a single group entry.

This configuration is different from the *aggregation of units* configuration in that there is no size constraint. The *common pipe* configuration may only be used if two or more stationary combustion units at a facility combust the same type of liquid or gaseous fuel and the fuel is fed to the individual units through a common supply line or pipe.

The *common pipe* configuration may only be used if the units only combust the liquid or gaseous fuel supplied by the common pipe. Units that combust fuel other than the fuel supplied by the common pipe must be accounted for under a separate configuration since a single unit may not be reported under multiple configurations. For example, a unit that burns coal and natural gas may not be included in a common pipe configuration for units that only combust natural gas. In such a situation, you may report the units that only combust natural gas as a *common pipe* configuration and report the unit that combusts coal and natural gas under a separate configuration. To calculate emissions for the common pipe, you may use company records to subtract the quantity of gas diverted to the gas/coal unit from the quantity of gas measured for the common pipe. The diverted gas would need to be accounted for in a separate configuration for the coal/gas-fired unit. If the gas was diverted offsite or to an exempt unit, then it would not have to be accounted for in the facility's annual GHG report.

The tier required for the *common pipe* configuration is based on the maximum rated heat input capacity of the largest unit served by the common pipe.

Configuration Type 5 – Common Stack [98.36(c)(2)]

If multiple units vent to a common stack or duct and Tier 4 is used to calculate the CO₂ emissions for those units, the *common stack* configuration must be used. If only a single combustion unit vents to the stack and no process units are vented to the stack, then Configuration Type 2 (single unit using Tier 4) must be used.

Configuration Type 6 – Alternative Part 75 Reporters [98.36(d)(2)]

This configuration represents the alternative calculation and reporting requirements available to certain units that report heat input year-round to EPA according to part 75. Units subject to subpart D (electricity generating units that are subject to the Acid Rain Program or EGUs that are otherwise required to monitor and report to EPA CO₂ emissions year-round according to Part 75) are not eligible to report under this option. Units subject to subpart D should report following the instructions for subpart D.

If this option is selected in place of using one of the 4 tiers, the applicable calculation methodology specified in 98.33(a)(5) must be used to calculate CO₂ emissions and the reporting requirements specified in 98.36(d)(2) replace the requirements specified in 98.36(b).

Use the radio buttons to select a configuration type.

When finished, click NEXT.

The next screen will vary slightly depending on the configuration type selected.

Click image to expand

The screenshot shows the e-GGRT web application interface. The main content area is titled "General Stationary Fuel Combustion Sources 1 (2010)" and "Subpart C: General Stationary Fuel Combustion". Below this, there is a "CONFIGURATION INFORMATION" section with a detailed instruction block. The form fields are: Configuration Type (radio button selected for "Single Unit Using Tiers 1, 2, or 3"), Unit Name/ID (text field with "Unit 11"), Description (optional) (text field with "CC Turbine"), Unit Type (dropdown menu with "CC (Turbine, combined cycle)"), Maximum Rated Heat Input Capacity (text field with "300"), and Unit of Measure (dropdown menu with "mmBtu/hr"). There are "CANCEL" and "NEXT" buttons at the bottom of the form.

Once a configuration is added, you will be prompted to input information that will serve to identify the configuration. The identification elements are listed below for each configuration type:

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)**, subpart C requires the following configuration-level information:

- A unique unit name or identifier (e.g., a unit ID number) [98.36(b)(1)]
- An optional description or label [optional]
- A code representing the type of unit [98.36(b)(2)]
 - If the unit type is not provided in the given pick list, the user should select the type "OCS (Other combustion source)" and specify an appropriate unit type in the free text field
- The value of the maximum rated heat input capacity of the unit in mmBtu/hr (boilers and process heaters must use mmBtu/hr, if mmBtu/hr is not applicable for other unit types, use another relevant unit of measure) [98.36(b)(3)]

For configurations of **Type 2 (single unit using Tier 4)**, subpart C requires the following identification information for each configuration:

- A unique unit name or identifier (e.g., a unit ID number) [98.36(b)(1)]
- An optional description or label [optional]
- A code representing the type of unit [98.36(b)(2)]
- The value of the maximum rated heat input capacity of the unit in mmBtu/hr (boilers and process heaters must use mmBtu/hr, if mmBtu/hr is not applicable for other unit types, use another relevant unit of measure) [98.36(b)(3)]
- The methodology start date and end date, for the unit [98.36(b)(6)-(7)]

For configurations of **Type 3 (aggregation of units)**, subpart C requires the following configuration-level information:

- A unique name or identifier that begins with the prefix "GP" [98.36(c)(1)(i)]
- An optional description or label [optional]
- The highest maximum rated heat input capacity of any unit in the group in mmBtu/hr [98.36(c)(1)(iv)]

For configurations of **Type 4 (common pipe configurations)**, subpart C requires the following identification information for each configuration:

- A unique name or identifier that begins with the prefix "CP" [98.36(c)(3)(i)]
- An optional description or label [optional]
- The highest maximum rated heat input capacity of any unit served by the common pipe in mmBtu/hr [98.36(c)(3)(iii)]

For configurations of **Type 5 (monitored common stack or duct configurations)**, subpart C requires the following identification information for each configuration:

- A unique name or identifier that begins with the prefix "CS" [98.36(c)(2)(i)]
- An optional description or label [optional]
- The number of units sharing the common stack [98.36(c)(2)(ii)]
- The combined maximum rated heat input capacity of the units sharing the common stack in mmBtu/hr [98.36(c)(2)(iii)]
- The methodology start date and end date, for the configuration [98.36(c)(2)(vi)-(vii)]

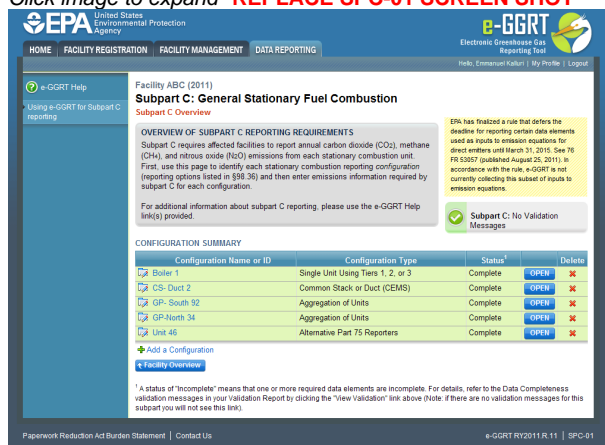
For configurations of **Type 6 (year-round Part 75 heat input reporters)**, subpart C requires the following identification information for each configuration:

- Unit, stack, or pipe ID numbers: use exact same unit, common stack, common pipe, or multiple stack identification numbers that represent the monitored locations (e.g., 1, 2, CS001, MS1A, CP001, etc.) that are reported under 40 CFR 75.64 [98.36(d)(2)(i)]
- An optional description or label [optional]
- The Part 75 methodology used to calculate the CO₂ mass emissions (Appendix D and G calculation method, Low Mass Emissions calculation method in 40 CFR 75.19, or CEMS calculation method) [98.36(d)(2)(ii)(B), 98.36(d)(2)(iii)(B)]
- An indication of the Part 75 heat input method used (Appendix D method, Low Mass Emissions calculation method in 40 CFR 75.19, or CEMS calculation method) [98.36(d)(2)(ii)(E), 98.36(d)(2)(iii)(E)]
- The methodology start date and end date [98.36(d)(2)(ii)(C)-(D)]

Use the text boxes and drop-down menus to enter the required information for the configuration type selected.

When finished, click SAVE.

Click image to expand ***REPLACE SPC-01 SCREEN SHOT***



To edit an existing configuration, click on the edit icon or the Configuration Name or ID link in the first column of the CONFIGURATION SUMMARY table.

To delete an existing configuration, click on the delete icon in the last column of the CONFIGURATION SUMMARY table.

[Back to Top](#)

See Also

- [Screen Errors](#)
- [Using e-GGRT to Prepare Your Subpart C Report](#)
- [Subpart C Configuration-Level Emissions Information](#)
- [Subpart C Fuel Identification Information](#)
- [Subpart C Fuel-Level Emissions Information](#)
- [Subpart Validation Report](#)

Subpart C Configuration-Level Emissions Information

This section of the reporting instructions specifies the requirements for reporting emissions information that is aggregated at the configuration level. Configuration-level emissions will include the emissions from all fuels combusted in a given configuration. Users are required to report both configuration-level and fuel-specific information for all configuration types. As with the identification information, each configuration has unique reporting requirements for emissions information.

The text below describes how to enter subpart C General Stationary Fuel Combustion Sources configuration-level emissions information. The process to edit an existing configuration type is essentially similar.

Click image to expand

The screenshot shows the EPA e-GGRT interface for Subpart C: General Stationary Fuel Combustion (2011). The page includes a navigation menu with 'HOME', 'FACILITY REGISTRATION', 'FACILITY MANAGEMENT', and 'DATA REPORTING'. The main content area features an 'OVERVIEW OF SUBPART C REPORTING REQUIREMENTS' section, a 'CONFIGURATION SUMMARY' table, and a 'Subpart C: View Validation' button. The configuration summary table is as follows:

Configuration Name or ID	Configuration Type	Status ¹	Delete
Single Unit Test	Single Unit Using Tiers 1, 2, or 3	Incomplete	OPEN <input type="button" value="X"/>

Footnote: ¹ A status of "incomplete" means that one or more required data elements are incomplete. For details, refer to the Data Completeness validation messages in your Validation Report by clicking the "View Validation" link above (note: if there are no validation messages for this subpart you will not see this link).

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

Click image to expand

This expanded screenshot shows the 'CONFIGURATION SUMMARY' section in detail. It includes a 'CONFIGURATION INFORMATION' table and a 'CONFIGURATION-LEVEL EMISSIONS INFORMATION' table. The configuration information table is as follows:

Configuration Type	Single Unit Using Tiers 1, 2, or 3
Unit Name/ID	Single Unit Test
Description	testing
Unit Type	PCWD (Pulverized coal, wall-fired, dry bottom)
Maximum Rated Heat Input Capacity	3000 (mmBtu/hr)

The 'CONFIGURATION-LEVEL EMISSIONS INFORMATION' table is as follows:

Total Biogenic CO ₂ Emissions (metric tons)	Total CO ₂ Emissions from Sorbent Usage (metric tons)	Status ¹	Delete
		Incomplete	OPEN <input type="button" value="X"/>

Below this is the 'FUEL SPECIFIC EMISSIONS INFORMATION' table, which currently shows 'No fuels present'.

To edit a specific configuration, click the "Edit this Configuration Information" link above the CONFIGURATION-LEVEL EMISSIONS INFORMATION table.

Click image to expand

This expanded screenshot shows the 'Edit Configuration Information' page for a configuration. It includes a 'CONFIGURATION INFORMATION' section and a form for entering configuration details. The form fields are as follows:

- Configuration Type: Single Unit Using Tiers 1, 2, or 3
- Unit Name/ID: Unit 11 (40 characters maximum)
- Description (optional): CC Turbine
- Unit Type: CC (Turbine, combined cycle)
- Maximum Rated Heat Input Capacity: 300
- Unit of Measure: mmBtu/hr

Buttons for 'CANCEL' and 'SAVE' are visible at the bottom of the form.

Use the text boxes and drop-down menus to update the entered information.

When finished, click SAVE.

Click image to expand

To enter emissions information for this configuration, find the CONFIGURATION EMISSIONS INFORMATION table and click EMISSIONS.

The data entry screen will vary depending on the configuration type.

Configuration Types 1, 3 and 4

Note: Configuration Type 1 pictured.

Click image to expand

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)**, subpart C requires the following additional configuration-level information:

- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(b)(8)(ii)]
- The total annual CO₂ mass emissions from sorbent [98.36(b)(10)]

For configurations of **Type 3 (aggregation of units)**, subpart C requires the following additional configuration-level information:

- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(c)(1)(vi)]
- The total annual CO₂ mass emissions from the combustion of fossil fuels. This includes both CO₂ emissions from all fossil fuels and the fossil portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(c)(1)(vi)]
- The total annual CO₂ mass emissions from sorbent [98.36(c)(1)(x)]

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)** and **Type 3 (aggregation of units)**, subpart C requires to identify whether CO₂ emissions are generated from operations using sorbent injection that are not monitored using CEMS by selecting the "Yes" or "No" radio buttons for "Is CO₂ emission generated from operations using sorbent injection which are not monitored using CEMS?" If "Yes" is selected, the following information must be reported in the fields provided:

- The total amount of sorbent used during the reporting year in short tons [98.36(e)(2)(viii)(A)]
- The molecular weight of the sorbent [98.36(e)(2)(viii)(B)]
- The ratio "R" in Equation C-11 [98.36(e)(2)(viii)(C)]

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)** and **Type 3 (aggregation of units)**, regardless of Tier or CO₂ methodology selected, additional information must be reported at the configuration level 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, as described in 98.34(d). In the Biogenic CO₂ Verification Data section, use the checkboxes to indicate that the biogenic portion of the annual CO₂ emissions was determined in accordance with 98.34(d), and, provide the sample analysis results for each quarter as a decimal fraction. [98.36(e)(2)(x)(A)]

Click image to expand

For configurations of **Type 4 (common pipe)**, subpart C requires the following additional configuration-level information:

- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(c)(3)(vi)]
- The total annual CO₂ mass emissions from the combustion of fossil fuels. This includes both CO₂ emissions from all fossil fuels and the fossil portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(c)(3)(vi)]

Use the text boxes to enter the required information for your configuration type.

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)**, **Type 3 (aggregation of units)**, and **Type 4 (common pipe)**, regardless of Tier or CO₂ methodology selected, additional information must be reported at the configuration level if the unit co-fires biogenic fuels (or partly-biogenic fuels) and non-biogenic fuels, and ASTM methods D7495-08 and D6866-08 are used to determine the biogenic portion of the annual CO₂ emissions, as described in 98.34(e). In the Biogenic CO₂ Verification Data section, use the checkboxes to indicate that the biogenic portion of the annual CO₂ emissions was determined in accordance with 98.34(3), and, provide the sample analysis results for each quarter as a decimal fraction. [98.36(e)(2)(xi)]

Click image to expand

EPA United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

DR Enterprises - TEST

Subpart C: General Stationary Fuel Combustion (2012)

Subpart C Overview - Single Unit Using Tiers 1, 2, or 3 - Configuration level Emissions

CONFIGURATION LEVEL EMISSIONS

Use this page to enter the annual greenhouse gas emissions information for this stationary combustion configuration. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Annual CO₂ from Sorbent (metric tons) 0.0

Annual CO₂ from biomass fuels (metric tons)

CONFIGURATION

Unit or Group Name/ID	Unit 1
Configuration Type	Single Unit Using Tiers 1, 2, or 3

SORBENT EMISSIONS

Are CO₂ emissions that are not monitored by a CEMS generated from sorbent injection? Yes No

CO₂ FOR ALL FUELS

Total annual biogenic CO₂ mass emissions (metric tons)

BIOGENIC CO₂ VERIFICATION DATA

ASTM methods D7495-08 and D866-08 were used to determine the biogenic portion of the annual CO₂ emissions from MSW combustion as described in 98.34(e)

ASTM methods D7495-08 and D866-08 were used in accordance with 98.34(e) to determine the biogenic portion of the annual CO₂ emissions from a unit that combusts combinations of biomass fuel(s) or heterogeneous fuels that have a biomass component, e.g., tires and fossil (or other non-biogenic) fuel (s)

Sample Analysis Results for first quarter (decimal fraction)

Sample Analysis Results for second quarter (decimal fraction)

Sample Analysis Results for third quarter (decimal fraction)

Sample Analysis Results for fourth quarter (decimal fraction)

BIOGENIC CO₂ EMISSIONS DATA

Annual Biogenic CO₂ mass emissions from MSW combustion (metric tons/yr)

Paperwork Reduction Act Burden Statement | Contact Us e-GGRT RY2012 R. 13 | SPC-21

When finished, click SAVE.

Configuration Types 2 and 5

Click image to expand

For configurations of **Type 2 (single unit using Tier 4)** and **Type 5 (monitored common stack or duct configurations)**, subpart C requires the following additional information aggregated at the configuration level:

- The quarterly CO₂ mass emissions for each quarter during the reporting year. The quarterly value is the sum of hourly emissions for the respective quarter only (for example, for the fourth quarter, the emissions will be summed for the fourth quarter only, not from all four quarters in the year). This includes both biogenic and non-biogenic emissions [98.36(e)(2)(vi)(B)]
- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(b)(9)(ii), 98.36(c)(2)(viii)]
- The total annual non-biogenic CO₂ mass emissions (i.e. CO₂ mass emissions from fossil fuels, sorbent use, and process emissions) [98.36(b)(9)(ii), 98.36(c)(2)(viii)]
- The total annual CO₂ mass emissions measured by the CEMS. This includes both biogenic and non-biogenic emissions [98.36(b)(9)(1)-(ii), 98.36(c)(2)(viii)]
- An indication (check box) if emissions reported for the CEMS include emissions calculated according to 98.33(a)(4)(viii) for a slipstream that bypassed the CEMS [98.33(a)(4)(viii)]
- The total number of source operating hours in the reporting year [98.36(e)(2)(vi)(A)]
- The total operating hours in which a substitute data value was used in the emissions calculations for the CO₂ concentration parameter (if an O₂ monitor is used to calculate CO₂ concentration, report missing data for the O₂ monitor here) [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas flow rate parameter [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas moisture content parameter (if moisture correction is required and a continuous moisture monitor is used) [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- An indication (check box) of whether biogenic CO₂ mass emissions were estimated using the methodology described by Equations C-12, C-13, and C-14 (See section 98.33(e)(2))

If biogenic CO₂ emissions were estimated using the methodology described by Equations [C-12, C-13, and C-14], the following additional information is required by subpart C for configurations of Type 2:

- The total annual volume of CO₂ emitted from the combustion of all fuels [98.36(e)(2)(ix)(A)]
- The total annual volume of CO₂ emitted from the combustion of all fossil fuels [98.36(e)(2)(ix)(B)]
- The total annual volume of CO₂ emitted from the combustion of all biomass fuels [98.36(e)(2)(ix)(C)]
- The total annual biogenic CO₂ mass emissions calculated using the procedures in 98.33(e)(2) [98.36(e)(2)(ix)(G)]

Use the text boxes and check box to enter the required information for your configuration type.

For configurations of **Type 2 (single unit using Tier 4)** and **Type 5 (monitored common stack or duct configurations)**, regardless of Tier or CO₂ methodology selected, additional information must be reported at the configuration level 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, as described in 98.34(d), or, if the unit co-fires biogenic fuels (or partly-biogenic fuels) and non-biogenic fuels, and ASTM methods D7495-08 and D6866-08 are used to determine the biogenic portion of the annual CO₂ emissions, as described in 98.34(e). In the Biogenic CO₂ Verification Data section, use the checkboxes to indicate whether the biogenic portion of the annual CO₂ emissions was determined in accordance with 98.34(d) or 98.34(e), and, provide the sample analysis results for each quarter as a decimal fraction. [98.36(e)(2)(x)(A), 98.36(3)(2)(xi)]

Click image to expand

BIogenic CO₂ VERIFICATION DATA

ASTM methods D7495-08 and D6866-08 were used to determine the biogenic portion of the annual CO₂ emissions from MSW combustion as described in 98.34(d)

ASTM methods D7495-08 and D6866-08 were used in accordance with 98.34(e) to determine the biogenic portion of the annual CO₂ emissions from a unit that combusts combinations of biomass fuel(s) (or heterogeneous fuels that have a biomass component, e.g., tires) and fossil (or other non-biogenic) fuel (s)

Sample Analysis Results for first quarter (decimal fraction)

Sample Analysis Results for second quarter (decimal fraction)

Sample Analysis Results for third quarter (decimal fraction)

Sample Analysis Results for fourth quarter (decimal fraction)

Paperwork Reduction Act Burden Statement | Contact Us e-GGRT RY2012 R.13 | SPO-21

When finished, click SAVE.

Configuration Type 6 (year-round Part 75 heat input reporters)

Click image to expand

ABC Petroleum

Subpart C: General Stationary Fuel Combustion (2011)

Subpart C Overview » Alternative Part 75 Reporters » Configuration-level Emissions

CONFIGURATION LEVEL EMISSIONS

Use this page to enter the annual emissions information for this stationary combustion configuration. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

CONFIGURATION

Unit or Group Name/ID Unit 12

Configuration Type Alternative Part 75 Reporters

Part 75 CO₂ Methodology CEMS calculation method—§ 98.33(a)(5)(ii)

Part 75 Heat Input Method CEMS

Calculation Methodology Period 01/01/2011 - 12/31/2011

ANNUAL CO₂ EMISSIONS

Total annual CO₂ mass emissions at the monitored location (include both biogenic and non-biogenic emissions) (metric tons)

Total annual biogenic CO₂ mass emissions (metric tons)

ADDITIONAL EMISSIONS INFORMATION

Total number of source operating hours in the reporting year that CO₂ concentration was missing (hours)

Total number of source operating hours in the reporting year that stack gas flow rate was missing (hours)

Total number of source operating hours in the reporting year that moisture content was missing (hours) Note: Required only, if applicable.

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For configurations of **Type 6 (year-round Part 75 heat input reporters)**, subpart C requires the following additional information aggregated at the configuration level:

- The total annual biogenic CO₂ mass emissions. This includes both CO₂ emissions from the combustion of biomass fuels and the biogenic portion of CO₂ emissions from fuels with a mixed biogenic and fossil component [98.36(d)(2)(ii)(I), 98.36(d)(2)(iii)(I)]
 - Report zero for this value if the facility elects to use the option specified in 98.3(c)(12) for the 2010 reporting year (where the facility chooses not to separately report biogenic emissions from part 75 units)
- The total annual CO₂ emissions at the monitored location, as calculated by the applicable part 75 methodology. Include both biogenic and non-biogenic CO₂ in this value. [98.36(d)(2)(ii)(F), 98.36(d)(2)(iii)(F)]
- If CO₂ calculation methodology used was CEMS, the following additional elements are required:
 - The total number of source operating hours in the reporting year that the CO₂ concentration parameter was missing (if an O₂ monitor is used to calculate CO₂ concentration, report missing data for the O₂ monitor here) [98.3(c)(8)]
 - The total number of source operating hours in the reporting year that the stack gas flow rate parameter was missing [98.3(c)(8)]
 - The total number of source operating hours in the reporting year that the moisture content parameter was missing (if a continuous monitor is in use) [98.3(c)(8)]

- If CO₂ calculation methodology used was the Appendix D and G (part 75) calculation method, the following additional elements are required:
 - Total number of operating hours during the year that fuel flow rate data was missing [98.3(c)(8)]
 - Total number of operating hours during the year that high heating value data was missing [98.3(c)(8)]

Use the text boxes to enter the required information for your configuration type.

When finished, click SAVE.

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See Also

[Screen Errors](#)

[Using e-GGRT to Prepare Your Subpart C Report](#)

[Subpart C Configurations](#)

[Subpart C Fuel Identification Information](#)

[Subpart C Fuel-Level Emissions Information](#)

[Subpart Validation Report](#)

Subpart C Fuel Identification Information

The text below describes how to enter subpart C Stationary Fuel Combustion Sources fuel identification information for each configuration type. The process to edit fuel information for an existing configuration type is essentially similar.

Click image to expand

The screenshot shows the EPA e-GGRT interface for 'Subpart C: General Stationary Fuel Combustion (2011)'. The main content area includes an 'OVERVIEW OF SUBPART C REPORTING REQUIREMENTS' section, a 'CONFIGURATION SUMMARY' table, and a 'Subpart C: View Validation' button. The configuration summary table lists one configuration: 'Single Unit Test' with a status of 'Incomplete' and an 'OPEN' button.

Configuration Name or ID	Configuration Type	Status ¹	Delete
Single Unit Test	Single Unit Using Tiers 1, 2, or 3	Incomplete	OPEN

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

Click image to expand

Subpart C: General Stationary Fuel Combustion (2011)
 Subpart C Overview • Single Unit Using Tiers 1, 2, or 3 • [Configuration Summary](#)

CONFIGURATION SUMMARY
 For each stationary combustion configuration that uses Tiers 1, 2, or 3, subpart C requires both the reporting of fuel-specific emissions information and the reporting of emissions information aggregated at the configuration-level.

While both Fuel-Specific and Configuration-Level emissions are required in all cases, there is no order requirement on which must be entered first. If using the optional calculation spreadsheets, it is recommended that the user enter Fuel-Specific Emissions Information first. Links to the spreadsheets are provided on each Fuel-Specific Emissions page.

To be able to enter the Fuel-Specific Emissions pages, the user must first select the relevant fuel (one at a time), and then the corresponding CO₂ calculation methodology. Once a fuel is added the user may open the page for a specific fuel type to enter the required fuel-specific emissions information.

For additional information about subpart C reporting, please use the e-GGRT Help link(s) provided.

CONFIGURATION INFORMATION

Configuration Type	Single Unit Using Tiers 1, 2, or 3
Unit Name/ID	Single Unit Test
Description	testing
Unit Type	PCWD (Pulverized coal, wall-fired, dry bottom)
Maximum Rated Heat Input Capacity	3500 (mmBtu/hr)

[Edit this Configuration Information](#)

CONFIGURATION LEVEL EMISSIONS INFORMATION

Total Biogenic CO ₂ Emissions (metric tons)	Total CO ₂ Emissions from Sorbent Usage (metric tons)	Status ¹
		Incomplete OPEN

FUEL SPECIFIC EMISSIONS INFORMATION (for fuels combusted at this reporting configuration)

Fuel	Calculation Period	Methodology	Status ¹	Delete
No fuels present				

[ADD a Fuel](#)

[Subpart C Overview](#)

¹ A status of "Incomplete" means that one or more required data elements are incomplete. For details, refer to the Data Completeness validation messages in your Validation Report by clicking the "View Validation" link on the overview page. (Note: if there are no validation messages for this subpart you will not see this link.)

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

Click image to expand

ADD A FUEL
 Subpart C requires the identification of all fuels combusted in each reporting configuration. Use this page to add a fuel combusted in this reporting configuration. Repeat this process for each type of fuel combusted at this configuration over the course of the reporting year.

If the fuel you wish to add is not a fuel type listed in Table C-1, click "ADD an Other Fuel or Blend" to add a new fuel type.

If the calculation methodology for a given fuel type changed during the year, multiple entries should be made for the fuel type to represent the discrete calculation methodology periods. However, only one calculation methodology may be used at any point in time for a specific fuel type under a given configuration. Different fuel types might be allowed to use different calculation methodologies for a given configuration.

For additional information about reporting fuel information, please use the e-GGRT Help link(s) provided.

COAL AND COKE [HIDE](#)

- Mixed (Commercial sector)
- Mixed (Industrial coking)
- Mixed (Industrial sector)
- Mixed (Electric Power sector)
- Anthracite
- Bituminous
- Subbituminous
- Lignite
- Coke

NATURAL GAS [HIDE](#)

- 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](#)

[CANCEL](#) [SAVE](#)

For configurations of all types, subpart C requires you to identify the following for each configuration:

- The fuel types combusted during the reporting year [98.36(b)(4), 98.36(c)(1)(v), 98.36(c)(2)(iv), 98.36(c)(3)(iv), 98.36(d)(2)(ii)(A), and 98.36(d)(2)(iii)(A)]

If a configuration type is selected that uses Tiers 1, 2, or 3, you will be required to specify which equation is used to calculate CO₂ emissions. By identifying which equation is used to calculate emissions, e-GGRT is able to determine which data reporting elements are required for each fuel type. The reporter should refer to 98.33(b) to determine which Tier is required for each fuel type at the configuration.

For Configurations of Type 1 (single unit using Tiers 1, 2, or 3), Type 3 (aggregation of units), **and** Type 4 (common pipe), subpart C requires you to identify the methods used to calculate emissions for each fuel type. Include the following information for each fuel type combusted in the unit:

- Calculation methodology start date and end date, for each fuel type [98.36(b)(6)(ix), 98.36(c)(3)(viii) - (ix)]
- Calculation methodology used for the emissions calculation period specified, for each fuel type [98.36(b)(5), 98.36(c)(1)(vii), 98.36(c)(3)(v)]:

- 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

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

When finished, click SAVE.

To add a fuel type that is not listed, click “ADD an Other Fuel or Blend.”

Click image to expand

The screenshot shows the EPA e-GGRT interface for defining a new fuel. The page title is "General Stationary Fuel Combustion Sources 1 (2010) Subpart C: General Stationary Fuel Combustion". The main heading is "DEFINE A NEW FUEL". Below this, there is a detailed instruction box explaining how to define a new fuel type. The form itself has two input fields: "Fuel Name" (a text box) and "Fuel Type" (a dropdown menu). At the bottom of the form are "CANCEL" and "SAVE" buttons. The footer of the page includes "Paperwork Reduction Act Burden Statement | Contact Us" and "e-GGRT RV2010.R.44 | SPC-16".

Use the text box and drop-down menu to enter the fuel name and fuel type.

When finished, click SAVE.

Click image to expand

The screenshot shows the EPA e-GGRT interface for defining a calculation period and methodology. The page title is "Facility ABC (2010) Subpart C: General Stationary Fuel Combustion". The main heading is "DEFINE A CALCULATION PERIOD AND METHODOLOGY". Below this, there is a detailed instruction box. The form is divided into several sections: "CONFIGURATION" with fields for "Unit or Group Name" (Boiler 1) and "Configuration Type" (Single Unit Using Tiers 1, 2, or 3); "EMISSIONS CALCULATION PERIOD" with "Fuel (Fuel Type)" (Biodiesel (Biomass fuels - liquid)), "Calculation Methodology Start Date" (01/01/2010), and "Calculation Methodology End Date" (12/31/2010); and "CALCULATION METHODOLOGY" with radio button options for Tier 1, Tier 2, and Tier 3. At the bottom of the form are "CANCEL" and "SAVE" buttons. The footer of the page includes "Paperwork Reduction Act Burden Statement | Contact Us" and "e-GGRT RV2010.R.45 | SPC-17".

Use the text boxes and radio buttons to enter the required information.

When finished, click SAVE.

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See Also

[Screen Errors](#)

[Using e-GGRT to Prepare Your Subpart C Report](#)

[Subpart C Configurations](#)

[Subpart C Configuration-Level Emissions Information](#)

[Subpart C Fuel-Level Emissions Information](#)

[Subpart Validation Report](#)

Subpart C Fuel-Level Emissions Information

Once the fuel types and CO₂ calculation method are specified, e-GGRT will prompt the user for fuel specific emissions information. Although units using Tier 4 and alternative part 75 methods are not generally required to calculate fuel specific CO₂ mass emissions, such units are required to report fuel specific CH₄ and N₂O mass emissions. Fuel specific missing data information is also reported in this section.

The text below describes how to enter subpart C Stationary Fuel Combustion Sources fuel-level emissions information for each configuration type. The process to edit fuel information for an existing configuration type is essentially similar.

Click image to expand

Subpart C: General Stationary Fuel Combustion (2011)
[Subpart C Overview](#)

OVERVIEW OF SUBPART C REPORTING REQUIREMENTS
Subpart C requires affected facilities to report annual carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) emissions from each stationary combustion unit. First, use this page to identify each stationary combustion reporting configuration (reporting options listed in §90.30) and then enter emissions information required by subpart C for each configuration.

For additional information about subpart C reporting, please use the e-GGRT Help link(s) provided.

EPA has finalized a rule that defers the deadline for reporting data elements used as inputs to emission equations for direct emitters. See 76 FR 63057 (published August 25, 2011). In accordance with the rule, e-GGRT is not currently collecting data used as inputs to emission equations.

Subpart C: View Validation

CONFIGURATION SUMMARY

Configuration Name or ID	Configuration Type	Status ¹	Delete
Single Unit Test	Single Unit Using Tiers 1, 2, or 3	Incomplete	OPEN X

[Add a Configuration](#)
[Facility Overview](#)

¹ A status of "incomplete" means that one or more required data elements are incomplete. For details, refer to the Data Completeness validation messages in your Validation Report by clicking the "View Validation" link above (note: if there are no validation messages for this subpart you will not see this link).

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

Click image to expand

Subpart C: General Stationary Fuel Combustion (2011)
 Subpart C Overview • Single Unit Using Tiers 1, 2, or 3 • **Configuration Summary**

CONFIGURATION SUMMARY
 For each stationary combustion configuration that uses Tiers 1, 2, or 3, subpart C requires both the reporting of fuel-specific emissions information and the reporting of emissions information aggregated at the configuration-level.

While both Fuel-Specific and Configuration-Level emissions are required in all cases, there is no order requirement on which must be entered first. If using the optional calculation spreadsheets, it is recommended that the user enter Fuel-Specific Emissions Information first. Links to the spreadsheets are provided on each Fuel-Specific Emissions page.

To be able to enter the Fuel-Specific Emissions pages, the user must first select the relevant fuel (one at a time), and then the corresponding CO₂ calculation methodology. Once a fuel is added the user may open the page for a specific fuel type to enter the required fuel-specific emissions information.

For additional information about subpart C reporting, please use the e-GGRT Help link(s) provided.

CONFIGURATION INFORMATION

Configuration Type	Single Unit Using Tiers 1, 2, or 3
Unit Name/ID	Single Unit Test
Description	testing
Unit Type	PCWD (Pulverized coal, wall-fired, dry bottom)
Maximum Rated Heat Input Capacity	3500 (mmBtu/hr)

CONFIGURATION LEVEL EMISSIONS INFORMATION

Total Biogenic CO ₂ Emissions (metric tons)	Total CO ₂ Emissions from Sorbent Usage (metric tons)	Status ¹
		Incomplete OPEN

FUEL-SPECIFIC EMISSIONS INFORMATION (for fuels combusted at this reporting configuration)

Fuel	Calculation Period	Methodology	Status ¹	Delete
No fuels present				

ADD a Fuel

Subpart C Overview

¹ A status of "incomplete" means that one or more required data elements are incomplete. For details, refer to the Data Completeness Validation messages in your Validation Report by clicking the "View Validation" link on the overview page. (Note: if there are no validation messages for this subpart you will not see this link).

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

The data entry screen will vary depending on the calculation methodology (tier and equation).

Tier 1 (Equation C-1, C-1a, or C-1b)

Click image to expand

Subpart C: General Stationary Fuel Combustion (2011)
 Subpart C Overview • Single Unit Using Tiers 1, 2, or 3 • **Fuel-specific Emissions**

FUEL-SPECIFIC EMISSIONS
 Use this page to enter the annual greenhouse gas emissions information for this fuel. The user is required to enter CO₂, CH₄, N₂O, sampling frequency and missing data information (as applicable) for each fuel type. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

CONFIGURATION-FUEL PERIOD

Unit or Group Name/ID	Test
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas)
Reporting Period	01/01/2011 - 12/31/2011

EQUATION C-1 SUMMARY AND RESULT

$$CO_2 = 1 \times 10^{-3} \times \text{Fuel} \times HHV \times EF$$

Hover over an element in the equation above to reveal a definition of that element.

Annual CO₂ emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions) (metric tons)
 Use Equation C-1C-8 spreadsheet to calculate

EQUATION C-8 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 1 \times 10^{-3} \times \text{Fuel} \times HHV \times EF$$

Hover over an element in the equation above to reveal a definition of that element.

Annual CH₄ emissions from combustion of the specified fuel (metric tons)
 Use Equation C-1C-8 spreadsheet to calculate

Annual N₂O emissions from combustion of the specified fuel (metric tons)
 Use Equation C-1C-8 spreadsheet to calculate

CO₂ EQUIVALENT EMISSIONS

CO₂: equivalent value for Annual CH₄ emissions (metric tons)

CO₂: equivalent value for Annual N₂O emissions (metric tons)

CANCEL SAVE

For each fuel type (including biomass fuel(s)) for which you have elected to use a Tier 1 (Equation C-1, C-1a, or C-1b) methodology, subpart C requires you 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 (this includes both non-biogenic and biogenic CO₂ as applicable) [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). Note that e-GGRT will automatically calculate the CO₂e data value [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). Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

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 Equation C-x/C-y spreadsheet to calculate” (where x indicates the specific Tier 1 equation used to calculate CO₂ emissions and y indicates the specific equation used to calculate CH₄ and N₂O emissions in the spreadsheet)
- 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 finished, click SAVE.

Tier 2 (Equations C-2a and C-2b)

Click image to expand

The screenshot shows the EPA e-GGRT web application interface. The main heading is "Subpart C: General Stationary Fuel Combustion". Under "FUEL SPECIFIC EMISSIONS", there are input fields for "Annual CO₂ (metric tons)" with a value of 5000, "Annual CH₄ (metric tons)" with a value of 1, and "Annual N₂O (metric tons)" with a value of 1. Below this, the "CONFIGURATION-FUEL PERIOD" section shows "Boiler 1" as the unit name and "Natural Gas (Weighted U.S. Average) (Natural Gas)" as the fuel type. The "EQUATION C-2a SUMMARY AND RESULT" section displays the formula $CO_2 = 1 \times 10^3 \times Fuel \times HHV \times EF$ and shows a calculated value of 5000 metric tons for Annual CO₂ emissions. The "EQUATION C-9a SUMMARY AND RESULTS" section shows formulas for CH₄ and N₂O emissions, with calculated values of 1 metric tons for both. The "CO₂ EQUIVALENT EMISSIONS" section shows calculated values of 21 metric tons for Annual CH₄ emissions and 310 metric tons for Annual N₂O emissions. The "HHV SUBSTITUTE DATA INFORMATION" section includes checkboxes for months (January, February, March, April, May, June, July, August, September, October, November, December) and a dropdown for "Frequency of HHV determinations" set to "Weekly". A "SAVE" button is visible at the bottom.

For each fuel type (including biomass fuel(s)) for which you have elected to use the **Tier 2 (Equation C-2a)** methodology, subpart C requires you to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-2a in metric tons CO₂ (this includes both non-biogenic and biogenic CO₂ as applicable) [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). Note that e-GGRT will automatically calculate the CO₂e data value [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). Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- Identification of each month for which the HHV was 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)

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 Equation C-2a/C-9a 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

There are no associated reporting requirements for Equation C-2b, which is used to calculate the average HHV when multiple values are available.

Use the check boxes, plain text box, and drop-down menu to enter the remaining required emissions information.

When finished, click SAVE.

Tier 2 (Equation C-2c)

Click image to expand

The screenshot shows the EPA e-GGRT web application interface for reporting emissions. The page is titled "General Stationary Fuel Combustion Sources 1 (2010) Subpart C: General Stationary Fuel Combustion". It features a navigation menu with "HOME", "FACILITY REGISTRATION", "FACILITY MANAGEMENT", and "DATA REPORTING". The main content area is divided into several sections:

- FUEL SPECIFIC EMISSIONS:** A section for entering annual greenhouse gas emissions information. It includes input fields for "Annual CO₂ (metric tons)" (5,000), "Annual CH₄ (metric tons)" (0), and "Annual N₂O (metric tons)" (0).
- CONFIGURATION-FUEL PERIOD:** A section for entering configuration details. It includes fields for "Unit or Group Name/ID" (Unit 71), "Configuration Type" (Single Unit Using Tiers 1, 2, or 3), "Fuel (Fuel Type)" (Other - liq (Other (liquid))), and "Reporting Period" (01/01/2010 - 12/31/2010).
- EQUATION C-4 SUMMARY AND RESULT:** A section for calculating CO₂ emissions. It displays the equation $CO_2 = \frac{44}{12} \times Fuel \times CC \times 0.001$ and a result of 5,000 metric tons.
- EQUATION C-8 SUMMARY AND RESULTS:** A section for calculating CH₄ and N₂O emissions. It displays the equation $CH_4 \text{ or } N_2O = 1 \times 10^{-3} \times Fuel \times HHV \times EF$ and results of 0 metric tons for both.
- CO₂ EQUIVALENT EMISSIONS:** A section for calculating CO₂ equivalent emissions for Annual CH₄ and Annual N₂O emissions, both showing 0 metric tons.
- CARBON CONTENT SUBSTITUTE DATA INFORMATION:** A section for entering carbon content substitute data. It includes fields for "Total number of valid carbon content determinations" (4), "Total number of carbon content substitute data values" (0), "Frequency of carbon content determinations" (Quarterly), and "Total number of operating hours in the reporting year for which missing data substitution was used for fuel usage" (100).

At the bottom of the page, there are "CANCEL" and "SAVE" buttons. The footer includes "Paperwork Reduction Act/Burden Statement | Contact Us" and "e-GGRT RY2010.R.44 | EPC-22".

For each fuel type (including biomass fuel(s)) for which you have elected to use the **Tier 2 (Equation C-2c)** methodology, subpart C requires you to report the following information by fuel type:

- The total annual CO₂ mass emissions derived from Equation C-2c in metric tons CO₂ (this includes both non-biogenic and biogenic CO₂ as applicable) [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). Note that e-GGRT will automatically calculate the CO₂e data value [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).

Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

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 Equation C-2c/C-9b 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 finished, click SAVE.

Tier 3 (Equation C-3, C-4, or C-5)

Note: Equation C-5 pictured, Equations C-3 and C-4 will not include the MOLECULAR WEIGHT INFORMATION and MOLECULAR VOLUME CONSTANT sections

Click image to expand

The screenshot displays the EPA e-GGRT web application interface for Subpart C: General Stationary Fuel Combustion (2012). The interface is organized into several sections:

- Configuration:** Includes fields for Unit or Group Name/ID (Unit 1), Configuration Type (Single Unit Using Tiers 1, 2, or 3), Fuel (Fuel Type) (Natural Gas (Weighted U.S. Average) (Natural Gas)), and Reporting Period (01/01/2012 - 12/31/2012).
- Equation C-5 Summary and Result:** Shows the formula $CO_2 = \frac{44}{12} \times Fuel \times CC \times \frac{MW}{MVC} \times 0.001$. It includes a red-bordered input field for Annual CO₂ emissions from combustion of the specified fuel (metric tons) and a link to "Use Equation C-5C spreadsheet to calculate".
- Equation C-8 Summary and Results:** Shows the formula $CH_4 \text{ or } N_2O = 1 \times 10^3 \times Fuel \times HRV \times EF$. It includes red-bordered input fields for Annual CH₄ emissions and Annual N₂O emissions from combustion of the specified fuel (metric tons), each with a link to "Use Equation C-8C spreadsheet to calculate".
- CO₂ Equivalent Emissions:** Includes input fields for CO₂ equivalent value for Annual CH₄ emissions and CO₂ equivalent value for Annual N₂O emissions (metric tons).
- Carbon Content Substitute Data Information:** Includes fields for Total number of valid carbon content determinations, Total number of carbon content substitute data values, Frequency of carbon content determinations (a dropdown menu), and Total number of operating hours in the reporting year for which missing data substitution was used for fuel usage.
- Molecular Weight Information:** Includes fields for Total number of valid molecular weight determinations, Total number of molecular weight substitute data values, and Frequency of molecular weight determinations (a dropdown menu).
- Molar Volume Constant:** Includes radio buttons for Molar Volume Constant (MVC) used: 836.6 (scf per kg mole) and 849.5 (scf per kg mole).

At the bottom of the interface, there are "CANCEL" and "SAVE" buttons, and a footer with "Paperwork Reduction Act Burden Statement | Contact Us" and "e-GGRT RV2012.R.13 | SPC-22".

For each fuel type (including biomass fuel(s)) for which you have elected to use a Tier 3 (Equation C-3, C-4, or C-5) methodology, subpart C requires you 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 (this includes both non-biogenic and biogenic CO₂ as applicable) [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). Note that e-GGRT will automatically calculate the CO₂e data value [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).

Note that e-GGRT will automatically calculate the CO₂e data value [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 **Tier 3 (Equation C-5)** methodology, subpart C requires you 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)
- The molar volume constant (MVC) used in Equation C-5 by selecting the radio button for either 836.6 scf per kg mol or 849.5 scf per kg mol.

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 3 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 finished, click SAVE.

Tier 4 (CEMS)

Click image to expand

When a **Tier 4 (CEMS)** configuration is selected, you are required to report the following information for each fuel type listed in Table C-2 (including biomass fuel(s)):

- The total annual CH₄ mass emissions derived from Equation C-10 in metric tons CH₄ and in metric tons CO₂e. Note that e-GGRT will automatically calculate the CO₂e data value [98.36(b)(9)(iii), 98.36(c)(2)(ix)]
- The total annual N₂O mass emissions derived from Equation C-10 in metric tons N₂O and in metric tons CO₂e. Note that e-GGRT will

automatically calculate the CO₂e data value [98.36(b)(9)(iii), 98.36(c)(2)(ix)]

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 4 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 finished, click SAVE.

Year-Round Part 75 Heat Input Reporters

Click image to expand

DR Enterprises - TEST
Subpart C: General Stationary Fuel Combustion (2012)
Subpart C Overview » Alternative Part 75 Reporters » Fuel-specific Emissions

FUEL-SPECIFIC CH₄ AND N₂O EMISSIONS
Use this page to enter the annual CH₄ and N₂O emissions information for this fuel type. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

CONFIGURATION

Unit or Group Name/ID	Unit 3
Configuration Type	Alternative Part 75 Reporters
Part 75 Methodology	Appendix D and G calculation method— § 98.33(a)(5)(i)
Part 75 Heat Input Method	Appendix D
Fuel (Fuel Type)	Bituminous (Coal and Coke)

EQUATION C-10 SUMMARY AND RESULTS

$CH_4 \text{ or } N_2O = 0.001 \times (H) \times EF$
Hover over an element in the equation above to reveal a definition of that element.

Annual heat input: 450000 (mmBtu)
Emission factor for CH₄: 0.011 (kg CH₄/mmBtu)
Emission factor for N₂O: 0.0016 (kg N₂O/mmBtu)

ANNUAL CH₄ EMISSIONS

Annual CH₄ emissions from combustion of the specified fuel: 4.95 (metric tons)
Report which CH₄ result?
 Use the calculated result rounded
 Enter my own result (value will be rounded)

ANNUAL N₂O EMISSIONS

Annual N₂O emissions from combustion of the specified fuel: 0.720 (metric tons)
Report which N₂O result?
 Use the calculated result rounded
 Enter my own result (value will be rounded)

CO₂ EQUIVALENT EMISSIONS

CO₂ equivalent value for Annual CH₄ emissions: 104.0 (metric tons)
CO₂ equivalent value for Annual N₂O emissions: 223.2 (metric tons)

For configurations using the alternative CO₂ mass emissions calculation methods provided in **98.33(a)(5) (Year-round Part 75 heat input reporters)**, subpart C 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 under Equation C-10 Summary and Results. [98.36(d)(2)(ii)(G) and 98.36(d)(2)(iii)(G)]

e-GGRT will calculate CH₄ and N₂O 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)(2)(ii)(H) and 98.36(d)(2)(iii)(H)]

If you calculated CH₄ and N₂O 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 CH₄ and N₂O values you calculated in the "Report this value" fields.

Click image to expand

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 4 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 finished, click SAVE.

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See Also

- [Screen Errors](#)
- [Using e-GGRT to Prepare Your Subpart C Report](#)
- [Subpart C Configurations](#)
- [Subpart C Configuration-Level Emissions Information](#)
- [Subpart C Fuel Identification Information](#)
- [Subpart Validation Report](#)





















Configuration types, emission details and their presentation in the summary report

For data reported at the configuration level, the rule requires different data elements to be collected for different configurations. For example, the rule does not require the reporting of annual fossil fuel based CO2 Emissions for single units using tier 1, tier 2, or tier 3 but does require it for aggregation of units and common pipe configurations. Similarly, annual CO2 emissions from sorbent is required for single units using tier 1, tier 2, or tier 3 and for aggregations of units but is not collected for common pipe configurations. These data collection pattern are summarized for each configuration option in Subpart C in the table below.




These data collection variations also have an impact in the way data is presented in summary report which is available after generating a submission. As many users have noted that the summary report includes data display areas which are not always populated with data. All units have the Emissions Detail data elements displayed (i.e., Annual CO2 emissions from sorbent, Total annual biogenic CO2 mass emissions, and

Total annual CO2 mass emissions from fossil fuels) even if these data items are blank because that data was not collected. The  in table below highlights the configurations for which the summary report presents a data element title and a blank in the emissions detail area.


Configuration types, Emission Numbers and their Presentation in the Summary Report

	Single Unit (T1/2/3)	Aggregation of Units	Common Pipe	Single Unit (T4/CEMS)	Common Stack / Duct (CEMS)	Alt Part 75 Method
Annual CO2 emissions from sorbent						
Total annual biogenic CO2 mass emissions						
Total annual CO2 mass emissions from fossil fuels						
Total annual non-biogenic CO2 mass emissions (includes fossil fuel, sorbent, and process CO2 emissions)						

Legend:

-  where e-GGRT collects these data and these data, where provided by the user, are shown in the emission details area of summary report
-  where e-GGRT collects these data and these data, where provided by the user, are shown in the Tier 4 Details area of summary report but not in the emissions details area
-  where e-GGRT, on the basis of the rule, does not collect these data but also displays a empty data cell in the emission details area of the summary report

Using e-GGRT to Prepare Your Subpart C (Abbreviated) Report

 The subpart C abbreviated reporting option is available only for the 2010 reporting year to any facility that meets the conditions of 40 CFR 98.2(a)(3). These are the facilities that are reporting emissions for only subpart C, and not for any other subpart during the 2010 reporting year. The subpart C abbreviated reporting form consists of facility level and not unit level emissions reporting. Subpart C abbreviated reporting will only be available for the 2010 reporting year. Beginning with the 2011 reporting year, all facilities (including first time reporters) must use the full subpart C reporting module.

The text below describes how to enter Subpart C (Abbreviated) Stationary Fuel Combustion Sources emissions information for the complete subpart.

Adding or Updating Emissions Information

Subpart C (Abbreviated) requires you to report the following emissions information:

- Annual Biogenic CO₂ emissions for the complete subpart (in metric tons of CO₂)
- Annual Non-Biogenic CO₂ emissions for the complete subpart (in metric tons of CO₂)
- Annual CH₄ emissions for the complete subpart (in metric tons of CH₄)
- Annual N₂O emissions for the complete subpart (in metric tons of N₂O)

For assistance in calculating CO₂ emissions, access the calculation spreadsheets for this subpart by clicking one of the links located below the red emissions data entry boxes titled "Use Subpart C spreadsheets to calculate," then follow the provided instructions.

When finished entering the required emissions information, click SAVE.

If you do not have all the data, you can enter some now, save it, then finish it later.

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 emissions for informational purposes only.

See Also

[Using e-GGRT to Prepare Your Subpart C Report](#)
[Using Subpart C Calculation Spreadsheets](#)

Using Subpart C 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 of which EPA deferred some until 2015. (See 76 FR 53057, published August 25, 2011, <http://www.gpo.gov/fdsys/pkg/FR-2011-08-25/pdf/2011-21727.pdf>).

The data elements deferred until 2013 that will be collected for the first time in 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
- Equation C-11

Copies of these spreadsheets can be downloaded at the [Calculation Spreadsheet Archive](#).

Overview

This help page provides guidance for working with the supplemental subpart C calculation spreadsheets. The guidance provides step-by-step instructions for the following tasks:

- [Selecting the Appropriate Calculation Spreadsheet](#)
- [Downloading a Calculation Spreadsheet](#)
- [General Information on Using a Calculation Spreadsheet](#)
- [Using the Equation C-1, C-8 Calculation Spreadsheet](#)
- [Using the Equation C-1a, C-8a Calculation Spreadsheet](#)
- [Using the Equation C-1b, C-8b Calculation Spreadsheet](#)
- [Using the Equation C-2a, C-2b, C-9a Calculation Spreadsheet](#)
- [Using the Equation C-2c, C-9b Calculation Spreadsheet](#)
- [Using the Equation C-3, C-8 Calculation Spreadsheet](#)
- [Using the Equation C-4, C-8 Calculation Spreadsheet](#)
- [Using the Equation C-5, C-8 Calculation Spreadsheet](#)

Specific information on each of the calculation spreadsheets is provided below:

Calculation Spreadsheet (click to download)	Instructions (click to view)
Equation C-1, C-8 Calculation Spreadsheet.xls	C-1, C-8 Help
Equation C-1a, C-8a Calculation Spreadsheet.xls	C-1a, C-8a Help
Equation C-1b, C-8b Calculation Spreadsheet.xls	C-1b, C-8b Help
Equation C-2a, C-2b, C-9a Calculation Spreadsheet.xls	C-2a, C-2b, C-9a Help
Equation C-2c, C-9b Calculation Spreadsheet.xls	C-2c, C-9b Help
Equation C-3, C-8 Calculation Spreadsheet.xls	C-3, C-8 Help
Equation C-4, C-8 Calculation Spreadsheet.xls	C-4, C-8 Help
Equation C-5, C-8 Calculation Spreadsheet.xls	C-5, C-8 Help

Selecting the Appropriate Calculation Spreadsheet

To calculate emissions for stationary combustion units reporting under subpart C, users may use the spreadsheets described in the table below. The equations for calculating CO₂ mass emissions and CH₄/N₂O mass emissions are combined onto one spreadsheet as appropriate. The table below describes the equation inputs, outputs, and the Tier and e-GGRT configuration types in which each equation may apply. Note that some Tiers and Configurations only allow the use of a given equation for certain situations. Ultimately, the user should refer to 40 CFR 98.33(b) to determine which Tier is allowed and to 40 CFR 98.33(a) to determine which equation within a Tier is appropriate. If a configuration combusts multiple fuel types, it is possible that different tiers and different equations may be used for that given configuration. The spreadsheets are designed to account for one type of fuel, so each additional fuel combusted in a configuration will need a new spreadsheet.

Calculation Spreadsheet	Tier	Basis for Calculations	Configuration Types	Output(s)
Equation C-1, C-8 Calculation Spreadsheet.xls	1	EF, Fuel Use, Default HHV	1, 3, 4	CO ₂ CH ₄ N ₂ O
Equation C-1a, C-8a Calculation Spreadsheet.xls	1	EF, Natural Gas Billing Records	1, 3, 4	CO ₂ CH ₄ N ₂ O
Equation C-1b, C-8b Calculation Spreadsheet.xls	1	EF, Natural Gas Billing Records	1, 3, 4	CO ₂ CH ₄ N ₂ O
Equation C-2a, C-2b, C-9a Calculation Spreadsheet.xls	2	EF, Fuel Use, Measured HHV	1, 3, 4	CO ₂ CH ₄ N ₂ O
Equation C-2c, C-9b Calculation Spreadsheet.xls	2	EF, Steam Use, Boiler Max Rated Heat Input Capacity	1, 3, 4	CO ₂ CH ₄ N ₂ O
Equation C-3, C-8 Calculation Spreadsheet.xls	3	Fuel Use, Measured Fuel Carbon Content	1, 3, 4	CO ₂ CH ₄ N ₂ O
Equation C-4, C-8 Calculation Spreadsheet.xls	3	Fuel Use, Measured Fuel Carbon Content	1, 3, 4	CO ₂ CH ₄ N ₂ O
Equation C-5, C-8 Calculation Spreadsheet.xls	3	Fuel Use, Measured Fuel Carbon Content	1, 3, 4	CO ₂ CH ₄ N ₂ O

Tier 1 Calculation Methodology

To calculate annual CO₂, CH₄, and N₂O mass emissions for each type of fuel using Tier 1 in each reporting configuration, use Equation C-1, C-8 Calculation Spreadsheet, Equation C-1a, C-8a Calculation Spreadsheet (natural gas billed in therms only), or Equation C-1b, C-8b Calculation Spreadsheet (natural gas billed in mmBtu only).

Equation C-1, C-8 Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O mass emissions for a stationary fuel combustion configuration that uses the Equation C-1, Tier 1 calculation methodology for any given fuel. Use Equation C-1 on this spreadsheet **except** when natural gas billing records are used to quantify fuel usage and gas consumption is expressed in units of therms or million Btu. In that case, use Equation C-1a or C-1b, as applicable. This spreadsheet performs the calculation using Equations C-1 and C-8, which are provided below:

(Equation C-1)	$CO_2 = 1 \times 10^{-3} * Fuel * HHV * EF$
(Equation C-8)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * HHV * EF$

Equation C-1a, C-8a Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O emissions from natural gas usage for a configuration that fires natural gas and only if billing records are used to quantify fuel usage and gas consumption is expressed in units of **therms**. This spreadsheet performs the calculations using Equations C-1a and C-8a, which are provided below:

(Equation C-1a)	$CO_2 = 1 \times 10^{-3} [0.1 * Gas * EF]$
(Equation C-8a)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * 0.1 * EF$

Equations C-1b, C-8b Calculation Spreadsheet

Use the spreadsheet below to calculate the annual CO₂, CH₄, and N₂O emissions from natural gas usage for a configuration that fires natural gas and only if billing records are used to quantify fuel usage and gas consumption is expressed in units of **mmBtu**. This spreadsheet performs the calculations using Equations C-1b and C-8b, which are provided below.

(Equation C-1b)	$CO_2 = 1 \times 10^{-3} * Gas * EF$
(Equation C-8b)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * EF$

Tier 2 Calculation Methodology

To calculate annual CO₂, CH₄, and N₂O mass emissions for each type of fuel in each reporting configuration, use Equation C-2a, C-2b, C-9a Calculation Spreadsheet or Equation C-2c, C-9b Calculation Spreadsheet.

Equation C-2a, C-2b, C-9a Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O mass emissions for a stationary fuel combustion configuration that uses the Tier 2 calculation methodology. This spreadsheet performs the calculation using Equations C-2a, C-2b, and C-9a, which are provided below (although included, Equation C-2b is not always required, see 40 CFR 98.33(a)(2)(ii)):

(Equation C-2a)	$CO_2 = 1 \times 10^{-3} * Fuel * HHV * EF$
(Equation C-2b)	$(HHV)_{annual} = \frac{\sum_{i=1}^n (HHV)_i * (Fuel)_i}{\sum_{i=1}^n (Fuel)_i}$

(Equation C-9a)

$$\text{CH}_4 \text{ or } \text{N}_2\text{O} = 1 \times 10^{-3} * \text{HHV} * \text{EF} * \text{Fuel}$$

Equation C-2c, C-9b Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O emissions for a stationary fuel combustion configuration that uses the Equation C-2c, Tier 2 calculation methodology. This worksheet should be used for MSW when the use of Tier 2 is allowed or (optionally) for solid fuels using Tier 2 that generate steam. This spreadsheet performs the calculations using Equations C-2c and C-9b, which are provided below:

(Equation C-2c)

$$\text{CO}_2 = 1 \times 10^{-3} \text{ Steam} * \text{B} * \text{EF}$$

(Equation C-9b)

$$\text{CH}_4 \text{ or } \text{N}_2\text{O} = 1 \times 10^{-3} \text{ Steam} * \text{B} * \text{EF}$$

Tier 3 Calculation Methodology

To calculate the annual CO₂, CH₄, and N₂O mass emissions for each type of fuel using Tier 3 in each type of reporting configuration, use Equation C-3, C-8 Calculation Spreadsheet, Equation C-4, C-8 Calculation Spreadsheet, or Equation C-5, C-8 Calculation Spreadsheet.

Equation C-3, C-8 Calculation Spreadsheet

Use the spreadsheet below to calculate the annual CO₂, CH₄, and N₂O mass emissions for solid fuels using Tier 3 Calculation methodology at each configuration. This spreadsheet performs the calculation using Equations C-3 and C-8, which are provided below:

(Equation C-3)

$$\text{CO}_2 = \frac{44}{12} * \text{Fuel} * \text{CC} * 0.91$$

(Equation C-8)

$$\text{CH}_4 \text{ or } \text{N}_2\text{O} = 1 \times 10^{-3} * \text{Fuel} * \text{HHV} * \text{EF}$$

Equation C-4, C-8 Calculation Spreadsheet

Use the spreadsheet below to calculate the annual CO₂, CH₄, and N₂O mass emissions for liquid fuels using the Tier 3 calculation methodology at each configuration. This spreadsheet performs the calculations using Equations C-4 and C-8, which are provided below:

(Equation C-4)

$$\text{CO}_2 = \frac{44}{12} * \text{Fuel} * \text{CC} * 0.001$$

(Equation C-8)

$$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * HHV * EF$$

Equations C--5, C-8 Calculation Spreadsheet

Use the spreadsheet below to calculate the annual CO₂, CH₄, and N₂O mass emissions for gaseous fuels using the Tier 3 calculation methodology at each configuration. This spreadsheet performs the calculations using Equations C-5 and C-8, which are provided below:

(Equation C-5)

$$CO_2 = \frac{44}{12} * Fuel * CC * \frac{MW}{MVC} * 0.001$$

(Equation C-8)

$$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * HHV * EF$$

Downloading a Calculation Spreadsheet

Calculation spreadsheets for subpart C 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 calculation spreadsheet by clicking one of the links in the second column.

Calculation Spreadsheet (click to download)	Instructions (click to view)
Equation C-1, C-8 Calculation Spreadsheet.xls	C-1, C-8 Help
Equation C-1a, C-8a Calculation Spreadsheet.xls	C-1a, C-8a Help
Equation C-1b, C-8b Calculation Spreadsheet.xls	C-1b, C-8b Help
Equation C-2a, C-2b, C-9a Calculation Spreadsheet.xls	C-2a, C-2b, C-9a Help
Equation C-2c, C-9b Calculation Spreadsheet.xls	C-2c, C-9b Help
Equation C-3, C-8 Calculation Spreadsheet.xls	C-3, C-8 Help
Equation C-4, C-8 Calculation Spreadsheet.xls	C-4, C-8 Help
Equation C-5, C-8 Calculation Spreadsheet.xls	C-5, C-8 Help




Using a Calculation Spreadsheet to Make Calculations

The guidance provided in this section applies to each of the calculation spreadsheets for subpart C. Additional guidance is provided for each individual calculation 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 Configuration Types and Multiple Fuels

Users with multiple configuration types and multiple fuels should use separate calculation spreadsheets for each configuration type and for each fuel. Users should not aggregate data for multiple configuration types or fuels when using these calculation spreadsheets.

Using the Equation C-1, C-8 Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O mass emissions for a stationary fuel combustion configuration that uses the Equation C-1, Tier 1 calculation methodology for any given fuel. Use Equation C-1 on this spreadsheet except when natural gas billing records are used to quantify fuel usage and gas consumption is expressed in units of therms or million Btu. In that case, use Equation C-1a or C-1b, as applicable. Use a separate spreadsheet for each configuration and for each fuel. The Equation C-1, C-8 Calculation Spreadsheet performs the calculations using Equations C-1 and C-8 provided below.

(Equation C-1)	$CO_2 = 1 \times 10^{-3} * Fuel * HHV * EF$
(Equation C-8)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * HHV * EF$

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

Facility Name:	<input type="text"/>
Reporter Name:	<input type="text"/>
Unit or Group Name/ ID:	<input type="text"/>
Configuration Type:	<input type="text"/>
Fuel/ Fuel Type:	<input type="text"/>
Reporting Period:	<input type="text"/>
Comments:	<input type="text"/>
Unit Type:	General Stationary Fuel Combustion

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

Fuel Input Data

[Fuel] = Mass or volume of fuel combusted per year, from company records as defined in §98.6 (express mass in short tons for solid fuel, volume in standard cubic feet for gaseous fuel, and volume in gallons for liquid fuel)	
[HHV] = Default High heat value of the fuel, from Table C-1 (mmBtu/mass or mmBtu/volume)	

The calculation spreadsheet will calculate the annual CO₂, CH₄, and N₂O emissions from fuel combustion. The calculation spreadsheet will also convert CH₄ and N₂O emissions to units of carbon dioxide equivalent (CO₂e). The calculated values will be displayed in red-bordered cells at the bottom of the spreadsheet. These values should be entered in e-GGRT for this fuel and configuration type combination.

Annual CO₂ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-1

[EF] = Fuel-Specific Default CO ₂ Emission Factor, from Table C-1 (kg CO ₂ /mmBtu)	
[CO ₂] = Annual CO ₂ emissions from combustion of the specified fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8

[EF] = Fuel-Specific Default Emission Factor for CH ₄ , from Table C-2 (kg CH ₄ /mmBtu)	
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8

[EF] = Fuel-Specific Default Emission Factor for N ₂ O, from Table C-2 (kg N ₂ O/mmBtu)	
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{CH₄}] = Global Warming Potential for CH ₄	21
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{N₂O}] = Global Warming Potential for N ₂ O	310
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Using the Equation C-1a, C-8a Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O emissions from natural gas usage for a configuration that fires natural gas and if billing records are used to quantify fuel usage and gas consumption is expressed in units of therms. Use a separate spreadsheet for each configuration and for each fuel. The Equation C-1a, C-8a Calculation Spreadsheet performs the calculations using Equations C-1a and C-8a provided below.

(Equation C-1a)	$CO_2 = 1 \times 10^{-3} [0.1 * Gas * EF]$
(Equation C-8a)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * 0.1 * EF$

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

Facility Name:	
Reporter Name:	
Unit or Group Name/ ID:	
Configuration Type:	
Fuel/ Fuel Type:	
Reporting Period:	
Comments:	
Unit Type:	General Stationary Fuel Combustion

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

Fuel Input Data

[Gas] or [Fuel] = Annual natural gas usage, from billing records (therms)	
[0.1] - Conversion Factor from therms to mmBtu (constant)	0.1
[1 x 10 ⁻³] = Conversion Factor from kg to metric tons (constant)	0.001

The calculation spreadsheet will calculate the annual CO₂, CH₄, and N₂O emissions from fuel combustion. The calculation spreadsheet will also convert CH₄ and N₂O emissions to units of carbon dioxide equivalent (CO₂e). The calculated values will be displayed in red-bordered cells at the bottom of the spreadsheet. These values should be entered in e-GGRT for this fuel and configuration type combination.

Annual CO₂ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-1a

[EF] = Fuel-Specific Default CO ₂ Emission Factor for natural gas, from Table C-1 (kg CO ₂ /mmBTU)	53.02
[CO ₂] = Annual CO ₂ emissions from natural gas combustion (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8a

[EF] = Fuel-Specific Default CH ₄ Emission Factor for natural gas, from Table C-2 (kg CH ₄ /mmBTU)	0.001
[CH ₄] = Annual CH ₄ emissions from combustion of natural gas (metric tons)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8a

[EF] = Fuel-Specific Default N ₂ O Emission Factor for natural gas, from Table C-2 (kg N ₂ O/mmBTU)	0.0001
[N ₂ O] = Annual N ₂ O emissions from combustion of natural gas (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{CH₄}] = Global Warming Potential for CH ₄	21
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{N₂O}] = Global Warming Potential for N ₂ O	310
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Using the Equation C-1b, C-8b Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O emissions from natural gas usage for a configuration that fires natural gas and if billing records are used to quantify fuel usage and gas consumption is expressed in units of mmBtu. Use a separate spreadsheet for each configuration and for each fuel. The Equation C-1b, C-8b Calculation Spreadsheet performs the calculations using Equations C-1b and C-8b provided below.

(Equation C-1b)	$CO_2 = 1 \times 10^{-3} * Gas * EF$
(Equation C-8b)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * EF$

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

Facility Name:	
Reporter Name:	
Unit or Group Name/ ID:	
Configuration Type:	
Fuel/ Fuel Type:	
Reporting Period:	
Comments:	
Unit Type:	General Stationary Fuel Combustion

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

Fuel Input Data

[Gas] or [Fuel] = Annual natural gas usage from billing records (mmBtu)	
[1 x 10 ⁻³] = Conversion Factor from kg to metric tons (constant)	0.001

The calculation spreadsheet will calculate the annual CO₂, CH₄, and N₂O emissions from fuel combustion. The calculation spreadsheet will also convert CH₄ and N₂O emissions to units of carbon dioxide equivalent (CO₂e). The calculated values will be displayed in red-bordered cells at the bottom of the spreadsheet. These values should be entered in e-GGRT for this fuel and configuration type combination.

Annual CO₂ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-1b

[EF] = Fuel-Specific Default Emission Factor for natural gas, from Table C-1 (kg CO ₂ /mmBtu)	53.02
[CO ₂] = Annual CO ₂ emissions from natural gas combustion (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8b

[EF] = Fuel-Specific Default Emission Factor for CH ₄ , from Table C-2 (kg CH ₄ /mmBtu)	0.001
[CH ₄] = Annual CH ₄ emissions from natural gas combustion (metric tons)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8b

[EF] = Fuel-Specific Default Emission Factor for N ₂ O, from Table C-2 (kg N ₂ O/mmBtu)	0.0001
[N ₂ O] = Annual N ₂ O emissions from natural gas combustion (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{CH₄}] = Global Warming Potential for CH ₄	21
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{N₂O}] = Global Warming Potential for N ₂ O	310
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Using the Equation C-2a, C-2b, C-9a Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O mass emissions for a stationary fuel combustion configuration that uses the Equation C-2a, Tier 2 calculation methodology. This spreadsheet performs the calculation using Equations C-2a, C-2b, and C-9a, which are provided below (although included, Equation C-2b is not always required, see 40 CFR 98.33(a)(2)(ii)). Use a separate spreadsheet for each configuration and for each fuel. The Equation C-2a, C-2b, C-9a Calculation Spreadsheet performs the calculations using Equations C-2a, C-2b, and C-9a provided below.

(Equation C-2a)

$$CO_2 = 1 \times 10^{-3} * Fuel * HHV * EF$$

(Equation C-2b)

$$(HHV)_{annual} = \frac{\sum_{i=1}^n (HHV)_i * (Fuel)_i}{\sum_{i=1}^n (Fuel)_i}$$

(Equation C-9a)

$$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * HHV * EF * Fuel$$

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

Facility Name:	
Reporter Name:	
Unit or Group Name/ ID:	
Configuration Type:	
Fuel/ Fuel Type:	
Reporting Period:	
Comments:	
Unit Type:	General Stationary Fuel Combustion

Next, enter the requested information in the green input cells in the Input for Weighted Annual Average HHV (only if required or elected) table.

Input for Weighted Annual Average HHV (only if required or elected)

Month	[Fuel] = Mass or volume of the fuel combusted, for the month, from company records (express mass in short tons for solid fuel, volume in standard cubic feet for gaseous fuel, and volume in gallons for liquid fuel)	[HHV] = Measured high heat value of the fuel, for the month, which may be the arithmetic average of multiple determinations (mmBtu/mass or mmBtu/volume)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

The calculation spreadsheet will calculate the weighted annual average high heat value of the fuel (HHV_{annual}). The calculated value will be displayed in a red-bordered cell with yellow fill above the Fuel Input Data table. This value should be entered in the Fuel Input Data table (shown below) along with the mass or volume of fuel combusted during the reporting year. Alternatively, you may enter an annual average HHV consistent with Section 98.33(a)(2)(ii).

Weighted Annual Average HHV from Equation C-2b

[HHV _{annual}] = Weighted annual average high heat value of the fuel (mmBtu per mass or volume).	
--	--

Use this value as input for Equations C-2a and C-9a, if appropriate

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

Fuel Input Data

[Fuel] = Mass or volume of the fuel combusted during the year, from company records as defined in §98.6 (express mass in short tons for solid fuel, volume in standard cubic feet for gaseous fuel, and volume in gallons for liquid fuel)	
[HHV] = Annual average high heat value of the fuel (mmBtu/ mass or mmBtu/ volume). The average HHV shall be calculated according to the requirements of paragraph (a)(2)(ii) of this section.	
[1 x 10 ⁻³] = Conversion Factor from kg to metric tons (constant)	0.001

Use the weighted annual average HHV calculated above or annual average HHV consistent with Section 98.333(a)(2)(ii).

The calculation spreadsheet will calculate the annual CO₂, CH₄, and N₂O emissions from fuel combustion. The calculation spreadsheet will also convert CH₄ and N₂O emissions to units of carbon dioxide equivalent (CO₂e). The calculated values will be displayed in red-bordered cells with white fill at the bottom of the spreadsheet. These values should be entered in e-GGRT for this fuel and configuration type combination.

Annual CO₂ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-2a

[EF] = Fuel-Specific Default CO ₂ Emission Factor, from Table C-1 (kg CO ₂ /mmBtu)	
[CO ₂] = Annual CO ₂ mass emissions for a specific fuel type (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-9a

[EF] = Fuel-Specific Default CH ₄ Emission Factor, from Table C-2 (kg CH ₄ /mmBtu)	
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-9a

[EF] = Fuel-Specific Default N ₂ O Emission Factor, from Table C-2 (kg N ₂ O/mmBtu)	
[N ₂ O] = Annual N ₂ O emissions from the combustion of a particular type of fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{CH₄}] = Global Warming Potential for CH ₄	21
[CH ₄] = Annual CH ₄ emissions from the combustion of a particular type of fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{N₂O}] = Global Warming Potential for N ₂ O	310
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Using the Equation C-2c, C-9b Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O emissions for a stationary fuel combustion configuration that uses the Equation C-2c, Tier 2 calculation methodology. This spreadsheet should be used for MSW when the use of Tier 2 is allowed or (optionally) for solid fuels using Tier 2 in units that generate steam. Use a separate spreadsheet for each configuration and for each fuel. The Equation C-2c, C-9b Calculation Spreadsheet performs the calculations using Equations C-2c and C-9b provided below.

(Equation C-2c)	$CO_2 = 1 \times 10^{-3} \text{ Steam} * B * EF$
(Equation C-9b)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} \text{ Steam} * B * EF$

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

Facility Name:	
Reporter Name:	
Unit or Group Name/ ID:	
Configuration Type:	
Fuel/ Fuel Type:	
Reporting Period:	
Comments:	
Unit Type:	General Stationary Fuel Combustion

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

Fuel Input Data

[Steam] = Total mass of steam generated by MSW or solid fuel combustion during the reporting year (lb steam)	
[B] = Ratio of the boiler's maximum rated heat input capacity to its design rated steam output capacity (mmBtu/lb steam)	
[1 x 10 ⁻³] = Conversion Factor from kg to metric tons (constant)	0.001

The calculation spreadsheet will calculate the annual CO₂, CH₄, and N₂O emissions from fuel combustion. The calculation spreadsheet will also convert CH₄ and N₂O emissions to units of carbon dioxide equivalent (CO₂e). The calculated values will be displayed in red-bordered cells at the bottom of the spreadsheet. These values should be entered in e-GGRT for this fuel and configuration type combination.

Annual CO₂ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-2c

[EF] = Fuel-Specific Default CO ₂ Emission Factor, from Table C-1 (kg CO ₂ /mmBtu)	
[CO ₂] = Annual CO ₂ mass emissions from MSW or solid fuel combustion (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-9b

[EF] = Fuel-Specific Default CH ₄ Emission Factor, from Table C-2 (kg CH ₄ /mmBtu)	
[CH ₄] = Annual CH ₄ emissions from combustion of the specified solid fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-9b

[EF] = Fuel-Specific Default N ₂ O Emission Factor, from Table C-2 (kg N ₂ O/mmBtu)	
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified solid fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{CH₄}] = Global Warming Potential for CH ₄	21
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{N₂O}] = Global Warming Potential for N ₂ O	310
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Using the Equation C-3, C-8 Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O mass emissions for solid fuels using Tier 3 Calculation methodology at each configuration. Use a separate spreadsheet for each configuration and for each fuel. The Equation C-3, C-8 Calculation Spreadsheet performs the calculations using Equations C-3 and C-8 provided below.

(Equation C-3)	$CO_2 = \frac{44}{12} * Fuel * CC * 0.91$
(Equation C-8)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * HHV * EF$

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

Facility Name:	
Reporter Name:	
Unit or Group Name/ ID:	
Configuration Type:	
Fuel/ Fuel Type:	
Reporting Period:	
Comments:	
Unit Type:	General Stationary Fuel Combustion

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

Fuel Input Data

[Fuel] = Annual mass of the solid fuel combusted, from company records as defined in §98.6 (short tons)	
[CC] = Annual average carbon content of the solid fuel (percent by weight, expressed as a decimal fraction, e.g., 95% = 0.95). The annual average carbon content shall be determined using the same procedures as specified for HHV in paragraph (a)(2)(ii) of this section	
[HHV] = Default high heat value of the fuel from Table C-1 of this subpart; alternatively, for Tier 3, if actual HHV data are available for the reporting year, you may average these data using the procedures specified in paragraph (a)(2)(ii) of this section, and use the average value in Equation C-8 (mmBtu per mass or volume)	

The calculation spreadsheet will calculate the annual CO₂, CH₄, and N₂O emissions from fuel combustion. The calculation spreadsheet will also convert CH₄ and N₂O emissions to units of carbon dioxide equivalent (CO₂e). The calculated values will be displayed in red-bordered cells at the bottom of the spreadsheet. These values should be entered in e-GGRT for this fuel and configuration type combination.

Annual CO₂ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-3

[CO ₂] = Annual CO ₂ mass emissions from combustion of the specific solid fuel (metric tons)	0.00
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Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8

[EF] = Fuel-Specific Default Emission Factor for CH ₄ , from Table C-2 (kg CH ₄ /mmBtu)	
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8

[EF] = Fuel-Specific Default Emission Factor for N ₂ O, from Table C-2 (kg N ₂ O/mmBtu)	
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons)	0.00

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{CH4}] = Global Warming Potential for CH ₄	21
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{N2O}] = Global Warming Potential for N ₂ O	310
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

Enter this value in e-GGRT

Using the Equation C-4, C-8 Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O mass emissions for liquid fuels using the Tier 3 calculation methodology at each configuration. Use a separate spreadsheet for each configuration and for each fuel. The Equation C-4, C-8 Calculation Spreadsheet performs the calculations using Equations C-4 and C-8 provided below.

(Equation C-4)	$CO_2 = \frac{44}{12} * Fuel * CC * 0.001$
(Equation C-8)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * HHV * EF$

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

Facility Name:	
Reporter Name:	
Unit or Group Name/ ID:	
Configuration Type:	
Fuel/ Fuel Type:	
Reporting Period:	
Comments:	
Unit Type:	General Stationary Fuel Combustion

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

Fuel Input Data

[Fuel] = Annual volume of the liquid fuel combusted (gallons). The volume of fuel combusted must be measured directly, using fuel flow meters calibrated according to §98.3(i). Fuel billing meters may be used for this purpose. Tank drop measurements may also be used.	
[CC] = Annual average carbon content of the liquid fuel (kg C per gallon of fuel). The annual average carbon content shall be determined using the same procedures as specified for HHV in paragraph (a)(2)(ii) of this section	
[HHV] = Default high heat value of the fuel from Table C-1 of this subpart; alternatively, for Tier 3, if actual HHV data are available for the reporting year, you may average these data using the procedures specified in paragraph (a)(2)(ii) of this section, and use the average value in Equation C-8 (mmBtu per mass or volume)	

The calculation spreadsheet will calculate the annual CO₂, CH₄, and N₂O emissions from fuel combustion. The calculation spreadsheet will also convert CH₄ and N₂O emissions to units of carbon dioxide equivalent (CO₂e). The calculated values will be displayed in red-bordered cells at the bottom of the spreadsheet. These values should be entered in e-GGRT for this fuel and configuration type combination.

Annual CO₂ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-4

[CO ₂] = Annual CO ₂ mass emissions from combustion of the specific liquid fuel (metric tons)	0.00
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↘ Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8

[EF] = Fuel-Specific Default Emission Factor for CH ₄ , from Table C-2 (kg CH ₄ /mmBtu)	
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons)	0.00

↘ Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8

[EF] = Fuel-Specific Default Emission Factor for N ₂ O, from Table C-2 (kg N ₂ O/mmBtu)	
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons)	0.00

↘ Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{CH4}] = Global Warming Potential for CH ₄	21
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

↘ Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{N2O}] = Global Warming Potential for N ₂ O	310
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons CO ₂ e)	0.00

↘ Enter this value in e-GGRT

Using the Equation C-5, C-8 Calculation Spreadsheet

Use this spreadsheet to calculate the annual CO₂, CH₄, and N₂O mass emissions for gaseous fuels using the Tier 3 calculation methodology at each configuration. Use a separate spreadsheet for each configuration and for each fuel. The Equation C-5, C-8 Calculation Spreadsheet performs the calculations using Equations C-5 and C-8 provided below.

(Equation C-5)	$CO_2 = \frac{44}{12} * Fuel * CC * \frac{MW}{MVC} * 0.001$
(Equation C-8)	$CH_4 \text{ or } N_2O = 1 \times 10^{-3} * Fuel * HHV * EF$

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

Facility Name:	
Reporter Name:	
Unit or Group Name/ ID:	
Configuration Type:	
Fuel/ Fuel Type:	
Reporting Period:	
Comments:	
Unit Type:	General Stationary Fuel Combustion

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

Fuel Input Data

[Fuel] = Annual volume of the gaseous fuel combusted (scf). The volume of fuel combusted must be measured directly, using fuel flow meters calibrated according to §98.3(i). Fuel billing meters may be used for this purpose	
[CC] = Annual average carbon content of the gaseous fuel (kg C per kg of fuel). The annual average carbon content shall be determined using the same procedures as specified for HHV in paragraph (a)(2)(ii) of this section	
[HHV] = Default high heat value of the fuel from Table C-1 of this subpart; alternatively, for Tier 3, if actual HHV data are available for the reporting year, you may average these data using the procedures specified in paragraph (a)(2)(ii) of this section, and use the average value in Equation C-8 (mmBtu per mass or volume)	
[MW] = Annual average molecular weight of the gaseous fuel (kg/kg-mole). The annual average molecular weight shall be determined using the same procedures as specified for HHV in paragraph (a)(2)(ii) of this section	
[MVC] = Molar Volume Conversion Factor, as defined in §98.6.. Use 849.5 scf per kg mole if you select 68 °F as standard temperature and 836.6 scf per kg mole if you select 60 °F as standard temperature	

The calculation spreadsheet will calculate the annual CO₂, CH₄, and N₂O emissions from fuel combustion. The calculation spreadsheet will also convert CH₄ and N₂O emissions to units of carbon dioxide equivalent (CO₂e). The calculated values will be displayed in red-bordered cells at the bottom of the spreadsheet. These values should be entered in e-GGRT for this fuel and configuration type combination.

Annual CO₂ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-5

[CO ₂] = Annual CO ₂ mass emissions from combustion of the specific gaseous fuel (metric tons)	<input type="text"/>
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Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8

[EF] = Fuel-Specific Default Emission Factor for CH ₄ , from Table C-2 (kg CH ₄ /mmBtu)	<input type="text"/>
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons)	<input type="text"/>

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type (metric tons) from Equation C-8

[EF] = Fuel-Specific Default Emission Factor for N ₂ O, from Table C-2 (kg N ₂ O/mmBtu)	<input type="text"/>
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons)	<input type="text"/>

Enter this value in e-GGRT

Annual CH₄ Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{CH₄}] = Global Warming Potential for CH ₄	21
[CH ₄] = Annual CH ₄ emissions from combustion of the specified fuel (metric tons CO ₂ e)	<input type="text"/>

Enter this value in e-GGRT

Annual N₂O Mass Emissions For the Specific Fuel Type Converted to Carbon Dioxide Equivalent (metric tons CO₂e)

[GWP _{N₂O}] = Global Warming Potential for N ₂ O	310
[N ₂ O] = Annual N ₂ O emissions from combustion of the specified fuel (metric tons CO ₂ e)	<input type="text"/>

Enter this value in e-GGRT

Using the Equation C-10 Calculation Spreadsheet

Use the Equation C-10 Calculation Spreadsheet to calculate annual CH₄ and N₂O emissions using an emission factor and the annual heat input from a fuel combusted in units that use Tier 4 (CEMS, Configuration Types 2 and 5) or units that report under 40 CFR Part 75 (Configuration Type 6). Use a separate spreadsheet for each configuration and for each fuel. The Equation C-10 Calculation Spreadsheet performs the calculations using Equation C-10 provided below.

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See Also

- Table C-1 to Subpart C
- Table C-2 to Subpart C

Table C-1 to Subpart C

Table C–1: Default CO₂ Emission Factors and High Heat Values for Various Types of Fuel

Fuel type	Default high heat value	Default CO ₂ emission factor
Coal and coke	mmBtu/short ton	kg CO₂/mmBtu
Anthracite	25.09	103.54
Bituminous	24.93	93.4

Subbituminous	17.25	97.02
Lignite	14.21	96.36
Coke	24.8	102.04
Mixed (Commercial sector)	21.39	95.26
Mixed (Industrial coking)	26.28	93.65
Mixed (Industrial sector)	22.35	93.91
Mixed (Electric Power sector)	19.73	94.38
Natural gas	mmBtu/scf	kg CO₂/mmBtu
(Weighted U.S. Average)	1.028 × 10 ⁻⁰³	53.02
Petroleum products	mmBtu/gallon	kg CO₂/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.14	72.93
Residual Fuel Oil No. 6	0.15	75.1
Used Oil	0.135	74
Kerosene	0.135	75.2
Liquefied petroleum gases (LPG)	0.092	62.98
Propane	0.091	61.46
Propylene	0.091	65.95
Ethane	0.069	62.64
Ethanol	0.084	68.44
Ethylene	0.1	67.43
Isobutane	0.097	64.91
Isobutylene	0.103	67.74
Butane	0.101	65.15
Butylene	0.103	67.73
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.11	66.83
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.11	70.02
Petrochemical Feedstocks	0.129	70.97
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.49
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.12	69.25

Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.49
Other fuels-solid	mmBtu/short ton	kg CO₂/mmBtu
Municipal Solid Waste	9.95 ¹	90.7
Tires	26.87	85.97
Plastics	38	75
Petroleum Coke	30	102.41
Other fuels—gaseous	mmBtu/scf	kg CO₂/mmBtu
Blast Furnace Gas	0.092 × 10 ⁻⁰³	274.32
Coke Oven Gas	0.599 × 10 ⁻⁰³	46.85
Propane Gas	2.516 × 10 ⁻⁰³	61.46
Fuel Gas ²	1.388 × 10 ⁻⁰³	59
Biomass fuels—solid	mmBtu/short ton	kg CO₂/mmBtu
Wood and Wood Residuals	15.38	93.8
Agricultural Byproducts	8.25	118.17
Peat	8	111.84
Solid Byproducts	25.83	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO₂/mmBtu
Biogas (Captured methane)	0.841 × 10 ⁻⁰³	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO₂/mmBtu
Ethanol	0.084	68.44
Biodiesel	0.128	73.84
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.12	81.55

¹Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

²Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO₂ emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C–5) or Tier 4.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79153, Dec. 17, 2010]

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Table C-2 to Subpart C

Table C–2: Default CH₄ and N₂O Emission Factors for Various Types of Fuel

Fuel Type	Default CH ₄ Emission Factor (kg CH ₄ /mmBtu)	Default N ₂ O Emission Factor (kg N ₂ O/mmBtu)
Coal and Coke (All fuel types in Table C-1)	1.1 × 10 ⁻⁰²	1.6 × 10 ⁻⁰³
Natural Gas	1.0 × 10 ⁻⁰³	1.0 × 10 ⁻⁰⁴
Petroleum (All fuel types in Table C-1)	3.0 × 10 ⁻⁰³	6.0 × 10 ⁻⁰⁴
Municipal Solid Waste	3.2 × 10 ⁻⁰²	4.2 × 10 ⁻⁰³
Tires	3.2 × 10 ⁻⁰²	4.2 × 10 ⁻⁰³
Blast Furnace Gas	2.2 × 10 ⁻⁰⁵	1.0 × 10 ⁻⁰⁴
Coke Oven Gas	4.8 × 10 ⁻⁰⁴	1.0 × 10 ⁻⁰⁴
Biomass Fuels—Solid (All fuel types in Table C-1)	3.2 × 10 ⁻⁰²	4.2 × 10 ⁻⁰³
Biogas	3.2 × 10 ⁻⁰³	6.3 × 10 ⁻⁰⁴
Biomass Fuels—Liquid (All fuel types in Table C-1)	1.1 × 10 ⁻⁰³	1.1 × 10 ⁻⁰⁴

Note: Those employing this table are assumed to fall under the IPCC definitions of the “Energy Industry” or “Manufacturing Industries and Construction”. In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC “Energy Industry” category may employ a value of 1g of CH₄/mmBtu.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79154, Dec. 17, 2010]

Editorial Note: At 74 FR 56374, Oct. 30, 2009, part 98 was added. The added part included two tables identified as “C-2 to Subpart C”.

Subpart C - 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, 2015 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(d) to determine the biogenic portion of the annual CO ₂ emissions from a unit that co-fires biogenic fuels (or partly-biogenic fuels, including tires if you are electing to report biogenic CO ₂ 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 of how the new data elements 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
- Equation C-11

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.

[Click image to expand](#)

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

CONFIGURATION

Unit or Group Name/ID GP-Selection 3

Configuration Type Aggregation of Units

EQUATION C-11 SUMMARY AND RESULTS

$$\text{CO}_2 = 0.91 \times S \times R \times \frac{\text{MW}_{\text{CO}_2}}{\text{MW}_S}$$

Hover over an element in the equation above to reveal a definition of that element.

SORBENT EMISSIONS

Is CO₂ emission generated from operations using sorbent injection which are not monitored using CEMS? Yes No

Total amount of sorbent used during the reporting year 23 056 (short tons)

Molecular weight of the sorbent 12

The ratio (R) _____

Annual CO₂ emissions from sorbent _____ (metric tons)

Report which CO₂ result? Use the calculated result rounded Enter my own result (value will be rounded)

CO₂ FOR ALL FUELS

Total annual CO₂ mass emissions from fossil fuels 4500 (metric tons)

Total annual biogenic CO₂ mass emissions 23 (metric tons)

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

The screenshot shows the EPA e-GGRT web application interface. The top navigation bar includes 'HOME', 'FACILITY REGISTRATION', 'FACILITY MANAGEMENT', and 'DATA REPORTING'. The main content area is titled 'Bora's Test Facility' and 'Subpart C: General Stationary Fuel Combustion (2012)'. It displays configuration details for 'Unit or Group Name/ID: GP-Selection 3' and 'Configuration Type: Aggregation of Units'. The 'Fuel (Fuel Type)' is set to 'Municipal Solid Waste (Other Fuels - Solid)' and the 'Reporting Period' is '01/01/2012 - 12/31/2012'. The interface shows several summary and result sections: 'EQUATION C-2: SUMMARY AND RESULT' with the equation $\text{CO}_2 = 1 \times 10^3 \times \text{Steam} \times B \times EF$ and a value of 2900 (metric tons); 'EQUATION C-9: SUMMARY AND RESULTS' with equations for CH₄ and N₂O emissions and values of 100 and 23 (metric tons) respectively; 'CO₂ EQUIVALENT EMISSIONS' showing 2100.0 (metric tons) for CO₂ and 6200.0 (metric tons) for CO₂ equivalent; and 'BIOGENIC CO₂ VERIFICATION DATA' with a checked box for ASTM methods D7495-08 and D6866-08. Below this, there are input fields for 'Sample Analysis Results for four quarter' (decimal fraction) and 'Annual Biogenic CO₂ mass emissions from MSW combustion' (metric tons/yr). The bottom of the page includes 'CANCEL' and 'SAVE' buttons, and footer text: 'Paperwork Reduction Act Burden Statement | Contact Us' and 'e-GGRT R/2012 R.5 | SPC-22'.

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

MOLECULAR WEIGHT INFORMATION	
Total number of valid molecular weight determinations	1200
Total number of molecular weight substitute data values	120
Frequency of molecular weight determinations	Hourly
MOLAR VOLUME CONSTANT	
Molar Volume Constant (MVC) used	<input type="radio"/> 836.6 (scf per kg mole)
	<input checked="" type="radio"/> 849.5 (scf per kg mole)
BIOGENIC CO2 VERIFICATION DATA	
ASTM methods D7495-08 and D6866-08 were 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	<input checked="" type="checkbox"/>
Sample Analysis Results for first quarter	(decimal fraction)
Sample Analysis Results for second quarter	(decimal fraction)
Sample Analysis Results for third quarter	(decimal fraction)
Sample Analysis Results for fourth quarter	(decimal fraction)
<input type="button" value="CANCEL"/> <input type="button" value="SAVE"/>	