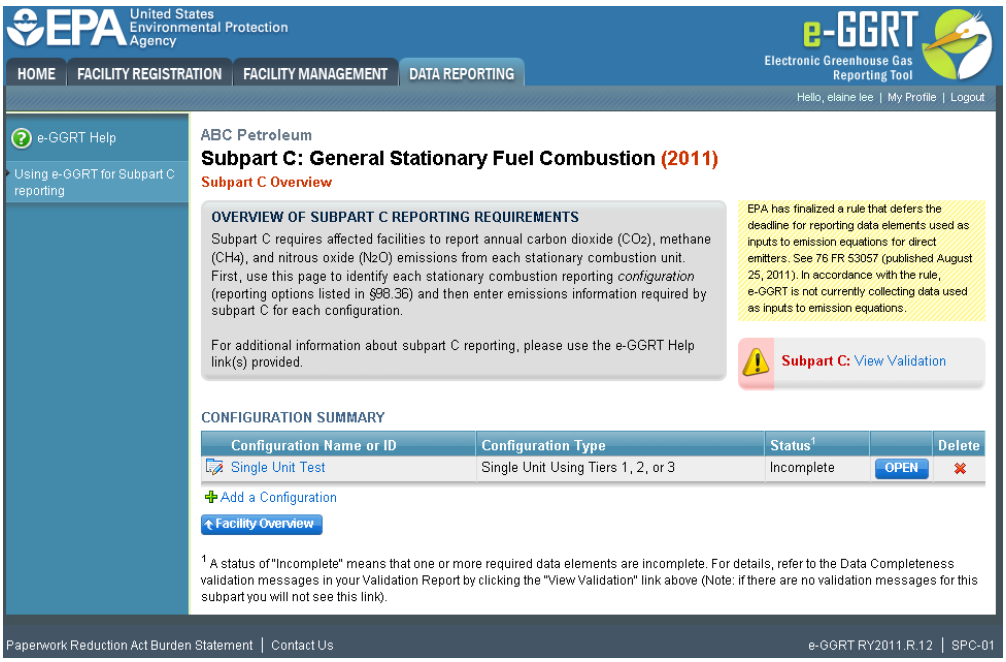
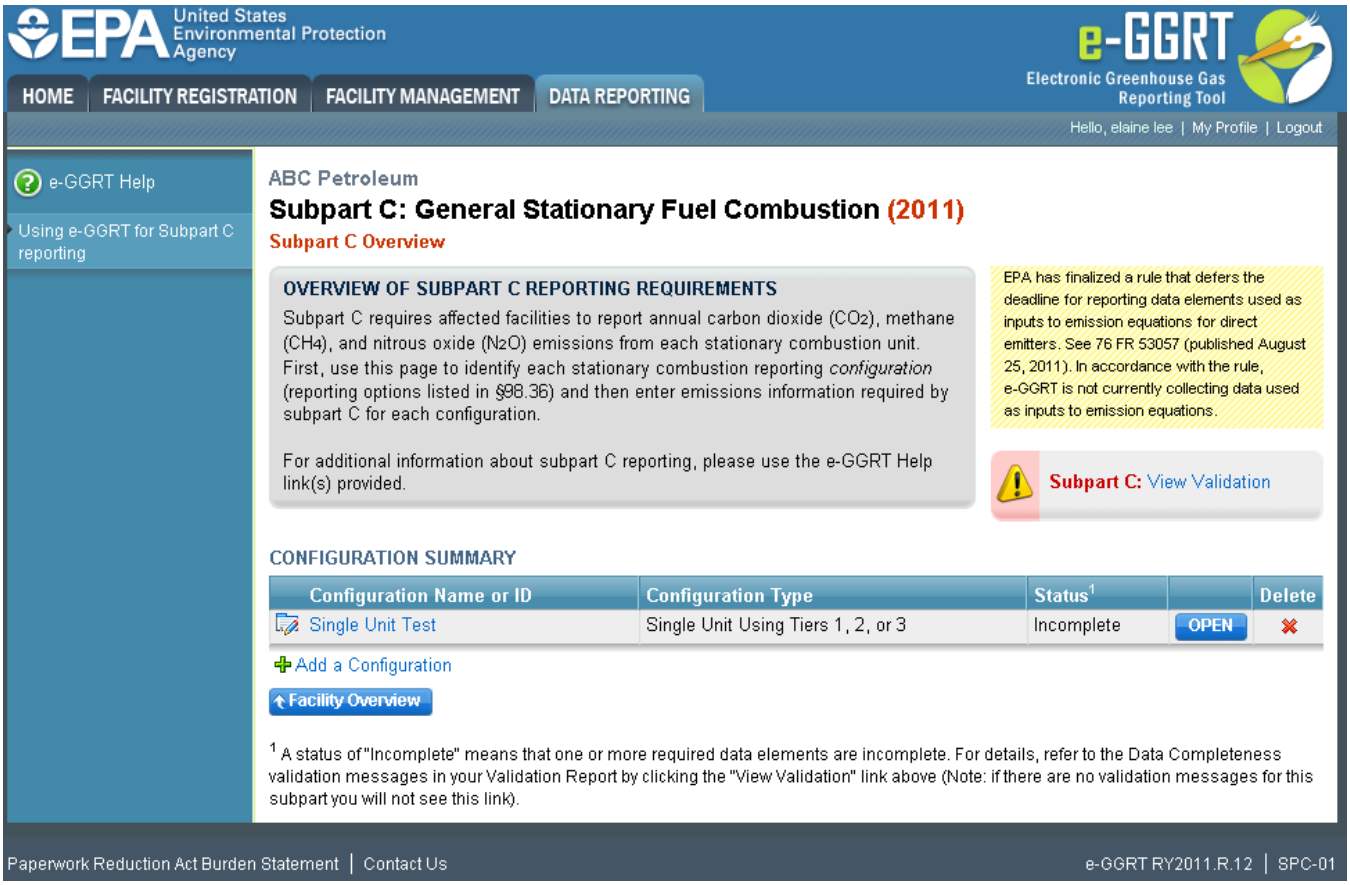
Subpart C Fuel-Level Emissions Information for RY2014 and Later

Once the fuel types and CO_2 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 CO_2 mass emissions, such units are required to report fuel specific CH_4 and N_2O 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 for RY2014 and later. The process to edit fuel information for an existing configuration type is essentially similar.

>> *Click this link 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 this link to expand*

e-GGRT Help
Using e-GGRT for Subpart C reporting

Sokha

Subpart C: General Stationary Fuel Combustion (2013)

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	
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

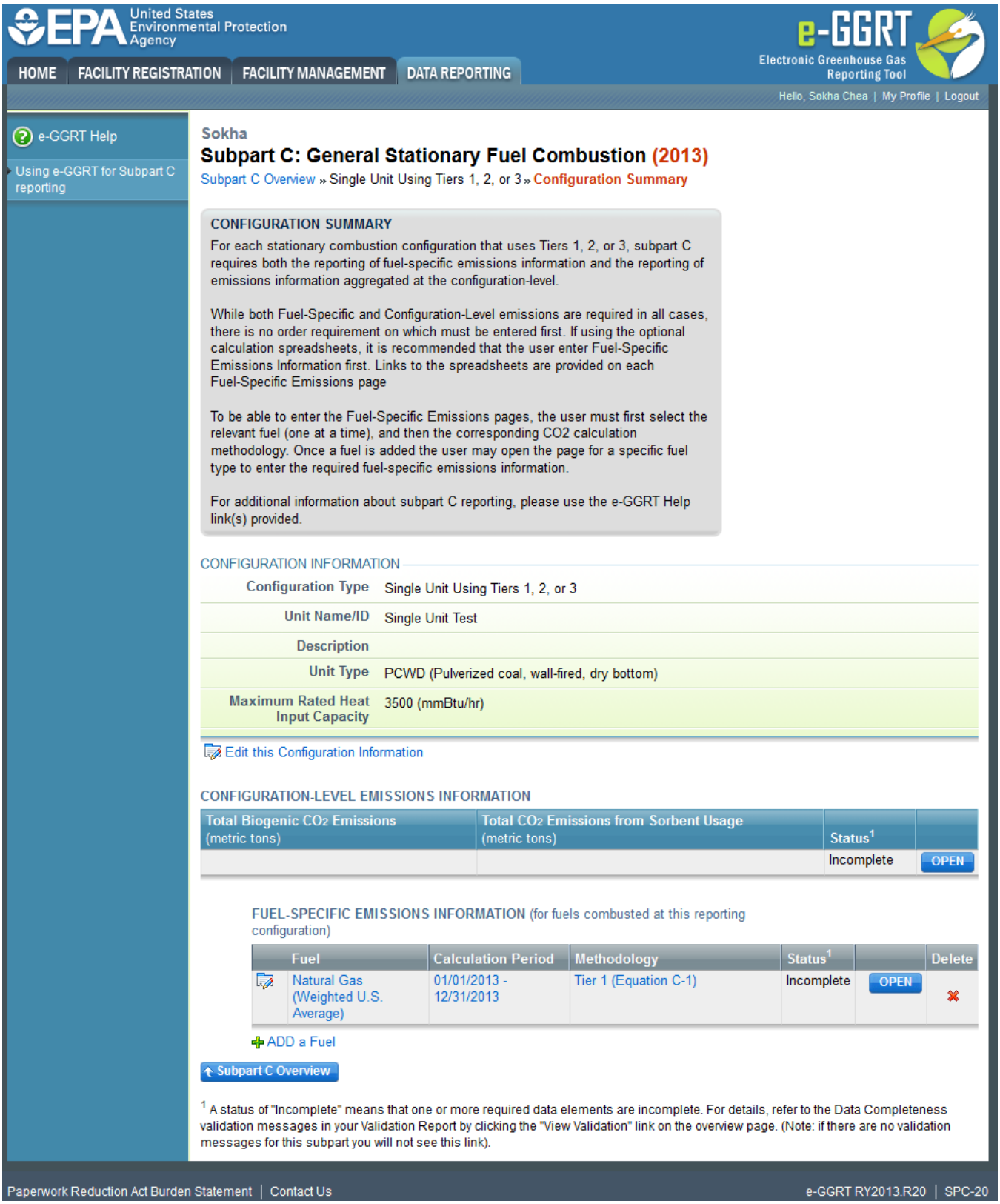
FUEL-SPECIFIC EMISSIONS INFORMATION (for fuels combusted at this reporting configuration)

	Fuel	Calculation Period	Methodology	Status[1]		Delete
	Natural Gas (Weighted U.S. Average)	01/01/2013 - 12/31/2013	Tier 1 (Equation C-1)	Incomplete	OPEN	

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).



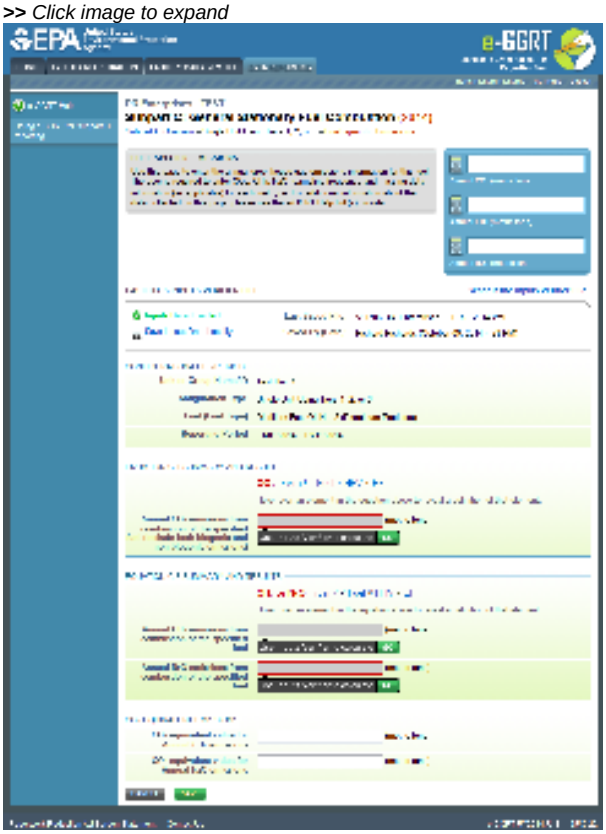
To enter emissions information by fuel type, find the fuel type for which you would like to enter fuel emissions data in the FUEL-SPECIFIC EMISSIONS INFORMATION table and click OPEN.

How you report fuel-level emissions information will depend on whether or not you intend to enter equation inputs using the IVT module or report them through e-GGRT. The section below describes how to enter inputs into the IVT module. If you are required or choose to report equation inputs to EPA, see Reporting Emissions and Equation Inputs to EPA for instructions on how to report fuel-specific emissions.

Reporting Emissions By Entering Equation Inputs Using the IVT

The data entry screen will vary depending on the calculation methodology (tier and equation). The screen shot below shows the Fuel-specific Emissions page for Tier 2 using Equation C-12a and C-9a to calculate CO_2 emissions and Equation C-8 to calculate CH_4 and N_2O emissions.

>> *Click image to expand*



e-GGRT Help
Using e-GGRT for Subpart C reporting

DR Enterprises - TEST

Subpart C: General Stationary Fuel Combustion (2014)

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 CO_2, CH_4, N_2O, 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.

Annual CO_2 (metric tons)

Annual CH_4 (metric tons)

Annual N_2O (metric tons)

FACILITY'S INPUTS VERIFIER FILE

What is the Inputs Verifier File?

Inputs Data Loaded
Save Inputs Data Locally

Last Saved File: 511706-DR_Enterprises_-_TEST-2014.xml
Saved By (Date): Richard Richards (October 09, 2014 4:29 PM)

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	Test Unit 1
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Distillate Fuel Oil No. 2 (Petroleum Products)
Reporting Period	01/01/2014 - 12/31/2014

EQUATION C-1 SUMMARY AND RESULT

$$CO_2 = 1x10^{-3} \times Fuel \times HHV \times EF$$

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

Annual CO_2 emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions): (metric tons)

Use Inputs Verifier to calculate GO

EQUATION C-8 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 1x10^{-3} \times Fuel \times HHV \times EF$$

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

Annual CH_4 emissions from combustion of the specified fuel: (metric tons)

Use Inputs Verifier to calculate GO

Annual N_2O emissions from combustion of the specified fuel: (metric tons)

Use Inputs Verifier to calculate GO

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions: (metric tons)

CO_2 equivalent value for Annual N_2O emissions: (metric tons)

CANCEL SAVE

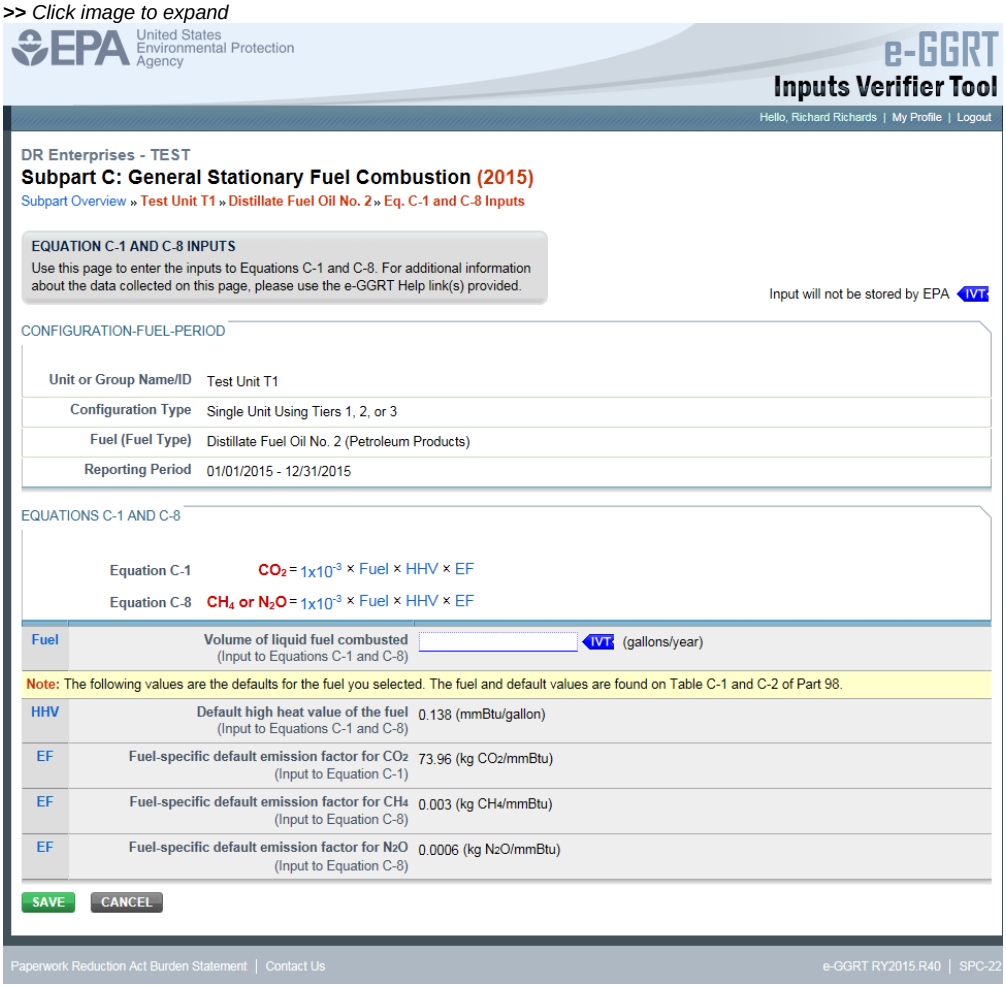
Facilities access the IVT module from the Fuel-specific Emissions page. In the Equation Summary and Result Section for CO_2, you will find a data entry cell for CO_2 emissions. Immediately below this data entry cell you will see a block labeled "Use Inputs Verifier to calculate" and a green "Go" box. Click "Go" to open the IVT module for the methodology you have selected for the fuel. You can also access the IVT module by clicking on the "Go" box associated with the data entry cells for CH_4 and N_2O. (For fuels for which you use the Tier 4 methodology (CEMS), you must access the IVT using the CH_4 and N_2O "Go" boxes since there is no CO_2 data entry cell on the Fuel-specific Emissions page for Tier 4. Also, if you are calculating emissions with the Tier 3 methodology for a gaseous fuel using Equation C-5, you must select the Molar Volume Constant (MVC) used at the bottom of the Fuel-specific Emissions page before you access the IVT module.)

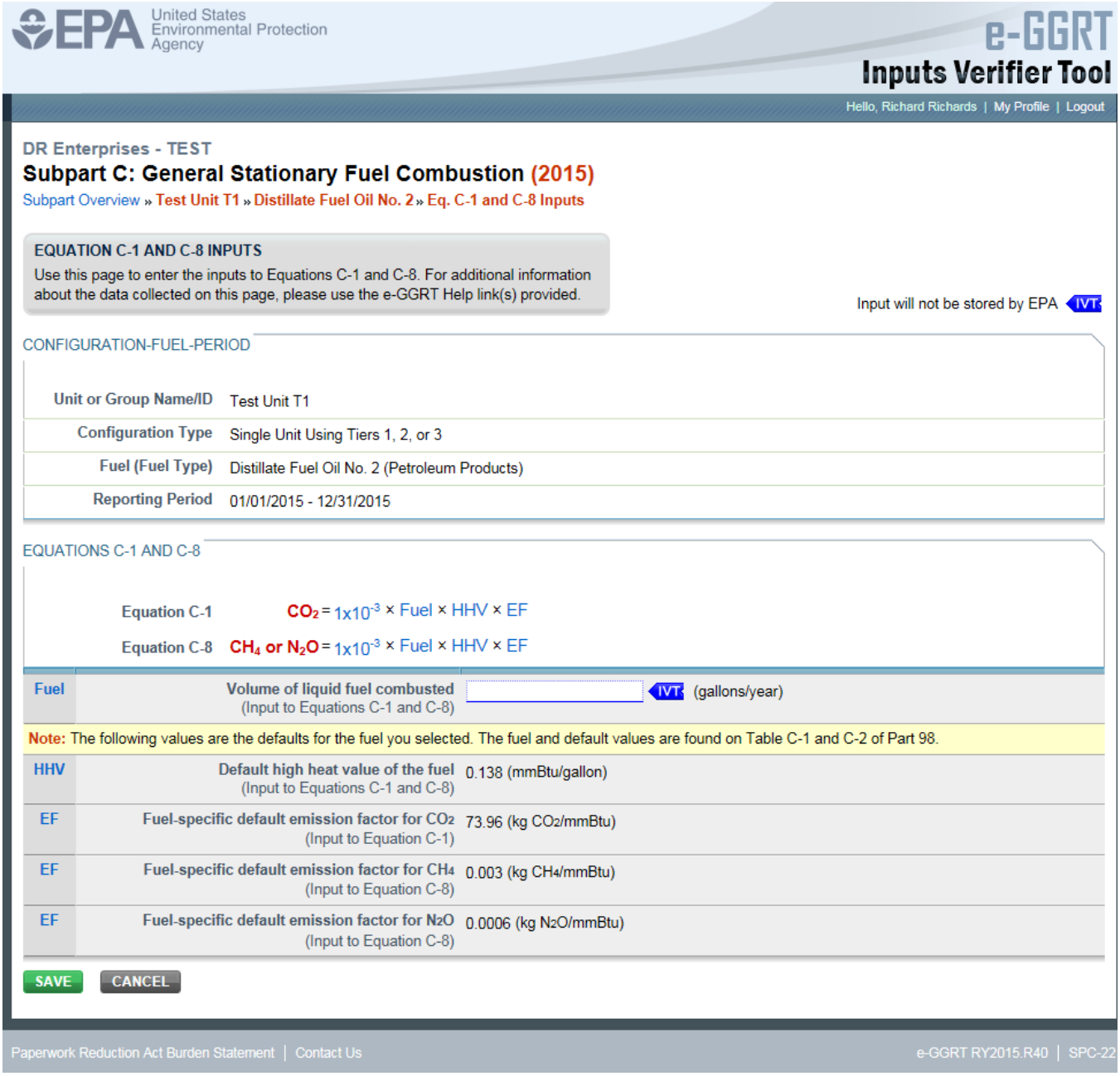
Entering Data Using the IVT

If you have previously entered these inputs and saved your inputs file locally you should import your locally saved inputs file. (You will be prompted to load data from an existing inputs file when you open subpart C on the Facility Overview page.) If you are having trouble locating your inputs file or would like to "Reset" and recreate your inputs file, please review our help content reviewing these processes at Saving and Reloading a Inputs Verifier File or Resetting your Facility To Create a New Inputs Verifier file.

Once you enter the IVT module you will note that these screens are formatted with a grey background and an Inputs Verifier Tool header. Here you are asked to provide emissions inputs to allow the IVT to calculate emissions. These inputs will vary according to tier methodology used and whether the fuel is gaseous, liquid or solid. The screen shot below shows the IVT page for entering equation inputs for distillate fuel oil no. 2 using the Tier 1 method. The IVT data entry requirements for each tier are summarized below.

>> Click image to expand





United States Environmental Protection Agency

e-GGRT Inputs Verifier Tool

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DR Enterprises - TEST

Subpart C: General Stationary Fuel Combustion (2015)

Subpart Overview » Test Unit T1 » Distillate Fuel Oil No. 2 » Eq. C-1 and C-8 Inputs

EQUATION C-1 AND C-8 INPUTS

Use this page to enter the inputs to Equations C-1 and C-8. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Input will not be stored by EPA IVT

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	Test Unit T1
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Distillate Fuel Oil No. 2 (Petroleum Products)
Reporting Period	01/01/2015 - 12/31/2015

EQUATIONS C-1 AND C-8

Equation C-1 $CO_2 = 1x10^{-3} \times Fuel \times HHV \times EF$

Equation C-8 CH_4 or $N_2O = 1x10^{-3} \times Fuel \times HHV \times EF$

Fuel	Volume of liquid fuel combusted (Input to Equations C-1 and C-8)	IVT (gallons/year)

Note: The following values are the defaults for the fuel you selected. The fuel and default values are found on Table C-1 and C-2 of Part 98.

HHV	Default high heat value of the fuel (Input to Equations C-1 and C-8)	0.138 (mmBtu/gallon)
EF	Fuel-specific default emission factor for CO_2 (Input to Equation C-1)	73.96 (kg CO_2/mmBtu)
EF	Fuel-specific default emission factor for CH_4 (Input to Equation C-8)	0.003 (kg CH_4/mmBtu)
EF	Fuel-specific default emission factor for N_2O (Input to Equation C-8)	0.0006 (kg N_2O/mmBtu)

SAVE CANCEL

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e-GGRT RY2015.R40 | SPC-22

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

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, the IVT requires you to enter the quantity of the fuel combusted:

- For gaseous fuels, enter the volume of fuel combusted in scf per year (Equation C-1) or, for natural gas, enter annual natural gas usage in therms per year (Equation C-1a) or mmBtu per year (Equation C-1b)
- For liquid fuels, enter the volume of fuel combusted in gallons per year
- For solid fuels, enter the mass of fuel combusted in tons per year

*When using Wood and Wood Residuals in non-IVT configuration, additional data is necessary. In place of the radio buttons for “High heat value of the fuel used” e-GGRT instead collects “moisture content used to calculate the wet-basis HHV” as a percent. Unit’s measure of “percent” and the value collected would be a value greater than or equal to zero and less than or equal to 100. This value will automatically be used to calculate a wet-basis HHV in mmBtu /short ton based on the default dry-based HHV for Wood and Wood Residuals.

When finished, click SAVE.

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

For each fuel type (including biomass fuel(s)) for which you have elected to use a **Tier 2 (Equations C-2a and C-2b)** methodology, the IVT requires you to enter the following:

- For gaseous fuels:
  - The volume of gaseous fuel combusted (scf/year)
  - High heat value of the fuel used (mmBtu/scf)*
- For liquid fuels:
  - The volume of liquid fuel combusted (gallons/year)
  - High heat value of the fuel used (mmBtu/gallon)*
- For solid fuels:
  - Mass of solid fuel combusted (tons/year)
  - High heat value of the fuel used (mmBtu/ton)*

*Depending on the unit(s)' size and fuel sampling frequency requirements, you may be required to use Equation C-2b to calculate the fuel volume and high heat value of the fuel used. Specifically, if the unit (or largest unit in the configuration) is at least 100 mmBtu/hr, and, the fuel sample results are obtained at least monthly, you must use Equation C-2b. If these requirements are not met, you have the option of either using Equation C-2b to calculate an average HHV, or, calculating an arithmetic average HHV. In either optional case, you will calculate the annual average HHV offline and enter the value directly into the IVT. Access the Equation C-2b IVT by selecting the radio button labeled "Use Equation C-2b to calculate a weighted annual average high heat value of the fuel" and clicking on the "Go" button associated with the data entry cell that appears. The equation C-2b IVT requires entry of the following for each month of the reporting year:

- Measured high heat value of the fuel, for month (which may be the arithmetic average of multiple determinations), or, if applicable, an appropriate substitute data value (mmBtu per scf, gallon or ton)
- Quantity (mass or volume) of the fuel combusted during month, from company records (scf, gallons, or tons)

Tier 2 (Equation C-2c)

For municipal solid waste (MSW) for which you have elected to use the **Tier 2, Equation C-2c** methodology, the IVT requires you to enter the following:

- Total mass of steam generated by MSW or solid fuel combustion during reporting year (pounds steam)
- Ratio of the boiler's maximum rated heat input capacity to its design rate steam output capacity (mmBtu/pounds steam)

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

For each fuel type (including biomass fuel(s)) for which you have elected to use a **Tier 3 (Equations C-3, C-4 and C-5)** methodology, the IVT requires you to enter the following:

- For gaseous fuels (Equation C-5/C-8):
  - Annual volume of gaseous fuel combusted (scf/year)
  - Annual average carbon content of the gaseous fuel (kg C/kg)
  - Annual average molecular weight of the gaseous fuel (kg/kg-mole)
  - High heat value of the fuel used (mmBtu/scf)
    - Default from Table C-1, or
    - Calculated by the IVT for Equation C-2b*
- For liquid fuels (Equation C-4/C-8):
  - Annual volume of liquid fuel combusted (gal/year)
  - Annual average carbon content of the liquid fuel (kg C/gallon)
  - High heat value of the fuel used (mmBtu/gallon)
    - Default from Table C-1, or
    - Calculated by the IVT for Equation C-2b*
- For solid fuels (Equation C-3/C-8):
  - Annual volume of solid fuel combusted (short tons/year)
  - Annual average carbon content of the solid fuel (percent by weight, expressed as a decimal fraction)
  - High heat value of the fuel used (mmBtu/short ton)
    - Default from Table C-1, or
    - Calculated by the IVT for Equation C-2b*

*Access the Equation C-2b IVT by selecting the radio button labeled "Use Equation C-2b to calculate a weighted annual average high heat value of the fuel" and clicking on the "Go" button associated with the data entry cell that appears. The equation C-2b IVT requires entry of the following for each month of the reporting year:

- Measured high heat value of the fuel, for month (which may be the arithmetic average of multiple determinations), or, if applicable, an appropriate substitute data value (mmBtu per scf, gallon or ton)
- Quantity (mass or volume) of the fuel combusted during month, from company records (scf, gallons, or tons)

Tier 4 (CEMS)

For each fuel type (including biomass fuel(s)) for which you use the **Tier 4** methodology, subpart C requires you to enter the Cumulative annual heat input from combustion of the fuel (mmBtu) to allow the IVT to calculate CH_4 and N_2O emissions using **Equation C-10**.

Once you have completed entering all of your inputs for the fuel in the IVT, click "Save" at the bottom of the page and e-GGRT will calculate your emissions and return you to the Fuel-specific Emissions page where the emissions of CO_2, CH_4, and N_2O calculated for the fuel is displayed in the respective data entry cell for each gas. The CO_2e for CH_4 and N_2O emissions will also be displayed on this page. Check the "Enter/Report Alternate Result" box if you wish to report a result that differs from the one calculated by the IVT (note that this will generate a validation message).

For Tier 2 and Tier 3 methodology, you are required to report monitoring information in sections below the equation summary and results sections (see Reporting Fuel-specific Monitoring Information below).

When you have finished entering data on the Fuel-specific Emissions page, click "Save," which will return you to the Configuration Summary page.

Saving and Reloading Your Inputs Verifier File

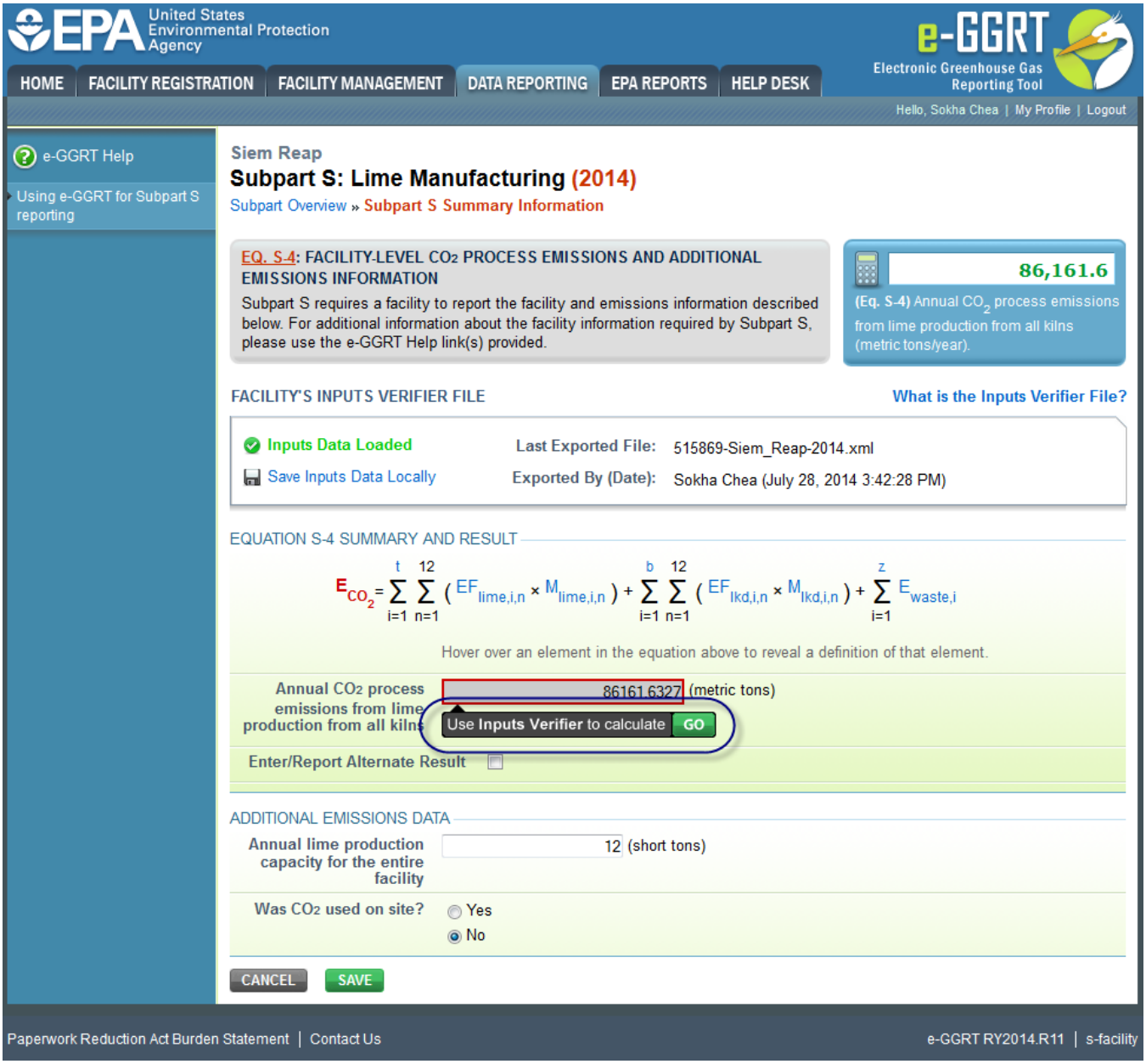
As you enter data into the Inputs Verifier Tool (IVT), the system creates and "inputs file" that contains all the data that you entered into IVT. You must save your inputs file to your computer or other location that you designate. On each subsequent log in, you will be prompted to temporarily upload the latest version of the inputs file to e-GGRT. **e-GGRT will not save data entered into the IVT. Users are responsible for saving their facility's inputs file.** This page shows how the IVT assists users with this task.

The following example demonstrates how the inputs to equations are 1) entered, 2) saved locally, 3) temporarily loaded at a later session, 4) the screen errors you may receive, and 5) error messages you may receive if you attempt to open an inputs file that is not the most recent one saved for your facility.

> If you are having trouble locating your inputs file or would like to "Reset" and recreate your inputs file, please review our help content reviewing these processes at Reloading Your Inputs Verifier File or Resetting your Facility To Create a New Inputs Verifier file.

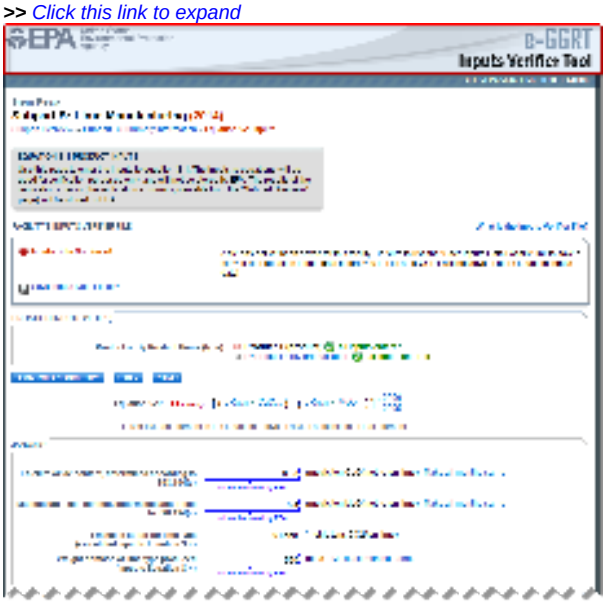
To access the inputs verifier tool, users would log in to e-GGRT with their username and password, select their facility, and navigate to the "Data Reporting" section of e-GGRT.

>> *Click this link to expand*



On the Data Reporting tab for the selected subpart, immediately below a reported emissions value, the user will find a button labeled **"Use Inputs Verifier to calculate| GO"**. Clicking **GO** will open the inputs verifier tool for that reported emissions value. Please note that screens in the inputs verifier tool are clearly marked with a unique header indicating that you are using the IVT (shown below with red outline).

>> *Click this link to expand*



Siem Reap

Subpart S: Lime Manufacturing (2014)

EQUATION S-1 PRODUCT INPUTS

Use this page to enter the inputs to equation S-1. The inputs to equations will be used for verification purposes only, and will not be stored by EPA. The results of the verification checks (the verification summary, viewable from the "Subpart Overview" page) will be stored by EPA.

FACILITY'S INPUTS VERIFIER FILE What is the Inputs Verifier File?

Inputs Data Not Saved

A file has not yet been saved for this facility. Be sure to use the "Save Inputs Data Locally" link to save a copy of your equation inputs data before you log off as e-GGRT will not save or store equation inputs data!

Save Inputs Data Locally

EQUATION INPUTS (1 OF 2)

Product or By-Product Name (type) Product 1 (product) all inputs entered
By Product A (by-product sold) all inputs entered

Equation S-4 Summary ←PREV NEXT→

Equation S-1: $EF_{LIME,i,n} = [(SR_{CaO} \times CaO_{i,n}) + (SR_{MgO} \times MgO_{i,n})] * \frac{2000}{2205}$

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

JANUARY

Calcium oxide content, determined according to §98.194(c)	0.66 (will not be stored by EPA)	(metric ton CaO/metric ton lime) Make all months same
Magnesium oxide content, determined according to §98.194(c)	0.4 (will not be stored by EPA)	(metric ton MgO/metric ton lime) Make all months same
Emission factor for lime type (calculated input to Equation S-4)	0.8659	(metric tons CO2/ton lime)
Weight or mass of lime type produced (input to Equation S-4)	520 (will not be stored by EPA)	(tons) Make all months same

DECEMBER

Calcium oxide content, determined according to §98.194(c)	0.66 (will not be stored by EPA)	(metric ton CaO/metric ton lime)
Magnesium oxide content, determined according to §98.194(c)	0.4 (will not be stored by EPA)	(metric ton MgO/metric ton lime)
Emission factor for lime type (calculated input to Equation S-4)	0.8659	(metric tons CO2/ton lime)
Weight or mass of lime type produced (input to Equation S-4)	520 (will not be stored by EPA)	(tons)

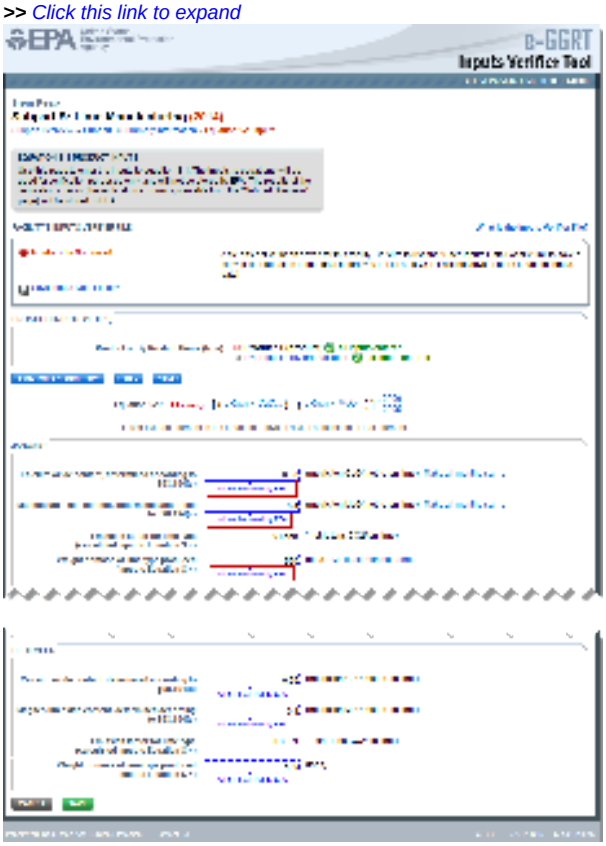
CANCEL SAVE

Entering Data Using the IVT

Once in the IVT, the user will be able to enter inputs to equations data. An example of an inputs to equations field is outlined with red in the screen shot below. Please note that every field for inputs to equations states that the data "will not be stored by EPA". Unless you save you input files, you will need to manually re-enter this data during future data entry sessions.

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

>> *Click this link to expand*



Siem Reap

Subpart S: Lime Manufacturing (2014)

EQUATION S-1 PRODUCT INPUTS

Use this page to enter the inputs to equation S-1. The inputs to equations will be used for verification purposes only, and will not be stored by EPA. The results of the verification checks (the verification summary, viewable from the "Subpart Overview" page) will be stored by EPA.

FACILITY'S INPUTS VERIFIER FILE What is the Inputs Verifier File?

Inputs Data Not Saved

A file has not yet been saved for this facility. Be sure to use the "Save Inputs Data Locally" link to save a copy of your equation inputs data before you log off as e-GGRT will not save or store equation inputs data!

Save Inputs Data Locally

EQUATION INPUTS (1 OF 2)

Product or By-Product Name (type) Product 1 (product) all inputs entered
By Product A (by-product sold) all inputs entered

Equation S-4 Summary ←PREV NEXT→

Equation S-1: $EF_{LIME,i,n} = [(SR_{CaO} \times CaO_{i,n}) + (SR_{MgO} \times MgO_{i,n})] * \frac{2000}{2205}$

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

JANUARY

Calcium oxide content, determined according to §98.194(c)	0.66 (will not be stored by EPA)	(metric ton CaO/metric ton lime) Make all months same
Magnesium oxide content, determined according to §98.194(c)	0.4 (will not be stored by EPA)	(metric ton MgO/metric ton lime) Make all months same
Emission factor for lime type (calculated input to Equation S-4)	0.8659	(metric tons CO2/ton lime)
Weight or mass of lime type produced (input to Equation S-4)	520 (will not be stored by EPA)	(tons) Make all months same

DECEMBER

Calcium oxide content, determined according to §98.194(c)	0.66 (will not be stored by EPA)	(metric ton CaO/metric ton lime)
Magnesium oxide content, determined according to §98.194(c)	0.4 (will not be stored by EPA)	(metric ton MgO/metric ton lime)
Emission factor for lime type (calculated input to Equation S-4)	0.8659	(metric tons CO2/ton lime)
Weight or mass of lime type produced (input to Equation S-4)	520 (will not be stored by EPA)	(tons)

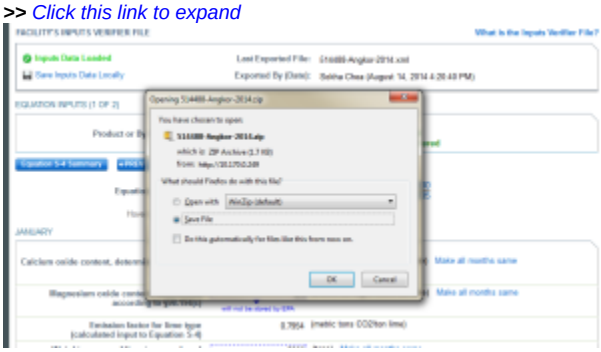
CANCEL SAVE

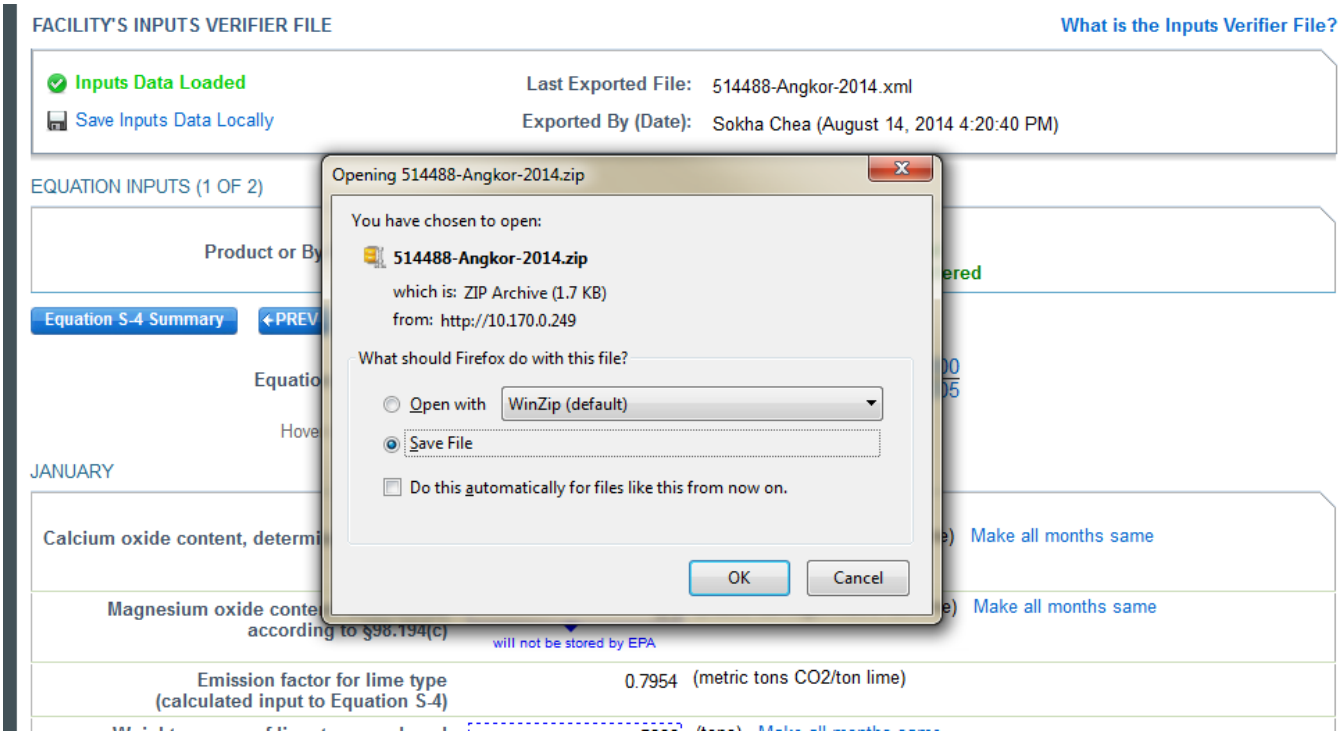
Saving Data Entered in the IVT

Data entered into the inputs verifier module are NOT saved in e-GGRT. Only the output values from the inputs verifier module are saved in e-GGRT. **Ther efore, each user/facility will have to save their inputs verifier file to their local hard drive and keep track of the file for future use.** On the top of each IVT screen, immediately below the grey box, IVT will present the save status of your FACILITY'S INPUTS VERIFIER FILE (File History), which contains the data entered into the inputs verifier module. To use e-GGRT in the future for your facility, you must save this file in a place where you can access it. This status box is also available on the Facility Overview page. Prior to saving your inputs verifier file, this section of the screen will state **"Inputs Data Not Saved"** in red letters and will provide the "Last Saved File" field. Click "Save Inputs Data" to save the inputs verifier file to your computer. This status box appears on many pages throughout e-GGRT and IVT so that it is easy for you to save inputs. However, you only need to save inputs at the completion of each data entry session.

After clicking "Save Inputs Data ", you will be able to save the inputs verifier file to your computer. Please note that different browsers may allow the user to set file-saving preferences and default locations. The example shown below uses the Firefox browser. Each user's save dialog box and defaults may appear differently, depending on the browser used. For information on browser-specific behaviors please refer to Browser-specific issues and behaviors.

>> *Click this link to expand*



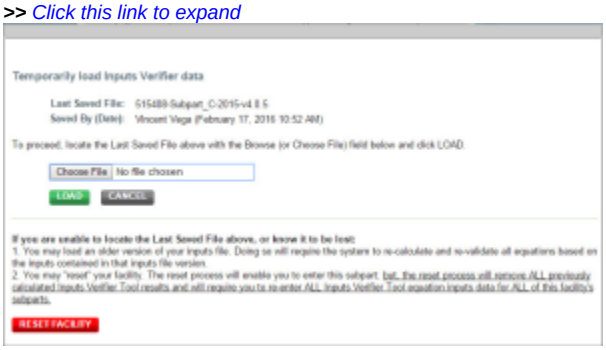


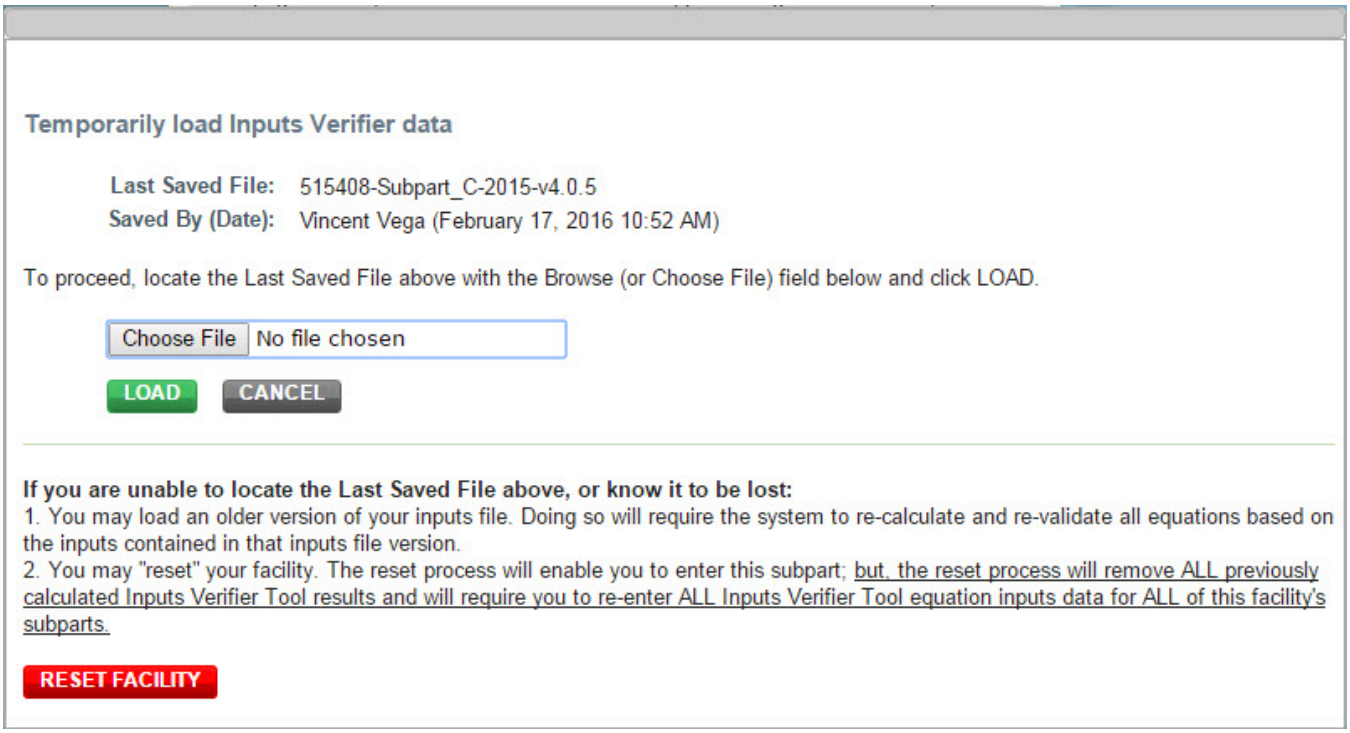
Once you have saved the file, the inputs verifier file status box will display "**Inputs Data Saved**" in green text and the "Saved By (Date):" field that shows the name of the user who most recently saved an inputs verifier file and the date and time." Each time you click "Save Inputs Data Locally", the IVT will record that you have saved your inputs verifier file. The IVT does not record where you save your inputs verifier file or whether you elect to cancel this action.

Reloading an Inputs Verifier File

When you come back to e-GGRT in a later session, you will return to the FACILITY or SUPPLIER OVERVIEW web form. Here you will see the box for the FACILITY'S INPUTS VERIFIER FILE (File History), with the message that "**Inputs Data Not Loaded**" in red text. To load an inputs verifier file that has been previously saved, click the link labeled "Temporarily Load Inputs Data". Then browse to and select the inputs verifier file saved locally (to your local computer or local network drive). The IVT will accept the ZIP file or XML file previously downloaded by the user or a copy of that file (note: this file may be renamed but its contents must be identical). Finally, click the **IMPORT** button to load the file to the inputs verifier tool.

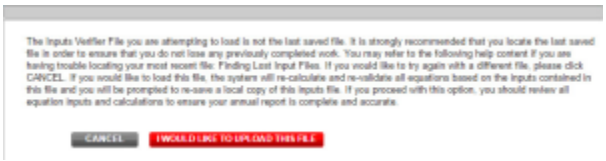
>> *Click this link to expand*





If the user attempts to reload an inputs verifier file that is not the one most recently saved for the facility, the user will receive the following warning message. The system prevents the user from accidentally loading an outdated file and thus losing the most recent data. Note that you may elect to choose "I Would Like to Upload this File" and the system will attempt to reconcile all validation messages and IVT calculations (which are based on the most recently-saved file) based on the inputs contained in the old file that you are electing to load. **If you elect to proceed to upload an old file, it is highly recommended that you review all equation inputs and calculations to ensure your annual report is complete and accurate.**

>> *Click this link to expand*



The Inputs Verifier File you are attempting to load is not the last saved file. It is strongly recommended that you locate the last saved file in order to ensure that you do not lose any previously completed work. You may refer to the following help content if you are having trouble locating your most recent file: Finding Lost Input Files. If you would like to try again with a different file, please click CANCEL. If you would like to load this file, the system will re-calculate and re-validate all equations based on the inputs contained in this file and you will be prompted to re-save a local copy of this inputs file. If you proceed with this option, you should review all equation inputs and calculations to ensure your annual report is complete and accurate.

CANCEL | I WOULD LIKE TO UPLOAD THIS FILE

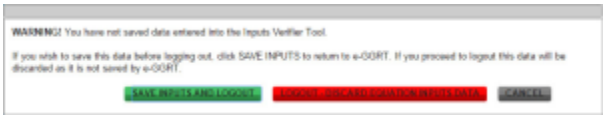
Screen Errors You May Receive

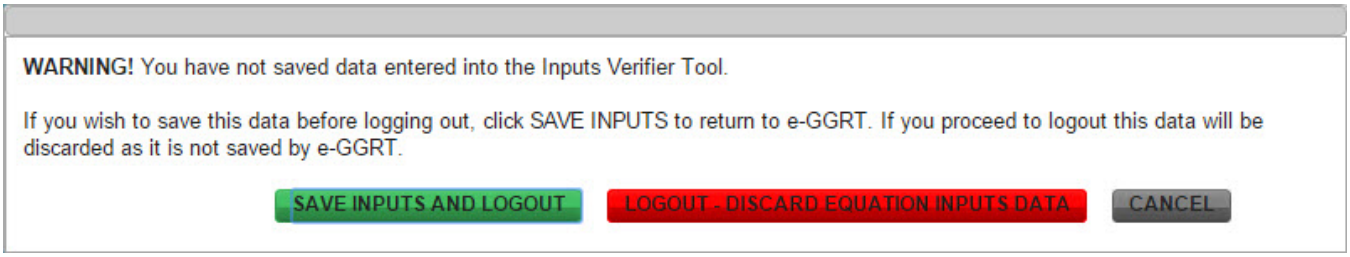
When attempting to save inputs data during the IVT data entry process, the user may receive screen errors that indicate the user has not completely entered required data to the Inputs Verifier Tool. Screen errors must be corrected before you will be permitted to complete a save action. Once you have corrected these errors, IVT will be able to calculate the equation result and you will be able to save your inputs verifier file locally.

>> *Click this link to expand*

If the user inputs and saves data in IVT, then adds, deletes, or updates one or more inputs to an equation in IVT without saving the inputs file locally and subsequently attempts to log out of e-GGRT, the following warning message will be displayed.

>> *Click this link to expand*



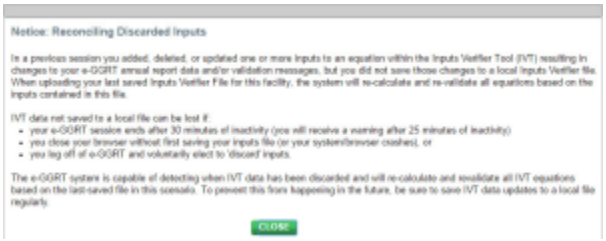


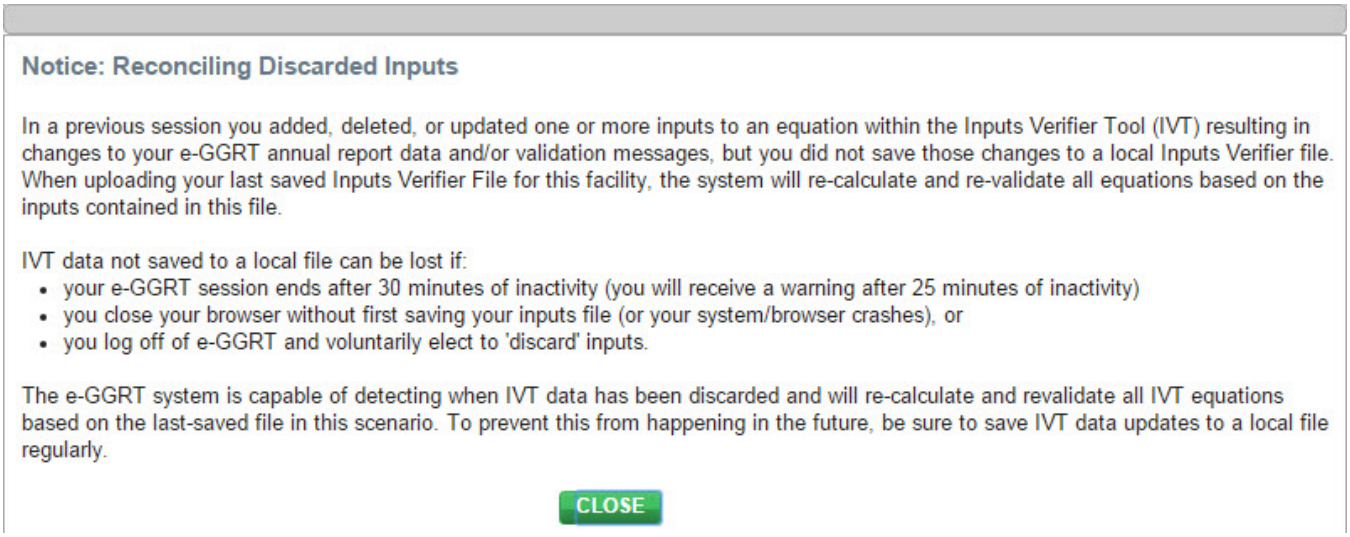
The user has three options:

- SAVE INPUTS AND LOGOUT - after clicking this button, the user is prompted to save the inputs file locally. Once the file has been saved, the user is logged out of e-GGRT.
- LOGOUT - DISCARD EQUATION INPUTS DATA - the most recent changes to the inputs data are discarded and the user is automatically logged out of e-GGRT. The inputs file is NOT saved.
- CANCEL - the user is returned to e-GGRT. The inputs file is NOT saved. Note that if the user clicks CANCEL and does not save the inputs file locally and later attempts to logout, the warning message will be displayed again).

If the user clicked the LOGOUT - DISCARD EQUATION INPUTS DATA button in a previous session, the following message will be displayed the next time the user logs in.

>> *Click this link to expand*





Notice: Reconciling Discarded Inputs

In a previous session you added, deleted, or updated one or more inputs to an equation within the Inputs Verifier Tool (IVT) resulting in changes to your e-GGRT annual report data and/or validation messages, but you did not save those changes to a local Inputs Verifier file. When uploading your last saved Inputs Verifier File for this facility, the system will re-calculate and re-validate all equations based on the inputs contained in this file.

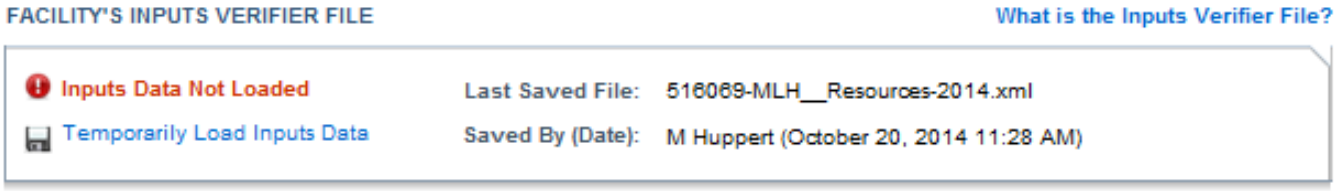
IVT data not saved to a local file can be lost if:

- your e-GGRT session ends after 30 minutes of inactivity (you will receive a warning after 25 minutes of inactivity)
- you close your browser without first saving your inputs file (or your system/browser crashes), or
- you log off of e-GGRT and voluntarily elect to 'discard' inputs.

The e-GGRT system is capable of detecting when IVT data has been discarded and will re-calculate and revalidate all IVT equations based on the last-saved file in this scenario. To prevent this from happening in the future, be sure to save IVT data updates to a local file regularly.

CLOSE

To load an inputs verifier file that has been previously saved (as would occur if you logged off and came back to e-GGRT in a later session), the user would click the link labeled "Temporarily Load Inputs Data". The user would browse to and select the inputs verifier file saved locally (to their local computer or local network drive). The IVT will accept the ZIP file or XML file previously downloaded by the user or a copy of that file (note: this file may be renamed but its contents must be identical) . The user would then click the **IMPORT** button to load the file to the inputs verifier tool.



If you attempt to reload an inputs verifier file that is not the one most recently saved for the facility, the user will receive the following warning message. The system prevents the user from accidentally loading an outdated file and thus losing the most recent data. Note that you may elect to choose "I Would Like to Upload this File" and the system will attempt to reconcile all validation messages and IVT calculations (which are based on the most recently-saved file) based on the inputs contained in the old file that you are electing to load. **If you elect to proceed to upload an old file, it is highly recommended that you review all equation inputs and calculations to ensure your annual report is complete and accurate.**

The Inputs Verifier File you are attempting to load is not the last saved file. It is strongly recommended that you locate the last saved file in order to ensure that you do not lose any previously completed work. You may refer to the following help content if you are having trouble locating your most recent file: Finding Lost Input Files. If you would like to try again with a different file, please click CANCEL. If you would like to load this file, the system will re-calculate and re-validate all equations based on the inputs contained in this file and you will be prompted to re-save a local copy of this inputs file. If you proceed with this option, you should review all equation inputs and calculations to ensure your annual report is complete and accurate.

CANCEL | I WOULD LIKE TO UPLOAD THIS FILE

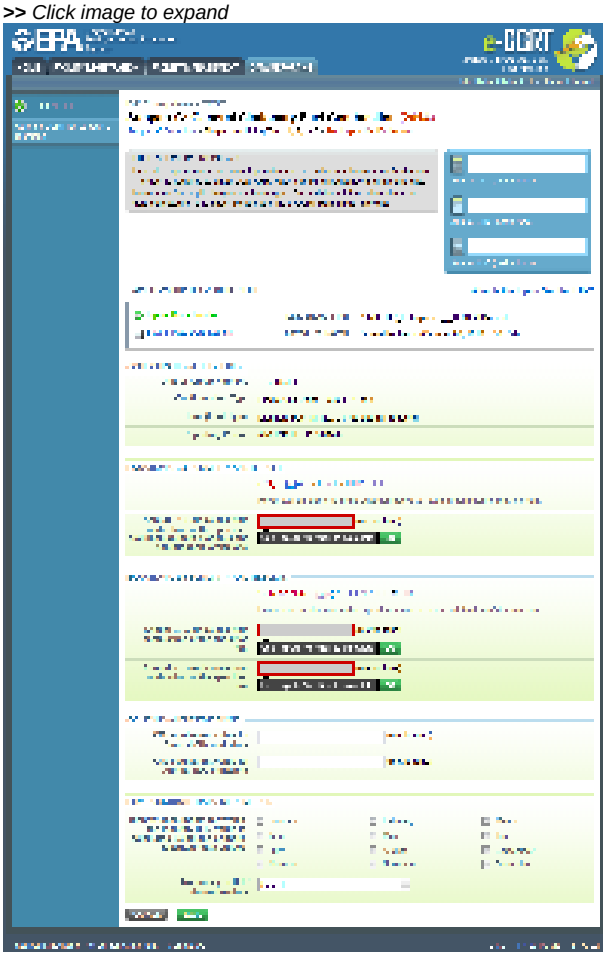
Reporting Fuel-specific Monitoring Information

For fuels for which you have elected to use Tier 2 or Tier 3 methodologies, you are also required to report monitoring information in sections below the equation summary and results sections.

For **Tier 2**, you are required to report the following HHV Substitute Data Information for all fuels:

- Identify each month for which the monthly HHV value is calculated using one or more substitute data values by selecting the checkbox for that month
- Select the frequency of HHV determinations from the following options in the dropdown box:
  - Hourly
  - Daily
  - Weekly
  - Monthly
  - Semiannually
  - Quarterly
  - Once per fuel lot
  - Upon addition of oil to fuel tank
  - Other (specify)

>> *Click image to expand*



e-GGRT Help
Using e-GGRT for Subpart C reporting

DR Enterprises - TEST

Subpart C: General Stationary Fuel Combustion (2014)

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 CO_2, CH_4, N_2O, 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.

Annual CO_2 (metric tons)

Annual CH_4 (metric tons)

Annual N_2O (metric tons)

FACILITY'S INPUTS VERIFIER FILE

What is the Inputs Verifier File?

Inputs Data Loaded
Save Inputs Data Locally

Last Saved File: 511706-DR_Enterprises_-_TEST-2014.xml
Saved By (Date): Richard Richards (October 09, 2014 4:58 PM)

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	Test Unit 1
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Distillate Fuel Oil No. 2 (Petroleum Products)
Reporting Period	01/01/2014 - 12/31/2014

EQUATION C-2a SUMMARY AND RESULT

$$CO_2 = 1x10^{-3} \times Fuel \times HHV \times EF$$

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

Annual CO_2 emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions): (metric tons)

Use Inputs Verifier to calculate GO

EQUATION C-9a SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 1x10^{-3} \times HHV \times EF \times Fuel$$

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

Annual CH_4 emissions from combustion of the specified fuel: (metric tons)

Use Inputs Verifier to calculate GO

Annual N_2O emissions from combustion of the specified fuel: (metric tons)

Use Inputs Verifier to calculate GO

CO_2 EQUIVALENT EMISSIONS

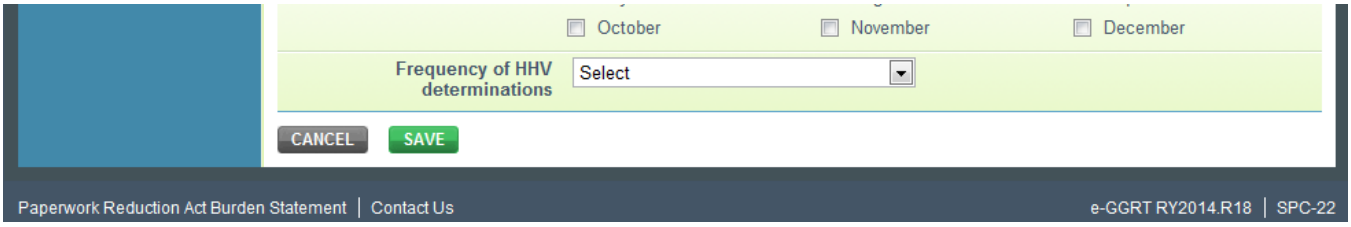
CO_2 equivalent value for Annual CH_4 emissions: (metric tons)

CO_2 equivalent value for Annual N_2O emissions: (metric tons)

HHV SUBSTITUTE DATA INFORMATION

Identify each month for which the monthly HHV value is calculated using one or more substitute data values

January	February	March
April	May	June
July	August	September



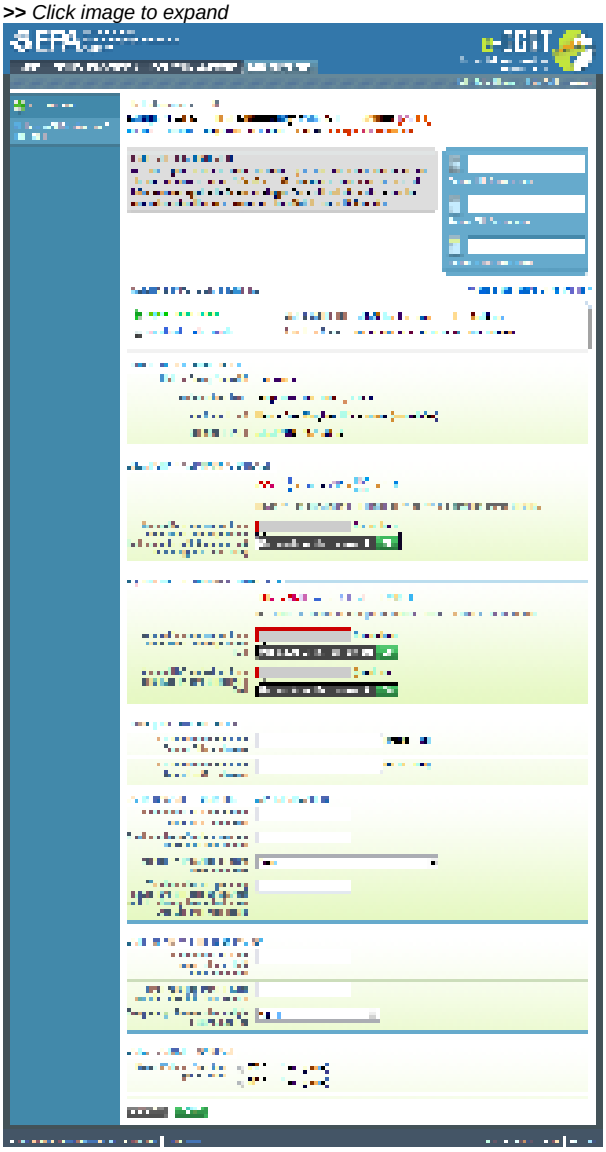
For **Tier 3**, you are required to report the following Carbon Content Substitute Data Information for all fuels:

- Total number of valid carbon content determinations
- Total number of carbon content substitute data values
- Frequency of carbon content determinations, selecting from the following options in the dropdown box:
    - Hourly
    - Daily
    - Weekly
    - Monthly
    - Semiannually
    - Quarterly
    - Once per fuel lot
    - Upon addition of oil to fuel tank
    - Other (specify)
- Total number of operating hours in the reporting year for which missing data substitution was used for fuel usage

For gaseous fuels that use the **Tier 3** methodology, you are also required to report the following:

- Molecular Weight Information
    - Total number of valid molecular weight determinations
    - Total number of molecular weight substitute data values
    - Frequency of molecular weight determinations
- Molar Volume Constant, selecting one of the following values using the radio buttons provided:
    - 836.6 scf per kg mole
    - 849.5 scf per kg mole

>> Click image to expand



e-GGRT Help

Using e-GGRT for Subpart C reporting

DR Enterprises - TEST

Subpart C: General Stationary Fuel Combustion (2014)

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 CO_2, CH_4, N_2O, 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.

Annual CO_2 (metric tons)

Annual CH_4 (metric tons)

Annual N_2O (metric tons)

FACILITY'S INPUTS VERIFIER FILE

What is the Inputs Verifier File?

Inputs Data Loaded

Save Inputs Data Locally

Last Saved File: 511706-DR_Enterprises_-_TEST-2014.xml

Saved By (Date): Richard Richards (October 09, 2014 4:58 PM)

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	Test Unit 1
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas)
Reporting Period	01/01/2014 - 12/31/2014

EQUATION C-5 SUMMARY AND RESULT

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

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

Annual CO_2 emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions): (metric tons)

Use Inputs Verifier to calculate GO

EQUATION C-8 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 1x10^{-3} \times Fuel \times HHV \times EF$$

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

Annual CH_4 emissions from combustion of the specified fuel: (metric tons)

Use Inputs Verifier to calculate GO

Annual N_2O emissions from combustion of the specified fuel: (metric tons)

Use Inputs Verifier to calculate GO

CO_2 EQUIVALENT EMISSIONS

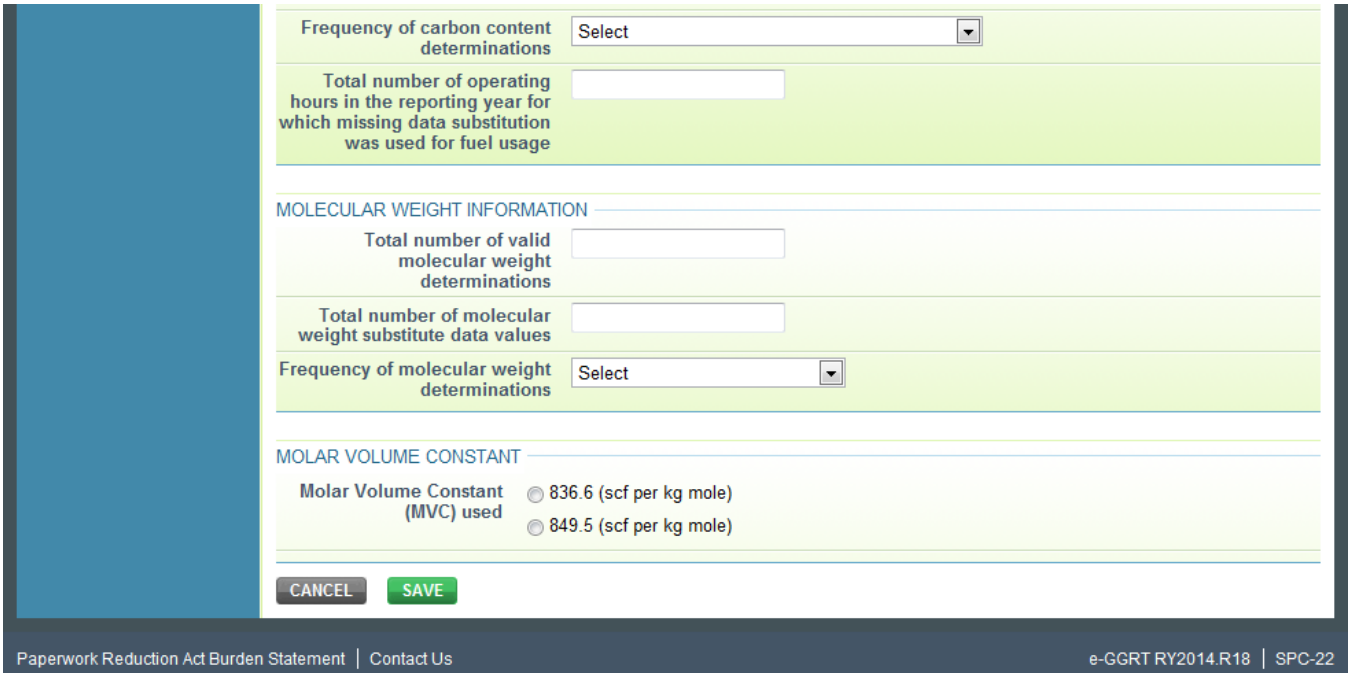
CO_2 equivalent value for Annual CH_4 emissions: (metric tons)

CO_2 equivalent value for Annual N_2O emissions: (metric tons)

CARBON CONTENT SUBSTITUTE DATA INFORMATION

Total number of valid carbon content determinations:

Total number of carbon content substitute data values:



Reporting Emissions and Equation Inputs to EPA

The data entry screen will vary depending on the calculation methodology (tier and equation). The screen shot below shows the Fuel-specific Emissions page for Tier 1 using Equation C-1 to calculate CO_2 emissions and Equation C-8 to calculate CH_4 and N_2O emissions.

>> Click this link to expand

e-GGRT Help
Using e-GGRT for Subpart C reporting

Sokha

Subpart C: General Stationary Fuel Combustion (2013)

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 CO_2, CH_4, N_2O, 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.

Annual CO_2 (metric tons)	5000.0
Annual CH_4 (metric tons)	1.00
Annual N_2O (metric tons)	1.000

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	Single Unit Using Tiers 1
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas)
Reporting Period	01/01/2013 - 12/31/2013

EQUATION C-2a SUMMARY AND RESULT

$$CO_2 = 1x10^{-3} \times Fuel \times HHV \times EF$$

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

Annual CO_2 emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions)	5000 (metric tons) Use Equation C-2a/C-9a spreadsheet to calculate

EQUATION C-9a SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 1x10^{-3} \times HHV \times EF \times Fuel$$

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

Annual CH_4 emissions from combustion of the specified fuel	1 (metric tons) Use Equation C-2a/C-9a spreadsheet to calculate
Annual N_2O emissions from combustion of the specified fuel	1 (metric tons) Use Equation C-2a/C-9a spreadsheet to calculate

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions	25.0 (metric tons)
CO_2 equivalent value for Annual N_2O emissions	298.0 (metric tons)

HHV SUBSTITUTE DATA INFORMATION

Identify each month for which the monthly HHV value is calculated using one or more substitute data values

☑ January	☐ February	☐ March
☐ April	☐ May	☐ June
☐ July	☑ August	☐ September
☐ October	☐ November	☐ December

Frequency of HHV determinations: Weekly

CANCEL SAVE

e-GGRT Help
Using e-GGRT for Subpart C reporting

Sokha

Subpart C: General Stationary Fuel Combustion (2013)

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 CO_2, CH_4, N_2O, 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.

Annual CO_2 (metric tons)	5000.0
Annual CH_4 (metric tons)	1.00
Annual N_2O (metric tons)	1.000

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	Single Unit Using Tiers 1
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas)
Reporting Period	01/01/2013 - 12/31/2013

EQUATION C-2a SUMMARY AND RESULT

$$CO_2 = 1x10^{-3} \times Fuel \times HHV \times EF$$

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

Annual CO_2 emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions)	5000 (metric tons) Use Equation C-2a/C-9a spreadsheet to calculate

EQUATION C-9a SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 1x10^{-3} \times HHV \times EF \times Fuel$$

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

Annual CH_4 emissions from combustion of the specified fuel	1 (metric tons) Use Equation C-2a/C-9a spreadsheet to calculate
Annual N_2O emissions from combustion of the specified fuel	1 (metric tons) Use Equation C-2a/C-9a spreadsheet to calculate

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions	25.0 (metric tons)
CO_2 equivalent value for Annual N_2O emissions	298.0 (metric tons)

HHV SUBSTITUTE DATA INFORMATION

Identify each month for which the monthly HHV value is calculated using one or more substitute data values

☑ January	☐ February	☐ March
☐ April	☐ May	☐ June
☐ July	☑ August	☐ September
☐ October	☐ November	☐ December

Frequency of HHV determinations: Weekly

CANCEL SAVE

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 CO_2 mass emissions derived from Equation C-2a in metric tons CO_2 (this includes both non-biogenic and biogenic CO_2 as applicable) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH_4 mass emissions derived from Equation C-9a in metric tons CH_4 and in metric tons CO_2e (for Table C-2 fuels only). Note that e-GGRT will automatically calculate the CO_2e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N_2O mass emissions derived from Equation C-9a in metric tons N_2O and in metric tons CO_2e (for Table C-2 fuels only). Note that e-GGRT will automatically calculate the CO_2e 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 using Wood and Wood Residuals in non-IVT configuration, additional data is necessary. In place of the radio buttons for “High heat value of the fuel used” e-GGRT instead collects “moisture content used to calculate the wet-basis HHV.” Unit’s measure of “percent” and the value collected would be a value greater than or equal to zero and less than or equal to 100. This value will automatically be used to calculate a wet-basis HHV in mmBtu/short ton based on the default dry-based HHV for Wood and Wood Residuals.

When finished, click SAVE.

Tier 2 (Equation C-2c)

>> *Click this link to expand*

e-GGRT Help
Using e-GGRT for Subpart C reporting

Sokha

Subpart C: General Stationary Fuel Combustion (2013)

Subpart C Overview » Aggregation of Units » 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 CO_2, CH_4, N_2O, 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.

Annual CO_2 (metric tons)

Annual CH_4 (metric tons)

Annual N_2O (metric tons)

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	GP-Aggregation
Configuration Type	Aggregation of Units
Fuel (Fuel Type)	Anthracite (Coal and Coke)
Reporting Period	01/01/2013 - 12/31/2013

EQUATION C-2c SUMMARY AND RESULT

$CO_2 = 1x10^{-3}$ Steam × B × EF

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

Annual CO_2 emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions): (metric tons)

Use C-2c/C-9b spreadsheet to calculate

EQUATION C-9b SUMMARY AND RESULTS

CH_4 or $N_2O = 1x10^{-3}$ Steam × B × EF

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

Annual CH_4 emissions from combustion of the specified fuel: (metric tons)

Use C-2c/C-9b spreadsheet to calculate

Annual N_2O emissions from combustion of the specified fuel: (metric tons)

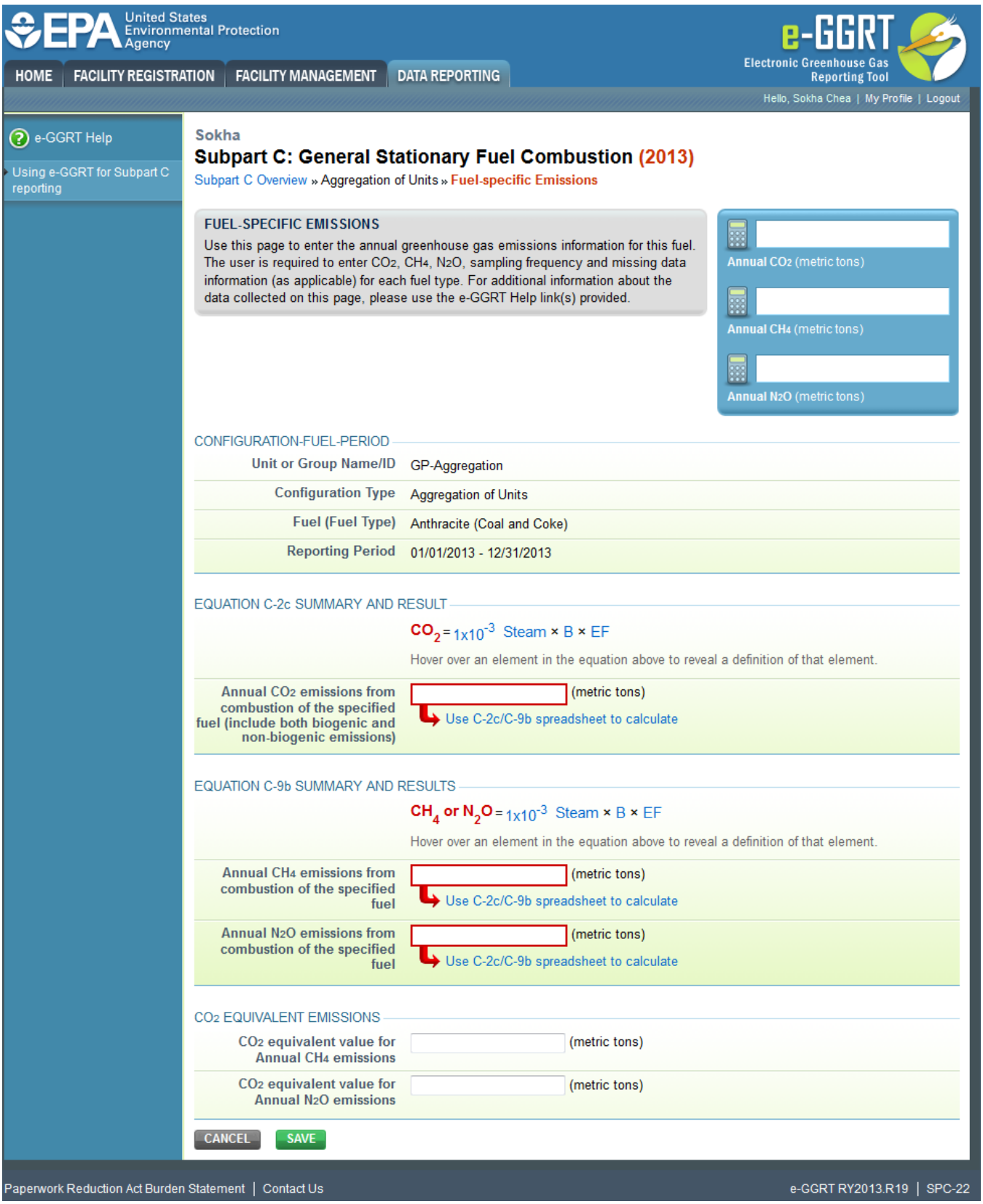
Use C-2c/C-9b spreadsheet to calculate

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions: (metric tons)

CO_2 equivalent value for Annual N_2O emissions: (metric tons)

CANCEL SAVE



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 CO_2 mass emissions derived from Equation C-2c in metric tons CO_2 (this includes both non-biogenic and biogenic CO_2 as applicable) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

- The total annual CH_4 mass emissions derived from Equation C-9b in metric tons CH_4 and in metric tons CO_2e (for Table C-2 fuels only). Note that e-GGRT will automatically calculate the CO_2e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N_2O mass emissions derived from Equation C-9b in metric tons N_2O and in metric tons CO_2e (for Table C-2 fuels only). Note that e-GGRT will automatically calculate the CO_2e 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 this link to expand*

e-GGRT Help
Using e-GGRT for Subpart C reporting

DR Enterprises - TEST

Subpart C: General Stationary Fuel Combustion (2015)

Subpart C Overview » Unit 101 » Natural Gas (Weighted U.S. Average)

FUEL-SPECIFIC EMISSIONS

Use this page to enter the annual greenhouse gas emissions information for this fuel. The user is required to enter CO_2, CH_4, N_2O, 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.

Annual CO_2 (metric tons)

Annual CH_4 (metric tons)

Annual N_2O (metric tons)

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	Unit 101
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas)
Reporting Period	01/01/2015 - 12/31/2015

EQUATION C-5/C-8 INPUTS

Annual volume of the gaseous fuel combusted (Input to Equations C-5 AND C-8)	(scf/year)
Annual average carbon content of the gaseous fuel (Input to Equation C-5)	○ Enter annual average carbon content, if the results of sampling are received less frequently than monthly in accordance with 98.33(a)(2)(ii)(B) ○ Use Equation C-2b to calculate a weighted annual average carbon content of the fuel. This option is required if the results of sampling are received monthly or more frequently, in accordance with 98.33(a)(2)(ii)(A)
Annual average molecular weight of the gaseous fuel (Input to Equation C-5)	○ Enter annual average molecular weight, if the results of sampling are received less frequently than monthly in accordance with 98.33(a)(2)(ii)(B) ○ Use Equation C-2b to calculate a weighted annual average molecular weight of the fuel. This option is required if the results of sampling are received monthly or more frequently, in accordance with 98.33(a)(2)(ii)(A)
Molar volume constant (MVC) used (Input to Equation C-5)	○ 836.6 (scf/kg-mole) ○ 849.5 (scf/kg-mole)
High heat value of the fuel used (Input to Equation C-8)	○ Default high heat value of the fuel (0.001026 mmBtu/scf) ○ Enter annual average high heat value

EQUATION C-5 SUMMARY AND RESULT

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

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

Annual CO_2 emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions)	(metric tons)

EQUATION C-8 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 1x10^{-3} \times Fuel \times HHV \times EF$$

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

Fuel-specific default emission factor for CH_4 (Input to Equation C-8)	0.001 (kg CH_4/mmBtu)
Annual CH_4 emissions from combustion of the specified fuel	(metric tons)
Fuel-specific default emission factor for N_2O (Input to Equation C-8)	0.0001 (kg N_2O/mmBtu)
Annual N_2O emissions from combustion of the specified fuel	(metric tons)

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions	(metric tons)
CO_2 equivalent value for Annual N_2O emissions	(metric tons)

CARBON CONTENT SUBSTITUTE DATA INFORMATION

Total number of valid carbon content determinations	
Total number of carbon content substitute data values	
Frequency of carbon content determinations	Select

Total number of operating hours in the reporting year for which missing data substitution was used for fuel usage

MOLECULAR WEIGHT INFORMATION

Total number of valid molecular weight determinations

Total number of molecular weight substitute data values

Frequency of molecular weight determinations: Select

SAVE CANCEL

e-GGRT Help
Using e-GGRT for Subpart C reporting

DR Enterprises - TEST

Subpart C: General Stationary Fuel Combustion (2015)

Subpart C Overview » Unit 101 » Natural Gas (Weighted U.S. Average)

FUEL-SPECIFIC EMISSIONS

Use this page to enter the annual greenhouse gas emissions information for this fuel. The user is required to enter CO_2, CH_4, N_2O, 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.

Annual CO_2 (metric tons)

Annual CH_4 (metric tons)

Annual N_2O (metric tons)

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID	Unit 101
Configuration Type	Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas)
Reporting Period	01/01/2015 - 12/31/2015

EQUATION C-5/C-8 INPUTS

Annual volume of the gaseous fuel combusted (Input to Equations C-5 AND C-8)	(scf/year)
Annual average carbon content of the gaseous fuel (Input to Equation C-5)	○ Enter annual average carbon content, if the results of sampling are received less frequently than monthly in accordance with 98.33(a)(2)(ii)(B) ○ Use Equation C-2b to calculate a weighted annual average carbon content of the fuel. This option is required if the results of sampling are received monthly or more frequently, in accordance with 98.33(a)(2)(ii)(A)
Annual average molecular weight of the gaseous fuel (Input to Equation C-5)	○ Enter annual average molecular weight, if the results of sampling are received less frequently than monthly in accordance with 98.33(a)(2)(ii)(B) ○ Use Equation C-2b to calculate a weighted annual average molecular weight of the fuel. This option is required if the results of sampling are received monthly or more frequently, in accordance with 98.33(a)(2)(ii)(A)
Molar volume constant (MVC) used (Input to Equation C-5)	○ 836.6 (scf/kg-mole) ○ 849.5 (scf/kg-mole)
High heat value of the fuel used (Input to Equation C-8)	○ Default high heat value of the fuel (0.001026 mmBtu/scf) ○ Enter annual average high heat value

EQUATION C-5 SUMMARY AND RESULT

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

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

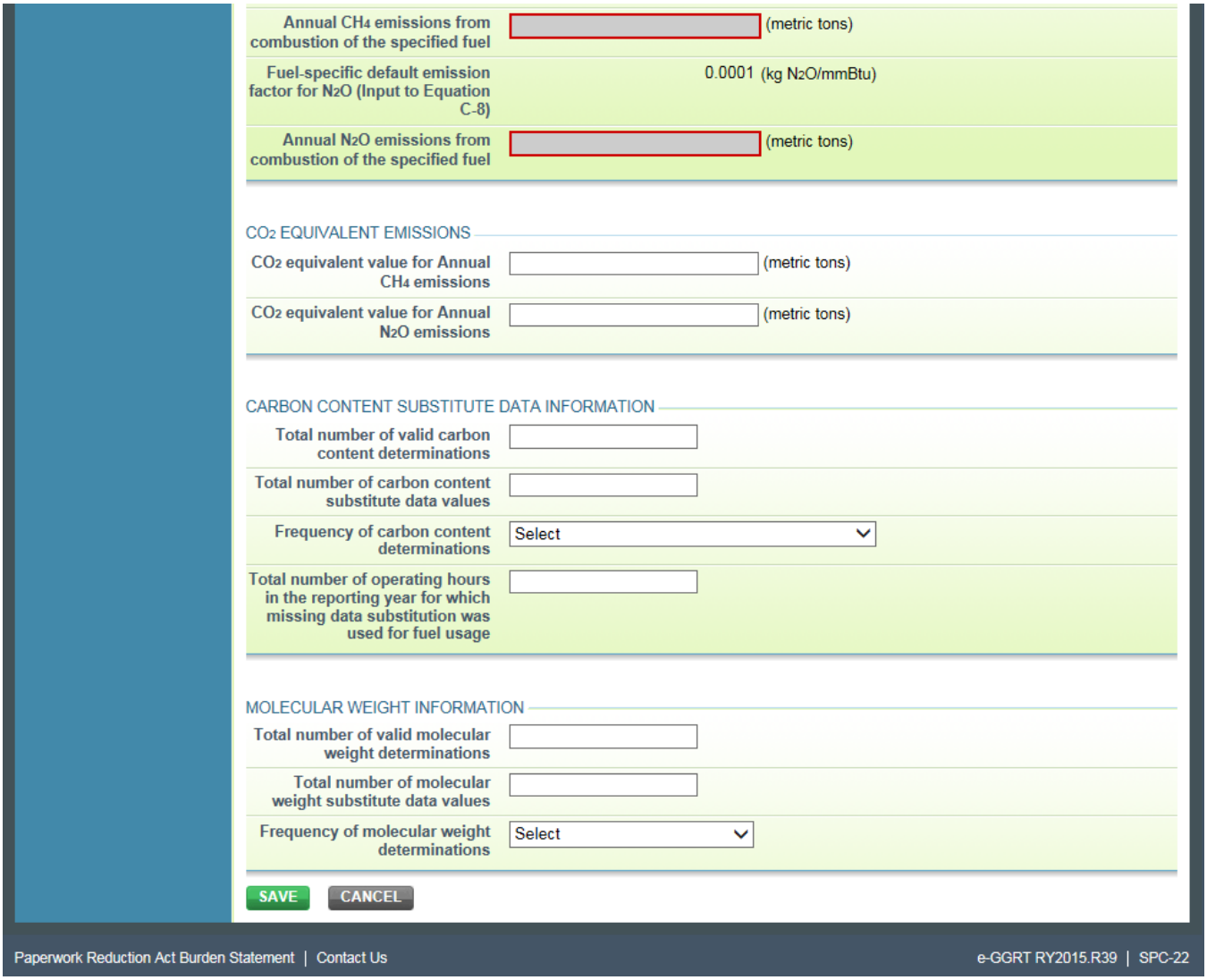
Annual CO_2 emissions from combustion of the specified fuel (include both biogenic and non-biogenic emissions)	(metric tons)

EQUATION C-8 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 1x10^{-3} \times Fuel \times HHV \times EF$$

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

Fuel-specific default emission factor for CH_4 (Input to Equation C-8)	0.001 (kg CH_4/mmBtu)



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 CO_2 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 CO_2 (this includes both non-biogenic and biogenic CO_2 as applicable) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH_4 mass emissions derived from Equation C-8 in metric tons CH_4 and in metric tons CO_2e (for Table C-2 fuels only). Note that e-GGRT will automatically calculate the CO_2e data value [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N_2O mass emissions derived from Equation C-8 in metric tons N_2O and in metric tons CO_2e (for Table C-2 fuels only). Note that e-GGRT will automatically calculate the CO_2e 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 this link to expand*

e-GGRT Help
Using e-GGRT for Subpart C reporting

Sokha

Subpart C: General Stationary Fuel Combustion (2013)

Subpart C Overview » Alternative Part 75 Reporters » Fuel-specific Emissions

FUEL-SPECIFIC CH_4 AND N_2O EMISSIONS

Use this page to enter the annual CH_4 and N_2O 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.

Annual CO_2e for CH_4 (metric tons)

Annual CO_2e for N_2O (metric tons)

CONFIGURATION

Unit or Group Name/ID	Alternative
Configuration Type	Alternative Part 75 Reporters
Part 75 Methodology	CEMS calculation method--- § 98.33(a)(5)(iii)
Part 75 Heat Input Method	CEMS
Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas)

EQUATION C-10 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 0.001 \times (HI)_A \times EF$$

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

Annual heat input	(mmBtu)
Emission factor for CH_4	0.001 (kg CH4/mmBtu)
Emission factor for N_2O	0.0001 (kg N2O/mmBtu)

ANNUAL CH_4 EMISSIONS

Note: This value is not a reporting requirement, but is used to calculate CO_{2e} which is a reporting requirement under 98.36(d)(1)(iii), 98.36(d)(2)(ii)(H), or 98.36(d)(2)(iii)(H).

Annual CH_4 emissions from combustion of the specified fuel (metric tons)

Use which CH_4 result?
- Use the calculated result rounded
- Enter my own result (value will be rounded)

ANNUAL N_2O EMISSIONS

Note: This value is not a reporting requirement, but is used to calculate CO_{2e} which is a reporting requirement under 98.36(d)(1)(iii), 98.36(d)(2)(ii)(H), or 98.36(d)(2)(iii)(H).

Annual N_2O emissions from combustion of the specified fuel (metric tons)

Use which N_2O result?
- Use the calculated result rounded
- Enter my own result (value will be rounded)

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions	(metric tons)
CO_2 equivalent value for Annual N_2O emissions	(metric tons)

CANCEL SAVE

e-GGRT Help
Using e-GGRT for Subpart C reporting

Sokha

Subpart C: General Stationary Fuel Combustion (2013)

Subpart C Overview » Alternative Part 75 Reporters » Fuel-specific Emissions

FUEL-SPECIFIC CH_4 AND N_2O EMISSIONS

Use this page to enter the annual CH_4 and N_2O 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.

Annual CO_2e for CH_4 (metric tons)

Annual CO_2e for N_2O (metric tons)

CONFIGURATION

Unit or Group Name/ID	Alternative
Configuration Type	Alternative Part 75 Reporters
Part 75 Methodology	CEMS calculation method--- § 98.33(a)(5)(iii)
Part 75 Heat Input Method	CEMS
Fuel (Fuel Type)	Natural Gas (Weighted U.S. Average) (Natural Gas)

EQUATION C-10 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 0.001 \times (HI)_A \times EF$$

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

Annual heat input	(mmBtu)
Emission factor for CH_4	0.001 (kg CH4/mmBtu)
Emission factor for N_2O	0.0001 (kg N2O/mmBtu)

ANNUAL CH_4 EMISSIONS

Note: This value is not a reporting requirement, but is used to calculate CO_{2e} which is a reporting requirement under 98.36(d)(1)(iii), 98.36(d)(2)(ii)(H), or 98.36(d)(2)(iii)(H).

Annual CH_4 emissions from combustion of the specified fuel (metric tons)

Use which CH_4 result?
- Use the calculated result rounded
- Enter my own result (value will be rounded)

ANNUAL N_2O EMISSIONS

Note: This value is not a reporting requirement, but is used to calculate CO_{2e} which is a reporting requirement under 98.36(d)(1)(iii), 98.36(d)(2)(ii)(H), or 98.36(d)(2)(iii)(H).

Annual N_2O emissions from combustion of the specified fuel (metric tons)

Use which N_2O result?
- Use the calculated result rounded
- Enter my own result (value will be rounded)

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions	(metric tons)
CO_2 equivalent value for Annual N_2O emissions	(metric tons)

CANCEL SAVE

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 CH_4 mass emissions derived from Equation C-10 in metric tons CH_4 and in metric tons CO_2e. Note that e-GGRT will automatically calculate the CO_2e data value [98.36(b)(9)(iii), 98.36(c)(2)(ix)]
- The total annual N_2O mass emissions derived from Equation C-10 in metric tons N_2O and in metric tons CO_2e. Note that e-GGRT will automatically calculate the CO_2e 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 this link to expand*

e-GGRT Help
Using e-GGRT for Subpart C reporting

Sokha

Subpart C: General Stationary Fuel Combustion (2013)

Subpart C Overview » Alternative Part 75 Reporters » Fuel-specific Emissions

FUEL-SPECIFIC CH_4 AND N_2O EMISSIONS

Use this page to enter the annual CH_4 and N_2O 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.

11.3
Annual CO_2e for CH_4 (metric tons)

13.4
Annual CO_2e for N_2O (metric tons)

CONFIGURATION

Unit or Group Name/ID	Alternative
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)	Natural Gas (Weighted U.S. Average) (Natural Gas)

EQUATION C-10 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 0.001 \times (HI)_A \times EF$$

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

Annual heat input	450000 (mmBtu)
Emission factor for CH_4	0.001 (kg CH4/mmBtu)
Emission factor for N_2O	0.0001 (kg N2O/mmBtu)

ANNUAL CH_4 EMISSIONS

Note: This value is not a reporting requirement, but is used to calculate CO_{2e} which is a reporting requirement under 98.36(d)(1)(iii), 98.36(d)(2)(ii)(H), or 98.36(d)(2)(iii)(H).

Annual CH_4 emissions from combustion of the specified fuel: 0.45 (metric tons)

Use which CH_4 result?
- (●) Use the calculated result rounded
- ( ) Enter my own result (value will be rounded)

ANNUAL N_2O EMISSIONS

Note: This value is not a reporting requirement, but is used to calculate CO_{2e} which is a reporting requirement under 98.36(d)(1)(iii), 98.36(d)(2)(ii)(H), or 98.36(d)(2)(iii)(H).

Annual N_2O emissions from combustion of the specified fuel: 0.045 (metric tons)

Use which N_2O result?
- (●) Use the calculated result rounded
- ( ) Enter my own result (value will be rounded)

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions	11.3 (metric tons)
CO_2 equivalent value for Annual N_2O emissions	13.4 (metric tons)

CANCEL SAVE

e-GGRT Help
Using e-GGRT for Subpart C reporting

Sokha

Subpart C: General Stationary Fuel Combustion (2013)

Subpart C Overview » Alternative Part 75 Reporters » Fuel-specific Emissions

FUEL-SPECIFIC CH_4 AND N_2O EMISSIONS

Use this page to enter the annual CH_4 and N_2O 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.

11.3
Annual CO_2e for CH_4 (metric tons)

13.4
Annual CO_2e for N_2O (metric tons)

CONFIGURATION

Unit or Group Name/ID	Alternative
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)	Natural Gas (Weighted U.S. Average) (Natural Gas)

EQUATION C-10 SUMMARY AND RESULTS

$$CH_4 \text{ or } N_2O = 0.001 \times (HI)_A \times EF$$

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

Annual heat input	450000 (mmBtu)
Emission factor for CH_4	0.001 (kg CH4/mmBtu)
Emission factor for N_2O	0.0001 (kg N2O/mmBtu)

ANNUAL CH_4 EMISSIONS

Note: This value is not a reporting requirement, but is used to calculate CO_{2e} which is a reporting requirement under 98.36(d)(1)(iii), 98.36(d)(2)(ii)(H), or 98.36(d)(2)(iii)(H).

Annual CH_4 emissions from combustion of the specified fuel: 0.45 (metric tons)

Use which CH_4 result?
- (●) Use the calculated result rounded
- ( ) Enter my own result (value will be rounded)

ANNUAL N_2O EMISSIONS

Note: This value is not a reporting requirement, but is used to calculate CO_{2e} which is a reporting requirement under 98.36(d)(1)(iii), 98.36(d)(2)(ii)(H), or 98.36(d)(2)(iii)(H).

Annual N_2O emissions from combustion of the specified fuel: 0.045 (metric tons)

Use which N_2O result?
- (●) Use the calculated result rounded
- ( ) Enter my own result (value will be rounded)

CO_2 EQUIVALENT EMISSIONS

CO_2 equivalent value for Annual CH_4 emissions	11.3 (metric tons)
CO_2 equivalent value for Annual N_2O emissions	13.4 (metric tons)

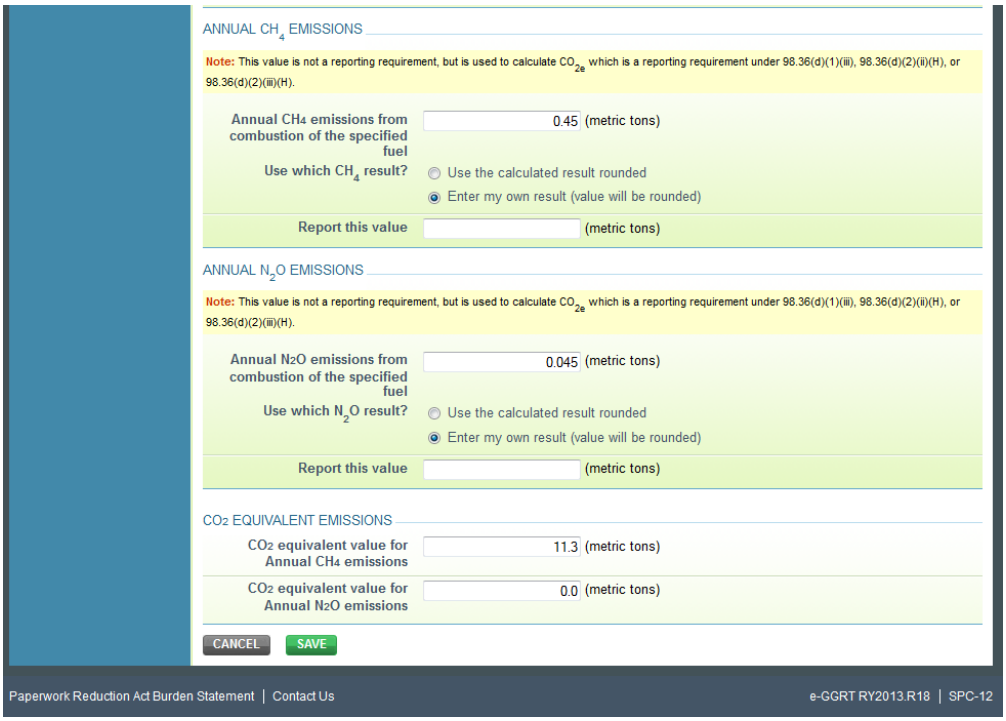
CANCEL SAVE

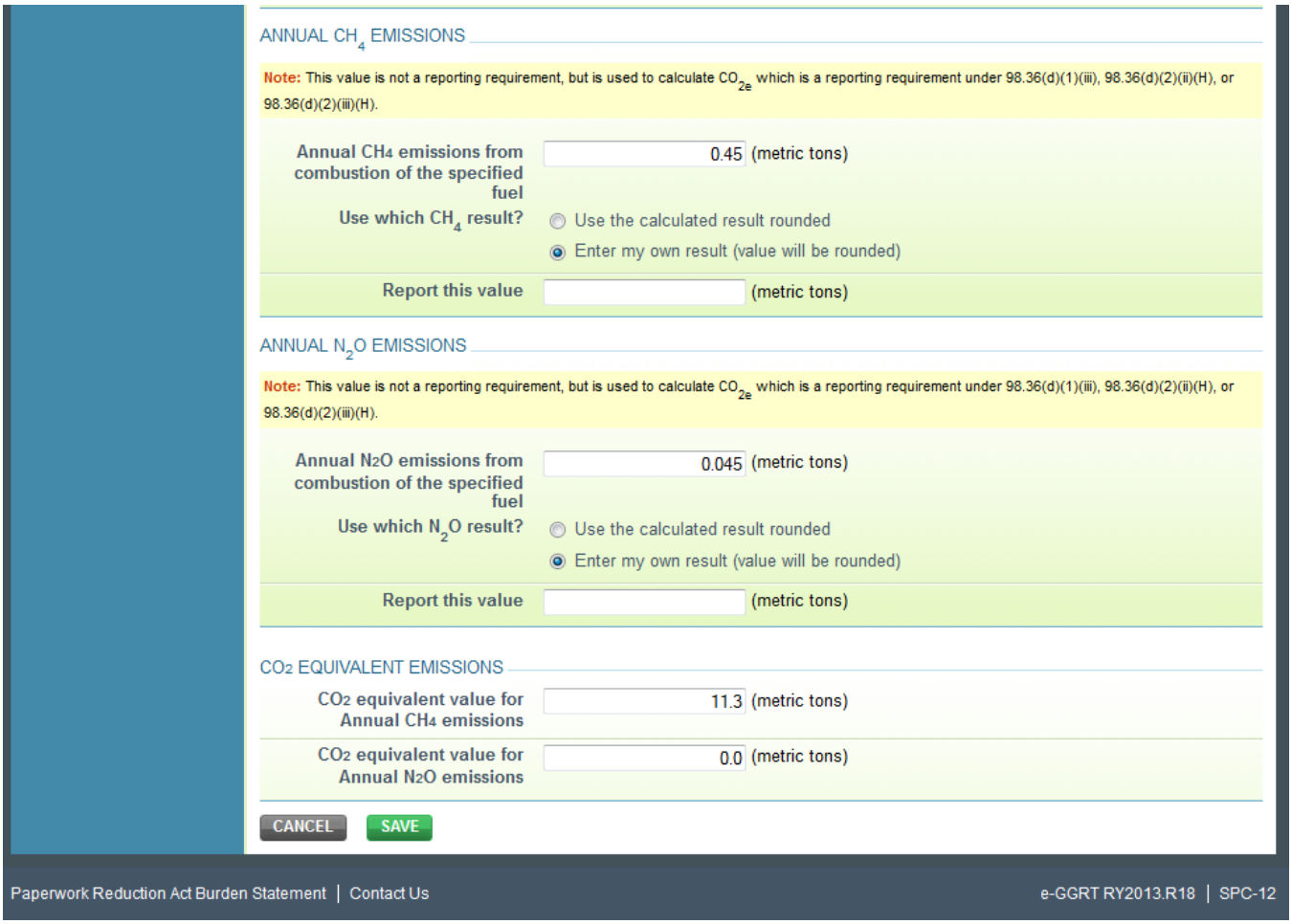
For configurations using the alternative CO_2 mass emissions calculation methods provided in **98.33(a)(5) (Year-round Part 75 heat input reporters)**, subpart C requires the entry of the total heat input for each fuel type listed in Table C-2 combusted in each unit (except as otherwise provided in 98.33(c)(4)(ii)(B)) 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 CH_4 and N_2O emissions from the total heat input entered using Equation C-10 and display the results under Annual CH_4 Emissions and Annual N_2O Emissions, respectively. [98.36(d)(2)(ii)(H) and 98.36(d)(2)(iii)(H)]

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

>> *Click this link to expand*





When finished, click SAVE.

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See Also

Screen Errors
Using e-GGRT to Prepare Your Subpart C Report for RY2014 and Later
Subpart C Configurations for RY2014 and Later
Subpart C Configuration-Level Emissions Information for RY2014 and Later
Subpart C Fuel Identification Information for All Reporting Years
Subpart C Fuel-Level Emissions Information for RY2014 and Later
Configuration types, emission details and their presentation in the summary report
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