



**e-GGRT Training Webinar on  
Reporting GHG Data for Subpart Q**

**U.S. Environmental Protection Agency**  
Greenhouse Gas Reporting Program (GHGRP)  
March 2012



**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.**

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.

You will see a number of e-GGRT screenshots throughout this webinar. These screenshots may vary slightly from the current e-GGRT version.

## Subpart Q: Topical Overview



- General e-GGRT 2011 Reporting Overview  
<http://www.epa.gov/ghgreporting/reporters/training/index.html>
- Add Subpart Q reporting module to your facility:
  - Review web forms for reporting emissions for units not monitored by CEMS
  - Review web forms for reporting emissions for units monitored by CEMS
  - Review web forms for reporting emissions from coke pushing operations and flares
  - Review Validation/Warning messages

3

This training session focuses on using e-GGRT web forms to report data for Subpart Q. In this training we will cover the following six topics:

- Review the steps to add the Subpart Q module to your facility
- Next, we will begin by reviewing the web forms for units which calculate GHG emissions using the mass balance approach or sites specific EF method
- Then we will review web forms for reporting emissions for units monitored by CEMS
- Next we will review the web forms for reporting emissions from coke pushing operations and flares
- Last, we'll review the validation/warning messages page

At the end of this webinar we have provided links to help answer questions you may have noted during your review of this webinar. See the Training and Testing opportunities section of our website to access other webinars that might be useful, such as Subpart C.

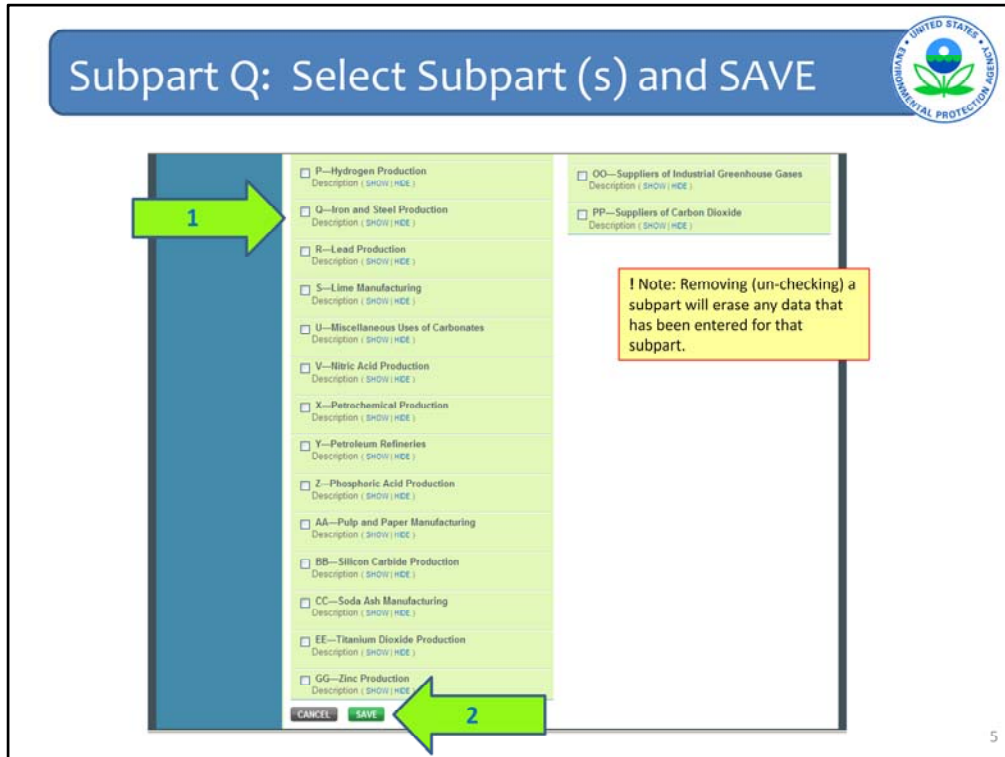
Okay, now let's start reviewing the web forms for Subpart Q.

**Subpart Q: Add a Subpart**

The screenshot shows the EPA e-GGRT interface. At the top, there's a navigation bar with 'HOME', 'FACILITY REGISTRATION', 'FACILITY MANAGEMENT', and 'DATA REPORTING'. The 'DATA REPORTING' tab is active. The main content area is titled 'Molten (2010) e-GGRT Greenhouse Gas Data Reporting'. A green arrow labeled 'CLICK HERE' points to the 'ADD or REMOVE Subparts' link in the 'REPORT DATA' section. The page also features a sidebar with 'e-GGRT Help' and a right-hand panel with various reporting options and a 'VIEW DATA TABLE' button. At the bottom, there's a 'SUBMIT ANNUAL REPORT' section with a table and a 'SUBMIT' button.

Navigate to your Facility Overview Page in the Data Reporting Tab.

From the facility overview page click the on the blue hyperlinked text as shown by the arrow to “ADD or REMOVE Subparts” so that you can add Subpart Q – Iron and Steel Production to your facility.



You will then be on the Subpart Selection form.

Here you should select the checkbox next to Subpart Q as shown by arrow 1.

If other subparts, such as Subpart C are applicable to your facility, this is where you would select those subparts.

Also note that if you remove a subpart you already added by un-checking it on this form, you will lose all data you have entered for that subpart.

To accept the current choices and continue, you need to hit the green "SAVE" button at the bottom of this form as shown by arrow 2.

## Subpart Q: Open Reporting Form





United States  
Environmental Protection  
Agency



Electronic Greenhouse Gas  
Reporting Tool

HOME
FACILITY REGISTRATION
FACILITY MANAGEMENT
DATA REPORTING

**FACILITY 8 (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](#))

CO<sub>2</sub> equivalent emissions (excluding biogenic) from source categories (metric tons)

Biogenic CO<sub>2</sub> emissions from source categories (metric tons)

CO<sub>2</sub> equivalent quantity from supplier categories (metric tons)

[VIEW GHG DETAILS](#)

**REPORT DATA**

2010 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	None	<a href="#">OPEN</a>
Subpart Q—Iron and Steel Production	None	<a href="#">OPEN</a> <span style="color: green; font-weight: bold;">Click here</span>

[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			<a href="#">GENERATE / SUBMIT</a>

**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.

When you return to the “Facility or Supplier Overview” page, you should now see Subpart Q listed in the REPORT DATA table as shown here in the 2<sup>nd</sup> row.

Now that you have added Subpart Q, you can click, as shown, on the blue “OPEN” button in the row with Subpart Q – to start entering information.

# Subpart Q: Reporting Instructions (1)



The screenshot shows the EPA e-GGRT web interface. At the top, the EPA logo and "United States Environmental Protection Agency" are displayed. Below this is a navigation bar with tabs for "HOME", "FACILITY REGISTRATION", "FACILITY MANAGEMENT", and "DATA REPORTING". The "DATA REPORTING" tab is selected. On the left side, there is a blue sidebar with a green question mark icon and the text "e-GGRT Help". Below this, a link "Using e-GGRT for Subpart Q reporting" is highlighted with a yellow circle. The main content area is titled "Moliron (2010) Subpart Q: Iron and Steel Production" and includes a "Subpart Overview" section. The overview text states: "OVERVIEW OF SUBPART Q REPORTING REQUIREMENTS Subpart Q requires affected facilities to report carbon dioxide (CO2) from each taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery combustion stack, coke pushing operation, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace. Within this module, you must also report CO2 emissions from flares that burn blast furnace gas and coke oven gas according to procedures set out in Subpart Y of Part 98. First, under the heading 'Units' below, use this page to identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace and electric arc furnace. Similarly, identify coke pushing operations and flares under their respective headings. After adding a process unit, coke pushing operation or flare, click on 'Open' to enter Greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GGRT Help link(s) provided in the sidebar." Below the overview text, the word "UNITS" is visible.

On the next page, you will see a question mark in the left hand corner of the screen in the blue side bar along the web form. By clicking here, you can get additional help or link to Reporting Instructions for Subpart Q.

## Subpart Q: Reporting Instructions (2)



The screenshot shows the EPA e-GGRT website interface. At the top left is the EPA logo and text: "United States Environmental Protection Agency". At the top right is the e-GGRT logo: "e-GGRT Electronic Greenhouse Gas Reporting Tool". Below the header is a breadcrumb trail: "Home > ... > Iron and Steel Production Reporting Instructions > Subpart Q - Iron and Steel Production". A search bar is located to the right of the breadcrumb trail. The main heading is "Subpart Q - Iron and Steel Production". Below this is a PDF icon and text: "A printer-friendly version (pdf, 151 pp., 5.423K) of GHG reporting instructions for this subpart". A prompt says "Please select a help topic from the list below:". The list includes: "Using e-GGRT to Prepare Your Subpart Q Report" (with sub-items: "Subpart Q Process Unit Information for Units NOT Monitored by CEMS", "Subpart Q Process Unit Information for Units Monitored by CEMS", "Subpart Q Coke Pushing Operations Information", "Subpart Q Emissions Information", "Subpart Q Emissions Information for Units NOT Monitored by CEMS", "Subpart Q Emissions Information for Units Monitored by CEMS", "Subpart Q Emissions Information for Coke Pushing Operations", "Subpart Q Emissions Information for Eflares"); "Using Subpart Q Calculation Spreadsheets"; "Subpart Q Rule Guidance"; and "Subpart Q Rule Language (eCRS)". Under "Additional Resources" are: "Part 99 Terms and Definitions", "Frequently Asked Questions (FAQs)", and "Webinar Slides".

8

This webinar is designed to be a tutorial. In preparing to use the e-GGRT forms to report, you could begin by reviewing the general e-GGRT Overview Webinar, this webinar and then just walk through the Subpart Q Reporting Instructions as needed.

This slide is what the Reporting Instructions screen looks like for Subpart Q. You can choose one of the three main topics:

- Using e-GGRT to Prepare Your Subpart Q Report;
- Using Subpart Q Calculation Spreadsheets; and
- Subpart Q Rule Guidance.



**Subpart Q: Iron and Steel Production (2011)**

**OVERVIEW OF SUBPART Q REPORTING REQUIREMENTS**  
 Subpart Q requires affected facilities to report carbon dioxide (CO<sub>2</sub>) from each taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery combustion stack, coke pushing operation, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace. Within this module, you must also report CO<sub>2</sub> emissions from flares that burn blast furnace gas and coke oven gas according to procedures set out in Subpart Y of Part 98. First, under the heading "Units" below, use this page to identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace and electric arc furnace. Similarly, identify coke pushing operations and flares under their respective headings. After adding a process unit, coke pushing operation or flare, click on "Open" to enter greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GGRT Help link(s) produced in the sidebar.

**UNITS**  
 Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

NameID	Type	CO <sub>2</sub> (metric tons)	Status	Delete	
BOF-East	Basic Oxygen Process Furnace	Incomplete	OPEN	X	
Reduced	Direct Reduction Furnace	11,729.0	Complete	OPEN	X
waste recovery	Sinter Process	90,775.0	Complete	OPEN	X

**UNIT SUMMARY (Units monitored by CEMS)**

NameID	Type	Status	Delete
Coke	Non-Recovery Coke Oven Battery	Complete	X

**COKE PUSHING OPERATIONS**

NameID	Type	CO <sub>2</sub> (metric tons)	Status	Delete
ADD a Coke Pushing Operation				

**FLARES**

NameID	Type	CO <sub>2</sub> (metric tons)	Status	Delete
ADD a Flare				

**CEMS MONITORING LOCATION (CML) SUMMARY**

CML Name/Identifier	CML Configuration	Monitored Units	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
No CEMS monitoring locations present					
ADD a CEMS Monitoring Location					

Once you select “OPEN” you will be directed to the Subpart Q overview page.

The overview page is an important page you that will be returning to after entering required data in Subpart Q. The text circled at the top of the page will change as you navigate within the Subpart Q reporting module – so this is a good way to check and understand which form you are on.

The Subpart Q overview page has FIVE main sections where you will need to report information required by the rule– each section is numbered on the screen.

In the first section, or the UNITS table, you will enter emissions and other information for each unit not using a CO<sub>2</sub> CEMS.

Units entered here should be monitoring and calculating emissions using the mass balance or site specific emission factor approach provided in the rule.

In the second section you will enter emissions and other information for units monitored by CO<sub>2</sub> CEMS.

In the third section you will add emissions information for coke pushing operations

Next in the 4<sup>th</sup> section you will add emissions information for flares that burn blast furnace gas and coke oven gas choosing methods from Subpart Y.

The 5<sup>th</sup> section you will add location information regarding units monitored by CEMS as required by Subpart C.

Now that we have reviewed the main sections of this page, let’s begin entering information for each applicable unit at this example iron and steel facility.

## Subpart Q: Add Process Units NOT monitored by CEMS



taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery combustion stack, coke pushing operation, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace. Within this module, you must also report CO<sub>2</sub> emissions from flares that burn blast furnace gas and coke oven gas according to procedures set out in Subpart Y of Part 98. First, under the heading "Units" below, use this page to identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace and electric arc furnace. Similarly, identify coke pushing operations and flares under their respective headings. After adding a process unit, coke pushing operation or flare, click on "Open" to enter Greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GRIT Help link(s) provided in the sidebar.

EPA has proposed to defer collection of 2010 data elements used as inputs to emission equations for direct reporters. (See 75 FR 81395, published Dec. 27, 2010.) e-GRIT currently reflects this proposal, and this will make any adjustments necessary to reflect the final rule.

**Subpart Q: View Validation**

### UNITS

Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
BOP-EAST	Basic Oxygen Process Furnace		Incomplete	OPEN ✖
HRCoke Battery - North	Non-Recovery Coke Oven Battery		Incomplete	OPEN ✖
Sinter South	Sinter Process	121,725	Complete	OPEN ✖
EAF-North	Electric Arc Furnace (EAF)		Incomplete	OPEN ✖
AOD Vessel 1	Decarburization Vessel	70,340	Complete	OPEN ✖
DRI 2	Direct Reduction Furnace	326,241	Complete	OPEN ✖

[ADD a Unit](#)

### UNIT SUMMARY (Units monitored by CEMS)

Name/ID	Type	Status <sup>1</sup>	Delete
No units have been added			

[ADD a CEMS Unit](#)

### COKE PUSHING OPERATIONS

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Coke Pushing North	Coke Pushing Operation	2,000	Complete	OPEN ✖

[ADD a Coke Pushing Operation](#)

### FLARES

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
<a href="#">ADD a Flare</a>				

[Factory Overview](#)

<sup>1</sup>A status of "Incomplete" means that one or more elements of required OPEN is incomplete. See the Data Completeness validation

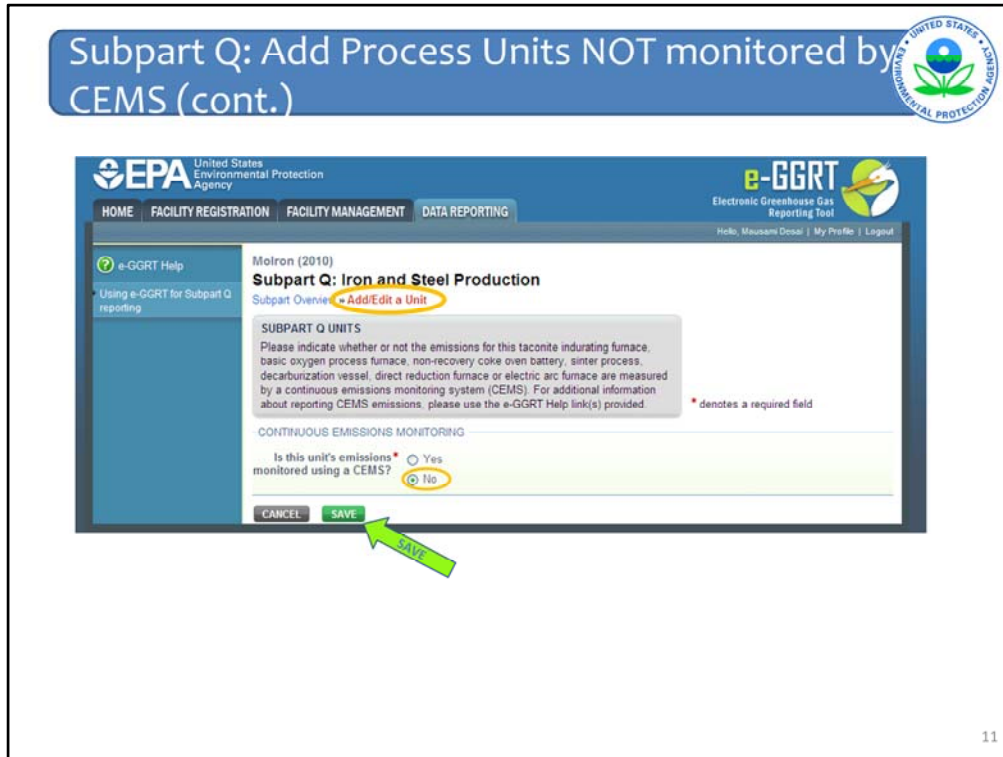
10

For this example, to get started you can see that we have already entered information for some units at this facility.

But there are more units that we need to still enter for this example facility.

Let's add information for another unit that is not monitored by CEMS. This unit is using the mass balance method to determine annual emissions.

Under the Units Table, click on the blue hyperlink "ADD Units" as shown by the green arrow to add this other unit.

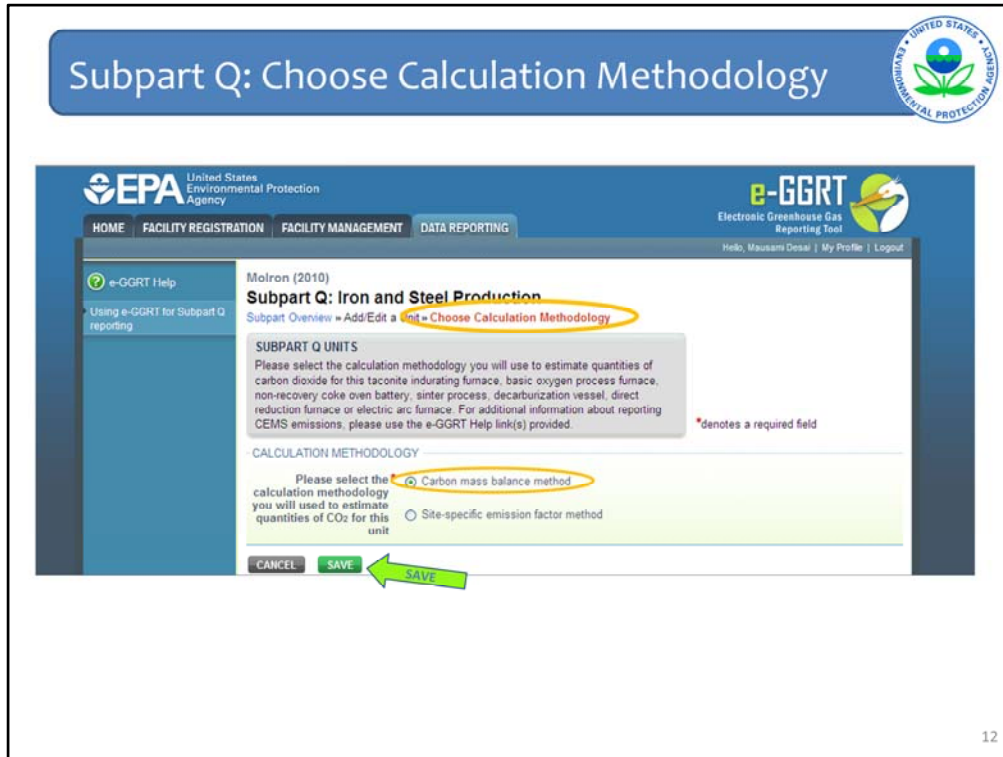


After selecting “Add a Unit” you will be directed first to this form to confirm that this unit is not monitored by a CO2 CEMS.

As shown on this form, the response to the question will default to the selection “No” for units added under this first table from the overview page.

You can change the monitoring method and select yes if needed at this point. If you do change the method, this unit will be moved to the second summary table for units monitored by CEMS.

For this example, let’s continue with the default selection of “No.” To accept this selection, click the green “SAVE” button at the bottom of the page to continue to the next form.



You will now move to the Choose a Calculation Methodology form.

This form will ask you to confirm whether emissions are calculated based on the carbon mass balance method or the site-specific EF method.

For this first example, as shown, let's continue with the default selection of using the mass balance method

and hit the green "SAVE" button to accept this selection and proceed to the next form.

**Subpart Q: Add Process Unit Information**

Blue Sky  
**Subpart Q: Iron and Steel Production (2011)**  
 Subpart Overview → Add/Edit a Unit

**SUBPART Q UNIT INFORMATION**  
 Subpart Q requires a facility to uniquely identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, similar process, decarburization vessel, direct reduction furnace or electric arc furnace and provide the information described below for each. For additional information about adding and editing a unit, please use the e-GGRT Help link(s) provided. \*denotes a required field

**UNIT INFORMATION**

Type \* Taconite Indurating Furnace

Name or ID \* (40 characters maximum)

Description (optional)

**INPUTS**

Name	Type	Delete
+ ADD Input		

**OUTPUTS**

Name	Type	Delete
+ ADD Output		

**CONTINUOUS EMISSIONS MONITORING**

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

**CALCULATION METHODOLOGY**

Please select the calculation methodology you will use to estimate quantities of CO<sub>2</sub> for this unit

Carbon mass balance method  Site-specific emission factor method

CANCEL SAVE SAVE

**! Note: Changing the method will erase any data that has been entered for the previous selection**

Next – you will be directed to the “Add/Edit Unit ” form to add more information required for this unit.

On the Add/Edit a Unit form, there three main data entry sections, which are numbered on this screen.

In the first section on this form, you will use the drop down list provided to confirm the type of unit you are adding.

You will also name and identify this type of unit. You can add an additional description as well, if needed.

Second, since we are using the mass balance method you should identify the types of inputs and outputs that are appropriate to the specific process unit you selected.

In the third section, you should confirm the monitoring methodology, first confirm that the unit emissions are not monitored by a CEMS.

Next, you should confirm again, that in fact you are using the carbon mass balance method.

You can change the methodology here, but note that if you do change your selections/method you will lose data that you entered for inputs and outputs on this form.

## Subpart Q: Enter Unit Information and Confirm Calculation and Monitoring Method



Blue Sky  
e-GGRT Help

**Subpart Q: Iron and Steel Production (2011)**  
Subpart Overview [Add/Edit a Unit](#)

**SUBPART Q UNIT INFORMATION**  
Subpart Q requires a facility to uniquely identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace or electric arc furnace and provide the information described below for each. For additional information about adding and editing a unit, please use the e-GGRT Help link(s) provided. \*denotes a required field

UNIT INFORMATION

Type \* Basic Oxygen Process Furnace

Name or ID BOF-East (40 characters maximum)

Description (optional)

INPUTS

Name	Type	Delete
Hot Iron	Molten Iron	X

ADD Input

OUTPUTS

Name	Type	Delete
Baghouse dust-uncontrolled	Air Pollution Control Residue	X
Molten Steel	Molten Steel Produced	X
Slag	Slag Produced	X

ADD Output

CONTINUOUS EMISSIONS MONITORING

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

CALCULATION METHODOLOGY

Please select the calculation methodology you will use to estimate quantities of CO<sub>2</sub> for this unit

Carbon mass balance method  
 Site-specific emission factor method

CANCEL SAVE

SAVE


14

Here is an example of a completed unit information form for BOF-EAST

Again once you have entered the appropriate information and made the appropriate selections, hit the green "SAVE" button to accept your entries.

You will then return to the "Subpart Q Overview" page.

## Subpart Q : Entering Emissions for each Unit/Process



burn blast furnace gas and coke oven gas according to procedures set out in Subpart Y of Part 98. First, under the heading "Units" below, use this page to identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace and electric arc furnace. Similarly, identify coke pushing operations and flares under their respective headings. After adding a process unit, coke pushing operation or flare, click on "Open" to enter Greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GGRT Help link(s) provided in the sidebar.

of 2010 data elements used as inputs to emission equations for direct reports. (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 Q: View Validation**

### UNITS

Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
<a href="#">BOF-EAST</a>	Basic Oxygen Process Furnace		Incomplete	<a href="#">OPEN</a>
<a href="#">NRCoke Battery - North</a>	Non-Recovery Coke Oven Battery		Incomplete	<a href="#">OPEN</a>
<a href="#">Sinter South</a>	Sinter Process	121,725	Complete	<a href="#">OPEN</a>
<a href="#">EAF-North</a>	Electric Arc Furnace (EAF)		Incomplete	<a href="#">OPEN</a>
<a href="#">ACD Vessel 1</a>	Decarburization Vessel	70,340	Complete	<a href="#">OPEN</a>
<a href="#">DRI 2</a>	Direct Reduction Furnace	326,241	Complete	<a href="#">OPEN</a>

ADD a Unit

### UNIT SUMMARY (Units monitored by CEMS)

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
No units have been added				

ADD a CEMS Unit

### COKE PUSHING OPERATIONS

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
<a href="#">Coke Pushing North</a>	Coke Pushing Operation	2,000	Complete	<a href="#">OPEN</a>

ADD a Coke Pushing Operation

### FLARES

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
No flares have been added				

ADD a Flare

**15**

Now the unit or units you have identified by repeating this process should appear in the table in the first section of the Subpart Q overview page.

You can go back add or update any information on inputs/outputs and calculation information by clicking on the hyperlink for each unit in the "Name/ID" column which is circled on the screen.

Once you have added all the appropriate units and see them on the overview page, you will notice that the "Status" for some of these units is marked "Incomplete". This is because we still need to enter additional information, including the annual CO<sub>2</sub> emissions for these units.

Let's continue with this example and enter the emissions and other required information for BOF-EAST, the basic oxygen process furnace we just added.

To report this information we need to go to another web form which you can open by selecting the blue "OPEN" button as shown by the "Select" Arrow.

The screenshot displays the EPA e-GGRT interface. At the top, a blue banner reads "Subpart Q: Emissions Reporting Example for Basic Oxygen Process Furnace using Mass Balance Method". The EPA logo and "e-GGRT Electronic Greenhouse Gas Reporting Tool" are visible. The navigation menu includes "HOME", "FACILITY REGISTRATION", "FACILITY MANAGEMENT", and "DATA REPORTING". The main content area is titled "Desal Industries (2010) Subpart Q: Iron and Steel Production" and contains sections for "GREENHOUSE GAS DATA AND ASSOCIATED INFORMATION", "CO<sub>2</sub> EMISSIONS CALCULATION", and "INPUT: MOLTEN IRON". A red circle highlights the "GHG Info" link in the top right, and a green arrow labeled "1 Review" points to the bottom of the form.

When you click on the “OPEN” button you will be prompted to the [GHG Info](#) form for this unit.

See the form name circled at the top of this page.

The form shows the relevant equation for calculating emissions from the unit you selected. In this case, since we are entering information for the basic oxygen processing furnace, so you see Equation Q-2.

Before entering any information, you should first scroll down and review the bottom of the form as shown to make sure that all inputs and outputs that you identified for this unit are listed – as shown by arrow 1.

The inputs should be listed as headers as shown, we have highlighted the first input “Molten Iron.”

You will need to scroll down the form to see all inputs and outputs. If any of the inputs and outputs you need are not listed, go back and enter those as we just described on the previous slide and then re-OPEN this form.



## Subpart Q: Emissions Reporting Example for Basic Oxygen Process Furnace using Mass Balance Method



**Subpart Q: Iron and Steel Production**

Subpart Overview: Basic Oxygen Process Furnace, GHG Info

**GREENHOUSE GAS DATA AND ASSOCIATED INFORMATION**

Use this page to enter the GHG data required by Subpart Q. Please enter the information shown for this ladle refining furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace or electric arc furnace, as applicable. For additional information about the data collected on this page, please use the e-GGRT map (link) provided.

**Q-2 CO2 EMISSIONS CALCULATION**

Use Equation Q-2 to calculate annual CO<sub>2</sub> mass emissions for the Basic Oxygen Process Furnace.

**EQUATION Q-2 SUMMARY AND RESULT**

$$CO_2 = \frac{44}{12} \cdot \left[ (\text{Iron}) \cdot (C_{\text{input}}) + (\text{Scrap}) \cdot (C_{\text{input}}) + (\text{Flux}) \cdot (C_{\text{input}}) + (\text{Carbon}) \cdot (C_{\text{carbon}}) + (\text{Slag}) \cdot (C_{\text{slag}}) + (\text{Slag}) \cdot (C_{\text{slag}}) + (\text{Slag}) \cdot (C_{\text{slag}}) \right]$$

Annual CO<sub>2</sub> mass emissions (metric tons)

Use Q-2 spreadsheet to calculate

**INPUT: MOLTEN RCI**

Annual mass or volume is based on one or more substitute monthly data values

Number of months that missing data procedures were followed, if applicable:

Method used to develop the substitute data value(s), if applicable:

Carbon content determination method:

**OUTPUT: SLAG PRODUCED**

Annual mass or volume is based on one or more substitute monthly data values

**Enter** (green arrow pointing to the red box)

**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 consistent with the signed Final Rule Deferring Collection of Inputs. See <http://epa.gov/climatechange/emissions/CBI.html>** (green arrow pointing to the text box)

17

If the inputs and outputs are correct, you can continue and enter the annual CO<sub>2</sub> emissions from the “BOF-EAST” basic-oxygen processing unit in the highlighted RED box.

EPA has prepared optional worksheets for each equation in Subpart Q to assist reporters in calculating emissions.

The worksheet for equation Q-2 is available by clicking on the hyperlink under the red box.

Once you will click on this link you will be directed to download the worksheet for Equation Q-2.

## 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. A link to the final 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)

18

Please note that if you used the Optional Calculation Spreadsheets for previous reporting, those spreadsheets may have changed. Be sure to download the most recent and correct version of the calculation spreadsheets from the e-GGRT Help site.

E-GGRT currently reflects the rule deferring reports of inputs to emission equations for direct emitters.

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 on to 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 not use the spreadsheets, you may choose to maintain copies to help meet your record-keeping requirements.

# Subpart Q: Equation Q-2 Worksheet, Basic Oxygen Process Furnace



**Subpart Q - Iron and Steel Production - Calculating CO<sub>2</sub> Emissions for Basic Oxygen Process Furnaces Using Equation Q-2**

OPTIONAL SPREADSHEET FOR FACILITY RECORDKEEPING PURPOSES  
 Version: e-SGRT Rv2019 R 02  
 Today's date: 8/22/2011

Use one spreadsheet for each furnace. Make additional copies as needed.

This spreadsheet is protected and contains locked cells to ensure that you do not inadvertently alter any of the included formulas and/or calculations. To remove this protection and alter this spreadsheet, right-click the "worksheet" tab near the bottom of the screen and select "Unprotect Sheet." When prompted for the password, type "0100" and click "OK."

Please note that making changes to an unprotected sheet could result in incorrect calculations and that you are responsible for the accuracy of the data you report to EPA. For additional help, visit the Microsoft Excel Support website (<http://office.microsoft.com/en-us/excel/help>).

**Equation Q-2:**

$$CO_2 = \frac{44}{12} [(Iron) * (C_{Iron}) + (Scrap) * (C_{Scrap}) + (Flux) * (C_{Flux}) + (Carbon) * (C_{Carbon}) - (Steel) * (C_{Steel}) - (Slag) * (C_{Slag}) - (R) * (C_R)]$$

Facility Name: \_\_\_\_\_  
 Reporter Name: \_\_\_\_\_  
 Unit Name ID: \_\_\_\_\_  
 Reporting Period: \_\_\_\_\_  
 Comments: \_\_\_\_\_  
 Unit Type: Basic Oxygen Process Furnace

**Input Data**

[Iron]	= Annual mass of molten iron charged to the furnace (metric tons)	
[C <sub>Iron</sub> ]	= Carbon content of the molten iron, from the carbon analysis results (percent by weight expressed as a decimal fraction)	
[Scrap]	= Annual mass of ferrous scrap charged to the furnace (metric tons)	
[C <sub>Scrap</sub> ]	= Carbon content of the ferrous scrap, from the carbon analysis results (percent by weight expressed as a decimal fraction)	
[Flux]	= Annual mass of flux materials (e.g., limestone, dolomite) charged to the furnace (metric tons)	
[C <sub>Flux</sub> ]	= Carbon content of the flux materials, from the carbon analysis results (percent by weight expressed as a decimal fraction)	
[Carbon]	= Annual mass of carbonaceous materials (e.g., coal,	

Here is a screenshot of the equation Q-2 emissions calculation worksheet for the Basic Oxygen Process Furnace.

## Subpart Q: Equation Q-2 Worksheet, Basic Oxygen Process Furnace



Space provided for up to 3 additional outputs. For additional outputs, use additional copies of this workbook and sum results before entering in e-GGRT.

56	[CO <sub>2</sub> ] = Additional annual output mass (i) other than CO <sub>2</sub> in the exhaust gas (metric tons)	
57	[CO <sub>2</sub> ] = Carbon content of the additional annual output mass (i) percent by weight, expressed as a decimal fraction, e.g., 95% = 0.95	
58	[CO <sub>2</sub> ] = Additional annual output mass (j) other than CO <sub>2</sub> in the exhaust gas (metric tons)	
59	[CO <sub>2</sub> ] = Carbon content of the additional annual output mass (j) percent by weight, expressed as a decimal fraction, e.g., 95% = 0.95	
60	[CO <sub>2</sub> ] = Additional annual output mass (k) other than CO <sub>2</sub> in the exhaust gas (metric tons)	
61	[CO <sub>2</sub> ] = Carbon content of the additional annual output mass (k) percent by weight, expressed as a decimal fraction, e.g., 95% = 0.95	
62		
63		
64	<b>Constants</b>	
65	[44/12] = Ratio of molecular weights, CO <sub>2</sub> to carbon	44/12
66		
67	<b>Annual CO<sub>2</sub> Emissions (metric tons) from Equation Q-2</b>	
68	[CO <sub>2</sub> ] = Annual CO <sub>2</sub> mass emissions from the basic oxygen furnace (metric tons)	0.0
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		

Enter this value in e-GGRT

As you scroll further down the worksheet, you will see that the worksheet highlights the data to be entered into e-GGRT with an identical red box as found on the web form.

**Subpart Q: Check Emissions Entry for BOPF**

EPA United States Environmental Protection Agency

**e-GGRT** Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Moltron (2016)

**Subpart Q: Iron and Steel Production**

Subpart Overview Basic Oxygen Process Furnace GHG Info

**GREENHOUSE GAS DATA AND ASSOCIATED INFORMATION**

Use this page to enter the GHG data required by Subpart Q. Please enter the information shown for this furnace including furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace or electric arc furnace, as applicable. For additional information about the data collected on this page, please use the e-GGRT help link(s) provided.

**CO<sub>2</sub> CO<sub>2</sub> EMISSIONS CALCULATION**

Use equation Q-2 to calculate annual CO<sub>2</sub> mass emissions for this Basic Oxygen Process Furnace.

**EQUATION Q-2 SUMMARY AND RESULT**

$$CO_2 = \frac{44}{12} \cdot [ (Iron) \cdot (C_{Iron}) + (Borax) \cdot (C_{Borax}) + (Flux) \cdot (C_{Flux}) + (Carbon) \cdot (C_{Carbon}) + (Steel) \cdot (C_{Steel}) + (Slag) \cdot (C_{Slag}) + (R) \cdot (C_R) ]$$

Annual CO<sub>2</sub> mass emissions (metric tons) **369021** (metric tons)

INPUT: MOLTEN IRON - MOLTEN IRON

Annual mass or volume is based on one or more substitute monthly data values

Number of months that missing data procedures were followed, if applicable: 0 (months)

Method used to develop the substitute data value(s), if applicable

Carbon content determination method: ASTM E 1019-08

**369.821.0** Annual CO<sub>2</sub> mass emissions from the Basic Oxygen Process Furnace

If you are using the worksheet, you can enter your result into the form as shown

After you have entered the total annual CO<sub>2</sub> emissions from the BOF-EAST processing unit, the emissions for this unit should be reflected in the summary box in the upper right hand corner as shown with a circle on this screen shot.

**Subpart Q: Mark Substitute Values for BOPF using Mass Balance Method and Save**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INPUT FUELS PRODUCED - FUELS

Annual mass or volume is based on one or more substitute monthly data values

Number of months that missing data procedures were followed, if applicable: 0 (months)

Method used to develop the substitute data value(s), if applicable:

Carbon content determination method: ASTM D5373-08

OUTPUT MOLTEN STEEL PRODUCED - MOLTEN STEEL

Annual mass or volume is based on one or more substitute monthly data values

Number of months that missing data procedures were followed, if applicable: 0 (months)

Method used to develop the substitute data value(s), if applicable:

Carbon content determination method: ISO/TR 15349-3:1998

OUTPUT SLAG PRODUCED - SLAG

Annual mass or volume is based on one or more substitute monthly data values

Number of months that missing data procedures were followed, if applicable: 0 (months)

Method used to develop the substitute data value(s), if applicable:

Carbon content determination method: ASTM D5373-08

CANCEL SAVE

22

Finally, the next step is to identify for each input and output whether any of the data used in your calculations is based on missing data.

Two important notes on this form:

- 1) if you have not used missing data procedures for determining a particular input or output– you will need to enter zero (0) for the number of months that missing data procedures were used to avoid data completeness warnings on the validation report which we will review later.
- 2) Similarly, you must also select a carbon content determination method for each input and output.

These requirements are noted in the e-GGRT help guidance as well for Subpart Q.

Once you have completed this form, remember to hit the “SAVE” button at the bottom of the “GHG info” form to accept your entries.

After you hit the “SAVE” button you should return to the Subpart Q Overview page.

**Subpart Q: Complete BOPF information entry**

**Subpart Q: Iron and Steel Production**

**Overview of Subpart Q Reporting Requirements**

Subpart Q requires affected facilities to report carbon dioxide (CO<sub>2</sub>) from each taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery combustion stack, coke pushing operation, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace. Within this module, you must also report CO<sub>2</sub> emissions from flares that burn blast furnace gas and coke oven gas according to procedures set out in Subpart Y of Part 98. First, under the heading "Units" below, use this page to identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace and electric arc furnace. Similarly, identify coke pushing operations and flares under their respective headings. After adding a process unit, coke pushing operation or flare, click on "Open" to enter Greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GGRT Help link(s) provided in the sidebar.

**UNITS**

Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status	Actions
BOF-EAST	Basic Oxygen Process Furnace	369,021	Complete	OPEN
NR Coke Battery - North	Non-Recovery Coke Oven Battery		Incomplete	OPEN
Sinter South	Sinter Process	121,725	Complete	OPEN
EAF-North	Electric Arc Furnace (EAF)		Incomplete	OPEN
ADD Vessel 1	Decarburization Vessel	70,340	Complete	OPEN
DRI 2	Direct Reduction Furnace	326,241	Complete	OPEN

**UNIT SUMMARY (Units monitored by CEMS)**

Name/ID	Type	Status	Delete
No units have been added			

Now, when you return to the Subpart Q overview page – you should first check to see that the status for BOF-EAST has changed to “Complete” as shown here.

This is good, but note there are a few more units which we still need to complete. You would complete these entries just as we completed BOF-EAST.

Next, let’s turn to an example where the unit is using the site-specific emission factor method. This example facility has another Arc EAF and is calculating emissions using this other option.

We will need to add this unit to the facility – it is not currently listed here.

So, again, let’s begin by again clicking on the blue hyperlink to “ADD a Unit” as shown by arrow number 2.

**Subpart Q : Site Specific Emission Factor Method Emissions Reporting for an Electric Arc Furnace (EAF)**

The screenshot displays the EPA e-GGRT interface. At the top, there is a navigation bar with 'HOME', 'FACILITY REGISTRATION', 'FACILITY MANAGEMENT', and 'DATA REPORTING'. The main content area is titled 'MolIron (2010) Subpart Q: Iron and Steel Production'. Below this, there is a section for 'SUBPART Q UNITS' with instructions on how to estimate carbon dioxide quantities. The 'CALCULATION METHODOLOGY' section contains two radio button options: 'Carbon mass balance method' and 'Site-specific emission factor method'. A green arrow points to the 'SAVE' button at the bottom of the form.

So, for the sake of time, we have now we jumped ahead to this form.

Before this form you will be first asked to confirmed that the EAF is not using a CEMS, then you will come to this form to “Choose Calculation Methodology” as shown here.

On this form, let’s change the default selection from “Carbon mass balance method” to “Site-specific emission factor method” as shown.

To continue to the next form, let’s hit the green “SAVE” button to accept this selection.



## Subpart Q: Site Specific Emission Factor Method Emissions Reporting for an Electric Arc Furnace (EAF)



Now you will be back to the “Add/Edit a Unit” form.

Note now, this form is similar, but slightly different than the previous example. Now since we are using the “Site-specific emission factor method” the input and output entries are removed from the Add/Edit a Unit form.

Complete this form as illustrated here, once again, name the unit, choose the type of unit being monitored from the dropdown and confirm the calculation methodology.

One again “SAVE” your entries and you will then return to the Subpart Overview page.

# Subpart Q: Entering Emissions from Units using Site-specific emission factor method



**OVERVIEW OF SUBPART Q REPORTING REQUIREMENTS**  
 Subpart Q requires affected facilities to report carbon dioxide (CO<sub>2</sub>) from each taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery combustion stack, coke pushing operation, sinter process, electric arc furnace, decarbonization vessel and direct reduction furnace. Within this module, you must also report CO<sub>2</sub> emissions from flares that burn blast furnace gas and coke oven gas according to procedures set out in Subpart Y of Part 99. First, under the heading "Units" below, use this page to identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarbonization vessel, direct reduction furnace and electric arc furnace. Similarly, identify coke pushing operations and flares under their respective headings. After adding a process unit, coke pushing operation or flare, click on "Open" to enter Greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GGRT Help links provided in the sidebar.

EPA has finalized a rule that defers the deadline for reporting data elements used as inputs to emission equations for direct emissions. See 76 FR 62027 published August 26, 2011, in accordance with the rule, e-GGRT is not currently collecting data used as inputs to emission equations.

**Subpart Q: View Validation**

**UNITS**  
 Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarbonization vessel and direct reduction furnace.

NameID	Type	CO <sub>2</sub> (metric tons)	Status*	Delete
BOF-East	Basic Oxygen Process Furnace	359,821.0	Complete	OPEN
EAF-East	EAF/Decarbonization Vessel Exhausting to Common Stack/Vent		Incomplete	OPEN
Reduced	Direct Reduction Furnace	11,728.0	Complete	OPEN
waste recovery	Sinter Process	90,776.0	Complete	OPEN

**UNIT SUMMARY (Units monitored by CEMS)**

NameID	Type	Status*	Delete
Coke	Non-Recovery Coke Oven Battery	Complete	

**COKE PUSHING OPERATIONS**

NameID	Type	CO <sub>2</sub> (metric tons)	Status*	Delete
ADD a Coke Pushing Operation				

**FLARES**

NameID	Type	CO <sub>2</sub> (metric tons)	Status*	Delete
ADD a Flare				

**CEMS MONITORING LOCATION (CML) SUMMARY**

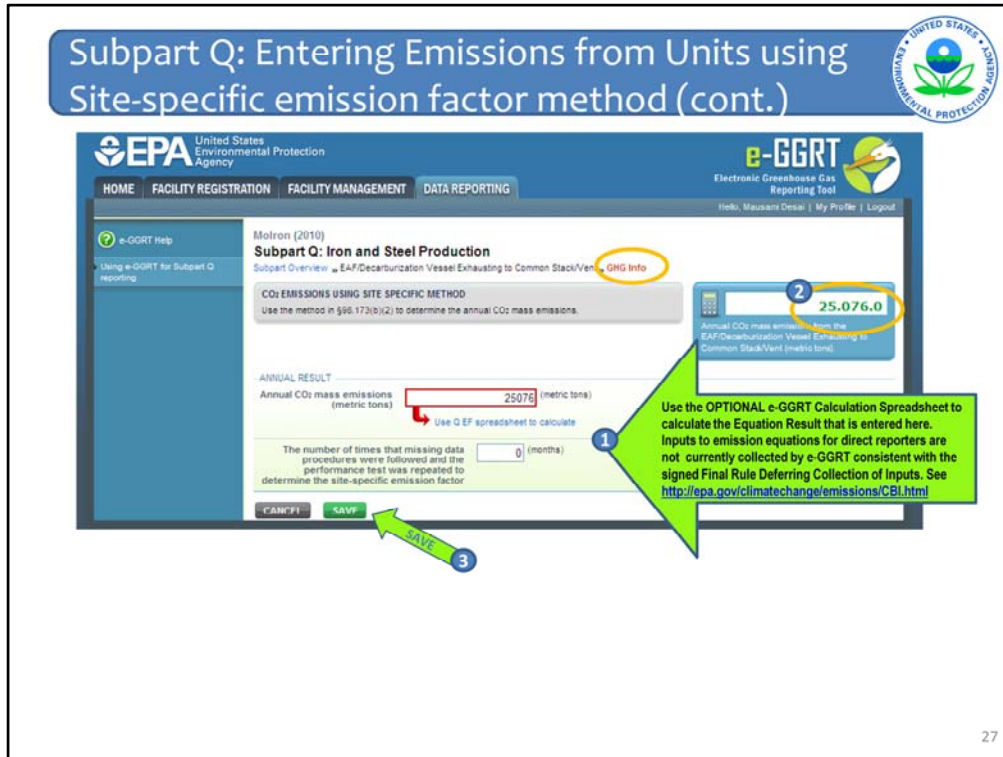
CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
No CEMS monitoring locations present					

ADD a CEMS Monitoring Location

Once you return to the Subpart Q overview page, you should see the unit we have just added, "EAF-EAST," listed in the Unit Summary Table.

But again the "Status" for this unit is "Incomplete" because we still have additional information to enter.

So, once again, let's select the blue "OPEN" button to add emissions information and other required information for this unit.



After selecting “OPEN”, you will see the GHG info form shown here.

On this form, you need to enter the Annual CO<sub>2</sub> mass emissions from this unit based on use of the site specific emission factor you developed.

As before, the page provides a link to an optional worksheet you can use to calculate annual emissions, implementing procedures outlined in the rule.

After you enter the total annual emissions for this unit - the total emissions should again appear in the right hand blue box as circled on the screen marked with a number 2.

You also should indicate whether missing data procedures were applied in application of this method.

Finally, to continue, you should again save your entry on this form.

You will return again to the Subpart Q overview.

## Subpart Q: Complete emissions entry for Units using Non-CEMS methods



Subpart Q requires affected facilities to report carbon dioxide (CO<sub>2</sub>) from each taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery combustion stack, coke pushing operation, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace. Within this module, you must also report CO<sub>2</sub> emissions from flares that burn blast furnace gas and coke oven gas according to procedures set out in Subpart Y of Part 98. First, under the heading "Units" below, use this page to identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace and electric arc furnace. Similarly, identify coke pushing operations and flares under their respective headings. After adding a process unit, coke pushing operation or flare, click on "Open" to enter Greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GORT Help links provided in the sidebar.

EPA has finalized a rule that defers the deadline for reporting data elements used as inputs to emission equations for direct emitters. See 76 FR 83057 (published August 25, 2011). In accordance with the rule, e-GORT is not currently accepting data used as inputs to emission equations.

**Subpart Q: View Validation**

### UNITS

Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

NameID	Type	CO <sub>2</sub> (metric tons)	Status	Delete
BOF-East	Basic Oxygen Process Furnace	359,821.6	Complete	OPEN
EAF-East	EAF/Decarburization Vessel Exhausting to Common Stack/vent	25,076	Complete	OPEN
Reduced	Direct Reduction Furnace	11,729	Complete	OPEN
waste recovery	Sinter Process	90,776	Complete	OPEN

**2 ADD**

### UNIT SUMMARY (Units monitored by CEMS)

NameID	Type	Status	Delete
Coke	Non-Recovery Coke Oven Battery	Complete	

### COKE PUSHING OPERATIONS

NameID	Type	CO <sub>2</sub> (metric tons)	Status	Delete
--------	------	-------------------------------	--------	--------

### FLARES

NameID	Type	CO <sub>2</sub> (metric tons)	Status	Delete
--------	------	-------------------------------	--------	--------

### CEMS MONITORING LOCATION (CML) SUMMARY

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

**CHECK 1**

So now when you return to the Subpart Overview page, you can see that data entry for units using non-CEMS methods is complete, including the unit we just entered, as shown by the first green arrow marked 1 - CHECK.

We can now proceed to review the web forms for reporting emissions and other required information for units using CEMS to monitor emissions.

To add these units, let's move to the next table on the overview page which summarizes units monitored by CEMS.

Once again, to add the unit monitored by CEMS, we must begin by clicking on the "Add a CEMS Unit" blue hyperlinked text below the second table as shown by the arrow marked "2 ADD".

The screenshot shows the EPA e-GGRT interface. At the top, a blue banner reads "Subpart Q: Adding Units using CEMS to monitor Emissions". The EPA logo and "e-GGRT Electronic Greenhouse Gas Reporting Tool" are visible. The user is logged in as "Trevor, Marcus Palmer". The main content area is titled "Blue Sky Subpart Q: Iron and Steel Production (2011)" and features a "Subpart Overview" link with a red "ADD/EDIT a UNIT" button. A grey box provides instructions for adding units. The "UNIT INFORMATION" section has a dropdown for "Type" set to "Taconite Indurating Furnace" and a text field for "Name or ID" containing "Taconite 1". The "CEMS UNIT DATA" section contains five rows of production data, all with "0" entered in the value field. A green arrow points to the "SAVE" button at the bottom.

Once again, we have jumped one step ahead to save some time. Before coming to this form, you will first need to confirm that the unit is monitored using a CEMS, the radio button will be set at the default selection of “Yes” for CEMS.

Once, you have confirmed this, you will then come to this “Add/Edit a Unit” form. On this form, name and identify the type of unit being monitored by CEMS. In this example it is a Taconite furnace, Taconite 1.

On this form, as required by 98.176(b), you must report annual production quantities for the unit(s) monitored by CEMS, as applicable (since they are not inputs to equations/method). For those not applicable, enter 0 as shown.

As with many of the e-GGRT forms, you should again confirming your entries and selections by hitting the “SAVE” button and then returning to the Subpart Q overview page.

## Subpart Q: Adding Units using CEMS to monitor Emissions (cont.)



Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarbonization vessel and direct reduction furnace.

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
BOF-EAST	Basic Oxygen Process Furnace	369,821	Complete	OPEN X
NR-Coke Battery - North	Non-Recovery Coke Oven Battery	129,208	Complete	OPEN X
Sinter South	Sinter Process	121,725	Complete	OPEN X
EAFF-East	Electric Arc Furnace (EAF)	25,076	Complete	OPEN X
EAFF-North	Electric Arc Furnace (EAF)	78,000	Complete	OPEN X
ADD Vessel 1	Decarbonization Vessel	70,340	Complete	OPEN X
DR1 2	Direct Reduction Furnace	326,241	Complete	OPEN X

ADD a Unit

UNIT SUMMARY (Units monitored by CEMS)

Name/ID	Type	Status <sup>1</sup>	Delete
Taconite 1	Taconite Indurating Furnace	Complete	X

ADD a CEMS Unit

COKE PUSHING OPERATIONS

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Coke Pushing North	Coke Pushing Operation	2,000	Complete	OPEN X

ADD a Coke Pushing Operation

FLARES

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
ADD a Flare				

CEMS MONITORING LOCATION SUMMARY

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
No CEMS monitoring locations present.					
ADD a CEMS Monitoring Location					

Facility Overview

<sup>1</sup>A status of "Incomplete" means that one or more elements of required OPEN 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.)

30

Back on the Subpart Q overview page, you should see the Taconite 1 unit we just entered listed in the table summarizing “Units monitored by CEMS” as shown by the green arrow numbered 1.

Reading across the row, you can see that the status for this entry is complete as shown with the circle.

This table is titled the “CEMS MONITORING LOCATION SUMMARY” table. This is where we will add the additional information required by Subpart C that is associated with use of the Tier 4 methodology, including annual emissions.

In this table, you will need to add each unique CEMS monitoring location that is associated with one or more of the units identified in the CEMS UNIT summary table.

Lets proceed with adding the CEMS monitoring location associated with Taconite 1. To begin with must first click on the hyperlink “ADD a CEMS Monitoring Location” as shown by arrow number 2.

**Subpart Q: Adding a CEMS Monitoring Location and reporting emissions for units using CEMS**

**Subpart Q: Iron and Steel Production**  
 Add/Edit CEMS Monitoring Location

**CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) MONITORING LOCATION (CML) INFORMATION**

Use this page to uniquely identify each CEMS Monitoring Location (CML). Summary and provide the annual CO<sub>2</sub> emissions and other information described below. Use the "ADD/EDIT/DELETE a Process Unit" link at the bottom of the page to identify the process unit(s) monitored by this CEMS Monitoring Location (CML) Summary. For additional information about the data collected on this page, please use the e-REPORT help menu provides.

**CONFIGURATION**

CEMS Monitoring Location Name: CML-Taconite (40 characters maximum)

Description (optional):

Configuration Type: Single process/process unit exhausts to dedicated stack

Types of fuel combusted in the unit(s) monitored by the CEMS:

**TIER 4 METHODOLOGY INFORMATION**

Calculation Methodology Start Date: 01/01/2010

Calculation Methodology End Date: 12/31/2010

**CUMULATIVE CO<sub>2</sub> EMISSIONS**

Quarter	CO <sub>2</sub> Emissions (metric tons)
Quarter 1	244000
Quarter 2	240000
Quarter 3	244487
Quarter 4	248974

**ANNUAL CO<sub>2</sub> EMISSIONS**

Total annual CO<sub>2</sub> mass emissions (biogenic and non-biogenic) measured by the CEMS: 977461 (metric tons)

Check this box to indicate that the emissions reported for the CEMS include emissions:

31

Now you will be on the “Add/Edit a CEMS Monitoring Location” form.

Let’s review the key elements of this longer form. This form reflects the reporting requirements for using the Tier 4 method required by Subpart C. As you proceed entering information on this form, you can see that dropdown menus and automated calendars are provided for convenience.

This screenshot shows the top half of the form. The first step shown by arrow 1 is naming and identifying the type of CEMS configuration. Is the CEMS unit monitoring a single unit or monitoring multiple furnaces sharing a common stack?


In this example, we have a CEMS that is monitoring a single unit, the Taconite 1 furnace. So we are calling our location Stack-Taconite 1 and selecting the appropriate configuration from the dropdown menu.

Along with configuration of the CEMS Monitoring Location, you should report the types of fuel combusted by the unit(s) monitored by the CEMS.

Next as shown by arrows 2 and 3, confirm the start and end dates associated with this location add the quarterly CO<sub>2</sub> emissions, annual CO<sub>2</sub> emissions, and any biogenic emissions.

All entries must be completed as appropriate for this CEMS monitoring location.

## Subpart Q: Adding a CEMS Monitoring Location and reporting emissions for units using CEMS (cont.)



4  
→

Total annual biogenic CO<sub>2</sub> mass emissions  (metric tons)  
 Total annual non-biogenic CO<sub>2</sub> mass emissions (includes fossil fuels, solvents, and process CO<sub>2</sub> emissions)  (metric tons)

5  
→

**EQUATION C-10 SUMMARY AND RESULTS**

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

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

Enter CH<sub>4</sub> and N<sub>2</sub>O 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 CH<sub>4</sub> emissions  (metric tons)  
Use Equation C-10 spreadsheet to calculate

Total N<sub>2</sub>O emissions  (metric tons)  
Use Equation C-10 spreadsheet to calculate

6  
→

**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 CO<sub>2</sub> 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/REVIEW/EDIT a process unit that exhausts to this CEMS Monitoring Location

32

This screen shows a continuation of this form, so as you scroll down the form you will see these additional data entry cells for total annual CH<sub>4</sub> and N<sub>2</sub>O emissions and additional emissions information.


These are indicated by arrows 4 and 5.

Note – as flagged with a star, you may not need to determine these emissions if you do not have additional combustion emissions monitored by this CEMS location. In those situations enter 0 for these emissions. We have added values for illustrative purposes only.

If needed, you can also again download the optional calculation worksheet C-10 (using the link provided) to determine some of the data inputs required to calculate the total CH<sub>4</sub> and N<sub>2</sub>O emissions, which you will then enter into these cells, if applicable.



## Subpart Q: Linking CEMS Monitoring Location to units monitored by this location



6

Total annual biogenic CO<sub>2</sub> mass emissions  (metric tons)

Total annual non-biogenic CO<sub>2</sub> mass emissions (includes fossil fuel, sorbent, and process CO<sub>2</sub> emissions)  (metric tons)

(metric tons)

**EQUATION C-10 SUMMARY AND RESULTS**

CH<sub>4</sub> or H<sub>2</sub>O = 0.001 × (H<sub>2</sub>)<sub>2</sub> × EF

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

Enter CH<sub>4</sub> and H<sub>2</sub>O 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 CH<sub>4</sub> emissions  (metric tons)

Use Equation C-10 spreadsheet to calculate

(metric tons)

Total H<sub>2</sub>O emissions  (metric tons)

Use Equation C-10 spreadsheet to calculate

(metric tons)

**ADDITIONAL EMISSIONS INFORMATION**

Total number of source operating hours in the reporting year  (hours)

The total operating hours in which a substitute data value was used in the emissions calculations for CO<sub>2</sub> 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 Remove/Select](#)

There are no process units monitored by CEMS available for selection.

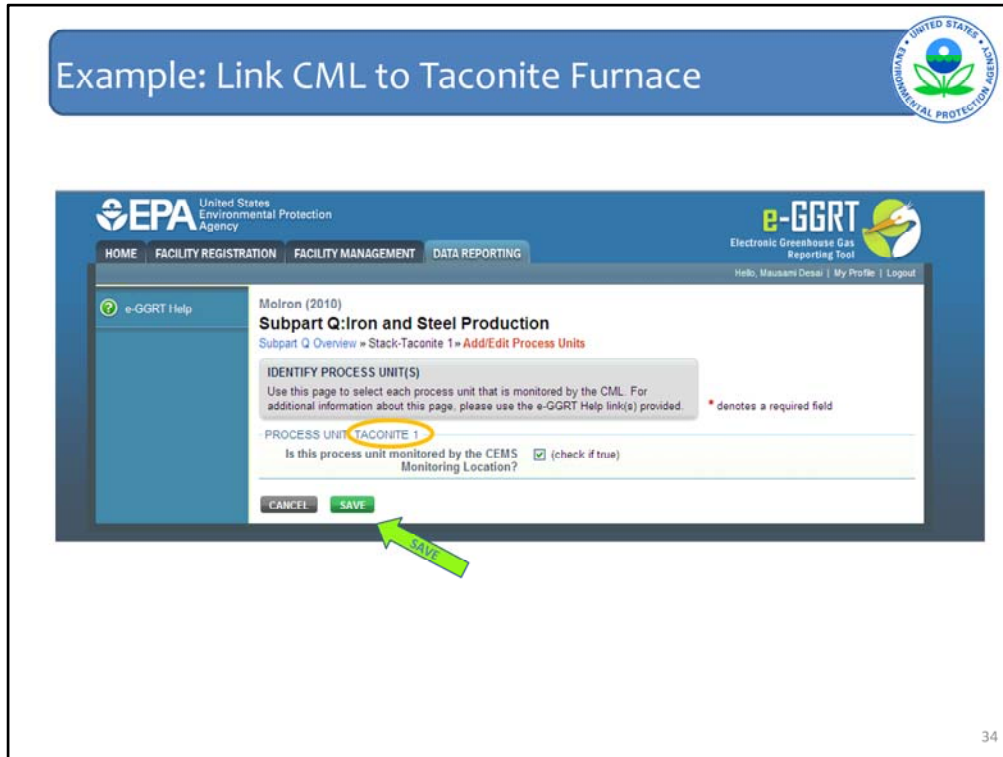
➤ [ADD/REMOVE](#) a process unit that exhausts to this CEMS Monitoring Location

Cancel
Save

The final step at the bottom of this form is critical. This is shown by arrow number 6.

We need to link this CEMS monitoring location to the actual units in the CEMS summary table on the overview page .

So let's complete this step by clicking on the blue "Add/Remove a process unit that exhausts to this CEMS monitoring location" hyperlink as shown.



This selection will open up to this simple form you see here. We see Taconite 1 in the header as circled.

In this header you will see the names of units that are available to link to this monitoring location.

If more than one furnace was monitored by CEMS you would see those units listed here as well.

At this example facility, we have a simple configuration, we have a single unit or furnace monitored by a single CEMS monitoring location, so we see only one unit listed.

Click the checkbox confirming that Taconite 1 is monitored by the CEMS monitoring location we have just entered.

Then be sure again to hit the green "SAVE" button to return to the CEMS MONITORING LOCATION form.

## Subpart Q: Link CML to Taconite Furnace (cont.)



EQUATION C-10 SUMMARY AND RESULTS

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

Hover over an element in the equation above to reveal a definition of that element.  
Enter CH<sub>4</sub> and N<sub>2</sub>O emissions from only combustion directly below. If there are no combustion emissions in this CEMS Monitoring Location, please enter 0.

Total CH<sub>4</sub> emissions  (metric tons)  
Use Equation C-10 spreadsheet to calculate

Total N<sub>2</sub>O 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 CO<sub>2</sub> 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
Taconite 1

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

35

Now when you return to the CEMS MONITORING LOCATION form – Scroll down to the bottom of the form to check and confirm that the **Taconite 1** furnace is now linked to this monitoring location, as shown.

This means that the emissions from **Taconite 1** are vented to the stack that is monitored by this CEMS.

Once you have confirmed that the CEMS location is linked to the appropriate units and all other data entry on this page is complete, hit the green “SAVE” button to return to the Subpart Q Overview page.

Subpart Q: Confirm CML entry on Subpart Overview Page

UNIT SUMMARY (Units monitored by CEMS)

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Taconite 1	Taconite Indurating Furnace		Complete	✖

CEMS MONITORING LOCATION SUMMARY

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
Stack-Taconite 1	Single process/process unit exhausts to dedicated stack	Taconite 1	977,461	Complete	✖

**CHECK**

<sup>1</sup> A status of 'Incomplete' means that one of more elements of required OPEH is incomplete. See the Data Completeness validation

Now when you return to the Subpart Overview Page – you should confirm that e-GGRT has accepted the information for the CEMS monitoring Location you just added as shown by the arrow marked CHECK.

This is good. As you can see, by reading across the row, the entry shows the

- name of the CEMS monitoring Location “Stack Taconite 1”,
- the correct configuration,
- the unit monitored by this location, Taconite 1,
- and the annual emissions total.

The status of this entry is now complete. So we can continue with any remaining data entry for this facility.

**Subpart Q: Adding a Coke Pushing Operation**

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
BOF-EAST	Basic Oxygen Process Furnace	369,821	Complete	OPEN ✖
NRCoke Battery - North	Non-Recovery Coke Oven Battery	129,208	Complete	OPEN ✖
Sinter South	Sinter Process	121,725	Complete	OPEN ✖
EAFCast	Electric Arc Furnace (EAF)	25,076	Complete	OPEN ✖
EAFCast	Electric Arc Furnace (EAF)	78,000	Complete	OPEN ✖
ADD Vessel 1	Decarbonization Vessel	70,340	Complete	OPEN ✖
DRI 2	Direct Reduction Furnace	326,241	Complete	OPEN ✖

ADD a Unit

**UNIT SUMMARY (Units monitored by CEMS)**

Name/ID	Type	Status <sup>1</sup>	Delete
Taconite 1	Taconite Indurating Furnace	Complete	✖

ADD a CEMS Unit

**COKE PUSHING OPERATIONS**

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Coke Pushing North	Coke Pushing Operation	2,000	Complete	OPEN ✖

ADD a Coke Pushing Operation

**FLARES**

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
ADD a Flare				

**CEMS MONITORING LOCATION SUMMARY**

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
Stack-Taconite 1	Single process/process unit exhausts to dedicated stack	Taconite 1	977,461	Complete	✖

ADD a CEMS Monitoring Location

[Facility Overview](#)

<sup>1</sup>A status of "incomplete" means that one or more elements of required OPEN information 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.)

We are nearly finished entering information into the Subpart Q forms.

For this example facility, we still need to report emissions from 2 other emission sources.

We have to report emissions from coke pushing at the coke battery and we also have emissions from a flare that should be reported.

Let's start with reporting the emissions from the coke pushing operation next.

As shown by the arrow, we have already started adding this information. As with all units/processes, we would begin with first identifying the unit.

Since we have already entered this information to save time, let's just review the information that you would need to enter and confirm that it is correct.

We can do this by clicking on the hyperlinked name of the unit, "Coke Pushing North."

## Subpart Q: Adding a Coke Pushing Operation



United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Blue Sky  
Subpart Q: Iron and Steel Production (2011)  
Subpart Overview » Add/Edit a Unit

**COKE PUSHING OPERATION INFORMATION**  
Subpart Q requires a facility to uniquely identify each coke pushing operation and provide the information described below for each. For additional information about adding and editing a coke pushing operation, please use the e-GGRT Help link(s) provided. \*denotes a required field

UNIT INFORMATION

Type \* Coke Pushing Operation

Name or ID \* (Coke Pushing North) (40 characters maximum)

Description (optional)

CANCEL SAVE

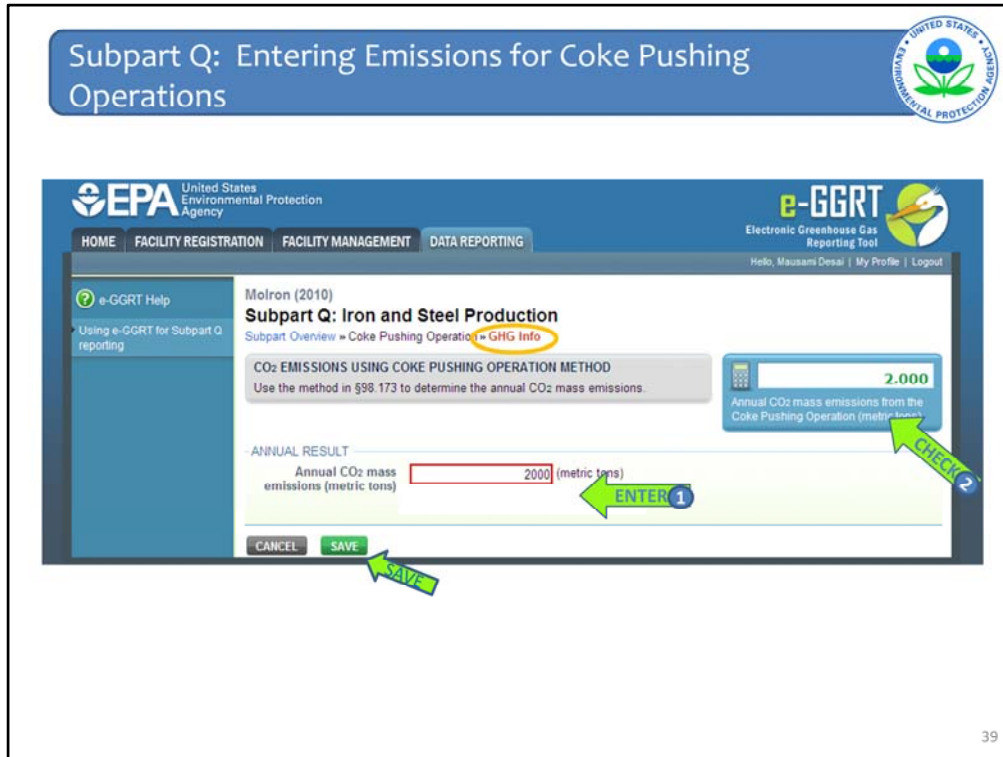
Paperwork Reduction Act Burden Statement | Contact Us e-GGRT RV2011 R.19 | QUnit

38

Now you will be on the “Add/Edit a unit” information form for coke pushing operations, you can see the information requirements are fairly simple.

On this form you simply need to enter the unit name, a description if useful.

As shown, we have completed this step and the information is accurate, so we will re-save this entry and return to the subpart Q overview page.



Once again we have jumped a step ahead.

Before coming to this page, you would confirm that the coke pushing operation is listed on the subpart overview page and then open the emissions reporting form by hitting the blue “open” button for that coke pushing operation. Once you do this you will be directed to this GHG info form for coke pushing operations shown here in this screenshot.

On this form you should enter emissions from the coke pushing operation you selected.

Since this equation is simple, EPA has not developed an optional worksheet for calculating these emissions. The rule provides a default emission factor of 0.008 metric tons CO<sub>2</sub> per metric ton of coal for estimating these emissions in 98.173(c).

Once again, enter your emissions total, save your entry, so you can then return to the Subpart Q overview page.

## Subpart Q: Adding Flares that burn coke oven gas and blast furnace gas



Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
BOF-EAST	Basic Oxygen Process Furnace	369,821	Complete	OPEN ✖
NRCoke Battery - North	Non-Recovery Coke Oven Battery	129,208	Complete	OPEN ✖
Sinter South	Sinter Process	121,725	Complete	OPEN ✖
BAF East	Electric Arc Furnace (EAF)	25,076	Complete	OPEN ✖
BAF North	Electric Arc Furnace (EAF)	78,000	Complete	OPEN ✖
ADD Vessel 1	Decarburization Vessel	70,340	Complete	OPEN ✖
DRI 2	Direct Reduction Furnace	326,241	Complete	OPEN ✖

ADD a Unit

UNIT SUMMARY (Units monitored by CEMS)

Name/ID	Type	Status <sup>1</sup>	Delete
Taconite 1	Taconite Indurating Furnace	Complete	✖

ADD a CEMS Unit

COKE PUSHING OPERATIONS

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Coke Pushing North	Coke Pushing Operation	2,000	Complete	OPEN ✖

ADD a Coke Pushing Operation

FLARES

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
ADD a Flare				

CEMS MONITORING LOCATION SUMMARY

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
Stack-Taconite 1	Single process/process unit exhausts to dedicated stack	Taconite 1	977,461	Complete	✖

ADD a CEMS Monitoring Location

Facility Overview

<sup>1</sup> A status of "Incomplete" means that one or more elements of required OPEH 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.)

2 ADD

CHECK 1

When you return, you should confirm that the status of data entry for coke pushing operations is complete as shown.


Now, the final step in completing the Subpart Q reporting forms is adding any flares that burn blast furnace gas and coke oven gas, as shown by arrow 2.

Under Subpart Q, you are required to report CO<sub>2</sub> emissions from these flares according to the procedures in subpart Y (Petroleum Refineries). You also required to report the associated CH<sub>4</sub> and N<sub>2</sub>O emissions.

Within e-GGRT this reporting has been integrated into the Subpart Q forms, so you will NOT need to add Subpart Y to your facility in order to report those emissions, unless you are reporting for other types of units under Subpart Y other than flares, which is unlikely.

As with reporting for other types of units and operations, we need to first begin by selecting the blue hyperlinked text to "ADD a Flare"





## Subpart Q: Adding Flares that Burning coke oven or blast furnace gas

Introduction (2010)

### Subpart Q: Iron and Steel Production

Subpart Overview [Add a Flare](#)

**FLARE INFORMATION**

Subpart Q requires a facility to uniquely identify each flare and provide the information described below for each. Also use this page to enter the method used to calculate carbon dioxide (CO<sub>2</sub>) emissions for this flare. For additional information about adding and editing a flare unit, please use the e-GGRT Help link(s) provided. \* denotes a required field

**1** → **UNIT INFORMATION**

Name or ID\*  (40 characters maximum)

Description (optional)

Type: Flare

**2** → **FLARE DETAILS**

Type of flare

- Steam assisted
- Air-assisted
- Unassisted
- Other

Flare service type

- General facility flare
- Unit flare
- Emergency only flare
- Back-up flare
- Other (specify)

**3** → **EMISSIONS CALCULATION METHOD**

Method used to calculate the CO<sub>2</sub> emissions. Note that certain methods must be used if certain criteria are met. See the help section for details.

- 98.253(b)(1)(i)(A) - Equation Y-1a Gas Composition Monitored
- 98.253(b)(1)(i)(A) - Equation Y-1b Gas Composition Monitored
- 98.253(b)(1)(i)(B) - Equation Y-2 Heat Content Monitored
- 98.253(b)(1)(iii) - Equation Y-3 Start-up, Shutdown, Malfunction

[SAVE](#)

41

You will now be on the Add a Flare form – this form has 3 main sections where you need to enter information or make a selection.

In the first section you need to identify and name the flare that is applicable

In the second section you need to enter in Flare Details

And finally in the third section, you should select the calculation method that you will be using to calculate emissions and then save your selections and return to the subpart overview page.

## Subpart Q: Confirm addition of Flare on Subpart Overview Page



Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
BOF-EAST	Basic Oxygen Process Furnace	369,821	Complete	OPEN ✖
NR-Coke Battery - North	Non-Recovery Coke Oven Battery	129,208	Complete	OPEN ✖
Sinter South	Sinter Process	121,725	Complete	OPEN ✖
EAFF-East	Electric Arc Furnace (EAF)	25,076	Complete	OPEN ✖
EAFF-North	Electric Arc Furnace (EAF)	78,000	Complete	OPEN ✖
ADO Vessel 1	Decarburization Vessel	70,340	Complete	OPEN ✖
DRI 2	Direct Reduction Furnace	326,241	Complete	OPEN ✖

ADD a Unit

### UNIT SUMMARY (Units monitored by CEMS)

Name/ID	Type	Status <sup>1</sup>	Delete
Taconite 1	Taconite Indurating Furnace	Complete	✖

ADD a CEMS Unit

### COKE PUSHING OPERATIONS

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Coke Pushing North	Coke Pushing Operation	2,000	Complete	OPEN ✖

ADD a Coke Pushing Operation

### FLARES

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Flare 1	Flare	Incomplete	OPEN ✖	

ADD a Flare

### CEMS MONITORING LOCATION SUMMARY

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
Stack-Taconite 1	Single process/process unit exhausts to dedicated stack.	Taconite 1	977,461	Complete	✖

ADD a CEMS Monitoring Location

### 1 Facility Overview


<sup>1</sup>A status of "incomplete" means that one of more elements of required OPEI 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.)

1 CHECK

OPEN 2

As you can see, we saved our selections and returned to the overview page. We can have now added Flare 1 as shown, but need to complete entry of emissions information, the Status for this source is still "Incomplete".

So as we have done before, click the blue "OPEN" button to enter the emissions and other required information for this flare.



## Subpart Q: Entering Emissions from Flares

**Method (2010)**  
**Subpart Q: Iron and Steel Production**  
Subpart Overview » Flares » Flare » Eq. Y-2

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

3,100.0

(Eq. Y-2) CO<sub>2</sub> emissions (metric tons)

---

0.12

(Eq. C-8a) CH<sub>4</sub> emissions (metric tons)

---

0.025

(Eq. C-8a) H<sub>2</sub>O emissions (metric tons)

**EQUATION Y-2 SUMMARY AND RESULT**

$$CO_2 = 0.98 \times 0.001 \times \sum_{p=1}^n [ (Flare)_p \times (HHV)_p \times (EMF) ]$$

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

Annual CO<sub>2</sub> emission from this flare  (metric tons)  
Use Y-2 spreadsheet to calculate

**MEASUREMENT FREQUENCY**

Frequency of measurement data  
 Daily  
 Weekly

**VOLUME OF FLARE GAS**

Annual volume of flare gas combusted  (MMcf)

Specific consensus-based standard method or describe the procedure specified by the flow meter manufacturer

Number of days missing data procedures were used for annual volume of flare gas combusted  (days)

Conditions on which the annual volume of flare gas was determined  
 55 °F and 14.7 psia  
 60 °F and 14.7 psia

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 consistent with the signed Final Rule Deferring Collection of Inputs. See <http://epa.gov/climatechange/emissions/CBI.html>

43

This is another longer data entry form, this screenshot shows the top half of the form.

Depending on the method you are using, the information you will need to enter on this form will vary, in this example we illustrate the requirements if you selected equation Y-2 as the calculation and monitoring method.

As shown by arrows 1, 2, and 3, you will need to enter annual emissions for this flare, the measurement frequency, the volume of flare gas combusted along with additional information on methods and use of missing data procedures.

All information needs to be entered to complete this form. Let's continue to scroll down to the bottom half of this form.


This is the bottom half of the Flare form when equation Y-2 is applied.

You can see there are 4 additional sections where will need to enter more information, which are highlighted by arrows 4, 5, and 6, including the annual CH<sub>4</sub> and N<sub>2</sub>O emissions (which should be calculated according to 98.33(c)(2) or equation C-9a.


Once again you can use the optional worksheets EPA has prepared to assist you in calculating emissions according to the procedures outlined in the rule.

Once you have completed your entries and selections, hit save to return to the Subpart Q overview page.

## Subpart Q: Complete Flare Data Entry



Inventory Unit: coke pushing operations and coke oven recovery. Note: adding a process unit, coke pushing operation or flare, click on 'Open' to enter Greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GGRT Help link(s) provided in the sidebar.

 **Subpart Q: View Validation**

**UNITS**  
 Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
BOP-EAST	Basic Oxygen Process Furnace	369,821	Complete	
NRCoke Battery - North	Non-Recovery Coke Oven Battery	129,208	Complete	
Sinter South	Sinter Process	121,725	Complete	
EAF East	Electric Arc Furnace (EAF)	25,076	Complete	
EAF-North	Electric Arc Furnace (EAF)	78,000	Complete	
ADD Vessel 1	Decarburization Vessel	70,340	Complete	
DRI 2	Direct Reduction Furnace	326,241	Complete	

ADD a Unit

**UNIT SUMMARY (Units monitored by CEMS)**

Name/ID	Type	Status <sup>1</sup>	Delete
Taconite 1	Taconite Indurating Furnace	Complete	

ADD a CEMS Unit

**COKE PUSHING OPERATIONS**

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Coke Pushing North	Coke Pushing Operation	2,000	Complete	

ADD a Coke Pushing Operation

**FLARES**

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Flare 1	Flare	10,000	Complete	

ADD a Flare

**CEMS MONITORING LOCATION SUMMARY**

CML Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
Stack-Taconite 1	Single process/process unit exhausts to dedicated stack	Taconite 1	977,461	Complete	

ADD a CEMS Monitoring Location

**1 CHECK**

45

When you return to the overview page, let's once again check and see that we have completed entry of emissions information for this flare. As you can see it is complete – which is great.

This completes reporting from all the applicable units, operations, and processes for this example iron and steel facility.

Before returning to the facility overview page where we started, we have one more piece of information to review and check.

**Subpart Q: Check Validation/Warning Messages**

combustion stack, coke pushing operation, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace. Within this module, you must also report CO<sub>2</sub> emissions from flares that burn blast furnace gas and coke oven gas according to procedures set out in Subpart Y of Part 98. First, under the heading "Units" below, use this page to identify each taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, decarburization vessel, direct reduction furnace and electric arc furnace. Similarly, identify coke pushing operations and flares under their respective headings. After adding a process unit, coke pushing operation or flare, click on "Open" to enter Greenhouse gas (GHG) data required by Subpart Q. For additional information about Subpart Q reporting and Subpart Y, please use the e-GGRT Help link(s) provided in the sidebar.

**UNITS**  
Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
BOF-EAST	Basic Oxygen Process Furnace	369,821	Complete	OPEN ✖

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 Q: View Validation** CHECK

46

At this stage, you should check the Validation bar, located in the upper right hand corner of the overview page, to see if you have any messages.

Looking at the bar – it is red and provides a blue hyperlink to “View Validation”. This indicates that either all data is not entered or there are potential errors in the information entered that we should review.

Note, if there were no errors, the bar would be green and state “Subpart Q: No Validation Message” and the exclamation mark symbol would be replaced with a check mark.

However, we have entered information to illustrate some warnings, so let’s continue and review the validation report, by clicking on the blue hyperlinked text “View Validation” to see the specific validation messages.

**Subpart Q: Validation Messages**

Maliron (2010)  
**Subpart Q: Iron and Steel Production**  
 Subpart Overview: Validation Report

**SUBPART VALIDATION REPORT**  
 This report contains a complete set of validation messages for all data required by this Subpart. For additional information about Validation Reports, please use the e-GORT Help link(s) provided.

**CML-LEVEL VALIDATION MESSAGES**  
 No CML level validation messages.

**EQUATION-LEVEL VALIDATION MESSAGES**

Validation Type <sup>1</sup>	ID <sup>2</sup>	CML Name	Input (Type)	Output (Type)	Message <sup>3</sup>
Data Quality	CO23	Coke Pushing Noon	N/A	N/A	Annual CO2 mass emissions (metric tons). 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.
Data Quality	CO12	NRCoal Battery - Noon	Coal (Coal)	N/A	Annual CO2 mass emissions. 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.
Data Quality	CO10	Sinter South	N/A	N/A	Annual CO2 mass emissions. 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.
Data Completeness	CO21	Taconite 1	N/A	N/A	Annual CO2 mass emissions (metric tons). This data element is required. Please enter the required data.

**Footnotes:**  
<sup>1</sup> Validation Types: e-GORT 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.  
 • Green Error: a data value or combination of data values prevents e-GORT 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.  
<sup>2</sup> ID: Each validation message has a unique identifier. If you contact the e-GORT Help Desk with a question about a validation message, please include this unique identifier with your request.  
<sup>3</sup> The absence of a validation message does not indicate that the information provided is without error.

When you open the Validation Report Page, as we discussed at the beginning of this training session, there are several types of validation messages.

The messages are grouped into 2 categories for Subpart Q:

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

The messages on this screen are not a complete list, but currently, in this session, we have 4 messages associated with **equation level** validation checks.

3 of these messages are data quality warnings indicating that data entered is outside of an EPA estimated range. In this situation, you should check the data for any errors and typos, but, if upon review, you believe the data to be correct, then you should still submit that data.

The 4th message indicates a data entry is not complete for Taconite 1, so we need to go back, check and make sure we have completed entry of this information.

## Subpart Q: Complete Review and Return to Facility Overview



the sidebar. Subpart Q: View Validation

**UNITS**  
Add any of the following as units: taconite indurating furnace, basic oxygen process furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel and direct reduction furnace.

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
BOF-EAST	Basic Oxygen Process Furnace	369,821	Complete	OPEN ✖
NR-Coke Battery - North	Non-Recovery Coke Oven Battery	129,208	Complete	OPEN ✖
Sinter South	Sinter Process	121,725	Complete	OPEN ✖
EAFF-East	Electric Arc Furnace (EAF)	25,076	Complete	OPEN ✖
EAFF-North	Electric Arc Furnace (EAF)	78,000	Complete	OPEN ✖
ADD Vessel 1	Decarburization Vessel	70,340	Complete	OPEN ✖
DRI 2	Direct Reduction Furnace	326,241	Complete	OPEN ✖

ADD a Unit

**UNIT SUMMARY (Units monitored by CEMS)**

Name/ID	Type	Status <sup>1</sup>	Delete
Taconite 1	Taconite Indurating Furnace	Complete	✖

ADD a CEMS Unit

**COKE PUSHING OPERATIONS**

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Coke Pushing North	Coke Pushing Operation	2,000	Complete	OPEN ✖

ADD a Coke Pushing Operation

**FLARES**

Name/ID	Type	CO <sub>2</sub> (metric tons)	Status <sup>1</sup>	Delete
Flare 1	Flare	10,000	Complete	OPEN ✖

ADD a Flare

**CEMS MONITORING LOCATION SUMMARY**

CML	Name/Identifier	CML Configuration	Monitored Unit(s)	Total CO <sub>2</sub> emissions (metric tons)	Status	Delete
Stack-Taconite 1	Stack-Taconite 1	Single process-process unit exhausts to dedicated stack	Taconite 1	977,461	Complete	✖

ADD a CEMS Monitoring Location

[RETURN](#) [Facility Overview](#)

<sup>1</sup>A status of "Incomplete" means that one or more elements of required OPEH is incomplete. See the Data Completeness validation.

48

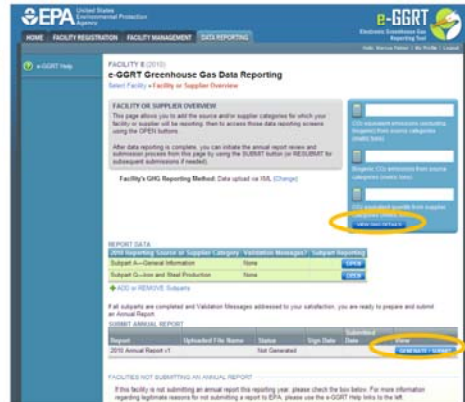
Once you have reviewed the validation messages, completed any data entry and confirmed your calculations, you will have completed entry of information for Subpart Q and can return to the Facility Overview page by selecting the blue "Facility Overview" button at the bottom of the subpart Overview page as shown on this screen shot.



## Subpart Q: Return to Facility Overview Page



- Add Subpart C to report additional likely sources:
  - Blast furnace stoves
  - By-product recovery coke oven battery stacks
  - Boilers
  - Process heaters
  - Reheat furnaces
  - Annealing furnaces
  - Flame suppression
  - Ladle reheaters
  - Other Miscellaneous combustion sources
- Add other Subparts
- Review GHG details
- Generate Report



49

Now you should return home for your facility.

On the facility overview page, when you go back, you should add Subpart C to report emissions from other sources at your iron and steel facility as listed here.

After you have entered other relevant subparts, you can view GHG details for a summary of information that you have entered so far by subpart and then as the last step generate your annual emissions report as described earlier in this webinar.

These steps are circled on the facility overview page screen shot shown here.

## Subpart Q: Questions?



- e-GGRT Information & Help
  - <http://www.ccdsupport.com>
  - Email: [GHGreporting@epa.gov](mailto:GHGreporting@epa.gov)
- GHG Reporting Program Information & Help
  - [www.epa.gov/ghgreporting/reporters/index.html](http://www.epa.gov/ghgreporting/reporters/index.html)
  - Email: [ghgreporting@epa.gov](mailto:ghgreporting@epa.gov)
- Read more about XML Upload Option
  - [http://www.epa.gov/ghgreporting/reporters/datasystem/e-ggrrt\\_xml.html](http://www.epa.gov/ghgreporting/reporters/datasystem/e-ggrrt_xml.html)
- Other Subpart Q Resources
  - <http://www.epa.gov/ghgreporting/reporters/subpart/q.html>

50

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

**This slide lists some important links that you may want to refer to later.**