



**e-GGRT Training Webinar on
Reporting GHG Data for Subparts P, Y, and X**

U.S. Environmental Protection Agency
Greenhouse Gas Reporting Program (GHGRP)

Updated 2/23/12



This training is provided by EPA solely for informational purposes. It does not provide legal advice, have legally binding effect, or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits in regard to any person.

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Webinar Outline / Overview



- Calculation Spreadsheets & CBI
- Subpart P
- Subpart Y
 - Reporting Facility-wide Emission Sources
 - Reporting Unit-Level Emission Sources
- Subpart X
 - Reporting Using Mass Balance Method
 - Reporting Using Ethylene Method
- Help Resources

Calculation Spreadsheets, CBI and Inputs



- All elements included in e-GGRT are required reporting elements, as applicable
- E-GGRT currently reflects the rule deferring reporting of inputs to emission equations that was signed by the Administrator on August 19, 2011. Information on the rule can be found at the GHG Reporting Program Website:
<http://www.epa.gov/ghgreporting/reporters/cbi/index.html>
- Data elements that have been determined to be CBI must be reported
- Reporting elements that have been determined to be CBI will be protected under the Clean Air Act (Sec. 114 (c)) and EPA regulations (40 CFR Part 2)

(Optional) Calculation Spreadsheets

EPA United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Hello, Elizabeth Dutrow | My Profile | Logout

Dutrow Incorporated (2010)
Subpart Y: Petroleum Refineries
 Subpart Overview » Uncontrolled Blowdown Systems » Eq. Y-20

GHG DATA AND ASSOCIATED INFORMATION
 Use this page to enter the GHG data required by Subpart Y. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

EQUATION Y-20 SUMMARY AND RESULT

$$CH_4 = (Q_{Ref} \times EF_{BD} \times \frac{16}{MVC} \times 0.001)$$

Hover over an element in the equation above to view the equation inputs.

Annual CH₄ emissions from blowdown systems (metric tons)
 Use Y-20 spreadsheet to calculate

Basis for the methane emission factor value

+BACK CANCEL SAVE

Use the OPTIONAL e-GGRT Calculation Spreadsheet to calculate the Equation Result that is entered here. Inputs to emission equations for direct reporters are not currently collected by e-GGRT.

As mentioned in the prior slide, E-GGRT reflects the final rule that deferred the reporting of inputs to emission equations that was signed by the Administrator on August 19, 2011.

This means that in certain web forms in e-GGRT, you can view a required equation, but you will only enter the RESULT of that equation into e-GGRT. If you are using the XML upload option, the XML schema will also only include the RESULT of the equation as a data element.

The inputs of the equation are NOT currently collected by e-GGRT.

EPA is providing OPTIONAL calculation spreadsheets that you can use to perform the calculations called for in the emission equations. These Microsoft Excel spreadsheets can be downloaded and opened on your own computer. Just click the hyperlink on the web-form to view and download the appropriate calculation spreadsheet for the equation you are working on. You can enter the data, including equation inputs, necessary to perform the calculation for the equation, and the spreadsheets will calculate the result for you. Once you have calculated the result, enter the result onto the e-GGRT web form.

E-GGRT will NOT collect the calculation spreadsheets and you do NOT need to submit them outside of e-GGRT. The use of these calculation spreadsheets is voluntary. The spreadsheets are meant to support reporters as they complete the e-GGRT online reporting process. You do not need to use EPA's spreadsheets to perform the calculations for the emissions equations, but you do need to keep records of these calculations (under 40 CFR 98.3(g) and additional subpart-specific provisions) whether or not you use the calculation spreadsheets provided by EPA. If you do use the spreadsheets, you may choose to maintain copies to help meet your record-keeping requirements.

Subpart P



Subpart P: Topical Overview



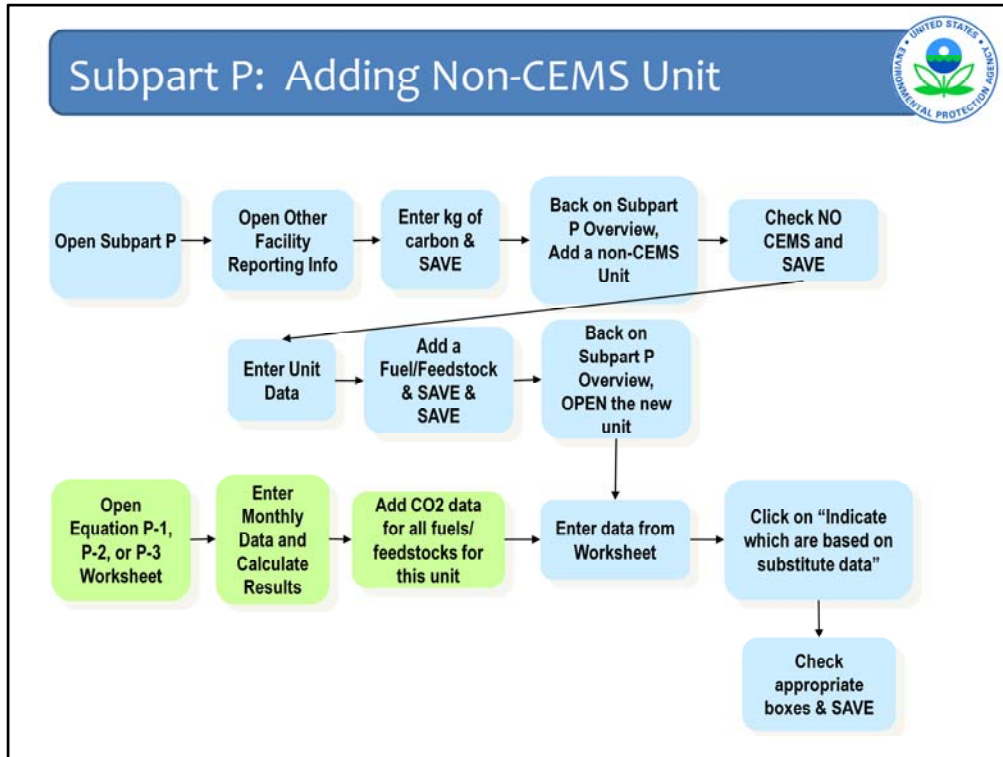
1. Entering non-CEMS data
2. Entering CEMS data
3. Reviewing Validation Messages

In this training session, we have three major topics to cover.

The first covers the procedure for adding Subpart P specific data for hydrogen production units using the fuel and feedstock mass balance approach.

The second will focus on adding Subpart P specific data for hydrogen production units which collect emissions data using a continuous emissions monitoring system (CEMS).

Finally we will have a general review of the e-GGRT validation messages.



This chart shows the flow of the e-GGRT screens for entering data for subpart P using the mass balance (non-CEMS) approach.

The blue boxes represent screens that are built into e-GGRT, while the green boxes represent external calculations performed by the user. As noted earlier, use of Equation P-1, P-2, or P-3 worksheets are optional, however, the calculations must be completed.

Subpart P: Open New Subpart P



FACILITY 48 (2010)
e-GGRT Greenhouse Gas Data Reporting
Select Facility » Facility or Supplier Overview

FACILITY OR SUPPLIER OVERVIEW
This page allows you to add the source and/or supplier categories for which your facility or supplier will be reporting, then to access those data reporting screens using the OPEN buttons.

After data reporting is complete, you can initiate the annual report review and submission process from this page by using the SUBMIT button (or RESUBMIT for subsequent submissions if needed).

Facility's GHG Reporting Method: Data upload via XML (Change)

REPORT DATA

2010 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting?
Subpart A—General Information	None	OPEN
Subpart P—Hydrogen Production	None	OPEN

ADD or REMOVE Subparts

If all subparts are completed and Validation Messages addressed to your satisfaction, you are ready to prepare and submit an Annual Report.

SUBMIT ANNUAL REPORT

Report	Uploaded File Name	Status	Sign Date	Submitted Date	View
2010 Annual Report v1		Not Generated			GENERATE / SUBMIT

FACILITIES NOT SUBMITTING AN ANNUAL REPORT
If this facility is not submitting an annual report this reporting year, please check the box below. For more information regarding legitimate reasons for not submitting a report to EPA, please use the e-GGRT Help links to the left.

Click the “open” button by the Subpart P - Hydrogen Production entry to begin entering data.

Subpart P: Add New H₂ Production Unit



The screenshot shows the EPA e-GRT web application interface. The main content area is titled "Subpart P: Hydrogen Production" and includes an overview of reporting requirements. A green arrow points to the "Open" button in the "OTHER FACILITY REPORTING INFO" section, which is used to enter carbon data. Below this are sections for "HYDROGEN PRODUCTION UNITS" and "HYDROGEN PRODUCTION UNITS (Units monitored by CEMS)".

On the Subpart P overview page, there are three main sections where you will need to enter subpart P specific data.

The first is the “Other Facility Reporting Info” section. Here you will enter the amount of “carbon other than CO₂” that is collected and transferred offsite in either solid, liquid, or gaseous form.

The second section, under the “Hydrogen Production Units” header, is where you will enter emissions data that are determined using the fuel and feedstock mass balance approach.

The last section, under the “Hydrogen Production Units – Units monitored by CEMS” header, is where you will enter emissions data that are monitored by CEMS.

Let’s select the “Open” box under the “Other Facility Reporting Info” header.

Subpart P: Enter kg Carbon and SAVE



On this page, you are asked to enter the annual amount of carbon other than CO₂ that is collected and transferred off site in gas, liquid, or solid forms. The value that you enter here has the units of **kilograms of carbon**. It is easy to make the mistake of entering tons of carbon or tons of CO₂).

Once you have entered your amount, then select the “Save” button at the bottom of the page and you will be taken back to the subpart overview page.

Subpart P: Add New H₂ Production Unit



The screenshot shows the EPA e-GGRT interface for 'FACILITY 48 (2010)'. The main heading is 'Subpart P: Hydrogen Production'. Below this, there is an 'OVERVIEW OF SUBPART REPORTING REQUIREMENTS' section with a warning icon and a 'Subpart P: View Validation' link. The 'OTHER FACILITY REPORTING INFO' section shows a table for 'Carbon, other than CO₂, collected and transferred off site (kg carbon)' with an 'OPEN' button. There are two sections for 'HYDROGEN PRODUCTION UNITS'. The first section, 'HYDROGEN PRODUCTION UNITS', has a table with columns 'Name#ID', 'CO₂ (metric tons)', 'Status', and 'Delete'. Below the table is the text 'No units have been added' and a green arrow pointing to the 'ADD a Unit' hyperlink. The second section, 'HYDROGEN PRODUCTION UNITS (Units monitored by CEMS)', also has a table with columns 'Name#ID' and 'Delete', and the text 'No units have been added' with a green arrow pointing to the 'ADD a Unit Monitored by CEMS' hyperlink. A 'Facility Overview' link is at the bottom. A green arrow on the left side of the screenshot points to the 'ADD a Unit' hyperlink.

Under the “Hydrogen **Production** Units” header, select the “Add a Unit” hyperlink. This will take you to where you will enter emissions data that are determined by using the fuel and feedstock mass balance approach.

Subpart P: Check “No” and SAVE



FACILITY 48 (2010)
Subpart P: Hydrogen Production
Subpart Overview • Add/Edit a Unit • CEMS

SUBPART P UNITS
Please indicate if this unit's emissions are monitored using a (CEMS). * denotes a required field

CONTINUOUS EMISSIONS MONITORING
Is this unit's emissions* monitored using a CEMS? Yes No

CANCEL SAVE

On this page, confirm that your unit's emissions are not monitored using CEMS. If you choose to make the switch to CEMS at this point, you still have the option of selecting “Yes” in answer to the question.

Click “Save” at the bottom of the page to accept your selection.

Subpart P: Add Fuel/Feedstock



Begin by entering the hydrogen production process unit name or ID. The description of the unit is an optional field.

Next, enter the annual quantity of hydrogen produced and the annual quantity of ammonia produced for this particular unit.

Now select the “Add a Fuel or Feedstock” hyperlink under the “Fuels and Feedstocks” header. This is because we still need to identify the fuels/feedstocks associated with this unit and also identify whether they are solid, liquid or gaseous fuels/feedstock. In addition, the CO2 emissions for the unit still need to be entered.

You can change this unit to a CEMS unit under the heading “Continuous Emissions Monitoring”. If you choose to make the switch to CEMS, you still have the option of selecting “Yes” in answer to the question. Keep in mind that if you do decide to switch at this point, then you will lose any previously entered fuel and feedstock data for this unit once you hit the Save button (except the four data input fields shown on this page).

Subpart P: Enter Feedstock and SAVE



The screenshot shows the EPA e-GGRT interface for 'Subpart P: Hydrogen Production'. The page title is 'Subpart P: Hydrogen Production' and the user is logged in as 'Atachi Imegwu'. The form is titled 'SUBPART P HYDROGEN PRODUCTION UNIT' and asks the user to 'Please identify the fuel or feedstock'. There are two main sections: 'UNIT' and 'FUEL OR FEEDSTOCK DETAILS'. The 'UNIT' section has a field for 'Name or ID' with the value 'Natural Gas Unit'. The 'FUEL OR FEEDSTOCK DETAILS' section has a 'Name' field and a 'Type' dropdown menu. At the bottom of the form are 'CANCEL' and 'SAVE' buttons. Three green arrows are overlaid on the image: arrow 1 points to the 'Name' field, arrow 2 points to the 'Type' dropdown, and arrow 3 points to the 'SAVE' button.

On this page, you need to enter the fuel or feedstock details for the “Natural Gas Unit”.

Enter the name of your choice for the feedstock, and select the appropriate type of feedstock (choices are gaseous, liquid, or solid).

Click the “Save” button at the bottom of the page.

Subpart P: If Done with Page, hit SAVE



United States Environmental Protection Agency

e-GBRT
Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Help: About Inquiries My Profile Logout

Imeguru Industries (2010)

Subpart P: Hydrogen Production

Subpart Overview → Add Edit a Unit

SUBPART P HYDROGEN PRODUCTION UNIT

Please identify and enter the information about the Unit below. Also, add each carbon-containing input and output material. * denotes a required field

UNIT INFORMATION

Name or ID* Natural Gas Unit (40 characters maximum)

Description (optional)

Type Hydrogen processing unit

UNIT PRODUCTION INFORMATION

Quantity of hydrogen produced 27200 (metric tons)

Quantity of ammonia produced 0 (metric tons)

FUELS AND FEEDSTOCKS

Name	Type	Delete
Natural Gas	gaseous feedstock	X

ADD a Fuel or Feedstock

CONTINUOUS EMISSIONS MONITORING

Is this unit's emissions monitored using a CEMS? Yes No

Note: Changing the answer to this question will result in losing any data, associated with this Unit for the current reporting year, as the reporting requirements will change.

CANCEL SAVE

You are now taken back to the Subpart P non-CEMs unit page where you were previously. As you can see in the Fuels and Feedstocks section, the “Type” field is now populated and indicates that your first type is “gaseous feedstock”.

If you have additional fuels and feedstocks used during the reporting year that you wish to add for this unit, you should do so by clicking on “Add a Fuel or Feedstock” once again and repeating the steps in the prior slide.

Click on the “Save” button at the bottom of the page to be taken back to the subpart overview page.

Subpart P: OPEN H₂ Production Unit



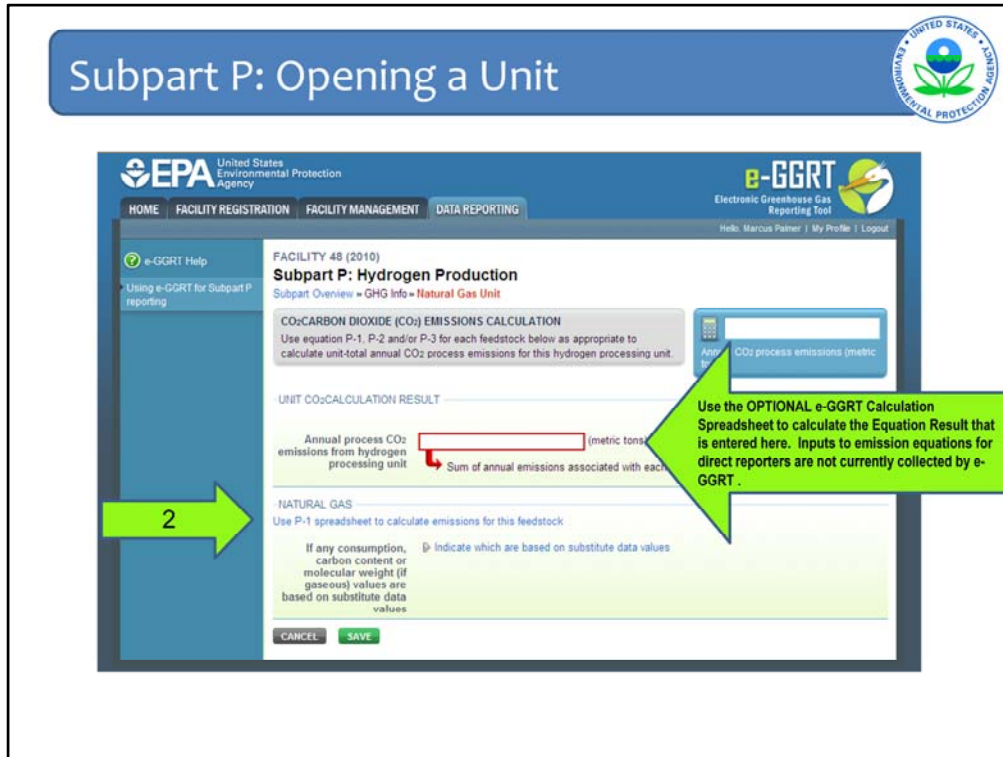
The screenshot shows the EPA e-GGRT interface for Facility 48 (2010). The main heading is "Subpart P: Hydrogen Production". Below this, there is an "OVERVIEW OF SUBPART REPORTING REQUIREMENTS" section. A table titled "HYDROGEN PRODUCTION UNITS" is displayed, with the following data:

Name/ID	CO ₂ (metric tons)	Status	Delete
Natural Gas Unit		Incomplete	OPEN

A green arrow points to the "OPEN" button in the "Delete" column for the "Natural Gas Unit". Below this table, there is another section for "HYDROGEN PRODUCTION UNITS (Units monitored by CEMS)" which currently shows "No units have been added".

As you can see, the “Status” field under “Hydrogen **Production** Units” is still “Incomplete”, because we still need to enter the annual quantity of CO₂ emissions for this particular unit.

Click the “Open” button for the “Natural Gas Unit”.



First check to see if all of your gaseous, liquid, and solid fuels/feedstocks used by this unit during the reporting year are listed in the lower portion of this page. If not, go back and enter them as discussed in the prior slides.

On this page, you are to enter the **annual CO2 emissions** for the hydrogen production unit you named “Natural Gas Unit”. The first step is to determine the annual CO2 emissions for this unit from each fuel/feedstock. These emissions can be calculated using Equations P-1, P-2, and P-3 in the rule. EPA has prepared three worksheets for this purpose:

1. P-1 worksheet for gaseous fuels and feedstocks
2. P-2 worksheet for liquid fuels and feedstocks
3. P-3 worksheet for solid fuels and feedstocks

A hyperlink to the appropriate worksheet is provided for each of the fuels/feedstocks that you have associated with this unit. For gaseous fuel and feedstock, as in this example, selected the “use P-1 worksheet” link [**jump to next slide, then come back here**]. The results calculated on the worksheet are to be kept at your facility and are not to be submitted to EPA at this time. **If you have multiple feedstock types, they will be listed in alphabetical order by the name you gave to the feedstocks.**

Using a worksheet for each fuel/feedstock used for this unit during the reporting year, calculate the CO2 emissions from each fuel/feedstock. Then total the CO2 emissions from the unit during the reporting year. Now enter this quantity of **annual CO2 emissions in the red box.**

Lastly, you will need to indicate which data values on the worksheet and at which month, for which you are missing data. Click on the hyperlink named “Indicate which are based on substitute data values”.

Subpart P: Equation P-1 Worksheet



Subpart P - Hydrogen Production - Calculating CO₂ Emissions Using Equation P-1

Today's date: 4/4/2016

Equation P-1:
$$CO_2 = \left(\sum_{i=1}^n \frac{44}{12} \cdot F_{i,FB} \cdot CC_i + \frac{AFIP}{MPC} \right) \cdot 0.001$$

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Annual CO₂ Emissions (metric tons) from Equation P-1

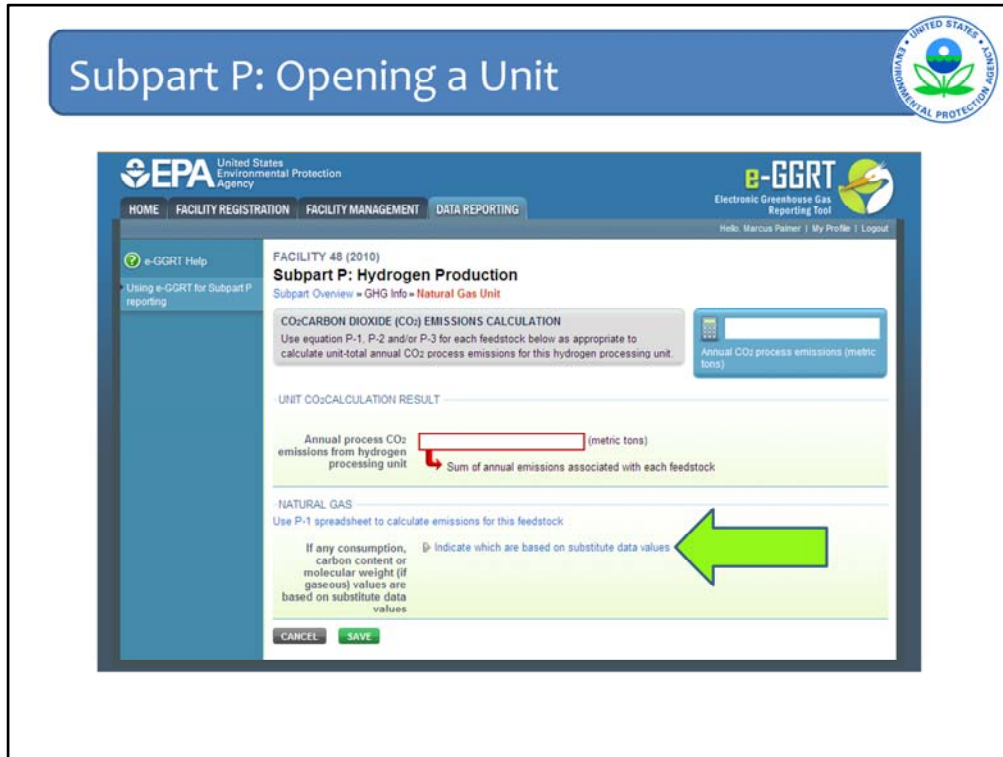
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0.0000

Enter this value in e-GRRIT

Here is a screenshot of the subpart P CO₂ emissions calculation worksheet for gaseous fuel and feedstocks. This worksheet will assist you in determining your annual quantity of CO₂ by calculating emissions based on equation P-1 in the rule text.

"These optional worksheets 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 worksheets or to submit any worksheets to EPA. Worksheets may include inputs to emission equations, reporting of which EPA has deferred per a final rule that was signed by the Administrator on August 19, 2011.



First check to see if all of your gaseous, liquid, and solid fuels/feedstocks used by this unit during the reporting year are listed in the lower portion of this page. If not, go back and enter them as discussed in the prior slides.

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1. P-1 worksheet for gaseous fuels and feedstocks
2. P-2 worksheet for liquid fuels and feedstocks
3. P-3 worksheet for solid fuels and feedstocks

A hyperlink to the appropriate worksheet is provided for each of the fuels/feedstocks that you have associated with this unit. For gaseous fuel and feedstock, as in this example, selected the “use P-1 worksheet” link [**jump to next slide, then come back here**]. The results calculated on the worksheet are to be kept at your facility and are not to be submitted to EPA at this time. **If you have multiple feedstock types, they will be listed in alphabetical order by the name you gave to the feedstocks.**

Using a worksheet for each fuel/feedstock used for this unit during the reporting year, calculate the CO2 emissions from each fuel/feedstock. Then total the CO2 emissions from the unit during the reporting year. Now enter this quantity of **annual CO2 emissions in the red box.**

Lastly, you will need to indicate which data values on the worksheet and at which month, for which you are missing data. Click on the hyperlink named “Indicate which are based on substitute data values”.

Subpart P: Mark Substitute Values & SAVE



United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Help: Marcus Palmer | My Profile | Logout

FACILITY 48 (2010)

Subpart P: Hydrogen Production

Subpart Overview • GHG Info • Natural Gas Unit • Natural Gas

CO₂ EMISSIONS CALCULATION

Indicate any monthly values used for your emissions calculations that are based on substitute data values for this feedstock for this unit.

JANUARY

Consumption is based on one or more substitute data values (check if true)

Carbon content is based on one or more substitute data values (check if true)

Molecular weight is based on one or more substitute data values (check if true)

FEBRUARY

Consumption is based on one or more substitute data values (check if true)

Carbon content is based on one or more substitute data values (check if true)

Molecular weight is based on one or more substitute data values (check if true)

DECEMBER

Consumption is based on one or more substitute data values (check if true)

Carbon content is based on one or more substitute data values (check if true)

Molecular weight is based on one or more substitute data values (check if true)

CANCEL SAVE

You will get to this page by selecting the “Indicate which are based on substitute data values” hyperlink on the previous page. Here you will select the checkbox for the monthly data values of consumption and carbon content that are based on one or more substitute data values. For gaseous fuels, there will also be checkboxes for molecular weight.

Click the “Save” button at the very bottom of the page to continue.

Subpart P: Opening a Unit



The screenshot shows the EPA e-GGRT interface for 'FACILITY 48 (2010)'. The main heading is 'Subpart P: Hydrogen Production'. Below this, there is a section for 'CO₂CARBON DIOXIDE (CO₂) EMISSIONS CALCULATION'. A text box contains the instruction: 'Use equation P-1, P-2 and/or P-3 for each feedstock below as appropriate to calculate unit-total annual CO₂ process emissions for this hydrogen processing unit.' To the right of this text box is a numerical input field containing '44.010', which is circled in green. Below this is a section titled 'UNIT CO₂CALCULATION RESULT'. It shows 'Annual process CO₂ emissions from hydrogen processing unit' with a value of '44010 (metric tons)' in a red-bordered box. Below this is a section for 'NATURAL GAS' with instructions to use a P-1 spreadsheet and a note about carbon content or molecular weight. At the bottom of the form are 'CANCEL' and 'SAVE' buttons, with a green arrow pointing to the 'SAVE' button.

In the red box, enter the total annual CO₂ emissions associated with this unit, if you have not already done so. Once you have entered your annual CO₂ emissions, the emissions for this unit will be reflected in the summary box in the upper right hand corner.

Click on the “Save” button at the bottom of the page.

Subpart P: Done with H2 Production Unit



The screenshot shows the EPA e-GGRT interface for Facility 48 (2010). The main heading is "Subpart P: Hydrogen Production" with a "Subpart Overview" link. Below this is an "OVERVIEW OF SUBPART REPORTING REQUIREMENTS" section. A green circle highlights a message box that says "Subpart P: No Validation Messages". Below the overview is a table for "HYDROGEN PRODUCTION UNITS" with one unit listed: "Natural Gas Unit" with a CO2 emission of 44,010 metric tons and a status of "Complete". There is also a section for "HYDROGEN PRODUCTION UNITS (Units monitored by CEMS)" which is currently empty.

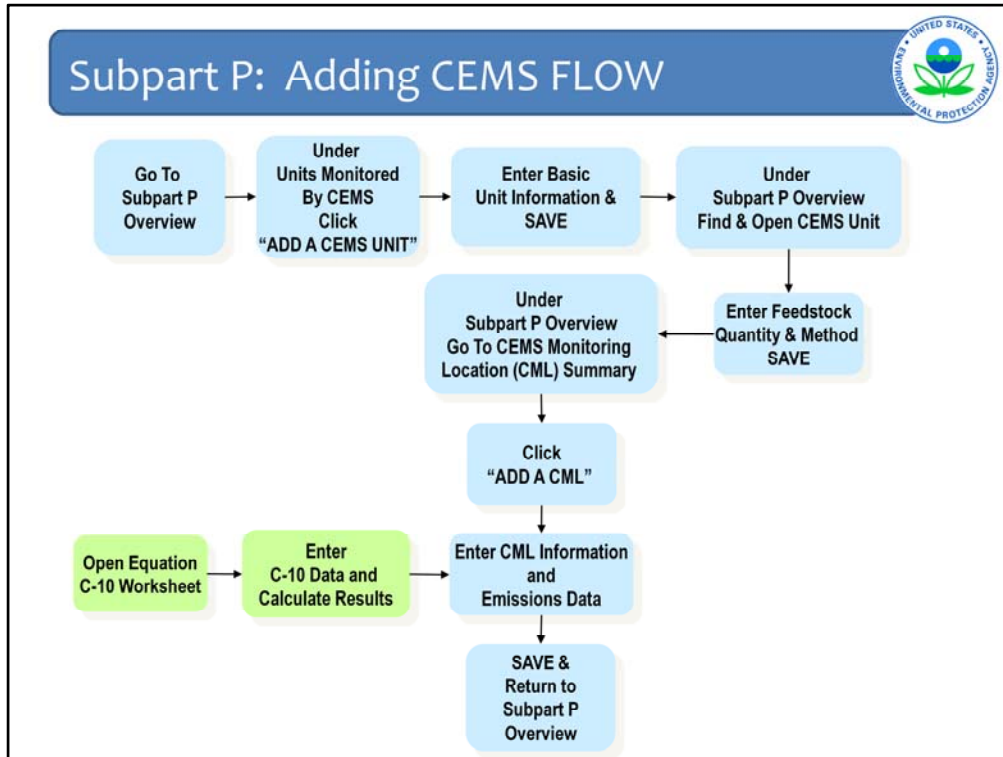
Name/ID	CO ₂ (metric tons)	Status ¹	Delete
Natural Gas Unit	44,010	Complete	OPEN

Name/ID	Status ¹	Delete
No units have been added		

You are on the subpart overview page. At this point you should check to see if there are any validation messages for you to review.

If your facility has other hydrogen production units using the mass balance method that are not listed, click on the “Add a Unit” hyperlink under the Hydrogen Production Units header and repeat the data entry process just outlined.

Otherwise, we are ready to discuss the data entry procedure for hydrogen production units which collect CO₂ emissions data using continuous emissions monitoring systems or CEMS.



This chart shows the flow of the e-GGRT screens for entering data for Subpart P hydrogen production units using Continuous Emissions Monitoring Systems (CEMS) to collect CO₂ emissions data. The blue boxes represent screens that are built into e-GGRT, while the green boxes represent external calculations to be performed by the user. As mentioned earlier use of the Equation C-10 worksheet is optional, however, the calculations must be performed.

Subpart P: Adding CEMS Unit



The screenshot shows the EPA e-GGRT interface for Subpart P: Hydrogen Production. The page includes a navigation bar with 'HOME', 'FACILITY REGISTRATION', 'FACILITY MANAGEMENT', and 'DATA REPORTING'. The main content area is titled 'FACILITY 48 (2010) Subpart P: Hydrogen Production' and includes an overview of reporting requirements, a table for 'HYDROGEN PRODUCTION UNITS', and a section for 'HYDROGEN PRODUCTION UNITS (Units monitored by CEMS)'. A green arrow points to the 'ADD a Unit Monitored by CEMS' hyperlink in the CEMS section.

Subpart P: Hydrogen Production
Subpart Overview

OVERVIEW OF SUBPART REPORTING REQUIREMENTS
Subpart P is for facilities that produce hydrogen gas sold as a product to other entities. It includes process units that produce hydrogen by reforming, gasification, oxidation, reaction, or other transformations of feedstocks. This source category includes merchant hydrogen production facilities located within a petroleum refinery if they are not owned by, or under the direct control of, the refinery owner and operator.

OTHER FACILITY REPORTING INFO
Carbon, other than CO₂, collected and transferred off site (kg carbon): 0 [OPEN](#)

HYDROGEN PRODUCTION UNITS

NameID	CO ₂ (metric tons)	Status ¹	Delete
No units have been added			

[ADD a Unit](#)

HYDROGEN PRODUCTION UNITS (Units monitored by CEMS)

NameID	Status ¹	Delete
No units have been added		

[ADD a Unit Monitored by CEMS](#)

[Facility Overview](#)

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).

To add a unit monitored by a CEMS, click on the "Add a Unit Monitored by CEMS" hyperlink.

Subpart P: Check “Yes” and SAVE



FACILITY 48 (2010)
Subpart P: Hydrogen Production
Subpart Overview • Add/Edit a Unit • CEMS

SUBPART P UNITS
Please indicate if this unit's emissions are monitored using a (CEMS) * denotes a required field

CONTINUOUS EMISSIONS MONITORING
Is this unit's emissions monitored using a CEMS? Yes No

CANCEL SAVE

Confirm that the “Yes” box is checked.

If you choose to make the switch to non-CEMS at this point, you still have the option of selecting “No” in answer to the question.

Click the “Save” button at the bottom of the page.

Subpart P: Enter CEMS Unit Info



The screenshot shows the EPA e-GGRT interface for entering CEMS unit information. The page title is "Subpart P: Hydrogen Production" under "FACILITY 48 (2010)". The form includes the following sections:

- UNIT INFORMATION:** Contains a required field for "Name or ID" (40 characters maximum) and an optional "Description" field. The unit type is set to "Hydrogen processing unit".
- UNIT PRODUCTION INFORMATION:** Contains two required fields for "Quantity of hydrogen produced" and "Quantity of ammonia produced", both measured in metric tons.
- CONTINUOUS EMISSIONS MONITORING:** Includes a question "Is this unit's emissions monitored using a CEMS?" with radio buttons for "Yes" (selected) and "No". A note states: "Note: Changing the answer to this question will result in losing any data associated with this Unit for the current reporting year, as the reporting requirements will change."

At the bottom of the form are "CANCEL" and "SAVE" buttons. Three green arrows are overlaid on the image: arrow 1 points to the "Name or ID" field, arrow 2 points to the "Quantity of hydrogen produced" field, and arrow 3 points to the "SAVE" button.

Begin by entering the hydrogen production unit name or ID. The description of the unit is optional field.

Next, enter the annual quantity of hydrogen produced and the annual quantity of ammonia produced for this particular unit.

You can change this unit to a non-CEMS unit under the heading "Continuous Emissions Monitoring". If you choose to make the switch to non-CEMS, you still have the option of selecting "No" in answer to the question. Keep in mind that if you do decide to switch at this point, then you will lose all the previously entered CEMS data for this unit (if any) once you hit the Save button (except the four data input fields shown on this page).

Lastly, hit the "Save" button to be taken back to the Subpart P overview page.

Subpart P: Add CEMS Monitoring Location



The screenshot shows the e-GGRT web application interface. At the top, there are navigation tabs for 'REGISTRATION', 'FACILITY MANAGEMENT', and 'DATA REPORTING'. The main content area is titled 'FACILITY 48 (2010) Subpart P: Hydrogen Production'. It includes an overview of reporting requirements, a table for 'OTHER FACILITY REPORTING INFO', a table for 'HYDROGEN PRODUCTION UNITS' with one unit listed as 'Natural Gas Unit' (Status: Complete), and a 'CEMS MONITORING LOCATION SUMMARY' table with a link to 'ADD a CEMS Monitoring Location'. A green arrow points to this link. A yellow warning icon with a pink patch and red text 'Subpart P: View Validation' is circled in green in the upper right corner.

You can now see that a CEMS unit named “Natural Gas Unit” has been added to the list of Hydrogen Production Units monitored by CEMS.

Notice that the validation message in the upper right corner of this page (in green circle) has an pink patch and red font for “Subpart P”. This means there are validation errors, and you have more work to do. We could click on the hyperlink called “View Validation”, but we don’t need to do this now, because a new section named “CEMS Monitoring Location Summary” is now present at the bottom of the Subpart P overview page.

Click the “Add a CEMS Monitoring Location” hyperlink.

Subpart P: Enter CML Data



The screenshot displays the EPA e-GGRT interface for entering CML data. The page title is 'Subpart P: Hydrogen Production'. The main heading is 'CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) MONITORING LOCATION (CML) INFORMATION'. Below this, there is a 'CONFIGURATION' section with the following fields:

- CEMS Monitoring Location Name/ID (40 characters maximum)
- Description (optional)
- Configuration Type (dropdown menu)

The 'TIER 4 METHODOLOGY INFORMATION' section includes:

- Calculation Methodology Start Date (calendar icon)
- Calculation Methodology End Date (calendar icon)

The 'CUMULATIVE CO₂ EMISSIONS' section includes:

- Quarter 1 (metric tons)
- Quarter 2 (metric tons)

On the right side, there are summary boxes for:

- Total CO₂ from CEMS (or applicable Part 75 methodology) (metric tons)
- Total Biogenic CO₂ (metric tons)
- Total Non-Biogenic CO₂ (metric tons)

A green arrow points to the 'CEMS Monitoring Location Name/ID' field.

Complete this long page by entering all of the information as appropriate for your CEMS unit.

Dropdown menus and automated calendars are provided for convenience.

All data must be entered to have a complete data profile. You may need to retrieve an Equation C-10 worksheet (link provided) to determine some of the data inputs.

Subpart P: Link CML to H2 Process Unit



Total annual non-biogenic CO₂ mass emissions (includes fossil fuel, sorbent, and process CO₂ emissions) (metric tons)

EQUATION C-10 SUMMARY AND RESULTS

$CH_4 \text{ or } H_2O = 0.001 \times (H_2) \times EF$
Hover over an element in the equation above to reveal a definition of that element.

Total CH₄ emissions (metric tons)
Use Equation C-10 spreadsheet to calculate

Total H₂O emissions (metric tons)
Use Equation C-10 spreadsheet to calculate

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)

CEMS MONITORING LOCATION PROCESS UNITS

Process Unit Name/Identifier
There are no process units monitored by CEMS available for selection

[ADD/REMOVE](#) a process unit that exhausts to this CEMS Monitoring Location

At the bottom of this same page, click the “Add/Remove a process unit that exhausts to this CEMS monitoring location” hyperlink.

Subpart P: Link CML to H2 Process Unit & SAVE



The screenshot shows the EPA e-GGRT interface for 'Subpart P: Hydrogen Production'. The page title is 'FACILITY 48 (2010) Subpart P: Hydrogen Production'. Below the title, there is a section titled 'IDENTIFY PROCESS UNIT(S)' with instructions: 'Use this page to select each process unit that is monitored by the CML. For additional information about this page, please use the e-GGRT Help link(s) provided'. A red asterisk indicates a required field. The form contains a table with one row: 'PROCESS UNIT: NATURAL GAS UNIT'. Below the table, there is a question: 'Is this process unit monitored by the CEMS Monitoring Location?' with a checkbox and the text '(check if true)'. At the bottom of the form, there are two buttons: 'CANCEL' and 'SAVE'. A green arrow points to the 'SAVE' button, and another green arrow points to the checkbox.

If you have multiple CEMS units, they will be listed in alphabetical order on this page. The purpose of this page is indicate which CEMS units are handled by this CEMS Monitoring Location or CML. [We need to get the name of the CML currently under consideration shown on this page.]

You need to select the check box next to the one or more process units for which the CEMS Monitoring Location under consideration is monitoring CO₂ emissions. And yes, E-GGRT will check to make sure these selections are consistent with the CML Configuration Type that you selected on the previous page.

Click the “Save” button at the bottom of the page.

Subpart P: Shows H2 Process Unit, Now SAVE



EQUATION C-10 SUMMARY AND RESULTS

$$\text{CH}_4 \text{ or } \text{H}_2\text{O} = 0.001 \times (\text{H}_2) \times \text{EF}$$

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

Total CH₄ emissions (metric tons)
Use Equation C-10 spreadsheet to calculate

Total H₂O emissions (metric tons)
Use Equation C-10 spreadsheet to calculate

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)

CEMS MONITORING LOCATION PROCESS UNITS

Process Unit Name/Identifier

Natural Gas Unit

ADD/REMOVE a process unit that abates to this CEMS Monitoring Location

CANCEL SAVE

You are now back on the “CEMS Monitoring Location Page”. Scroll to the bottom of the page. You can now see that you have a hydrogen production unit named “Natural Gas Unit” associated with this CEMS monitoring location. If this CML served more than one unit, they would all be listed here.

Click the “Save” button.

Subpart P: Check for Validation Messages



FACILITY 48 (2010)
Subpart P: Hydrogen Production
Subpart Overview

OVERVIEW OF SUBPART REPORTING REQUIREMENTS
Subpart P is for facilities that produce hydrogen gas sold as a product to other entities. It includes process units that produce hydrogen by reforming, gasification, oxidation, reaction, or other transformations of feedstocks. This source category includes merchant hydrogen production facilities located within a petroleum refinery if they are not owned by, or under the direct control of, the refinery owner and operator.

OTHER FACILITY REPORTING INFO

Carbon, other than CO ₂ , collected and transferred off site (kg carbon)	Annual quantity of hydrogen produced (tons)	Annual quantity of ammonia produced (tons)
0	44,444	

HYDROGEN PRODUCTION UNITS

Name/ID	CO ₂ (metric tons)	Status	Delete
No units have been added			
ADD a Unit			

HYDROGEN PRODUCTION UNITS (is monitored by CEMS)

Name/ID	Status	Delete
Natural Gas Unit	Complete	X
ADD a Unit Monitored by CEMS		

CEMS MONITORING LOCATION SUMMARY

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO ₂ emissions (metric tons)	Status	Delete
8888	Single process/process unit exhausts to dedicated stack	Natural Gas Unit	5,555	Complete	X
ADD a CEMS Monitoring Location					

[Facility Overview](#)

At this stage, you should check to see if you have any validation messages in the upper right corner of the Subpart Overview page (in green circle). We see a green patch with “Subpart P” in black font. This is good.

If the text in the green circle were to be red at this point, then click on the hyperlink named “View Validation” to be taken to the validation messages page to get help. The next slide shows some sample validation messages.

Subpart P: Validation Messages



FACILITY-LEVEL VALIDATION MESSAGES

Validation Type ¹	ID ²	Message ³
No facility-level validation messages found.		

CML-LEVEL VALIDATION MESSAGES

Validation Type ¹	ID ²	CML Name	Message ³
Data Completeness	CML-003	CS-Biogenic	Total Non-biogenic carbon dioxide emissions. This data element is required.
Data Quality	CML-025	CS-Biogenic	CEMS Monitoring Location (CML) process units. Because you have selected the "Single process/process unit exhausts to dedicated stack" configuration for this CML, you should only add one process unit monitored by CEMS to this CML.

EQUATION-LEVEL VALIDATION MESSAGES

Validation Type ¹	Unit	ID ²	Message ³
Data Completeness	Natural Gas CEMs	P011	Hydrogen Produced. This data element is required.
Data Completeness	Natural Gas CEMs	P014	Ammonia Produced. This data element is required.
Data Completeness	WEBHAR TEST	P007	Annual carbon dioxide emissions from the furnace. This data element is required.
Data Quality	WEBHAR TEST	P013	Hydrogen Produced. The value you have provided is outside the EPA estimated range for this data element. Please double check this value and revise, if necessary. If you believe it to be correct, please submit the value as is.

[+ Subpart Overview](#)

¹ Validation Types: e-GGRT generates a variety of validation types, defined below:

- Data Completeness: data required for reporting is missing or incomplete.
- Data Quality: data is outside of the range of expected values. The value you have provided is outside the EPA estimated range for this data element. Please double check this value and revise, if necessary. If you believe it to be correct, please submit the value as is.
- Screen Error: a data value or combination of data values prevents e-GGRT from continuing to the next page. Typically, this will not appear on the Validation Report, but instead will be displayed on the data entry page at the time the error was created.

² ID: Each validation message contains a unique identifier. If you contact the e-GGRT Help Desk with a question about a validation message, please include this unique identifier with your request.

³ The absence of a validation message does not indicate that the information provided is without error.

Paperwork Reduction Act Burden Statement | Contact Us | e-GGRT RY2010 R.40 | P(validation)

There are many validation messages that could be generated based on the data you have entered for subpart P. This is not a complete list, but it shows six messages that you may come across. The messages are grouped into three categories:

1. Facility level messages
2. CML-level messages (CML is short for CEMS Monitoring Location)
3. Equation-level validation messages.

Notice that, for your convenience, each message text is a hyperlink to the e-GGRT page where the warning was generated.

You may also receive a message that the values you entered for the annual quantity of carbon other than CO₂ transferred off site is not within the range. For example, if you have entered a value greater than 682,000,000 metric tons annually, you will receive this warning message. However, if you believe the data to be correct, then you should still submit that data.

You may also receive a warning message that the quantity of hydrogen produced is outside of the EPA estimated range. For example, if the data you entered is less than 5 metric tons or greater than 290,000 metric tons of annual emissions, you will receive a warning message that your data is outside of the EPA estimated range. If you do believe that the data you entered is correct, then you should still submit the data.

Also, you may receive a warning that the annual carbon dioxide emissions is not within the correct range. For example, if the data you entered is less than 40 metric tons or above 2,500,000 metric tons of annual emissions, you will receive a warning message that your data is outside of the EPA estimated range. If you do believe that the data you entered is correct, then you should still submit the data.

Subpart Y



Subpart Y Topical Overview



1. Entering data for facility-wide emission sources
2. Entering data for unit-level emission sources
 1. FCCU non-CEMS Methodology
 2. FCCU CEMS Methodology
3. Note about Delayed Coking Reporting

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For the purposes of this webinar, we will divide the next several slides into four segments. In the first segment, we will demonstrate input screens for sources where emissions are reported at the facility-level. We will then demonstrate input screens for sources where emissions are reported at the unit level, looking at both subpart Y specific data entry using the non-CEMS approach and subpart Y specific data using a CEMS approach.

In the final segment, we will have a special note for delayed coking units, as these units can have reporting elements at both the facility and the unit-level (and even at the vent level).

Subpart Y Reporting: Subpart OVERVIEW



HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING Electronic Greenhouse Gas Reporting Tool Help: Elizabeth Dutrow | My Profile | Logout

Dutrow Incorporated (2010)
Subpart Y: Petroleum Refineries
Subpart Overview

OVERVIEW OF SUBPART Y REPORTING REQUIREMENTS
Subpart Y requires affected facilities to report Greenhouse gas (GHG) emissions from flares, catalytic cracking units, traditional fluid coking units, fluid coking units with flexicoking design, delayed coking units, catalytic reforming units, sulfur recovery units, coke calcining units, asphalt blowing, equipment leaks, storage tanks, uncontrolled blowdown systems, loading operations, process vents, and non-merchant hydrogen plants. For additional information about Subpart Y reporting, please use the e-GGRT Help link(s) provided.

FACILITY-LEVEL EMISSIONS SUMMARY

	CO ₂ (metric tons)	CH ₄ (metric tons)	Status ¹	
Uncontrolled Blowdown Systems	N/A	Incomplete		OPEN
Equipment Leaks	N/A	Incomplete		OPEN
Loading Operations	N/A	Incomplete		OPEN
Storage Tanks	N/A	Incomplete		OPEN
Sour Gas Sent Off-Site		N/A	Incomplete	OPEN
Delayed Coking		N/A	Incomplete	OPEN

DELAYED COKING UNITS

Unit Name/Identifier	Status ¹	Delete
None entered		

[ADD a Delayed Coking Unit](#)

ASPHALT BLOWING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	Status ¹	Delete
None entered				

[ADD an Asphalt Blowing Unit](#)

COKE CALCINING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	H ₂ O (metric tons)	Status ¹	Delete
None entered					

37

Once you have clicked the “open” on the facility overview page, you will proceed to the “subpart overview page”. This is the subpart Y overview page. You see that toward the top of the page there is a heading “Facility-level emissions summary”. Underneath this are all of the emission sources reportable under subpart Y that you report the GHGs at the facility-level. For example, you are reporting the methane emissions for equipment leaks at the facility level; you are not reporting the emissions on a leak by leak basis.

You will see that below the “Facility-level emissions summary” section are additional sections for emission sources reportable under subpart Y that are reported at the unit-level. For example, you will find additional sections to report information about each delayed coking unit, each asphalt blowing unit, each coke calcining unit, etc.

Subpart Y Reporting: Add Facility-wide Emission Source – Uncontrolled Blowdown Systems



OVERVIEW OF SUBPART Y REPORTING REQUIREMENTS
Subpart Y requires affected facilities to report Greenhouse gas (GHG) emissions from flares, catalytic cracking units, traditional fluid coking units, fluid coking units with flexicoking design, delayed coking units, catalytic reforming units, sulfur recovery units, coke calcining units, asphalt blowing, equipment leaks, storage tanks, uncontrolled blowdown systems, loading operations, process vents, and non-merchant hydrogen plants. For additional information about Subpart Y reporting, please use the e-GGRT Help link(s) provided.

FACILITY LEVEL EMISSIONS SUMMARY

	CO ₂ (metric tons)	CH ₄ (metric tons)	Status*	
Uncontrolled Blowdown Systems	N/A		Incomplete	OPEN
Equipment Leaks	N/A		Incomplete	OPEN
Loading Operations	N/A		Incomplete	OPEN
Storage Tanks	N/A		Incomplete	OPEN
Sour Gas Sweet Off-Site		N/A	Incomplete	OPEN
Delayed Coking	N/A		Incomplete	OPEN

DELAYED COKING UNITS

Unit Name/Identifier	Status*	Delete
None entered		

[ADD a Delayed Coking Unit](#)

ASPHALT BLOWING UNITS EMISSIONS SUMMARY

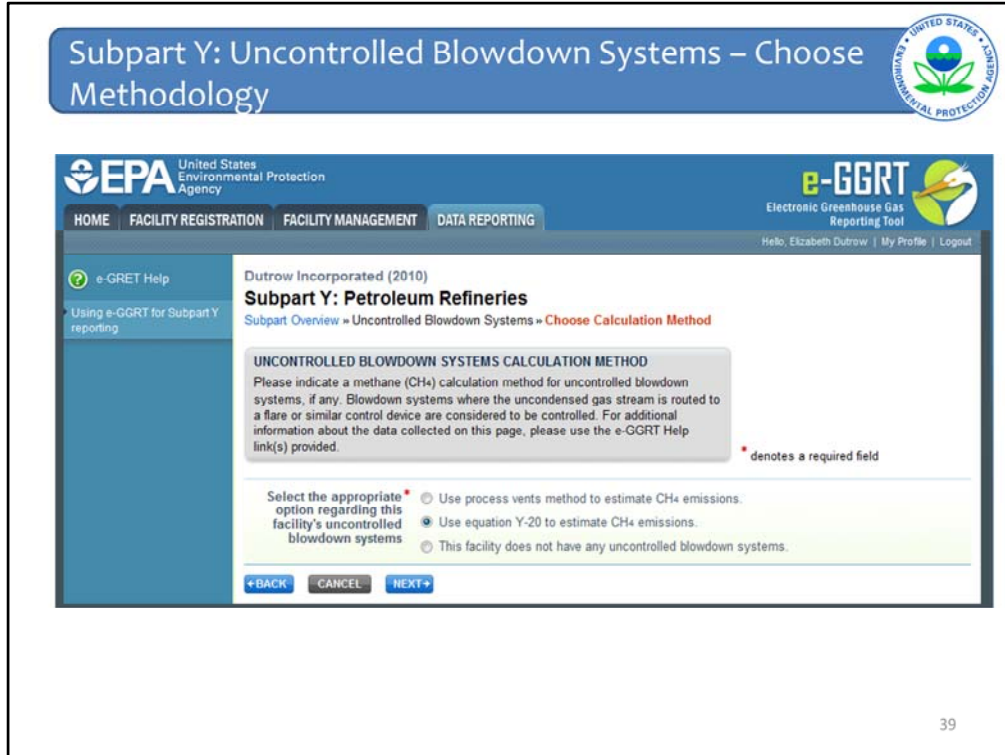
Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	Status*	Delete
None entered				

[ADD an Asphalt Blowing Unit](#)

COKE CALCINING UNITS EMISSIONS SUMMARY

This slide still shows the Subpart Y Overview screen. Now we will walk you through how to enter emissions information into e-GGRT for the Facility-Level emission sources. We will use “Uncontrolled Blowdown Systems” as an example.

To enter emissions information for “uncontrolled blowdown system”, you will click on the “Open” on the right hand side of the screen. There is a green arrow pointing toward it in this slide.



Once you click “open” for the uncontrolled blowdown systems, you will proceed to this screen. Here you are asked to indicate which methodology you are using to calculate your emissions. Part 98 allows the use of either the process vent method (Equation Y-19), or Equation Y-20. If your facility does not have any uncontrolled blowdown systems, you may indicate that as well. If you were to select the third option, that you don’t have any uncontrolled blowdown systems, you would be finished with this section and be returned to the subpart Y overview page, where you would enter your emissions for other emissions sources in subpart Y.

I should also mention that the gray box at the top of each screen provides helpful information about the data that you are entering on the screen. For example, the gray box here provides an explanation of certain types of blowdown systems that are considered to be controlled.


The screenshot displays the EPA e-GGRT interface for Subpart Y: Petroleum Refineries. The main heading is "Subpart Y: Uncontrolled Blowdown Systems – Enter Emissions". The user is logged in as Elizabeth Dutrow. The page shows the equation for CH4 emissions: $CH_4 = (Q_{Ref} \times EF_{BD} \times \frac{16}{MVC} \times 0.001)$. A green arrow points to a link that says "Use Y-20 spreadsheet to calculate".

Once you have chosen your methodology, in this case Equation Y-20, you will proceed to a slide that shows the Y-20 equation, and allows you to enter the emissions for uncontrolled blowdown systems.

In e-GGRT, for each equation, you can hover over an element as needed. The e-GGRT system also provides links to optional worksheets that may be used to perform the calculations, as mentioned earlier.

lgm1

Subpart Y: Equation Y-20 Worksheet



5 Equation Y-20:

$$CH_4 = \left(Q_{B_o,f} \times EF_{BD} \times \frac{16}{MVC} \times 0.001 \right)$$

6
7
8
9

10

11 Facility Name:

12 Reporter Name:

13 Unit Name or Identifier:

14 Unit Description:

15 Comments:

16 Unit Type: Blowdown System

17

18 Input Data

19 [Q_{B_o,f}] = Quantity of crude oil plus the quantity of intermediate products received from off site that are processed at the facility (MMbbl/year)

20 [EF_{BD}] = Methane emission factor for uncontrolled blowdown systems (scf CH₄/MMbbl); default is 137,000

21 [MVC] = Molar volume conversion factor (849.5 scf/kg-mole at 68 °F and 14.7 psia or 836.6 scf/kg-mole at 60 °F and 14.7 psia)

22

23 Constants

24 [16] = Molecular weight of CH₄ (kg/kg-mole)

25 [0.001] = Conversion factor, metric ton/kg

26

27 Annual CH₄ Mass Emissions (metric tons/year) from Equation Y-20

28 [CH₄] = Annual methane emissions from the delayed coking unit vessel opening (metric tons/year)

29 0.00000

30 Enter this value in e-GGRT

31
32
33

41

This is a screenshot of the Equation Y-20 spreadsheet. Again, the use of these spreadsheets is optional. At the top is facility information – this is for the purpose of helping with your own internal recordkeeping. You see there is a section “input data” where you would enter all your equation inputs – in this case it’s not a very complicated equation, so it’s just a few inputs. Then once you enter your equation inputs, the red box at the bottom will calculate the emissions. You would then enter that value into e-GGRT.

Subpart Y: Uncontrolled Blowdown Systems – Save Emissions

Electronic Greenhouse Gas Reporting Tool

Electronic Greenhouse Gas Reporting Tool
Hello, Lisa Grogan-McCulloch | My Profile | Logout

Dutrow Incorporated (2010)
Subpart Y: Petroleum Refineries
Subpart Overview » Uncontrolled Blowdown Systems » Eq. Y-20

GHG DATA AND ASSOCIATED INFORMATION
Use this page to enter the GHG data required by Subpart Y. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

(Eq. Y-20) CH₄ emissions (metric tons) **20**

EQUATION Y-20 SUMMARY AND RESULT

$$CH_4 = (Q_{Ref} \times EF_{BD} \times \frac{16}{MVC} \times 0.001)$$

Hover over an element in the equation above to reveal

Annual CH₄ emissions from blowdown systems (metric tons)

Use Y-20 spreadsheet to calculate

Basis for the methane emission factor value

← BACK CANCEL SAVE

42

Once you have calculated your emissions, you would then enter in the emissions, in this case 20 metric tons, into the red box on this page. The green arrow marked “1” is pointing to the spot where you would enter in the emissions. You would then answer the next question on the “Basis for the methane emission factor value”, and then click “save”. The green arrow marked “2” is pointing to the save button.

Note that the 20 metric tons of CH₄ emissions also now appears in the blue box on the right side of the screen.

Subpart Y: Uncontrolled Blowdown Systems - Completed

Dutrow Incorporated (2010)
Subpart Y: Petroleum Refineries
 Subpart Overview

OVERVIEW OF SUBPART Y REPORTING REQUIREMENTS
 Subpart Y requires affected facilities to report Greenhouse gas (GHG) emissions from flares, catalytic cracking units, traditional fluid coking units, fluid coking units with flexicoking design, delayed coking units, catalytic reforming units, sulfur recovery units, coke calcining units, asphalt blowing, equipment leaks, storage tanks, uncontrolled blowdown systems, loading operations, process vents, and non-merchant hydrogen plants. For additional information about Subpart Y reporting, please use the e-GGRT Help link(s) provided.

EPA has proposed to defer collection of 2010 data elements used as inputs to emission equations for direct reporters. (See 75 FR 81350, published Dec. 27, 2010.) E-GGRT currently reflects this proposal, and EPA will make any adjustments necessary to reflect the final rule.

Subpart Y: View Validation

FACILITY-LEVEL EMISSIONS SUMMARY


	CO ₂ (metric tons)	CH ₄ (metric tons)	Status ¹	
Uncontrolled Blowdown Systems	N/A	20	Complete	OPEN
Equipment Leaks	N/A		Incomplete	OPEN
Loading Operations	N/A		Incomplete	OPEN
Storage Tanks	N/A		Incomplete	OPEN
Sour Gas Sent Off-Site		N/A	Incomplete	OPEN
Delayed Coking	N/A		Incomplete	OPEN

43

When you click “Save”, you will return to the “Subpart Y Overview” page, shown here. The emissions value that you entered for uncontrolled blowdown systems, in this case “20”, will now show on this overview page. You will also see that in the table in the column marked “status”, uncontrolled blowdown systems” is now marked “complete” and is shaded green. This indicates that you’ve completed entering data for “uncontrolled blowdown systems”.

If your status shows up as “incomplete”, click on the “Subpart Y: View Validation” link on the right side of the screen for details on possible errors or omissions in your data.

Once you have completed the uncontrolled blowdown systems section, as we just demonstrated, you can proceed in a similar fashion through Equipment Leaks, Loading Operations, Storage Tanks, Sour Gas Off-site, and Delayed Coking. I won’t be demonstrating those today as they follow the same format as what I’ve just demonstrated.


 UNITED STATES
 ENVIRONMENTAL PROTECTION AGENCY

Subpart Y: Add an FCCU (Non-CEMS)

FACILITY-LEVEL EMISSIONS SUMMARY

	CO ₂ (metric tons)	CH ₄ (metric tons)	Status [†]	
Uncontrolled Blowdown Systems	N/A	20	Complete	OPEN
Equipment Leaks	N/A		Incomplete	OPEN
Loading Operations	N/A		Incomplete	OPEN
Storage Tanks	N/A		Incomplete	OPEN
Sour Gas Sent Off-Site			N/A Incomplete	OPEN
Delayed Coking	N/A		Incomplete	OPEN

DELAYED COKING UNITS

Unit Name/Identifier	Status [†]	Delete
None entered		
+ADD a Delayed Coking Unit		

ASPHALT BLOWING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	Status [†]	Delete
None entered				
+ADD an Asphalt Blowing Unit				

COKE CALCINING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status [†]	Delete
None entered					
+ADD a Coke Calcining Unit					

CATALYTIC CRACKING UNITS, TRADITIONAL FLUID COKING UNITS, FLUID COKING UNITS WITH FLEXICOKING DESIGN, AND CATALYTIC REFORMING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status [†]	Delete
None entered					
+ADD a Catalytic Cracking or Coking Unit					

44

We will now demonstrate how to add information for sources reported at the unit-specific level. This screen shot again shows the Subpart Y overview page, as did the previous screenshot, but we have scrolled down on this page. Again, you will see next to the green arrow marked “1” the uncontrolled blowdown systems emissions show as 20 metric tons of methane, as was entered previously.

If you look at the arrow marked “2”, you will see that this is the beginning of the unit-level emissions – where you would enter information on delayed coking units, asphalt blowing units, coke calcining units, etc.

The green arrow marked “3” is pointing to the location where you enter emissions on catalytic cracking units and traditional fluid coking units. I will now demonstrate how to enter emissions information for a unit level emission source, using a catalytic cracking unit as an example. To begin entering information, the first step is to click on the “Add a catalytic cracking or coking unit.”

Once you click on this, you will proceed to the next screen.

Subpart Y: Add/Edit FCCU Information (Non-CEMS)

EPA United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Help, Elizabeth Dutrow | My Profile | Logout

Dutrow Incorporated (2010)

Subpart Y: Petroleum Refineries

[Subpart Overview](#) » [Add a Catalytic Cracking or Coking Unit](#)

CATALYTIC CRACKING UNIT, FLUID COKING UNIT, OR CATALYTIC REFORMING UNIT INFORMATION

Subpart Y requires a facility to uniquely identify each catalytic cracking unit, fluid coking unit, or catalytic reforming unit and provide the information described below for each. For additional information about adding and editing a catalytic cracking unit, fluid coking unit, or catalytic reforming unit please use the e-GGRT Help link(s) provided. * denotes a required field

UNIT INFORMATION

Name or ID* FCCU (40 characters maximum)

Description (optional)

Type* Fluid Catalytic Cracking Unit

CONTINUOUS EMISSIONS MONITORING

Is this unit's emissions monitored using a CEMS? Yes No

CANCEL NEXT+

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On this slide, you enter in the Name or ID of the unit and the type of unit. You will see that the green arrow is pointing to the question “Is this unit’s emissions monitored using a CEMS?” First I will demonstrate how to report emissions in the case that the CEMS methodology is not used. In this case, you would click “no” here, and then press next.

Subpart Y: Add/Edit FCCU (Non-CEMS): Choose Methodologies

the unit. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided. * denotes a required field

UNIT INFORMATION

Name or ID * (40 characters maximum)

Description (optional)

Type Fluid Catalytic Cracking Unit

RATED OUTPUT

Maximum rated throughput of the fluid catalytic cracking unit (bbi per stream day)

CO₂ EMISSIONS CALCULATION METHOD

Method used to calculate the CO₂ emissions * 98.253(c)(2) - Equation Y-6 and continuous monitor for flow
 98.253(c)(2) - Equation Y-6 and Y-7a
 98.253(c)(2) - Equation Y-6 and Y-7b
 98.253(c)(3) - Equation Y-8

CH₄ AND N₂O EMISSIONS CALCULATION METHOD

Method used to calculate the CH₄ emissions * Equation Y-9
 Unit-specific measurement data
 A unit-specific emission factor based on a source test of the unit

Method used to calculate the N₂O emissions * Equation Y-10
 Unit-specific measurement data
 A unit-specific emission factor based on a source test of the unit

CONTINUOUS EMISSIONS MONITORING

Is this unit's emissions monitored using a CEMS? Yes
 No

46

1

2

3

4

On this page you enter in the maximum rated throughput of the unit (marked by the green arrow 1), and then you select the methodology that you are using to calculate your emissions. The green arrow marked 2 points to where you choose the method for carbon dioxide, the green arrow marked 3 points to where you select the method for methane, and the green arrow marked 4 points to where you select the method for nitrous oxide.

Once you make these selections, you click on save at the bottom of the page (cut off from this screenshot), and you are then returned to the subpart Y overview page.

Subpart Y: Open an FCCU



Equipment/Leak	N/A	Incomplete	OPEN
Loading Operations	N/A	Incomplete	OPEN
Storage Tanks	N/A	Incomplete	OPEN
Sour Gas Sent Off-Site	N/A	Incomplete	OPEN
Delayed Coking	N/A	Incomplete	OPEN

Unit Name/Identifier	Status	Delete
None entered		
+ADD a Delayed Coking Unit		

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	Status	Delete
None entered				
+ADD an Asphalt Blowing Unit				

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status	Delete
None entered					
+ADD a Coke Calcining Unit					

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status	Delete
FCCU				Incomplete	OPEN
+ADD a Catalytic Cracking or Coking Unit					


Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status	Delete
None entered					
+ADD a Flare					

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status	Delete
pv	100	10	10	Incomplete	OPEN
+ADD a Process Vent					

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This screen shows the Subpart Y overview page again, and you will see that the name of the unit we entered shows next to the green arrow marked “1”. If you need to edit the rated output, or any of the methodology choices entered for this unit, you can select the unit name by arrow “1” to go back to the previous screens and edit this information. To report the emissions for this unit, the next step is to click on the “open” button that the green arrow marked “2” is pointing to.

Subpart Y: Report FCCU Emissions (Non-CEMS)



(Eq. Y-10) N₂O emissions (metric tons)

EQUATION Y-8 SUMMARY AND RESULT

$$CO_2 = Q_{unit} \times (CBF \times 0.001) \times CC \times \frac{44}{12}$$

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

Annual CO₂ emission from this fluid catalytic cracking unit (metric tons)
[Use Y-8 spreadsheet to calculate](#)

Basis for the carbon content value Periodic (less frequent than weekly but at least quarterly) measurements

EQUATION Y-9 SUMMARY AND RESULT

$$CH_4 = \left(CO_2 \times \frac{EmF_2}{EmF_1} \right)$$

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

Annual CH₄ emission from this fluid catalytic cracking unit (metric tons)
[Use Y-9 spreadsheet to calculate](#)

EQUATION Y-10 SUMMARY AND RESULT

$$N_2O = \left(CO_2 \times \frac{EmF_3}{EmF_1} \right)$$

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

Annual N₂O emission from this fluid catalytic cracking unit (metric tons)
[Use Y-10 spreadsheet to calculate](#)

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On this screen you enter in the emissions for the three pollutants. Again, as in the case with uncontrolled blowdown systems, you can hover over an element in the equation to read a definition of that element as needed. Below each red emissions reporting box, you also have the option of clicking on the blue links to download the optional spreadsheets we mentioned earlier.

Once you enter in this information, you click “Save” at the bottom of the page (which is cut-off from this screenshot).

Subpart Y: Add FCCU (CEMS)



FACILITY-LEVEL EMISSIONS SUMMARY

	CO ₂ (metric tons)	CH ₄ (metric tons)	Status ¹	
Uncontrolled Blowdown Systems	N/A	20	Complete	OPEN
Equipment Leaks	N/A		Incomplete	OPEN
Loading Operations	N/A		Incomplete	OPEN
Storage Tanks	N/A		Incomplete	OPEN
Sour Gas Sent Off-Site		N/A	Incomplete	OPEN
Delayed Coking	N/A		Incomplete	OPEN

DELAYED COKING UNITS

Unit Name/Identifier	Status ¹	Delete
None entered		

[ADD a Delayed Coking Unit](#)

ASPHALT BLOWING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	Status ¹	Delete
None entered				

[ADD an Asphalt Blowing Unit](#)

COKE CALCINING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
None entered					

[ADD a Coke Calcining Unit](#)

CATALYTIC CRACKING UNITS, TRADITIONAL FLUID COKING UNITS, FLUID COKING UNITS WITH FLEXICOKING DESIGN, AND CATALYTIC REFORMING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
FCCU	6,000	10	1	Complete	OPEN ✖

[ADD a Catalytic Cracking or Coking Unit](#)



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You will then proceed back to the Subpart Y overview page. You will see that the emissions you entered for the FCCU show here on this summary screen, and the status now shows as complete.

Next I will demonstrate how to report emissions for an FCCU unit that is using the CEMS methodology. The first step is the same as for the non-CEMS methodology – you click on the “ADD a catalytic cracking or coking unit” link at the bottom of the screenshot.

Subpart Y: CEMS FCCU - Add/Edit Information

The screenshot displays the EPA e-GGRT interface for adding or editing a Catalytic Cracking Unit (FCCU) under Subpart Y: Petroleum Refineries. The page header includes the EPA logo and navigation tabs: HOME, FACILITY REGISTRATION, FACILITY MANAGEMENT, and DATA REPORTING. The user is logged in as Elizabeth Dutrow. The main content area is titled 'Dutrow Incorporated (2010) Subpart Y: Petroleum Refineries' and includes a 'Subpart Overview' link pointing to FCCU and an 'Edit' link. A grey box provides instructions: 'Subpart Y requires a facility to uniquely identify each catalytic cracking unit, fluid coking unit, or catalytic reforming unit and provide the information described below for each. For additional information about adding and editing a catalytic cracking unit, fluid coking unit, or catalytic reforming unit please use the e-GGRT Help link(s) provided.' Below this is the 'UNIT INFORMATION' section with a text input for 'Name or ID' (containing 'FCCU2'), an optional 'Description' field, and a dropdown menu for 'Type' (set to 'Fluid Catalytic Cracking Unit'). The 'CONTINUOUS EMISSIONS MONITORING' section has a radio button for 'Is this unit's emissions monitored using a CEMS?' with 'Yes' selected. At the bottom are 'CANCEL' and 'NEXT' buttons. The footer contains 'Paperwork Reduction Act Burden Statement | Contact Us', 'e-GGRT RY2010.R.39 | Yck-unit-cems', and the page number '50'.

Here, again, you enter in the name of the unit, select the type, and then, in this case, select “yes” to indicate that you are using the CEMS methodology.

Subpart Y: CEMS FCCU – Choose CH₄ & N₂O Methodologies



Subpart Y: Petroleum Refineries
Subpart Overview • FCCU2 • Edit

CATALYTIC CRACKING UNIT, FLUID COKING UNIT, OR CATALYTIC REFORMING UNIT EMISSIONS CALCULATION METHOD
Use this page to enter the method used to calculate carbon dioxide (CO₂), CH₄ and N₂O emissions of the unit, respectively. Also enter the maximum rated throughput of the unit. For additional information about the data collected on this page, please use the e-GRT Help link(s) provided. * denotes a required field

UNIT INFORMATION

Name or ID * FCCU2 (40 characters maximum)
Description (optional)
Type Fluid Catalytic Cracking Unit

RATED OUTPUT
Maximum rated throughput of the fluid catalytic cracking unit (bbl per stream day)

CH₄ AND N₂O EMISSIONS CALCULATION METHOD

Method used to calculate the CH₄ emissions *
 Equation Y-9
 Unit-specific measurement data
 A unit-specific emission factor based on a source test of the unit

Method used to calculate the N₂O emissions *
 Equation Y-10
 Unit-specific measurement data
 A unit-specific emission factor based on a source test of the unit


CONTINUOUS EMISSIONS MONITORING
Is this unit's emissions * monitored using a CEMS?
 Yes
 No

BACK CANCEL SAVE

Paperwork Reduction Act Burden Statement | Contact Us e-GRT RY2010.R.39 | Yok-unit-maind 51

Here, again, as in the previous example, you select the methodology you are using to calculate methane and nitrous oxide emissions. The green arrow points to this. Once you've selected that, you click on the "save" button at the bottom of the screen.

Subpart Y: CEMS FCCU – Report CH₄ & N₂O Process Emissions (1)



Equipment Leaks		N/A		Incomplete	OPEN
Loading Operations		N/A		Incomplete	OPEN
Storage Tanks		N/A		Incomplete	OPEN
Sour Gas Sent Off-Site			N/A	Incomplete	OPEN
Delayed Coking		N/A		Incomplete	OPEN

DELAYED COKING UNITS

Unit Name/Identifier	Status ¹	Delete
None entered		

[ADD a Delayed Coking Unit](#)

ASPHALT BLOWING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	Status ¹	Delete
None entered				

[ADD an Asphalt Blowing Unit](#)

COKE CALCINING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
None entered					

[ADD a Coke Calcining Unit](#)

CATALYTIC CRACKING UNITS, TRADITIONAL FLUID COKING UNITS, FLUID COKING UNITS WITH FLEXICOKING DESIGN, AND CATALYTIC REFORMING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
FCCU	6,000	10	1	Complete	OPEN
FCCU2	N/A			Incomplete	OPEN

[ADD a Catalytic Cracking or Coking Unit](#)

You will see when you return to the Subpart Y overview screen that now the second FCCU is showing as well as the first. To proceed with reporting the methane and nitrous oxide emissions for this unit, you would click on the “open” button for this unit. The green arrow on the right points to this.

Subpart Y: CEMS FCCU – Report CH₄ & N₂O Process Emissions (2)



- EQUATION Y-9 SUMMARY AND RESULT

$$\text{CH}_4 = \left(\text{CO}_2 \times \frac{\text{EmF}_2}{\text{EmF}_1} \right)$$

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

Annual CH₄ emission from this fluid catalytic cracking unit (metric tons)

[Use Y-9 spreadsheet to calculate](#)

- EQUATION Y-10 SUMMARY AND RESULT

$$\text{N}_2\text{O} = \left(\text{CO}_2 \times \frac{\text{EmF}_3}{\text{EmF}_1} \right)$$

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

Annual N₂O emission from this fluid catalytic cracking unit (metric tons)

[Use Y-10 spreadsheet to calculate](#)

CANCEL

SAVE

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On this screen, you would enter in your methane and nitrous oxide emissions, and then press “save”. Again, you have the option of clicking on the link to the spreadsheets to calculate the emissions. Once you enter in the emissions, you would then press “save”

You will then be returned to the subpart Y overview screen.

Subpart Y: Add CEMS Monitor Location



CATALYTIC CRACKING UNITS, TRADITIONAL FLUID COKING UNITS, FLUID COKING UNITS WITH FLEXICOKING DESIGN, AND CATALYTIC REFORMING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
FCCU	6,000	10		1 Complete	OPEN ✖
FCCU2	N/A	15		3 Complete	OPEN ✖



[+ ADD a Catalytic Cracking or Coking Unit](#)

FLARES UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
None entered					

[+ ADD a Flare](#)

PROCESS VENTS UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
None entered					

[+ ADD a Process Vent](#)

SULFUR RECOVERY UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	Status ¹	Delete
None entered			

[+ ADD a Sulfur Recovery Plant](#)

CEMS MONITORING LOCATION SUMMARY

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO ₂ emissions (metric tons)	Status	Delete
No CEMS monitoring locations present					



[+ ADD a CEMS Monitoring Location](#)


[← Facility Overview](#)

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Here you will see the green arrow marked “1” shows the second unit we entered that is using the CEMS methodology. You will see the methane and nitrous oxide emissions values are shown here in the summary table. You will also see that there is an “N/A” in the CO₂ emissions column. This is because when you select the CEMS methodology, you report your carbon dioxide emissions by using the table at the bottom of the screen marked “CEMS monitoring location summary”. The green arrow marked “2” is pointing to it. Here you are reporting the CO₂ emissions at the monitoring location, or stack, level.

The next step is to add a “CEMS Monitoring Location” by click on the blue link. After doing so, you will proceed to the next screen.

Subpart Y: Enter CML GHG Emissions



10000.0
Total Non-biogenic CO₂ (metric tons)

CONFIGURATION

CEMS Monitoring Location Name/ID (40 characters maximum)

Description (optional)

Configuration Type

Types of fuel combusted in the unit(s) monitored by the CEMS (200 characters maximum)

TIER 4 METHODOLOGY INFORMATION

Calculation Methodology* Start Date

Calculation Methodology* End Date

CUMULATIVE CO₂ EMISSIONS

Quarter 1	<input type="text" value="2500"/> (metric tons)
Quarter 2	<input type="text" value="2500"/> (metric tons)
Quarter 3	<input type="text" value="2500"/> (metric tons)
Quarter 4	<input type="text" value="2500"/> (metric tons)

ANNUAL CO₂ EMISSIONS

Total annual CO₂ mass emissions (biogenic and non-biogenic) measured by the CEMS (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 biogenic CO₂ mass emissions (metric tons)


Total annual non-biogenic CO₂ mass emissions (includes fossil fuel, sorbent, and process CO₂ emissions) (metric tons)

55

On this screen, you enter the name of the CEMS monitoring location, the configuration type – in this case, we have selected that it is a single process unit that exhausts to a dedicated stack. If you have an FCCU followed by a post-combustion device, such as a CO boiler, you would select “Process / stationary combustion units share a common stack”.

You then enter the type of fuel combusted, the dates for which the Tier 4 methodology was used, and the quarterly and annual CO₂ emissions.

If the emissions reported for the CEMS include emissions calculated according to 98.33(a)(4)(viii) for a slipstream that bypassed the CEMS, check the box under Annual CO₂ emissions; otherwise, leave it unchecked.



Subpart Y: Enter CML GHG Emissions (2)

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.
 Enter CH₄ and N₂O emissions from only combustion of Table C-2 Fuels directly below.
 If there are no combustion emissions from Table C-2 Fuels in this CEMS Monitoring Location, please enter 0.

Total CH₄ emissions (metric tons)
 Use Equation C-10 spreadsheet to calculate

Total N₂O emissions (metric tons)
 Use Equation C-10 spreadsheet to calculate

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)

EMISSIONS ATTRIBUTABLE TO COMBUSTION

CO₂ emissions from CEMS Monitoring Location (CML) Summary attributable to combustion (metric tons)

CEMS MONITORING LOCATION PROCESS UNITS

Process Unit Name/Identifier	CO ₂ emissions attributable to process (metric tons)
There are no process units monitored by CEMS available for selection.	

[+ ADD/REMOVE/EDIT a process unit that exhausts to this CEMS Monitoring Location](#)

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This screenshot is a continuation of the e-GGRT page on the previous screenshot. The green arrow marked “1” points to where you would enter methane and nitrous oxide emissions for any emissions resulting from stationary combustion exhausting from this monitoring location. In this case, since I selected that it was a process unit exhausting to dedicated stack, you would enter “0” for the methane and nitrous oxide emissions. If you have an FCCU followed by a CO boiler (or other post-combustion device), this is where you would enter the CH₄ and N₂O emissions associated with the additional fuel burned in the CO boiler.

Complete the “Additional Emissions Information” section regarding operating hours and substitute data, then complete the “Emissions Attributable to Combustion” section. In this case, since I selected that it was a process unit exhausting to dedicated stack, you would enter “0” for the CO₂ emissions attributable to combustion. If you have an FCCU followed by a CO boiler (or other post-combustion device), this is where you would enter the CO₂ emissions associated with the additional fuel burned in the CO boiler.

The last step for reporting emissions for this FCCU is to click on the “Add/remove a process unit that exhausts to the CEMS Monitoring Location”. The green arrow marked “2” points to this.

Subpart Y: Enter CML GHG Emissions (3)



Subpart Y: Petroleum Refineries

Subpart Y Overview » Stack 1 » [Add/Edit Process Units](#)

IDENTIFY PROCESS UNIT(S)

Use this page to select each process unit that is monitored by the CEMS Monitoring Location (CML) Summary. For additional information about this page, please use the e-GGRT Help link(s) provided.

* denotes a required field

PROCESS UNIT: FCCU2

Is this process unit monitored by the CEMS Monitoring Location? (check if true)



CANCEL

SAVE

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On this screen, you will see that all units in which you've indicated that you are using the CEMS methodology are prefilled in here. As we have only added one source so far that uses the CEMS methodology, only the FCCU2 process unit is displayed. We then check the check if true box for the FCCU2 process unit.

Subpart Y: Enter CML GHG Emissions (4)



Subpart Y: Petroleum Refineries

[Subpart Y Overview](#) » [Stack 1](#) » [Add/Edit Process Units](#)

IDENTIFY PROCESS UNIT(S)

Use this page to select each process unit that is monitored by the CEMS Monitoring Location (CML) Summary. For additional information about this page, please use the e-GGRT Help link(s) provided.

* denotes a required field

PROCESS UNIT: FCCU2

Is this process unit monitored by the CEMS Monitoring Location? (check if true)

CO₂ emissions from this CEMS Monitoring Location that are attributable to process CO₂ emissions from this process unit (metric tons)

CANCEL

SAVE

58

Once you check the box and either click “Save” or click elsewhere on the page, an additional question for the selected process unit will appear. You are required to enter the emissions attributable to that specific process unit that is monitored by the CEMS monitoring location. If you had two process units emitting through a single stack, this is where you would report the process-specific CO₂ emissions attributable to each process unit individually. In this case, since we selected that the unit exhausts to a dedicated stack, all of the CO₂ emissions measured by the CEMS is reported here as emissions attributable to this process unit.

Once you complete this field, you click on “Save” at the bottom of the page.

Subpart Y: Enter CML GHG Emissions (5)



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)

EMISSIONS ATTRIBUTABLE TO COMBUSTION

CO₂ emissions from CEMS Monitoring Location (CML) Summary attributable to combustion (metric tons)

CEMS MONITORING LOCATION PROCESS UNITS

Process Unit Name/Identifier	CO ₂ emissions attributable to process CO ₂ emissions (metric tons)
FCCU2	10,000

ADD/REMOVE/EDIT a process unit that exhausts to this CEMS Monitoring Location


CANCEL

SAVE

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You will then return to the main CEMS Monitoring Location, where you can verify that you have successfully added the process unit to the CEMS monitoring location. We have now completed all of the information needed for this CEMS monitoring location, so we click "Save."

Subpart Y: Enter CML GHG Emissions (6)



CATALYTIC CRACKING UNITS, TRADITIONAL FLUID COKING UNITS, FLUID COKING UNITS WITH FLEXICOKING DESIGN, AND CATALYTIC REFORMING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
FCCU	6,000	10	1	Complete	OPEN ✖
FCCU2	N/A	15	3	Complete	OPEN ✖

➤ ADD a Catalytic Cracking or Coking Unit

FLARES UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
None entered					

➤ ADD a Flare

PROCESS VENTS UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
None entered					

➤ ADD a Process Vent

SULFUR RECOVERY UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	Status ¹	Delete
None entered			

➤ ADD a Sulfur Recovery Plant

CEMS MONITORING LOCATION SUMMARY

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO ₂ emissions (metric tons)	Status	Delete
Stack 1	Single process/process unit exhausts to dedicated stack	FCCU2	10,000	Complete	✖

➤ ADD a CEMS Monitoring Location


[⬅ Facility Overview](#)

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We then return back to the subpart Y overview screen. You'll now see that the emissions for the FCCU2 are shown in two places. The methane and nitrous oxide emissions are shown next to the green arrow labeled 1, and the CO₂ emissions from the CEMS monitoring location are shown next to the green arrow labeled 2.

I've now demonstrated how to enter information for emission sources in subpart Y that are reported at the unit level, using two fluid catalytic cracking units as examples.

Subpart Y: Reporting Emissions for Delayed Coking



Dutrow Incorporated (2010)
Subpart Y: Petroleum Refineries
 Subpart Overview

OVERVIEW OF SUBPART Y REPORTING REQUIREMENTS

Subpart Y requires affected facilities to report Greenhouse gas (GHG) emissions from flares, catalytic cracking units, traditional fluid coking units, fluid coking units with flexicoking design, delayed coking units, catalytic reforming units, sulfur recovery units, coke calcining units, asphalt blowing, equipment leaks, storage tanks, uncontrolled blowdown systems, loading operations, process vents, and non-merchant hydrogen plants. For additional information about Subpart Y reporting, please use the e-GGRT Help link(s) provided.

EPA has proposed to defer collection of 2010 data elements used as inputs to emission equations for direct reporters. (See 75 FR 81350, published Dec. 27, 2010.) E-GGRT currently reflects this proposal, and EPA will make any adjustments necessary to reflect the final rule.

[Subpart Y: View Validation](#)

FACILITY-LEVEL EMISSIONS SUMMARY

	CO ₂ (metric tons)	CH ₄ (metric tons)	Status ¹	
Uncontrolled Blowdown Systems	N/A	20	Complete	OPEN
Equipment Leaks	N/A		Incomplete	OPEN
Loading Operations	N/A		Incomplete	OPEN
Storage Tanks	N/A		Incomplete	OPEN
Sour Gas Sent Off-Site		N/A	Incomplete	OPEN
Delayed Coking	N/A		Incomplete	OPEN

DELAYED COKING UNITS

Unit Name/Identifier	Status ¹	Delete
None entered		
+ADD a Delayed Coking Unit		

ASPHALT BLOWING UNITS EMISSIONS SUMMARY

Unit Name/Identifier	CO ₂ (metric tons)	CH ₄ (metric tons)	Status ¹	Delete
None entered				
+ADD an Asphalt Blowing Unit				

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One last thing I'd like to note about subpart Y is how to report emissions for delayed coking units. You will see that delayed coking is listed twice, once under the "Facility level emissions" (marked by the green arrow 1) and a second time in the unit-level reporting section (marked by the green arrow "2").

This is because Part 98 asks for information about each delayed coking unit, which is reported in the section marked by the green arrow "2", as well as for information about all of the delayed coking units across the facility, which is reported in the section marked by the number "1". You will see once you enter each of these sections that emissions are reported only once, and the rest of the information is supporting information.

This concludes the demonstration of using e-GGRT to report emissions in subpart Y.

Subpart X



Subpart X: Topical Overview



1. Entering data using mass balance methodology
2. Entering data using ethylene methodology

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For the purposes of this webinar we will section off the next several slides into two parts, one for adding subpart X specific data using the mass balance methodology and the other section will focus on adding subpart X specific data using the ethylene combustion methodology.

The screenshot shows the EPA e-GGRT interface for Subpart X reporting. The main heading is "Subpart X: Petrochemical Production" under "Subpart Overview". A green checkmark indicates "Subpart X: No Validation Messages". There are two tables for adding process units: "PETROCHEMICAL PROCESS UNITS" and "PETROCHEMICAL PROCESS UNITS (Units monitored by CEMS)". A green arrow points to the "ADD a Process Unit" link in the first table.

After clicking “OPEN” for subpart X on the preceding “facility overview” page, you will see this subpart X overview page.

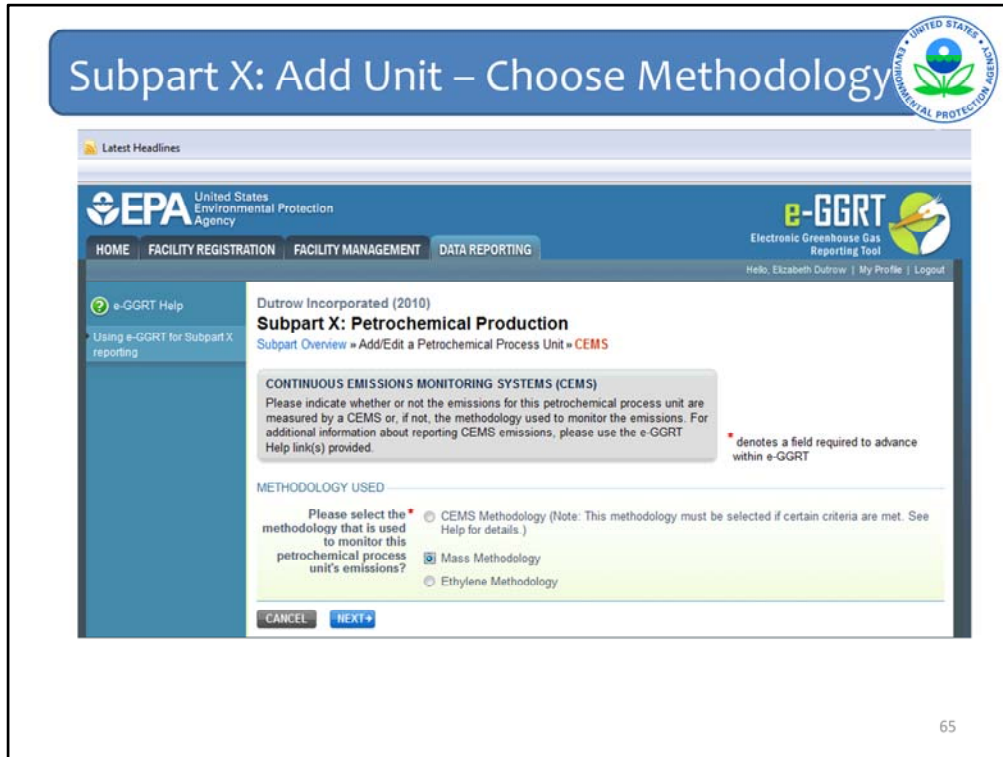
On this page you initiate the procedure for entering process unit data in your report by clicking on one of the two hyperlinks on the left side of the page.

Subpart X specifies 3 emissions estimation methodologies for petrochemical process units—a mass balance approach, the use of CEMS, and a methodology based on using the procedures in subpart C that is an option only for ethylene processes.

Regardless of the methodology you use, you can initiate the reporting procedure by clicking on **either of the hyperlinks. They both take you to the same page.**

Regardless of which link you click on to enter information for a process unit that is monitored with CEMS, the information about that process will be documented in the bottom table on the page (under the heading “Petrochemical Process Units (Units monitored by CEMS)”. Similarly, information about a process unit for which you use the mass balance option or the ethylene option will be entered in the top table.

First, we will demonstrate how to add a process unit using the mass balance methodology. To do this, you would click on the “Add a process unit” link that the green arrow is pointing to.




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You will then proceed to the screen showing here. This is the screen where you select the methodology you are using to calculate your emissions. Here we have selected the mass balance methodology.

Once you select a methodology, you select the blue button “next”. You will then proceed to the next screen.

Subpart X: Add Unit – Additional Information



1

2

3

4

5

Name or ID*	<input type="text" value="Methanol Process Unit"/> (40 characters maximum)
Description	<input type="text"/>
Type	Petrochemical Process Unit
PETROCHEMICAL PRODUCED	
Type of petrochemical produced	<input type="text" value="Methanol"/>
Annual quantity of the petrochemical produced	<input type="text" value="100000"/> (metric tons)
WASTEWATER (OPTIONAL REPORTING REQUIREMENTS)	
Total annual wastewater flow	<input type="text"/>
Unit of measure for total annual wastewater flow (gal or kg)	<input type="text"/>
Annual average carbon content of wastewater (weight fraction)	<input type="text"/> (decimal fraction)
RELEASED CARBON (OPTIONAL REPORTING REQUIREMENTS)	
Annual mass of carbon released in fugitive emissions not controlled with a combustion device	<input type="text"/> (metric tons)
Annual mass of carbon released in process vents not controlled with a combustion device	<input type="text"/> (metric tons)
OFF-SPEC PRODUCT PRODUCTION	
Required only if facility complied with 98.243(c)(4) for a product from this process unit	
Number of days during which off-spec product was produced	<input type="text"/> (days)
Mass or volume of off-spec product produced	<input type="text"/>
Unit of measure for the mass or volume of off-spec product produced	<input type="text" value="Select"/>
COMBUSTION CONFIGURATIONS	
Identify each combustion configuration that burned both process off-gas from the petrochemical process unit and supplemental fuel by providing the	
<input type="text"/>	

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On this page, you enter information on the process unit you’ve just added. Next to the arrow marked “1”, you enter the name of your unit. Note the red asterisk. Any entry with a red asterisk must be completed before you can save the page and move on to the next page.

Next to the arrow marked “2”, you enter in the type of petrochemical produced as well as the annual quantity produced. Next to the arrow marked “3”, there are some optional reporting elements related to wastewater and fugitive carbon emissions. Again, these are optional reporting requirements under Part 98, so you may leave them blank if so desired.

Next to the green arrow marked “4” you enter information that is required only if you are complying with the option in subpart X that allows a facility to calculate emissions assuming that the particular feedstock or product consists of a single compound (i.e., a pure compound at a concentration of 100 percent in the stream) during periods of normal operation. If a facility is not using this alternative to monthly carbon content analyses, this section may be left blank. If a facility is using this alternative, but no off-spec product was produced during the year, then this section may also be left blank.

Lastly, on this page, next to the green arrow marked “5”, you are to identify each combustion configuration that is reported under subpart C of Part 98 that burned both process off-gas from this petrochemical process unit as well as supplemental fuel.

Once you complete these fields, you would press “save” at the bottom of the page. (The save button is cut off from this screenshot.)

The screenshot displays the EPA e-GGRT interface for Subpart X reporting. At the top, the EPA logo and 'e-GGRT Electronic Greenhouse Gas Reporting Tool' are visible. The user is identified as Elizabeth Dutrow. The main heading is 'Subpart X: Petrochemical Production'. Below this, there is an 'OVERVIEW OF SUBPART REPORTING REQUIREMENTS' section with a warning icon and a link to 'Subpart X: View Validation'. A table titled 'PETROCHEMICAL PROCESS UNITS' has columns for Name/ID, CO₂ (metric tons), Status, and Delete. The first row shows 'Methanol Process Unit' with a status of 'Incomplete' and an 'OPEN' button. A green arrow points to this button. Below the table, there is a section for 'PETROCHEMICAL PROCESS UNITS (Units monitored by CEMS)' and a 'Facility Overview' link. A footer note explains that 'Incomplete' status means some required GHG info is missing.

You will then proceed back to the subpart X overview screen. Note that the process unit name is now entered in the table of petrochemical process units. If you want to edit any of the information you entered on the previous page, click on the process unit name, which will take you back to that page.

Note that if you leave required information blank or submit values that are out of typical range at any point in your reporting process, you will get a validation warning, which can be viewed by clicking on the “Subpart X: View Validation” link on the right side of the screen. If this area contains a red exclamation point, it means you have one or more validation warnings. If it displays a green checkmark, then you have no validation warnings. Clicking on this link and viewing the validation errors will provide specific and direct feedback on what information is causing the validation error along with a link to the section of the report in question.

To enter the remainder of the data for this process unit, you would click on the “open” button for this process unit.

Subpart X: Mass Balance - Report Emissions & Additional Info



GHG DATA AND ASSOCIATED INFORMATION

Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help links provided.

Process Unit: Methanol Process Unit

EQUATION 3-4 SUMMARY AND RESULT

$$CO_2e = 0.001 \times \frac{44}{12} \times (C_g + C_c + C_p)$$

Annual CO₂e mass emissions from process operations and process off-gas combustion (metric tons)

Use Subpart X equation spreadsheets to calculate

CARBON CONTAINING FEEDSTOCKS

Name	State	Delete
ADD a Feedstock		

CARBON CONTAINING PRODUCTS

Name	State	Delete
ADD a Product		

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On this page, you enter the CO₂ emissions from this process unit in the red box. As was demonstrated with other subparts, you have the option of clicking on the blue link that says “Use Subpart X equation spreadsheets to calculate”.

If you click on this link, you can open the spreadsheet. The spreadsheet is shown on the next screen.

EPA is providing OPTIONAL calculational spreadsheets that you can use to perform the calculations called for in the emission equations. These Microsoft Excel spreadsheets can be downloaded and opened on your own computer. Just click the hyperlink on the web-form to view and download the appropriate calculation spreadsheet for the equation you are working on. You can enter the data, including equation inputs, necessary to perform the calculation for the equation, and the spreadsheets will calculate the result for you. Once you have calculated the result, enter the result onto the e-GGRT web form.

Subpart X: Mass Balance – Supporting Spreadsheet



Subpart X - Petrochemical Production - Calculating Net Contribution to Calculated Emissions from Carbon in Gaseous Materials Using Equation X.1
DO NOT SUBMIT THIS WORKSHEET TO EPA - FOR FACILITY RECORDS ONLY
 Version: e-GGRT R12/R1/R11
 To help date: 8/20/08
 Use one spreadsheet for each process unit. Make additional copies as needed.

Equation X.1:

$$C_f = \sum_{i=1}^{12} \left(\sum_{j=1}^{n_f} [F_{f,j}]_{i,j} * [CC_{f,j}]_{i,j} * \frac{(MWF)_j}{MPC} - [F_{p,i}] * [CC_{p,i}] * \frac{(MWP)}{MPC} \right)$$

Facility Name: _____
 Process Name: _____
 Unit Name ID: _____
 Reporting Period: _____
 Comments: _____
 Unit Type: _____

Input Data for Feedstocks: Space for up to three feedstocks are provided.
 Use additional copies of this spreadsheet for additional materials (i.e., use multiple spreadsheets to calculate contributions to C_f, and add the contributions prior to entering in e-GGRT).

Carbon containing feedstock Number	1	2	3
Name			
[MW _{f,j}] = Molecular weight of gaseous feedstock (lb/gmolar)			
Month	[F _{f,j,i}] = Volume of gaseous feedstock introduced in month "i" (standard cubic feet, scf)	[CC _{f,j,i}] = Average carbon content of the gaseous feedstock (for month "i" (lb C per kg of feedstock))	[F _{f,j,i}] = Volume of gaseous feedstock introduced in month "i" (standard cubic feet, scf)
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			

Input Data for Products: Space for up to three products are provided.
 Use additional copies of this spreadsheet for additional materials (i.e., use multiple spreadsheets to calculate contributions to C_f, and add the contributions prior to entering in e-GGRT).

Product Name	1	2	3
Name			
[MW _{p,i}] = Molecular weight of gaseous product (lb/gmole)			
Month	[F _{p,i}] = Volume of gaseous product produced in month "i" (scf)	[CC _{p,i}] = Average carbon content of gaseous product (for month "i" (lb C per kg of product))	[F _{p,i}] = Volume of gaseous product produced in month "i" (scf)
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			

In this spreadsheet, X-1, you enter the measured flow and carbon content each month for each gaseous feedstock and product. After entering the data, the box at the bottom of the worksheet calculates the carbon contribution from gaseous materials to the CO2 emissions. The X-2 and X-3 spreadsheets are set up similarly to X-1, and they calculate the total carbon contribution from liquid and solid materials. You then have to enter these carbon contribution values from each of the applicable spreadsheets into the spreadsheet for equation X-4, which calculates the annual CO2 emissions. Copy that value into the red-bordered box on the process unit page.

E-GGRT will NOT collect the calculation spreadsheet. The use of these calculation spreadsheets is voluntary. You do not need to use EPA's spreadsheets to perform the calculations for the emissions equations. The spreadsheets are meant to support reporters as they complete the e-GGRT online reporting process. If you choose to use the EPA spreadsheets, you may want to maintain a copy for recordkeeping purposes. EPA may request this information in subsequent reporting years.

Subpart X: Mass Balance - Report Emissions & Additional Info (2)



Agency: [redacted]

Electronic Greenhouse Gas Reporting Tool

Help: Lisa Grogan-McCulloch | My Profile | Logout

Dutrow Incorporated (2010)

Subpart X: Petrochemical Production

Subpart Overview » Process Unit GHG Info

GHG DATA AND ASSOCIATED INFORMATION

Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help link (a) provided.

Annual CO₂ mass emissions from process operations and process off-gas combustion (metric tons): **30000**

Process Unit: Methanol Process Unit

EQUATION X-4 SUMMARY AND RESULT

$$\text{CO}_2 = 0.001 \times \frac{44}{12} \times (\text{C}_3 + \text{C}_1 + \text{C}_2)$$

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

Annual CO₂ mass emissions from process operations and process off-gas combustion: **30000** (metric tons)

Use Subpart X equation spreadsheets to calculate

CARBON-CONTAINING FEEDSTOCKS

Name	State	Delete
+ ADD a Feedstock		

CARBON-CONTAINING PRODUCTS


Name	State	Delete
+ ADD a Product		

Back to Overview CALC

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Again, you enter the CO₂ emissions into the red box. The first green arrow is pointing to the red box. On this page, you are also required to enter data on all of your carbon containing feedstocks as well as your carbon containing products, including the petrochemical product.

To add data on a carbon-containing feedstock, click on the “ADD a feedstock”. The second green arrow is pointing to this link. Once you click on this, you will proceed to the next screen.



Subpart X: Mass Balance - Identify Feedstocks

Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
[Subpart Overview](#) » [Add/Edit a Process Unit](#) » **Feedstock**

PROCESS UNIT FEEDSTOCK INFORMATION
Use this page to identify the name and state of each carbon-containing feedstock for this process unit. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided. * denotes a field required to advance within e-GGRT

CARBON-CONTAINING FEEDSTOCK


Name of Feedstock* Natural gas

State of Feedstock* gaseous

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On this screen, you enter the name of the feedstock and indicate whether it is gaseous, liquid, or solid. Note that the tool provides a drop down list with the names of several common feedstocks from which you can select. If your particular feedstock is not listed, select “other”. If you select “other”, a new box will open on this page in which you can type the name of the feedstock. Once you have completed these fields, you click on “Save”.

Subpart X: Mass Balance - Open Feedstock



Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
[Subpart Overview](#) » [Process Unit GHG Info](#)

GHG DATA AND ASSOCIATED INFORMATION
 Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help link (s) provided.

30000

Annual CO₂ mass emissions from process operations and process off-gas combustion (metric tons)

Process Unit: Methanol Process Unit

EQUATION X-4 SUMMARY AND RESULT

$CO_2 = 0.001 \times \frac{44}{12} \times (C_g + C_i + C_e)$

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

Annual CO₂ mass emissions from process operations and process off-gas combustion: 30000 (metric tons)

Use Subpart X equation spreadsheets to calculate

CARBON-CONTAINING FEEDSTOCKS

Name	State	Delete
Natural gas	gaseous	OPEN
+ADD a Feedstock		

CARBON-CONTAINING PRODUCTS

Name	State	Delete
+ADD a Product		

[Back to Overview](#)
SAVE

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Once you hit save on the previous screen, you will return to the screen where you add feedstocks and products. Now you can see that the natural gas feedstock that we just added is listed in the carbon-containing feedstocks table. As noted earlier for process units, clicking on the name in this table will take you back to the previous screen where you can edit any of the previously entered information, if necessary. To enter the detailed information on this feedstock, click on the “open” button that the green arrow is pointing to.

Subpart X: Mass Balance - Enter Feedstock Info

collected on this page, please use the e-GGRT Help link(s) provided.

Process Unit	Methanol Process Unit
Feedstock	Natural gas

If applicable, dates for each process change that reduced the composition to less than 99.5%

FLOW METER OPERATION DETAILS

If a flow meter was used at any point during the year to measure the mass or volume of feedstock ...

Describe the flow meter manufacturer's recommended method for operation

Describe the flow meter's calibration method

JANUARY

Volume for month based on missing data procedure

Volume measurement method [Make all months same](#)

Carbon content or composition for month based on missing data procedure

Carbon content or composition determination method [Make all months same](#)

Molecular weight for month based on missing data procedure, if applicable

Molecular weight determination method, if applicable [Make all months same](#)

Standard temperature at which volume is reported [Make all months same](#)

FEBRUARY

Volume for month based on missing

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The primary purpose of this page is to enter information about the flow and carbon content measurement methods. If your feedstock is a gas, you will see an expanded data entry form, as shown in this screen shot, in which you also enter information about the method used to determine the molecular weight and the standard temperature at which a measured volume is reported, if needed. At the top of the screen, you'll see next to the green arrow marked "1", is a label that identifies which process unit and which feedstock you are entering data for.

Below the process and feedstock information is a section that applies only if you are complying with the alternative that allows you to assume the feedstock is a pure compound. If you comply with this alternative, you are not required to measure the carbon content of the stream. The next section on this page is for reporting information about flow meters. If you use a flow meter to measure the amount of feedstock used, then you must describe the flow meter manufacturer's recommended method of operation and the calibration procedures in these fields.

The section next to the green arrow labeled "2" is for entering measurement information for the month of January. If you used missing data procedures to estimate one of the parameters in an equation, then click the appropriate check box for that parameter. Otherwise select the applicable method from the pick list. If you used the same method in every month, then click on the blue link next to the green arrow labeled "3" which says "Make all months the same". This is a time saving device that will automatically fill in the same method in the tables for the months of February through December. But you can manually change any of these automatically entered values.

For carbon content, one of the items on the list is "98.244(b)(4)(xv)(B) alternative method" . If you select this method, additional fields will open on this page in which you must enter the name of the method and an explanation for why none of the other listed methods are applicable. For the report in the year when you first use this method, you must also attach a copy of the method to your report. The bottom of this page specifies how to attach a file to your report if this applies to you.

The rest of this page has separate tables for the months of February through December that identical to the table for January, except that they do not have the blue "Make all months the same" links. These tables are not shown in the screen shot. When you have entered all relevant information, click SAVE at the bottom of the page, which takes you back to the process unit page.

Subpart X: Mass Balance - Repeat Process for Products

Dutrow Incorporated (2010)
Subpart X: Petrochemical Production

Subpart Overview » Process Unit GHG Info

GHG DATA AND ASSOCIATED INFORMATION
Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help link (s) provided.

Annual CO₂ mass emissions from process operations and process off-gas combustion (metric tons): **30000**

Process Unit: Methanol Process Unit

EQUATION X-4 SUMMARY AND RESULT

$$\text{CO}_2 = 0.001 \times \frac{44}{12} \times (C_g + C_1 + C_2)$$

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

Annual CO₂ mass emissions from process operations and process off-gas combustion: **30000** (metric tons)
Use Subpart X equation spreadsheets to calculate

CARBON-CONTAINING FEEDSTOCKS

Name	State	Delete
Natural gas	gaseous	OPEN ✖

+ ADD a Feedstock

CARBON-CONTAINING PRODUCTS

Name	State	Delete
------	-------	--------

+ ADD a Product

Back to Overview SAVE


If you want to change any of the information you entered on the previous page, click “OPEN” again to be taken back to that page.

If you have more than one carbon-containing feedstock, you would click on the “Add a feedstock” link again and repeat the steps we just described until all carbon-containing feedstocks have been entered.

Next you would add your carbon containing products. To do this, you would click on “ADD a product”. The green arrow is pointing to this link. We are not going to go through this process in this webinar because it is identical to adding a feedstock.

When you finish adding all feedstocks and products, click either the “SAVE” button or the “Back to Overview” button to return to the subpart X overview page. Both will save your data.

Subpart X: Ethylene Methodology




Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
 Subpart Overview



OVERVIEW OF SUBPART REPORTING REQUIREMENTS

Subpart X requires affected facilities to report Greenhouse gases (GHG) from each petrochemical process unit. First, use this page to identify each petrochemical process unit and then enter GHG data required by Subpart X. For additional information about Subpart X reporting, please use the e-GGRT Help links provided.

EPA has proposed to defer collection of 2010 data elements used as inputs to emission equations for direct reporters. (See 75 FR 81350, published Dec. 27, 2010.) E-GGRT currently reflects this proposal, and EPA will make any adjustments necessary to reflect the final rule.

 [Subpart X: View Validation](#)

PETROCHEMICAL PROCESS UNITS

Name/ID	CO ₂ (metric tons)	Status ¹	Delete
 Methanol Process Unit	30,000	Incomplete	OPEN 
+ ADD a Process Unit			

PETROCHEMICAL PROCESS UNITS (Units monitored by CEMS)

Name/ID	Status ¹	Delete
+ ADD a process unit monitored by CEMS		

[↑ Facility Overview](#)

¹A status of "Incomplete" means that one or more elements of required GHG INFO is incomplete. See the Data Completeness validation messages for details by clicking the "View Validation" link above (Note, if there are no validation messages for this subpart you will not see this link.)

Now we are moving on to demonstrating how to report emissions using the ethylene combustion methodology. Note that this methodology is available only to process units producing ethylene.

This screenshot shows the subpart X overview page again. Similar to the procedure for the mass balance approach, the first step is to add a process unit. You do this by clicking on the "ADD a process unit" link next to the green arrow.

Subpart X: Ethylene Methodology



The screenshot shows the EPA e-GGRT web application interface. At the top, there is a navigation bar with "HOME", "FACILITY REGISTRATION", "FACILITY MANAGEMENT", and "DATA REPORTING". The user is logged in as "Heidi, Elizabeth Dutrow". The main content area is titled "Dutrow Incorporated (2010) Subpart X: Petrochemical Production". Below this, there is a section for "CONTINUOUS EMISSIONS MONITORING SYSTEMS (CEMS)" with instructions to indicate if emissions are measured by CEMS and to select a methodology. The "METHODOLOGY USED" section has three radio button options: "CEMS Methodology (Note. This methodology must be selected if certain criteria are met. See Help for details.)", "Mass Methodology", and "Ethylene Methodology". The "Ethylene Methodology" option is selected. At the bottom of the form, there are "CANCEL" and "NEXT+" buttons.

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You will then be prompted to choose a methodology for this unit. For this example we are using the “Ethylene Methodology”, so we choose that option and click “next”.

Subpart X: Ethylene Methodology



EPA United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Help, Elizabeth Dutrow | My Profile | Logout

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

Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
Subpart Overview » [Add/Edit a Process Unit](#)

PETROCHEMICAL PROCESS UNIT INFORMATION
Subpart X requires a facility to uniquely identify each petrochemical process unit and provide the information described below for each. For additional information about adding and editing a petrochemical process unit, please use the e-GGRT Help link(s) provided. * denotes a field required to advance within e-GGRT

Name or ID* (40 characters maximum)

Description

Type Petrochemical Process Unit

PETROCHEMICAL PRODUCED

Type of petrochemical produced

Annual quantity of ethylene produced (metric tons)

METHODOLOGY USED

Please select the methodology that is used to monitor this petrochemical process unit's emissions? *

CCAM2 Methodology (Note: This methodology must be selected if certain criteria are met. See Help for details.)

Mass Methodology

Ethylene Methodology

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On this screen, again you enter in the process unit name. You will see the type of petrochemical produced is locked in to ethylene, since this methodology is available only to ethylene producers. You enter in the annual quantity produced and click on the “SAVE” button.

Subpart X: Ethylene Methodology – Open Unit


The screenshot displays the EPA e-GGRT interface for Subpart X reporting. The main content area is titled "Subpart X: Petrochemical Production" for "Dutrow Incorporated (2010)". It provides an overview of reporting requirements and lists process units. A table titled "PETROCHEMICAL PROCESS UNITS" contains one entry: "Ethylene Process Unit" with a status of "Incomplete" and a blue "OPEN" button. A green arrow points to this button. Below this table is another for "Units monitored by CEMS" and a section for "FLARES UNIT-LEVEL EMISSIONS SUMMARY" which currently shows "None entered".

Once you click on save on the previous screen, you will return to the subpart overview screen again.

Notice two changes on this page. First, the ethylene process unit name has been added to the petrochemical process units table and second, a new box for emissions from flares has been added.

We will address the flares reporting area in a few minutes, but first we will enter in the remaining information required for this process unit by clicking on the blue open button.

Subpart X: Ethylene Methodology – Add Feedstocks



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e-GGRT
Electronic Greenhouse Gas Reporting Tool

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

Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
[Subpart Overview](#) » [Process Unit GHG Info](#)

GHG DATA AND ASSOCIATED INFORMATION
Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Process Unit Ethylene Process Unit

CARBON-CONTAINING FEEDSTOCKS

Type	Annual Quantity	Delete
+ ADD a Feedstock		

SUBPART C STATIONARY COMBUSTION CONFIGURATIONS

Name	Fraction	Delete
+ ADD a stationary combustion configuration that burns off-gas from the ethylene process unit		

[Back to Overview](#)

On this screen, you are required to add information on all of your carbon containing feedstocks, as well as information on all stationary combustion configurations that burn off-gas from the ethylene process unit.

First we will walk through adding a feedstock. The first step is to click on “Add a feedstock”.

Subpart X: Ethylene Methodology – Enter Feedstock Info

The screenshot displays the EPA e-GGRT interface for entering feedstock information. The main heading is "Subpart X: Petrochemical Production" under "Subpart Overview » Add/Edit a Process Unit » Feedstock". The section is titled "PROCESS UNIT FEEDSTOCK INFORMATION" and includes instructions: "Use this page to identify the type of carbon-containing feedstock. For additional information about the data collected on this page, please use the e-GGRT Help link (s) provided." A note states: "* denotes a field required to advance within e-GGRT".

The "CARBON-CONTAINING FEEDSTOCK" section contains a required field: "The type of carbon-containing feedstock fed to the ethylene process unit". A dropdown menu is open, showing the following options: Select, Ethane, Propane, Butane, Naphtha, Gas oil, Natural gas liquids, and Other. A green arrow points to the "Other" option.

At the bottom of the form are "CANCEL" and "SAVE" buttons. The footer includes "Paperwork Reduction Act Burden Statement | Contact Us", "e-GGRT RY2010.R.40", and "x-ethylene-feeds".

As we showed for the mass balance option, you first identify the carbon containing feedstock fed to the ethylene process unit. If the feedstock is not on the pick list, select “other” at the bottom of the list and then type in the name of the feedstock in a new box that will open when you select “other”. You would then hit save.

Subpart X: Ethylene Methodology – Open Feedstock

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Using e-GGRT for Subpart X reporting

Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
Subpart Overview » Process Unit GHG Info

GHG DATA AND ASSOCIATED INFORMATION
Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help link (e) provided.

Process Unit Ethylene Process Unit

CARBON-CONTAINING FEEDSTOCKS

Type	Annual Quantity	Delete
Propane		OPEN

+ ADD a Feedstock

SUBPART C STATIONARY COMBUSTION CONFIGURATIONS

Name	Fraction	Delete
------	----------	--------

+ ADD a stationary combustion configuration that burns off-gas from the ethylene process unit

↑ Back to Overview

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You would then return to the screen where you add carbon containing feedstocks. You will see that the name of the feedstock you entered is now listed in the carbon-containing feedstocks table. To enter in the supporting information required for this feedstock, click on the “open” button.

Subpart X: Ethylene Methodology – Enter Feedstock Quantity



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

Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
Subpart Overview » GHG Info » **Propane**

GREENHOUSE GAS INFORMATION AND ASSOCIATED DATA
Use this page to enter the greenhouse gas information required by Subpart X for this feedstock, for this process unit. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Feedstock Type Propane

The annual quantity of the carbon-containing feedstock fed to the ethylene process unit (metric tons)

CANCEL SAVE

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On this screen, you would enter the annual quantity of the carbon containing feedstock fed to the ethylene process unit.

Subpart X: Ethylene Methodology –Add Stationary Combustion Unit Configurations

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Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
 Subpart Overview » [Process Unit GHG Info](#)

GHG DATA AND ASSOCIATED INFORMATION
 Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help link (s) provided.

Process Unit Ethylene Process Unit

CARBON-CONTAINING FEEDSTOCKS

Type	Annual Quantity	Delete
Propane	100000	OPEN ✖

[+ ADD a Feedstock](#)

SUBPART C STATIONARY COMBUSTION CONFIGURATIONS

Name	Fraction	Delete
+ ADD a stationary combustion configuration that burns off-gas from the ethylene process unit		

[← Back to Overview](#)

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Again, after doing this, you will be returned to the screen where you enter in the feedstocks and stationary combustion configurations. You will see that the information you entered for the feedstocks is summarized here. The first green arrow points to this.

Next you need to add stationary combustion configurations that burn off-gas from the ethylene process unit. Click on the link next to the lower green arrow to initiate this process.

Subpart X: Ethylene Methodology – Enter Combustion Configurations

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Using e-GGRT for Subpart X reporting

Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
Subpart Overview » Add/Edit a Process Unit » Stationary Combustion Configuration

PROCESS UNIT STATIONARY UNIT INFORMATION
Use this page to identify the Subpart C stationary combustion configuration that burns process off-gas from the ethylene process unit. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Note: CO2 emissions for this methodology are to be reported under subpart C. Please ensure that you report these emissions under subpart C.

* denotes a field required to advance within e-GGRT

SUBPART C STATIONARY COMBUSTION CONFIGURATIONS
The unit name or * identifier of the Subpart C stationary combustion configuration that burns process off-gas from the ethylene process unit

Boiler 10

CANCEL SAVE

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On this screen, you would enter the name of the combustion configuration, as you identified it in the subpart C reporting module. You would then click on save.

Subpart X: Ethylene Methodology – Enter Combustion Info

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Using e-GGRT for Subpart X reporting

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Subpart X: Petrochemical Production

Subpart Overview » [Process Unit GHG Info](#)

GHG DATA AND ASSOCIATED INFORMATION

Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Process Unit Ethylene Process Unit

CARBON-CONTAINING FEEDSTOCKS

Type	Annual Quantity	Delete
Propane	100000	OPEN ✖

[+ ADD a Feedstock](#)

SUBPART C STATIONARY COMBUSTION CONFIGURATIONS

Name	Fraction	Delete
Boiler 10		OPEN ✖

[+ ADD a stationary combustion configuration that burns off-gas from the ethylene process unit](#)

[↑ Back to Overview](#)

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Once you hit save on the previous screen, you will proceed to this screen. You will see that the identification you provided for the combustion configuration is filled in under the “Name” heading, which the left arrow is pointing to. To edit the name, click on the name, which will take you back to the previous page. To enter the rest of the required information about this stationary combustion configuration, click on the “open” button, next to the right green arrow.

Subpart X: Ethylene Methodology – Enter Combustion Info

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Using e-GGRT for Subpart X reporting

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Subpart X: Petrochemical Production
Subpart Overview » GHG Info » **Boiler 10**

GREENHOUSE GAS INFORMATION AND ASSOCIATED DATA
Use this page to enter the greenhouse gas information required by subpart X for this stationary combustion configuration. For additional information about the data collected on this page, please use the e-GGRT Help link(s) provided.

Stationary Combustion Configuration Name Boiler 10

The fraction of the total emissions from this configuration that is attributable to combustion of off-gas from the ethylene process unit

CANCEL SAVE

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On this screen you would enter the fraction of the total emissions from this configuration that is attributable to combustion of off-gas from this ethylene process unit. Note that you will enter the actual emissions from the combustion configuration under the subpart C reporting module. Also note that all of the emissions from the combustion configuration will be attributed to subpart C in e-GGRT. In other words, the fraction of the emissions that are attributable to combustion of the off-gas will not show up in the subpart X total within e-GGRT. EPA will internally apply the fraction to determine the amount of emissions attributable to the ethylene process.

After entering the applicable fraction, click “SAVE “ to return to the process unit data page.

Subpart X: Ethylene Methodology – Enter Combustion Info



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Dutrow Incorporated (2010)
Subpart X: Petrochemical Production
Subpart Overview - Process Unit GHG Info

GHG DATA AND ASSOCIATED INFORMATION
Use this page to enter the GHG data required by Subpart X. For additional information about the data collected on this page, please use the e-GGRT Help link (s) provided.

Process Unit Test

CARBON-CONTAINING FEEDSTOCKS

Type	Annual Quantity	Delete
Propane		OPEN ✖

ADD a Feedstock

SUBPART C STATIONARY COMBUSTION CONFIGURATIONS


Name	Fraction	Delete
Boiler 10	0.5	OPEN ✖

ADD a stationary combustion configuration that burns off-gas from the ethylene process unit

Back to Overview

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Note that the fraction you entered is now shown in the stationary combustion configurations table. Repeat the steps we just described for each additional stationary combustion configuration that burns off-gas from the ethylene process. Then click “Back to Overview” to return to the subpart X overview page.



Subpart X: Ethylene Methodology – Add a Flare

e-GGRT Help

Using e-GGRT for Subpart X reporting

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Subpart X: Petrochemical Production

Subpart Overview



OVERVIEW OF SUBPART REPORTING REQUIREMENTS

Subpart X requires affected facilities to report Greenhouse gases (GHG) from each petrochemical process unit. First, use this page to identify each petrochemical process unit and then enter GHG data required by Subpart X. For additional information about Subpart X reporting, please use the e-GGRT Help links provided.

EPA has proposed to defer collection of 2010 data elements used as inputs to emission equations for direct reporters. (See 75 FR 81350, published Dec. 27, 2010.) E-GGRT currently reflects this proposal, and EPA will make any adjustments necessary to reflect the final rule.

 **Subpart X: View Validation**

PETROCHEMICAL PROCESS UNITS

Name/ID	CO ₂ (metric tons)	Status ¹	Delete
 Ethylene Process Unit	N/A	Incomplete	OPEN 

[ADD a Process Unit](#)

PETROCHEMICAL PROCESS UNITS (Units monitored by CEMS)

Name/ID	Status ¹	Delete
ADD a process unit monitored by CEMS		

FLARES UNIT-LEVEL EMISSIONS SUMMARY (REQUIRED ONLY FOR CEMS AND ETHYLENE COMBUSTION METHODOLOGIES)

Name/ID	CO ₂ (metric tons)	CH ₄ (metric tons)	N ₂ O (metric tons)	Status ¹	Delete
None entered					

[ADD a Flare](#)

[Facility Overview](#)

¹A status of "Incomplete" means that one or more elements of required GHG INFO is incomplete. See the Data Completeness validation messages for details by clicking the "View Validation" link above (Note, if there are no validation messages for this subpart you will not see this link.)



Note that there will be no numerical entry for CO₂ emissions in this summary table because the CO₂ emissions are entered under subpart C, as we discussed earlier. Finally, when using the ethylene combustion methodology, subpart X specifies that emissions from flares that are used to burn off-gas from ethylene process units must be estimated using the procedures specified in subpart Y. Thus, if any off-gas from the ethylene process unit is routed to a flare you must report information for the flare. Initiate the reporting process by clicking on the “ADD a flare” link on the overview page and record the flare specifics.

This concludes the subpart X portion of the webinar. We will now move on to submitting a report.

Help Resources



- e-GGRT Information & Help
 - <http://www.ccdsupport.com>
 - Email: GHGreporting@epa.gov
- GHG Reporting Program Information & Help
 - www.epa.gov/ghgreporting/reporters/index.html
 - Email: ghgreporting@epa.gov
- Read more about XML Upload Option
 - http://www.epa.gov/ghgreporting/reporters/datasystem/e-ggert_xml.html

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We hope this overview has provided you greater familiarity with navigating and entering information using the e-GGRT reporting tool.

Here are some additional links.