



**e-GGRT Training Webinar on  
Updates to Reporting GHG Data for  
Subpart II – Industrial Wastewater Treatment**

**U.S. Environmental Protection Agency**

Greenhouse Gas Reporting Program (GHGRP)

February 2014



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

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For today's webinar please only submit questions regarding e-GGRT functionality, particularly on the updates covered in this webinar. Question on other topics (rule requirements, legal issues, etc.) should be submitted to [GHGReporting@epa.gov](mailto:GHGReporting@epa.gov).

## Purpose of Webinar



- Introduce change in Subpart II reporting from Excel reporting forms to web forms
- Walk through how to navigate new e-GGRT web forms
- Provide information on update to Validation Reports including critical errors

After last reporting cycle, we decided to migrate Subpart II reporting from the Excel spreadsheets to e-GGRT webforms. Most other subparts use webforms. The advantage is that web forms guides the reporter through all data entry that is needed depending upon how certain questions are answered by the reporter. We liken it to Turbo Tax software. In this way, the system facilitates more complete reports and helps to cut down on back and forth messages between EPA and the reporter after the report is submitted. There may still be some questions that come up but hopefully much less.

**Add Subpart II to Your Report**

Test Facility 1 for XML  
**e-GGRT Greenhouse Gas Data Reporting (2013)**  
 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 entry via e-GGRT web-forms (Change)

**REPORT DATA**

2013 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	None	<a href="#">OPEN</a>
Subpart C—General Stationary Fuel Combustion Sources	Cannot Submit-View Critical Errors	<a href="#">OPEN</a>
Subpart P—Hydrogen Production	None	<a href="#">OPEN</a>
Subpart Y—Petroleum Refineries	Cannot Submit-View Critical Errors	<a href="#">OPEN</a>
Subpart HH—Landfills	View Messages	<a href="#">OPEN</a>
<a href="#">ADD or REMOVE Subparts</a>		

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	Submitted Date	Certification Date

CO<sub>2</sub> equivalent emissions from facility subparts C-II, SS, and TT (metric tons): 1,270,167.5  
 Biogenic CO<sub>2</sub> emissions from facility subparts C-II, SS, and TT (metric tons): 20,000.0  
 CO<sub>2</sub> equivalent emissions from supplier subparts LL-QQ (metric tons): 0.0

Walk through web forms

When you first get into data reporting for your facility, as you did for previous year's reports, you will need to add Subpart II to your Report Data list in the middle of this screen.

Click ADD or REMOVE Subparts to add Subpart II and begin data reporting.



You are brought to the Add/Remove a subpart page. Scroll down to the bottom of the page.

Click II (Arrow #1) to add this subpart to your report.

Then click SAVE (Arrow #2)

# Add Subpart II to Your Report

Test Facility 1 for XML  
**e-GGRT Greenhouse Gas Data Reporting (2013)**  
 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 entry via e-GGRT web-forms ([Change](#))

**REPORT DATA**

2013 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	None	<a href="#">OPEN</a>
Subpart C—General Stationary Fuel Combustion Sources	Cannot Submit-View Critical Errors	<a href="#">OPEN</a>
Subpart P—Hydrogen Production	None	<a href="#">OPEN</a>
Subpart Y—Petroleum Refineries	Cannot Submit-View Critical Errors	<a href="#">OPEN</a>
Subpart HH—Landfills	<a href="#">View Messages</a>	<a href="#">OPEN</a>
Subpart II—Industrial Wastewater Treatment	<a href="#">View Messages</a>	<a href="#">OPEN</a>

CO<sub>2</sub> equivalent emissions from facility subparts C-II, SS, and TT (metric tons): 1,270,167.5  
 Biogenic CO<sub>2</sub> emissions from facility subparts C-II, SS, and TT (metric tons): 20,000.0  
 CO<sub>2</sub> equivalent emissions from supplier subparts LL-QQ (metric tons): 0.0

⚡ [VIEW GHG DETAILS](#)

⚡ [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**

Now you will see Subpart II on your Facility Overview page.

Click OPEN next to Subpart II to begin data entry for this subpart.

Note blue box with the little calculators in the upper right corner. These reflect the GHG emissions that will be reported for facility based on the data entered for all subparts.

**Subpart Overview**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview

**OVERVIEW OF SUBPART REPORTING REQUIREMENTS**  
 Subpart II requires affected facilities to report a) CH<sub>4</sub> generation, CH<sub>4</sub> emissions, and CH<sub>4</sub> recovered from treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor; b) CH<sub>4</sub> emissions and CH<sub>4</sub> recovered from each anaerobic sludge digester; and c) CH<sub>4</sub> emissions and CH<sub>4</sub> destruction resulting from each biogas collection and biogas destruction device. If you are subject to other subparts (e.g. Subpart C) you should return to the Facility Overview page, select the appropriate subpart(s), and complete the data reporting requirements of each subpart.

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

(Eq. II-7) Annual mass of CH<sub>4</sub> emitted from all anaerobic processes at the facility (metric tons)

**Subpart II: View Validation**

DESCRIPTION OR DIAGRAM(S) (of wastewater treatment systems)

Uploaded File Name	Attached By	Date	Delete
no attachments found			
<a href="#">ADD an Attachment</a>			

ANAEROBIC PROCESSES

Name/ID	Type	Biogas	Status <sup>1</sup>	CH <sub>4</sub> E	Delete
none entered					
<a href="#">ADD an Anaerobic Process</a>					

[Facility Overview](#)

<sup>1</sup>A status of "Incomplete" means that one or more elements of required GHG INFO is incomplete. See the Equation 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.)

When you click OPEN you are brought to the Subpart II Subpart Overview page. This again, is similar to previous years. It is the launching point for data entry for this subpart.

Please note blue calculator box in the upper right corner of this page. This box will show emissions for subpart II only based on data entered.

Also note the View Validation icon – this appears on Subpart Overview screen and can be accessed here at any time during data entry. Click on it to see the Validation Report which lists any issues with the data that have been entered. We will cover the Validation Report in greater detail toward the end of the webinar.

To begin Subpart II reporting:

First step, you must upload one or more files (.pdf or Word) containing a description or diagram of the wastewater treatment systems found at your facility.

Click ADD an Attachment. Attach a word document or PDF file containing descriptions or diagrams of the wastewater treatment system(s).

# Add an Attachment

The screenshot shows the EPA e-GGRT web application interface. At the top, there is a blue header with the text "Add an Attachment" and the EPA logo. Below this, the application header includes the EPA logo, "United States Environmental Protection Agency", and the e-GGRT logo "Electronic Greenhouse Gas Reporting Tool". A navigation menu contains "HOME", "FACILITY REGISTRATION", "FACILITY MANAGEMENT", and "DATA REPORTING". A user profile bar shows "Hello, Rachel Schmetz | My Profile | Logout".

The main content area is titled "Test Facility 1 for XML" and "Subpart II: Industrial Wastewater Treatment (2013)". A breadcrumb trail reads "Subpart Overview » Add an Attachment". A grey box contains the instruction: "ADD AN ATTACHMENT Attach a Word document or PDF file containing descriptions or diagrams of the wastewater treatment system(s)."

The "ATTACHMENT" section features a text input field with the label "Select a file to upload" and a "Browse..." button. A green arrow points to the "Browse..." button. Below the input field, it states "The maximum file upload size is 10 MB". At the bottom of the section are "ATTACH" and "CANCEL" buttons.

You will be prompted to browse for the file(s) you need to upload.



The screenshot shows the EPA e-GGRT interface. At the top, a blue banner reads "Add an Attachment". The EPA logo and "United States Environmental Protection Agency" are on the left, and the e-GGRT logo "Electronic Greenhouse Gas Reporting Tool" is on the right. A navigation bar includes "HOME", "FACILITY REGISTRATION", "FACILITY MANAGEMENT", and "DATA REPORTING". The user is logged in as "Rachel Schmetz".

The main content area is titled "Test Facility 1 for XML" and "Subpart II: Industrial Wastewater Treatment (2013)". It contains an "ADD AN ATTACHMENT" section with instructions: "Attach a Word document or PDF file containing descriptions or diagrams of the wastewater treatment system(s)". Below this is a "SCREEN ERRORS" section with a red error icon and the message: "Invalid file type - the file name must have a .pdf or .doc or .docx extension." The "ATTACHMENT" section has a "Select a file to upload" label, an empty text input field, and a "Browse..." button. A note states "The maximum file upload size is 10 MB". At the bottom are "ATTACH" and "CANCEL" buttons.

You will receive a screen error, like this one, if you try to attach a file other than a word document or PDF file.

**Add an Anaerobic Process**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
[Subpart Overview](#)

**OVERVIEW OF SUBPART REPORTING REQUIREMENTS**  
 Subpart II requires affected facilities to report a) CH<sub>4</sub> generation, CH<sub>4</sub> emissions, and CH<sub>4</sub> recovered from treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor; b) CH<sub>4</sub> emissions and CH<sub>4</sub> recovered from each anaerobic sludge digester; and c) CH<sub>4</sub> emissions and CH<sub>4</sub> destruction resulting from each biogas collection and biogas destruction device. If you are subject to other subparts (e.g. Subpart C) you should return to the Facility Overview page, select the appropriate subpart(s), and complete the data reporting requirements of each subpart.

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

(Eq. II-7) Annual mass of CH<sub>4</sub> emitted from all anaerobic processes at the facility (metric tons)

**Subpart II: View Validation**

DESCRIPTION OR DIAGRAM(S) (of wastewater treatment systems)

Uploaded File Name	Attached By	Date	Delete
Test Report Template_012114.docx	Rachel Schmeltz	February 5, 2014	

[ADD an Attachment](#)

**ANAEROBIC PROCESSES**

Name/ID	Type	Biogas	Status <sup>1</sup>	CH <sub>4</sub> E	Delete
none entered					

[ADD an Anaerobic Process](#)

[Facility Overview](#)

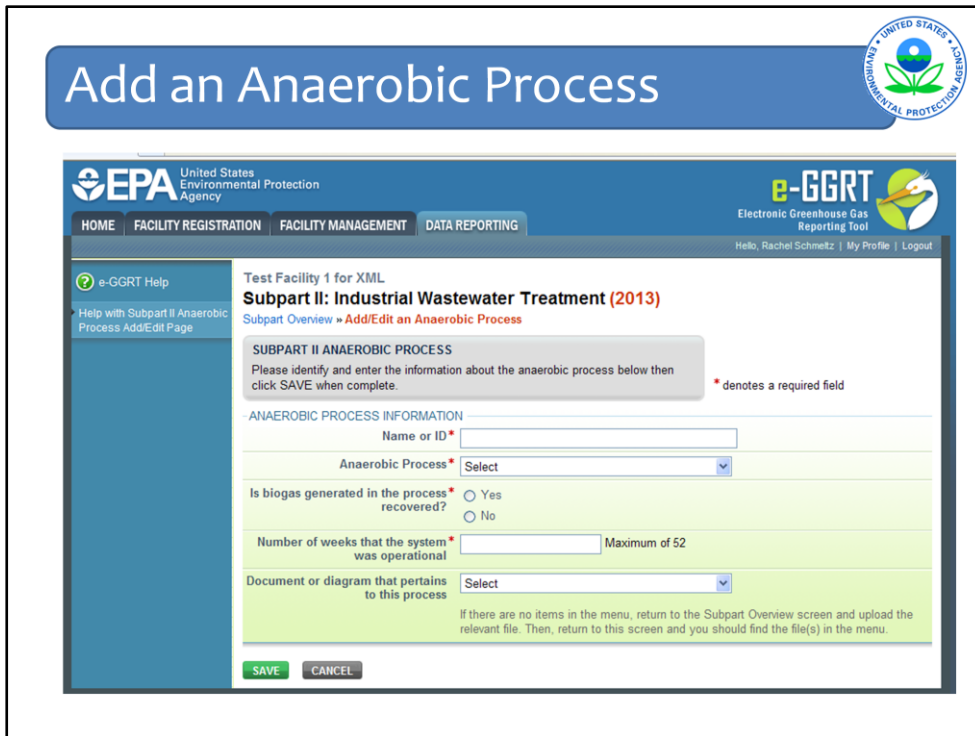
<sup>1</sup>A status of "incomplete" means that one of more elements of required GHG INFO is incomplete. See the Equation Completeness validation messages for details by clicking the "View Validation" link above. (Note, if there are no validation messages for this subpart you will not see this link.)

After you have successfully uploaded your completed Subpart II description(s) or diagram(s), the page will be updated to reflect the file(s) you have uploaded as shown here.

Click ADD an Attachment again to add additional files as needed.

Please, note this space is to upload the descriptions/and/or diagrams of the anaerobic processes at your facility. You should not use this space to upload any calculation spreadsheets you used for calculating your equation results.

Once the file(s) containing the description(s) or diagram(s) of the wastewater treatment systems found at your facility have been loaded, click ADD an Anaerobic Process to begin entering data on each anaerobic process at your facility.



On the Add/Edit an Anaerobic Process screen, you are required to report the following data for each Anaerobic Process:

Indicate a unique Name or ID for that anaerobic process

Indicate the type of Anaerobic Process,

Indicate if the biogas generated in the process is recovered

Indicate the number of weeks in the reporting year that the system was operational (1 – 52)

Indicate the name of the attached file that contains the description or diagram of this process within the wastewater treatment systems at your facility (a pull down list of the files you uploaded, selected from one of these).

**Add an Anaerobic Process**

United States Environmental Protection Agency

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

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Hello, Rachel Schmetz | My Profile | Logout

e-GGRT Help

Test Facility 1 for XML

**Subpart II: Industrial Wastewater Treatment (2013)**

Subpart Overview » **Add/Edit an Anaerobic Process**

**SUBPART II ANAEROBIC PROCESS**

Please identify and enter the information about the anaerobic process below then click SAVE when complete. \* denotes a required field

**ANAEROBIC PROCESS INFORMATION**

Name or ID \*

Anaerobic Process \*  
Select  
Reactor  
Shallow Lagoon  
Deep Lagoon  
Sludge Digester

Is biogas generated in the process recovered? \*

Number of weeks that the system was operational \*


Document or diagram that pertains to this process  
Select

If there are no items in the menu, return to the Subpart Overview screen and upload the relevant file. Then, return to this screen and you should find the file(s) in the menu.

SAVE CANCEL

For the type of Anaerobic Process, choose from one of the processes on the drop down list:

- Reactor
- Shallow lagoon
- Deep lagoon
- Sludge digester



## Add an Anaerobic Process

e-GGRT Help

Help with Subpart II Anaerobic Process Add/Edit Page

Test Facility 1 for XML

**Subpart II: Industrial Wastewater Treatment (2013)**

Subpart Overview » [Add/Edit an Anaerobic Process](#)

**SUBPART II ANAEROBIC PROCESS**

Please identify and enter the information about the anaerobic process below then click SAVE when complete. \* denotes a required field

**ANAEROBIC PROCESS INFORMATION**

Name or ID \*

Anaerobic Process \*

Is biogas generated in the process recovered?  Yes  No

Number of weeks that the system was operational \*  Maximum of 52

Document or diagram that pertains to this process

If there are no items in the menu, return to the Subpart Overview screen and upload the relevant file. Then, return to this screen and you should find the file(s) in the menu.

**ADDITIONAL INFORMATION**

Does the facility measure COD or BODs concentration of the wastewater entering the anaerobic process?  COD  BOD

If you selected reactor, deep lagoon, or shallow lagoon as the anaerobic process, more details must be provided under the Additional Information section of this page:

If the process is a Reactor, indicate if the facility measures COD or BOD

**Add an Anaerobic Process**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview » [Add/Edit an Anaerobic Process](#)

**SUBPART II ANAEROBIC PROCESS**  
 Please identify and enter the information about the anaerobic process below then click SAVE when complete. \* denotes a required field

**ANAEROBIC PROCESS INFORMATION**

Name or ID\* Lagoon 1

Anaerobic Process\* Shallow Lagoon

Is biogas generated in the process recovered?  Yes  No

Number of weeks that the system was operational\* 2 Maximum of 52

Document or diagram that pertains to this process Test Report Template\_012114.docx

If there are no items in the menu, return to the Subpart Overview screen and upload the relevant file. Then, return to this screen and you should find the file(s) in the menu.

**ADDITIONAL INFORMATION**

Average depth of the lagoon 1.5 (meters)

Does the facility measure COD or BODs\* concentration of the wastewater entering the anaerobic process?  COD  BOD

SAVE CANCEL

If you selected deep lagoon, or shallow lagoon, the following information must be provided under the Additional Information section of this page:

If the process is a Shallow Lagoon, indicate the average depth of the lagoon (0 – 2 meters)

For deep lagoons, the average depth entered should be greater than 2 m.

Indicate if the facility measures COD or BOD

**Add an Anaerobic Process**

Document or diagram that pertains to this process: Test Report Template\_012114.docx

If there are no items in the menu, return to the Subpart Overview screen and upload the relevant file. Then, return to this screen and you should find the file(s) in the menu.

**ADDITIONAL INFORMATION**

Does the facility measure COD or BODs\* concentration of the wastewater entering the anaerobic process?  COD  BOD

**BIOGAS RECOVERY AND MONITORING**

How does the facility monitor the CH<sub>4</sub>\* concentration in the biogas collected for destruction?  Daily averaging of continuous monitoring  Weekly monitoring

Is the biogas temperature incorporated into the monitoring equipment internal calculations?\*  Yes  No

Is the biogas pressure incorporated into the monitoring equipment internal calculations?\*  Yes  No

Is the biogas moisture content incorporated into the monitoring equipment internal calculations?\*  Yes  No

Does CH<sub>4</sub> destruction occur at the facility, off-site, or both?\*  On-Site  Off-Site  Both On-Site and Off-Site

CH<sub>4</sub> collection efficiency (based on cover type)

**SAVE** **CANCEL**

If you answered “yes,” that biogas generated in the process is recovered, you will also be required to answer the following questions under the Biogas Recovery and Monitoring section:


How does the facility monitor the CH<sub>4</sub> concentration in the biogas collected for destruction:

- Continuous monitoring (daily average values used in equations)
- Weekly monitoring

Is the biogas temperature incorporated into the internal calculations of the monitoring equipment (yes or no)?

Is the biogas pressure incorporated into the internal calculations of the monitoring equipment (yes or no)?

Is the biogas moisture content incorporated into the internal calculations of the monitoring equipment (yes or no)?



## Add an Anaerobic Process

**ADDITIONAL INFORMATION**

Does the facility measure COD or BODs\* concentration of the wastewater entering the anaerobic process?  COD  BOD

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**BIOGAS RECOVERY AND MONITORING**

How does the facility monitor the CH<sub>4</sub> concentration in the biogas collected for destruction?  Daily averaging of continuous monitoring  Weekly monitoring

Is the biogas temperature incorporated into the monitoring equipment internal calculations?  Yes  No

Is the biogas pressure incorporated into the monitoring equipment internal calculations?  Yes  No

Is the biogas moisture content incorporated into the monitoring equipment internal calculations?  Yes  No

Was biogas flow measured on a wet or dry basis?  Wet basis  Dry basis

Was biogas CH<sub>4</sub> concentration measured on a wet or dry basis?  Wet basis  Dry basis


Does CH<sub>4</sub> destruction occur at the facility, off-site, or both?  On-Site  Off-Site  Both On-Site and Off-Site

CH<sub>4</sub> collection efficiency (based on cover type)

If moisture content was not incorporated into the internal calculations of the monitoring equipment, was biogas flow measured on a wet or dry basis (yes or no)?  
 If moisture content was not incorporated into the internal calculations of the monitoring equipment, was CH<sub>4</sub> concentration measured on a wet or dry basis (yes or no)?

Does CH<sub>4</sub> destruction occur on-site, off-site, or both (on-site and off-site)?  
 What is the collection efficiency of the biogas collection system? Select a value from the drop down menu. Only allowed values from Table II-2 are available and are based on the anaerobic process and cover type. There is only one option 0.99 for reactors and sludge digesters. This value for collection efficiency is subsequently used in Equation II-5 which calculated methane leakage at the anaerobic process.





# Add an Anaerobic Process

If there are no items in the menu, return to the Subpart Overview screen and upload the relevant file. Then, return to this screen and you should find the file(s) in the menu.

**ADDITIONAL INFORMATION**

Average depth of the lagoon  (meters)

Does the facility measure COD or BODs\* concentration of the wastewater entering the anaerobic process?   
 COD   
 BOD

---

**BIOGAS RECOVERY AND MONITORING**

How does the facility monitor the CH<sub>4</sub> concentration in the biogas collected for destruction?   
 Daily averaging of continuous monitoring   
 Weekly monitoring

Is the biogas temperature incorporated into the monitoring equipment internal calculations?   
 Yes   
 No

Is the biogas pressure incorporated into the monitoring equipment internal calculations?   
 Yes   
 No

Is the biogas moisture content incorporated into the monitoring equipment internal calculations?   
 Yes   
 No

Does CH<sub>4</sub> destruction occur at the facility, off-site, or both?   
 On-Site   
 Off-Site   
 Both On-Site and Off-Site

CH<sub>4</sub> collection efficiency (based on cover type)

If your process is a lagoon, your choices for collection efficiency are shown in this slide

Your answers to the questions in this section will dictate the rest of your data entry.

After you have entered all of the required data on this page, click SAVE.

**Add an Anaerobic Process**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
[Subpart Overview](#)

**OVERVIEW OF SUBPART REPORTING REQUIREMENTS**  
 Subpart II requires affected facilities to report a) CH<sub>4</sub> generation, CH<sub>4</sub> emissions, and CH<sub>4</sub> recovered from treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor; b) CH<sub>4</sub> emissions and CH<sub>4</sub> recovered from each anaerobic sludge digester; and c) CH<sub>4</sub> emissions and CH<sub>4</sub> destruction resulting from each biogas collection and biogas destruction device. If you are subject to other subparts (e.g. Subpart C) you should return to the Facility Overview page, select the appropriate subpart(s), and complete the data reporting requirements of each subpart.

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

**DESCRIPTION OR DIAGRAM(S)** (of wastewater treatment systems)

Uploaded File Name	Attached By	Date	Delete
Test Report Template_012114.docx	Rachel Schmeltz	February 5, 2014	

[ADD an Attachment](#)

**ANAEROBIC PROCESSES**

Name/ID	Type	Biogas	Status <sup>†</sup>	CH <sub>4</sub> E	Delete
Reactor 1	Anaerobic Reactor	Yes	Incomplete	<a href="#">GHG INFO</a>	

[ADD an Anaerobic Process](#)

[Facility Overview](#)

<sup>†</sup>A status of "Incomplete" means that one of more elements of required GHG INFO is incomplete. See the Equation 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.)

You will be returned to the Subpart Overview page.

Here you see the anaerobic reactor that was just added.

Click ADD an Anaerobic Process again to enter data about additional anaerobic processes at your facility following the same steps as we just went through.

**OVERVIEW OF SUBPART REPORTING REQUIREMENTS**

Subpart II requires affected facilities to report a) CH<sub>4</sub> generation, CH<sub>4</sub> emissions, and CH<sub>4</sub> recovered from treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor; b) CH<sub>4</sub> emissions and CH<sub>4</sub> recovered from each anaerobic sludge digester; and c) CH<sub>4</sub> emissions and CH<sub>4</sub> destruction resulting from each biogas collection and biogas destruction device. If you are subject to other subparts (e.g. Subpart C) you should return to the Facility Overview page, select the appropriate subpart(s), and complete the data reporting requirements of each subpart.

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

(Eq. II-7) Annual mass of CH<sub>4</sub> emitted from all anaerobic processes at the facility (metric tons)

Subpart II: [View Validation](#)

DESCRIPTION OR DIAGRAM(S) (of wastewater treatment systems)

Uploaded File Name	Attached By	Date	Delete
Test Report Template_012114.docx	Rachel Schmeltz	February 5, 2014	

[ADD an Attachment](#)

**ANAEROBIC PROCESSES**

Name/ID	Type	Biogas	Status <sup>1</sup>	GHG INFO	Delete
Digester 1	Anaerobic Sludge Digester	Yes	Incomplete	<a href="#">GHG INFO</a>	
Lagoon 1	Anaerobic Shallow Lagoon	No	Incomplete	<a href="#">GHG INFO</a>	
Lagoon 2	Anaerobic Deep Lagoon	Yes	Incomplete	<a href="#">GHG INFO</a>	
Reactor 1	Anaerobic Reactor	Yes	Incomplete	<a href="#">GHG INFO</a>	

[ADD an Anaerobic Process](#)

[Facility Overview](#)

<sup>1</sup>A status of "Incomplete" means that one of more elements of required GHG INFO is incomplete. See the Equation 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.)

On this screen you can see that a few more anaerobic processes were added to this report.

You also see the Name/ID, process type, if biogas is recovered from this process, and the status

If you entered a process in error, you can delete it from your report by clicking the red X on the end of that line.

Note that the status for each of these processes is "Incomplete", that is because no GHG data has been entered. Click GHG INFO to begin to add this data. GHG Info must be entered for all anaerobic processes listed.

We will start with Lagoon 1.

**Add GHG Info – CH<sub>4</sub> Generation**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview » Lagoon 1 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**  
 Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

**CH<sub>4</sub> Generation (Eq. II-1)**  
 Eq. II-1 Summary and Results  
 Eq. II-3 Summary and Results

**ANAEROBIC PROCESS INFORMATION**  
 Unique Identifier (type) Lagoon 1 (Anaerobic Shallow Lagoon)  
 Biogas Recovered No

**EQUATION II-1**

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * COD_w * B_0 * MCF * 0.001]$$

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

Week	Flow (m <sup>3</sup> )	MDP <sup>1</sup>	COD (kg/m <sup>3</sup> )	MDP <sup>2</sup>	B <sub>0</sub> (kg CH <sub>4</sub> /kg COD)	ALT <sup>3</sup>	MCF	ALT <sup>4</sup>
1	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	0.25	<input type="checkbox"/>	0.2	<input type="checkbox"/>
2	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	0.25	<input type="checkbox"/>	0.2	<input type="checkbox"/>

← FINISHED    NEXT →

<sup>1</sup>Check if a Missing Data Procedure used for the week's Flow<sub>w</sub>  
<sup>2</sup>Check if a Missing Data Procedure used for the week's COD<sub>w</sub>  
<sup>3</sup>Check to report an alternate value for the week's B<sub>0</sub>. If so, use a value from Table II-1 (see e-GGRT Help content).  
<sup>4</sup>Check to report an alternate value for the week's MCF. If so, use a value from Table II-1 (see e-GGRT Help content).

The appearance of this next page will depend on how previous questions were answered:

Under Anaerobic Process Information, the unique identifier, type of process, and whether biogas is recovered will be shown as it was entered on the Add/Edit an Anaerobic Process page

If the anaerobic process is a reactor or a lagoon and you indicated that COD was measured for this process, then you will see Equation II-1 both in the middle of the page and in the gray box at the top

If the anaerobic process is a reactor or a lagoon and you indicated that BOD was measured for this process, then you will see Equation II-2 both in the middle of the page and in the gray box at the top

If the anaerobic process is a reactor or a lagoon and you indicated biogas was not recovered, you will see Equation II-3 listed in the gray box at the top

You will see a table with as many lines as weeks you indicated the system was operational.

# Add GHG Info – CH<sub>4</sub> Generation



e-GGRT Help

Help with Subpart II Equation II-1 Input Page

Test Facility 1 for XML

**Subpart II: Industrial Wastewater Treatment (2013)**

Subpart Overview » Lagoon 1 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**

Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

**CH<sub>4</sub> Generation (Eq. II-1)**

- ↳ Eq. II-1 Summary and Results
- ↳ Eq. II-3 Summary and Results

**-ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type) Lagoon 1 (Anaerobic Shallow Lagoon)

Biogas Recovered No

---

**-EQUATION II-1**

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * COD_w * B_o * MCF * 0.001]$$

Hover over an element in the

Average weekly concentration of chemical oxygen demand of wastewater entering an anaerobic wastewater treatment process (for week w)(kg/m<sup>3</sup>), measured as specified in §98.354(b) and (c).

Week	Flow <sub>w</sub> (m <sup>3</sup> )	MDP <sup>1</sup>	COD <sub>w</sub> (kg/m <sup>3</sup> )	B <sub>o</sub>	MCF	ALT <sup>2</sup>
1	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	0.25	<input type="checkbox"/>
2	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	0.25	<input type="checkbox"/>

↑ FINISHED    NEXT →

<sup>1</sup>Check if a Missing Data Procedure used for the week's Flow<sub>w</sub>  
<sup>2</sup>Check if a Missing Data Procedure used for the week's COD<sub>w</sub>  
<sup>3</sup>Check to report an alternate value for the week's B<sub>o</sub>. If so, use a value from Table II-1 (see e-GGRT Help content).  
<sup>4</sup>Check to report an alternate value for the week's MCF. If so, use a value from Table II-1 (see e-GGRT Help content).

Hover over an element in the equation in the middle of the page to read a definition of that element as needed. In some cases you may need to right click on that element to see the definition box. This slide shows what is meant by COD.

# Add GHG Info – CH<sub>4</sub> Generation



e-GGRT Help

Help with Subpart II Equation II-1 Input Page

Test Facility 1 for XML

**Subpart II: Industrial Wastewater Treatment (2013)**

Subpart Overview » Lagoon 1 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**

Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

**CH<sub>4</sub> Generation (Eq. II-1)**

- ↳ Eq. II-1 Summary and Results
- ↳ Eq. II-3 Summary and Results

ANAEROBIC PROCESS INFORMATION

Unique Identifier (type) Lagoon 1 (Anaerobic Shallow Lagoon)

Biogas Recovered No

---

EQUATION II-1

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * COD_w * B_o * MCF * 0.001]$$

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

Week	Flow <sub>w</sub> (m <sup>3</sup> )	MDP <sup>1</sup>	COD <sub>w</sub> (kg/m <sup>3</sup> )	MDP <sup>2</sup>	B <sub>o</sub> (Kg CH <sub>4</sub> /Kg COD)	ALT <sup>3</sup>	MCF	ALT <sup>4</sup>
1	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	0.25	<input type="checkbox"/>	0.2	<input type="checkbox"/>
2	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	0.25	<input type="checkbox"/>	0.2	<input type="checkbox"/>

<sup>1</sup>Check if a Missing Data Procedure used for the week's Flow<sub>w</sub>  
<sup>2</sup>Check if a Missing Data Procedure used for the week's COD<sub>w</sub>  
<sup>3</sup>Check to report an alternate value for the week's B<sub>o</sub>. If so, use a value from Table II-1 (see e-GGRT Help content).  
<sup>4</sup>Check to report an alternate value for the week's MCF. If so, use a value from Table II-1 (see e-GGRT Help content).

If the anaerobic process is a reactor or a lagoon, complete all data fields in the table underneath Equation II-1 or II-2 for all weeks listed. These are the weeks you previously indicated that this anaerobic process was operational:

Under the “Flow<sub>w</sub>” column, enter the volume of wastewater sent to the anaerobic process for each week listed (m<sup>3</sup>/week).

If a missing data procedure was used for that week’s flow, check the MDP box for that week.

Under the “BOD” or “COD” column, enter the average weekly concentration of 5-day biochemical oxygen demand or chemical oxygen demand, respectively for each week listed (kg/m<sup>3</sup>).

If a missing data procedure was used for that week’s BOD or COD value, check the MDP box for that week.

The values under the “B<sub>o</sub>” column will be automatically populated with a value from Table II-1 based on whether it is for BOD or COD.

If you wish to use an alternate value for B<sub>o</sub>, check the ALT box. However, the alternate value you use must be from Table II-1.

The values under the “MCF” column will be automatically populated with a value from Table II-1 based on whether it is a reactor, shallow lagoon, or deep lagoon.

If you wish to use an alternate value for MCF, check the ALT box. However, the alternate value you use must be from Table II-1.

Then click "NEXT".



## Table II-1 – Emission Factors

Factors	Default Value	Units
B <sub>o</sub> - for facilities monitoring COD	0.25	kg CH <sub>4</sub> /kg COD
B <sub>o</sub> - for facilities monitoring BOD	0.60	kg CH <sub>4</sub> /kg BOD <sub>5</sub>
MCF - anaerobic reactor	0.8	Fraction
MCF - anaerobic deep lagoon (depth more than 2 m)	0.8	Fraction
MCF - anaerobic shallow lagoon (depth less than 2 m)	0.2	Fraction

For your reference, this is Table II-1 from the rule that show the possible values for B<sub>o</sub> and MCF that may be used for anaerobic reactors or anaerobic lagoons.

Recall that Equation II-1 or II-2 to calculate methane generation from the anaerobic process are only applicable to reactors and lagoons. Sludge digesters do not need to calculate methane generation.

# Add GHG Info – CH<sub>4</sub> Generation



Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview » Lagoon 1 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**  
 Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

↳ CH<sub>4</sub> Generation (Eq. II-1)  
 ⓘ **Eq. II-1 Summary and Results**  
 ↳ Eq. II-3 Summary and Results

ANAEROBIC PROCESS INFORMATION  
 Unique Identifier (type) Lagoon 1 (Anaerobic Shallow Lagoon)  
 Biogas Recovered No

EQUATION II-1

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * COD_w * B_0 * MCF * 0.001]$$

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

Week	Flow (m <sup>3</sup> )	COD (kg/m <sup>3</sup> )	B <sub>0</sub> (Kg CH <sub>4</sub> /kg COD)	MCF	Result
1	1,200,000	3	0.25	0.2	180
2	1,230,000	3	0.25	0.2	184.5
<b>Total CH<sub>4</sub>G<sub>n</sub></b>					<b>364.50</b>

Report which CH<sub>4</sub>G<sub>n</sub> result?  
 Use the calculated result rounded  
 Enter my own result (value will be rounded)

364.50  
 (Eq. II-1) Annual mass of CH<sub>4</sub> generated from anaerobic wastewater treatment process (metric tons)

←BACK NEXT→

e-GGRT will calculate the methane generation value for each week of the table based on the data entered. The methane generation for each week the anaerobic process was operational is in the far right column. The system adds the methane generation for all weeks and displays the total at the bottom of the “Result” column. You have the option to use the result calculated by e-GGRT or enter your own result by clicking on one of the following:  
 “Use the calculated result rounded.”  
 “Enter my own result (value will be rounded)”.



# Add GHG Info – CH<sub>4</sub> Generation



e-GGRT Help  
 Help with Subpart II Equation II-1 Summary Page

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview » Lagoon 1 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**  
 Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

CH<sub>4</sub> Generation (Eq. II-1)  
**Eq. II-1 Summary and Results**  
 Eq. II-3 Summary and Results

ANAEROBIC PROCESS INFORMATION  
 Unique Identifier (type) Lagoon 1 (Anaerobic Shallow Lagoon)  
 Biogas Recovered No

EQUATION II-1

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * COD_w * B_0 * MCF * 0.001]$$

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

Week	Flow (m <sup>3</sup> )	COD (kg/m <sup>3</sup> )	B <sub>0</sub> (Kg CH <sub>4</sub> /kg COD)	MCF	Result
1	1,200,000	3	0.25	0.2	180
2	1,230,000	3	0.25	0.2	184.5
<b>Total CH<sub>4</sub>G<sub>n</sub></b>					<b>364.50</b>

Report which CH<sub>4</sub>G<sub>n</sub> result?  
 Use the calculated result rounded  
 Enter my own result (value will be rounded)

Report this value  (metric tons of CH<sub>4</sub>)

←

BACK NEXT

If you clicked the “Enter my own result” button, you must enter an alternate value that will be used in your report.

Then click NEXT

# Add GHG Info – Emissions



e-GGRT Help  
Help with Subpart II Equation II-3 Summary Page

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
Subpart Overview » Lagoon 1 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**  
Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- CH<sub>4</sub> Generation (Eq. II-1)
- Eq. II-1 Summary and Results
- Eq. II-3 Summary and Results**

**ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type) Lagoon 1 (Anaerobic Shallow Lagoon)  
Biogas Recovered No

**EQUATION II-3**

$CH_4E_n = CH_4G_n$

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

CH <sub>4</sub> G <sub>n</sub> (metric tons)	Result
364.5	364.5
Total CH <sub>4</sub> E <sub>n</sub> 364.5	

Report which CH<sub>4</sub>E<sub>n</sub> result?  
 Use the calculated result rounded  
 Enter my own result (value will be rounded)

[← BACK](#) [FINISHED →](#)

**364.50**  
(Eq. II-3) Annual mass of CH<sub>4</sub> emissions from the wastewater treatment process in which biogas is not recovered (metric tons)

If biogas is not recovered from this anaerobic process, you are taken to the screen above which displays the methane emissions from this anaerobic process. Note that for processes that do not recover biogas, the methane generation result of Equation II-1 or II-2 is the same as the methane emissions result of Equation II-3.

You have to option to use the result calculated by e-GGRT or enter your own result by clicking on one of the following:

“Use the calculated result rounded.”

“Enter my own result (value will be rounded)”. If you clicked the “Enter my own result” button, you must enter an alternate value that will be used in your report.

Select "FINISHED", e-GGRT will return to the Subpart II overview screen.

**Add GHG Info**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview

**OVERVIEW OF SUBPART REPORTING REQUIREMENTS**  
 Subpart II requires affected facilities to report a) CH<sub>4</sub> generation, CH<sub>4</sub> emissions, and CH<sub>4</sub> recovered from treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor; b) CH<sub>4</sub> emissions and CH<sub>4</sub> recovered from each anaerobic sludge digester; and c) CH<sub>4</sub> emissions and CH<sub>4</sub> destruction resulting from each biogas collection and biogas destruction device. If you are subject to other subparts (e.g. Subpart C) you should return to the Facility Overview page, select the appropriate subpart(s), and complete the data reporting requirements of each subpart.

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

(Eq. 4-7) Annual mass of CH<sub>4</sub> emitted from all anaerobic processes at the facility (metric tons)

**Subpart II: View Validation**

DESCRIPTION OR DIAGRAM(S) (of wastewater treatment systems)

Uploaded File Name	Attache	Date	Delete
Test Report Template_012114.docx	Rachel Schmeltz	February 5, 2014	✖

ADD an Attachment

**ANAEROBIC PROCESSES**

Name/ID	Type	Biogas	Status	CH <sub>4</sub> E	GHG INFO	Delete
Digester 1	Anaerobic Sludge Digester	Yes	Incomplete		GHG INFO	✖
Lagoon 1	Anaerobic Shallow Lagoon	No	Complete	364.50	GHG INFO	✖
Lagoon 2	Anaerobic Deep Lagoon	Yes	Incomplete		GHG INFO	✖
Reactor 1	Anaerobic Reactor	Yes	Incomplete		GHG INFO	✖

ADD an Anaerobic Process

Facility Overview

<sup>1</sup>A status of "incomplete" means that one of more elements of required GHG INFO is incomplete. See the Equation 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).

The status for this anaerobic process should say “Complete”, If the status says “Incomplete” then data must be missing for this process. You must go back into “GHG INFO” for that process and complete the data entry. If you need to change the basic data about that anaerobic process, click on the Name/ID to get back to that screen. Keep in mind that depending on the data element that you change (e.g., whether biogas is recovered from that process) you may also be changing the GHG INFO data fields required for that process. You will prompted with a message if that may be the case.

Once the status for that anaerobic process is “Complete”, click on "GHG INFO" next to the next anaerobic process that you added to complete the GHG information related to that process.

# GHG Info – Biogas Is Recovered



Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview » Lagoon 2 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**  
 Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

**CH<sub>4</sub> Generation (Eq. II-2)**

- Eq. II-2 Summary and Results
- Biogas Recovery & Monitoring (Eq. II-4)
  - Eq. II-4 Summary and Results
- GHG Emissions (Eq. II-6)
  - Eq. II-6 Summary and Results

**ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type) Lagoon 2 (Anaerobic Deep Lagoon)  
 Biogas Recovered Yes

**EQUATION II-2**

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * BOD_w * B_0 * MCF * 0.001]$$

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

Week	Flow <sub>w</sub> (m <sup>3</sup> )	MDP <sup>1</sup>	BOD <sub>w</sub> (kg/m <sup>3</sup> )	MDP <sup>2</sup>	B <sub>0</sub> (Kg CH <sub>4</sub> /kg BOD)	ALT <sup>3</sup>	MCF	ALT <sup>4</sup>
1	1200000	<input type="checkbox"/>	2.5	<input type="checkbox"/>	0.60	<input type="checkbox"/>	0.8	<input type="checkbox"/>
2	1230000	<input type="checkbox"/>	3.0	<input type="checkbox"/>	0.60	<input type="checkbox"/>	0.8	<input type="checkbox"/>
3	1500000	<input type="checkbox"/>	2.6	<input type="checkbox"/>	0.60	<input type="checkbox"/>	0.8	<input type="checkbox"/>

← FINISHED    NEXT →

Now we are looking at the GHG Info page for the process called Lagoon 2. For this anaerobic process, biogas is recovered. You will see Equations II-4 and II-6 listed in the gray box at the top.

This one also happens to have measured BOD instead of COD, but the information that needs to be entered is the basically the same.

After you enter the flow and BOD values and indicate if you used missing data procedures for any weeks or alternate values for Bo or MCF, click NEXT.

# GHG Info – Biogas Is Recovered



**SUBPART II GHG EMISSIONS CALCULATIONS**  
 Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- CH<sub>4</sub> Generation (Eq. II-2)
- Eq. II-2 Summary and Results**
- Biogas Recovery & Monitoring (Eq. II-4)
  - Eq. II-4 Summary and Results
- GHG Emissions (Eq. II-6)
  - Eq. II-6 Summary and Results

**ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type) Lagoon 2 (Anaerobic Deep Lagoon)  
 Biogas Recovered Yes

**EQUATION II-2**

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * BOD_w * B_0 * MCF * 0.001]$$

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

Week	Flow <sub>w</sub> (m <sup>3</sup> )	COD <sub>w</sub> (kg/m <sup>3</sup> )	B <sub>0</sub> (Kg CH <sub>4</sub> /kg COD)	MCF	Result
1	1,200,000	2.5	0.60	0.8	1,440
2	1,230,000	3	0.60	0.8	1,771.2
3	1,500,000	2.6	0.60	0.8	1,872
<b>Total CH<sub>4</sub>G<sub>n</sub></b>					<b>5,083.20</b>

Report which CH<sub>4</sub>G<sub>n</sub> result?  
 Use the calculated result rounded  
 Enter my own result (value will be rounded)

[← BACK](#) [NEXT →](#)

You will see the Equation II-2 Summary and Results page where you have to option to use the result calculated by e-GGRT or enter your own result. After you make that selection and entered your own value, if appropriate, click NEXT at the bottom of the page.

**GHG Info – Biogas Is Recovered**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview » Lagoon 2 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**  
 Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- CH<sub>4</sub> Generation (Eq. II-2)
- Eq. II-2 Summary and Results
- Biogas Recovery & Monitoring (Eq. II-4)**
- Eq. II-4 Summary and Results
- GHG Emissions (Eq. II-6)
- Eq. II-6 Summary and Results

**ANAEROBIC PROCESS INFORMATION**  
 Unique Identifier (type) Lagoon 2 (Anaerobic Deep Lagoon)  
 Biogas Recovered Yes

**BIOGAS RECOVERY & MONITORING INFORMATION**  
 Facilities with weekly monitoring are not required to enter biogas flow, CH<sub>4</sub> concentration, temperature, pressure, or moisture. Please indicate if a missing data procedure was used for CH<sub>4</sub> concentration or biogas flow for each week the anaerobic treatment process was operated.

Week	Volumetric Biogas Flow (acf)	MDP <sup>1</sup>	Biogas CH <sub>4</sub> Concentration (%)	MDP <sup>2</sup>	Biogas Temperature (°R)	Biogas Pressure (atm)	Biogas Moisture (cfw/cfb)
1		<input type="checkbox"/>		<input type="checkbox"/>			
2		<input type="checkbox"/>		<input type="checkbox"/>			
3		<input type="checkbox"/>		<input type="checkbox"/>			

◀BACK    NEXT▶

What comes next is dictated by the information you entered previously when you first added this anaerobic process to your report.

If the anaerobic process is a reactor or a lagoon, and you said that biogas is recovered from the anaerobic process, after you have entered the methane generation data and clicked NEXT, you will be taken to the Equation II-4 page on which you must enter Biogas Recovery and Monitoring Information. Note that if your anaerobic process is a sludge digester, you are taken directly to this page after clicking “GHG INFO” from the Subpart Overview page at which time you must then enter Biogas Recovery and Monitoring Information for this process.

If you indicated that you monitored continuously for this anaerobic process, you must enter: Cumulative volumetric biogas flow for the week in actual cubic feet (acf). If no biogas was recovered for that week, enter zero.

If a missing data procedure was used for that week’s flow, check the MDP box next to the flow value for that week.

Average CH<sub>4</sub> concentration in the biogas for the week (%)

If a missing data procedure was used for that week’s CH<sub>4</sub> concentration, check the MDP box next to biogas CH<sub>4</sub> concentration for that week.

If you indicated that biogas temperature was not incorporated into the internal calculations of the monitoring equipment, enter the average temperature of the biogas for that week (degrees Rankine)

If you indicated that biogas pressure was not incorporated into the internal calculations of the monitoring equipment, enter the average pressure of the biogas for that week (atm)

If you indicated that the moisture content of the biogas was not incorporated into the internal calculations of the monitoring equipment, and that the biogas flow and CH<sub>4</sub> concentration were not measured on the same basis (one was measured on a wet basis and the other was measured on a dry basis) enter the average moisture content of the biogas for that week (cubic feet water per cubic feet biogas)

After you’ve entered data for all weeks that your anaerobic process was operating, click NEXT.

# GHG Info – Biogas Is Recovered



Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview » Lagoon 2 » **GHG Info**

**SUBPART II GHG EMISSIONS CALCULATIONS**  
 Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- ↳ CH<sub>4</sub> Generation (Eq. II-2)
  - ↳ Eq. II-2 Summary and Results
- ↳ **Biogas Recovery & Monitoring (Eq. II-4)**
  - ↳ Eq. II-4 Summary and Results
- ↳ GHG Emissions (Eq. II-6)
  - ↳ Eq. II-6 Summary and Results

**ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type) Lagoon 2 (Anaerobic Deep Lagoon)  
 Biogas Recovered Yes

**BIOGAS RECOVERY & MONITORING INFORMATION**

Facilities with weekly monitoring are not required to enter biogas flow, CH<sub>4</sub> concentration, temperature, pressure, or moisture. Please indicate if a missing data procedure was used for CH<sub>4</sub> concentration or biogas flow for each week the anaerobic treatment process was operated.

Week	Volumetric Biogas Flow (acf)		Biogas CH <sub>4</sub> Concentration (%)		Biogas Temperature (°R)	Biogas Pressure (atm)	Biogas Moisture (chw/cfb)
	MDP <sup>1</sup>		MDP <sup>2</sup>				
1	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

←BACK    NEXT→

If you indicated that temperature, pressure, and/or moisture content were incorporated into the international calculations of the monitoring equipment, these columns will appear but the data fields will be greyed out and you will not be able to enter any data. In this case you need only enter the biogas flow and biogas CH<sub>4</sub> concentration and whether missing data procedures were used.

# GHG Info – Biogas Is Recovered



## SUBPART II GHG EMISSIONS CALCULATIONS

Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- ↳ CH<sub>4</sub> Generation (Eq. II-1)
- ↳ Eq. II-1 Summary and Results

### Biogas Recovery & Monitoring (Eq. II-4)

- ↳ Eq. II-4 Summary and Results
- ↳ GHG Emissions (Eq. II-6)
- ↳ Eq. II-6 Summary and Results

## ANAEROBIC PROCESS INFORMATION

Unique Identifier (type) Reactor 1 (Anaerobic Reactor)  
 Biogas Recovered Yes

## BIOGAS RECOVERY & MONITORING INFORMATION

Facilities with weekly monitoring are not required to enter biogas flow, CH<sub>4</sub> concentration, temperature, pressure, or moisture. Please indicate if a missing data procedure was used for CH<sub>4</sub> concentration or biogas flow for each week the anaerobic treatment process was operated.

Week	Volumetric Biogas Flow (act)	MDP <sup>1</sup>	Biogas CH <sub>4</sub> Concentration (%)	MDP <sup>2</sup>	Biogas Temperature (°R)	Biogas Pressure (atm)	Biogas Moisture (clw/cfb)
1	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

←BACK    NEXT→

<sup>1</sup>Check if a Missing Data Procedure used for the week's Volumetric Biogas Flow  
<sup>2</sup>Check if a Missing Data Procedure used for the week's Average Biogas CH<sub>4</sub> Concentration

If you indicated that you monitored weekly for an anaerobic process from which biogas was recovered, you must only enter:

The weeks, if any, missing data procedures were used for volumetric biogas flow and/or CH<sub>4</sub> concentration.

Check the boxes under MDP for the weeks that missing data procedures were used for flow and/or CH<sub>4</sub> concentration.

Please note, if you monitored weekly, the columns for volumetric biogas flow, CH<sub>4</sub> concentration, biogas temperature, pressure, and moisture content will appear but the data fields will be greyed out and you will not be able to enter any data.

After you have entered all of the biogas recovery and monitoring information on the anaerobic process, select “NEXT”



# GHG Info – Biogas Is Recovered



e-GGRT Help

Help with Subpart II Equation II-4 Summary Page

Test Facility 1 for XML

**Subpart II: Industrial Wastewater Treatment (2013)**

Subpart Overview » Lagoon 2 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**

Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- CH<sub>4</sub> Generation (Eq. II-2)
  - Eq. II-2 Summary and Results
- Biogas Recovery & Monitoring (Eq. II-4)
  - Eq. II-4 Summary and Results**
- GHG Emissions (Eq. II-6)
  - Eq. II-6 Summary and Results

**ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type)	Lagoon 2 (Anaerobic Deep Lagoon)
Biogas Recovered	Yes

**EQUATION II-4**

$$R_n = \sum_{i=1}^M \left[ (V)_m \times (K_{MC})_m \times \left( \frac{C_{CH_4}}{100\%} \right) \times 0.0423 \times \frac{520^\circ R}{(T)_m} \times \frac{(P)_m}{1 \text{ atm}} \times \frac{0.454}{1,000} \right]$$

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

Annual quantity of CH<sub>4</sub> recovered from the process  (metric tons of CH<sub>4</sub>)

R<sub>n</sub> must be entered since not all equation inputs are collected by e-GGRT.

The Equation II-4 calculation spreadsheet may be used to calculate the result of Equation II-4.  
<http://www.ccdsupport.com/confluence/display/help/Optional+Calculation+Spreadsheet+Instructions>

You are then brought to the Equation II-4 Summary and Results page. On this page you must enter the annual quantity of CH<sub>4</sub> recovered from the process. e-GGRT does not collect all of the inputs necessary to calculate the result of Equation II-4, therefore the result of this equation must be entered by the reporter. Hover over an element in the equation to read a definition of that element as needed. You may use the Equation II-4 calculation spreadsheet to assist you in calculating the result of Equation II-4. A link to the Equation II-4 calculation spreadsheet is provided on this page in e-GGRT. Click on the link

# Calculation Spreadsheet



CC - Soda Ash	<a href="#">Equation CC-3, CC-4, CC-5 Calculation Spreadsheet.xls</a>
EE - Titanium Dioxide	<a href="#">Equation EE-2 Calculation Spreadsheet.xls</a>
	<a href="#">Equation EE-3 Calculation Spreadsheet.xls</a>
HH - Landfills	<a href="#">Equation HH-1 Calculation Spreadsheet.xls</a>
	<a href="#">Equation HH-4 Calculation Spreadsheet.xls</a>
	<a href="#">Equation HH-5 Calculation Spreadsheet.xls</a>
	<a href="#">Equation HH-6 HH-7 HH-8 Calculation Spreadsheet.xls</a>
	<a href="#">Methane Flux Calculation Spreadsheet.xls</a>
II - Industrial Wastewater Treatment	<a href="#">Equation II-4 Calculation Spreadsheet.xls</a>
SS - Electrical Equipment Manufacturer or Refurbishment	<a href="#">Equation SS-2 Calculation Spreadsheet.xls</a>
	<a href="#">Equation SS-3 SS-4 Calculation Spreadsheet.xls</a>
TT - Industrial Landfills	<a href="#">Equation TT-1 Calculation Spreadsheet.xls</a>
	<a href="#">Equation TT- 6 Calculation Spreadsheet.xls</a>
	<a href="#">Equation HH-4 Calculation Spreadsheet.xls</a>
	<a href="#">Equation HH-6 / HH-7 / HH-8 Calculation Spreadsheet.xls</a>
	<a href="#">Methane Flux Calculation Spreadsheet.xls</a>

e-GGRT -- Help -- FAQ -- GHGRP

And you are taken to a site that contains calculation spreadsheets for all of the GHGRP subparts. Scroll down to near the bottom to find the one for Equation II-4.

# Calculation Spreadsheet



Equation II-4 Calculation Spreadsheet (Read-Only) [Compatibility Mode] - Microsoft Excel

Subpart II - Industrial Wastewater Treatment  
**Equation II-4: Calculating Methane Recovery in Metric Tons**  
 OPTIONAL SPREADSHEET FOR FACILITY RECORDKEEPING PURPOSES  
 Version e-GGRT RI2013R.01

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 prompted for the password, type "GHG" 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, see <http://office.microsoft.com/en-us/excel-help>.

$$R_{CH_4} = \sum_{m=1}^M (V_{m,i} \times (K_{OC})_{m,i} \times \frac{(C_{CH_4})_{m,i}}{100\%} \times 0.0423 \times \frac{520R}{(T_m)} \times \frac{(P_m)}{1 \text{ atm}} \times \frac{0.454}{1,000})$$

**Constants:**

[100%] = Constant	100%
[0.0423] = Density of CH <sub>4</sub> in air at 520°R or 60 degrees Fahrenheit and 1 atm	0.0423
[520°R] = Constant	520
[1 atm] = Constant	1
[0.454/1000] = Conversion factor (metric tons)	0.000454

**Facility Name:** Facility 1  
**Reporter Name:** Bob  
**Unit Name/ID:** Unit 1  
**Reporting Period:** 2013  
**Comments:** blah blah  
**Unit Type:** Industrial Wastewater Treatment Process

**Input Data**  
 This calculation spreadsheet can be used for up to 4 anaerobic processes at an industrial wastewater treatment facility. Only processes which recover biogas should be included on this spreadsheet.

**Process 1 of 4**

<b>[i]</b> = Index for processes at the facility, used in Equation II-7	1
<b>[M]</b> = Total number of measurement periods in a year. Use M=365 (M=366 for leap years) for daily averaging of continuous monitoring.	365

Same as last year, you may download the spreadsheet and use it to calculate Equation II-4 for each anaerobic process from which biogas is recovered.

Do not submit the completed Equation II-4 calculation spreadsheet when you submit your completed report. The completed spreadsheet should instead be kept with your facility records.

**Calculation Spreadsheet**

United States Environmental Protection Agency

E2290 =SUM(K38:K403)

Row	Col	Value	Col	Value	Col	Value	Col	Value
2070	D	291	E		F		G	FALSE
2071	D	298	E		F		G	FALSE
2072	D	300	E		F		G	FALSE
2073	D	301	E		F		G	FALSE
2074	D	302	E		F		G	FALSE
2075	D	303	E		F		G	FALSE
2076	D	304	E		F		G	FALSE
2077	D	305	E		F		G	FALSE
2078	D	306	E		F		G	FALSE

**Constants**

[1000] = Constant	1000
[0.8423] = Density of CH <sub>4</sub> biogas at 520 R or 60 degrees Fahrenheit and 1 atm.	0.8423
[520 R] = Constant	520
[1 atm] = Constant	1
[0.697000] = Conversion factor (metric tons)	0.697000

**Methane Recovery (metric tons) from Equation II-4**

Process	Formula	Value
Process 1 of 6	$[R_{1,1}] = \text{Annual quantity of CH}_4 \text{ recovered from the 1st anaerobic reactor, sludge digester, or lagoon (metric tons CH}_4\text{)}$	RDIVIII
Process 2 of 6	$[R_{2,1}] = \text{Annual quantity of CH}_4 \text{ recovered from the 2nd anaerobic reactor, sludge digester, or lagoon (metric tons CH}_4\text{)}$	RDIVIII
Process 3 of 6	$[R_{3,1}] = \text{Annual quantity of CH}_4 \text{ recovered from the 3rd anaerobic reactor, sludge digester, or lagoon (metric tons CH}_4\text{)}$	RDIVIII
Process 4 of 6	$[R_{4,1}] = \text{Annual quantity of CH}_4 \text{ recovered from the 4th anaerobic reactor, sludge digester, or lagoon (metric tons CH}_4\text{)}$	RDIVIII
Process 5 of 6	$[R_{5,1}] = \text{Annual quantity of CH}_4 \text{ recovered from the 5th anaerobic reactor, sludge digester, or lagoon (metric tons CH}_4\text{)}$	RDIVIII
Process 6 of 6	$[R_{6,1}] = \text{Annual quantity of CH}_4 \text{ recovered from the 6th anaerobic reactor, sludge digester, or lagoon (metric tons CH}_4\text{)}$	RDIVIII

Use these values in Equations B-5 and B-6

This is the very bottom of that calculation spreadsheet.

The spreadsheet will allow you to calculate II-4 for up to 6 separate processes at your facility. Enter the calculated values from the yellow boxes into the Equation II-4 result for each anaerobic process.

# GHG Info – Biogas Is Recovered



**SUBPART II GHG EMISSIONS CALCULATIONS**  
Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- ▷ CH<sub>4</sub> Generation (Eq. II-1)
  - ▷ Eq. II-1 Summary and Results
- ▷ Biogas Recovery & Monitoring (Eq. II-4)
  - ▶ **Eq. II-4 Summary and Results**
- ▷ GHG Emissions (Eq. II-5)
  - ▷ Eq. II-6 Summary and Results

**(Eq. II-4) Annual quantity of CH<sub>4</sub> recovered from the process (metric tons CH<sub>4</sub>/yr)**

**ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type) Reactor 1 (Anaerobic Reactor)  
Biogas Recovered Yes

**EQUATION II-4**

$$R_n = \sum_{m=1}^M \left[ (V)_m \times (K_{MC})_m \times \left( \frac{C_{CH_4}}{100\%} \right) \times 0.0423 \times \frac{520^\circ R}{(T)_m} \times \frac{(P)_m}{1 \text{ atm}} \times \frac{0.454}{1,000} \right]$$

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

Annual quantity of CH<sub>4</sub> recovered from the process  (metric tons of CH<sub>4</sub>)

R<sub>n</sub> must be entered since not all equation inputs are collected by e-GGRT.

The Equation II-4 calculation spreadsheet may be used to calculate the result of Equation II-4:  
<http://www.ccdsupport.com/confluence/display/help/Optional+Calculation+Spreadsheet+Instructions>

**←BACK** **NEXT→**

Enter the result of Equation II-4 in the red box, then click “NEXT”.

# GHG Info – Biogas Is Recovered



e-GGRT Help  
Help with Subpart II Equation II-6 Input Page

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
Subpart Overview » Reactor 1 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**  
Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- CH<sub>4</sub> Generation (Eq. II-1)
  - Eq. II-1 Summary and Results
- Biogas Recovery & Monitoring (Eq. II-4)
  - Eq. II-4 Summary and Results
- GHG Emissions (Eq. II-6)**
  - Eq. II-6 Summary and Results

**ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type)	Reactor 1 (Anaerobic Reactor)
Biogas Recovered	Yes

**EQUATION II-6**

$$CH_4E_n = CH_4L_n + R_n \left( 1 - \left[ (DE_1 \times f_{T_{ind1}}) + (DE_2 \times f_{T_{ind2}}) \right] \right)$$

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

**EQUATION INPUTS**

CH <sub>4</sub> L <sub>n</sub> : Leakage at the Anaerobic Process	90.9091 (metric tons CH <sub>4</sub> )	Value displayed is the result of equation II-5 as calculated by e-GGRT using inputs provided on other screens.
R <sub>n</sub> : Annual quantity of CH <sub>4</sub> recovered from the Anaerobic Process	9.000 (metric tons CH <sub>4</sub> /yr)	Value displayed is the result of equation II-4 as entered on a previous screen.
Does CH <sub>4</sub> destruction occur at the facility,	On-Site	

You are then brought to the Equation II-6 inputs page. You will be shown:

- The Anaerobic Process Information
- Equation II-6. Although not shown here, you can again hover over an element in the equation to see a definition of that element.
- The Equation II-6 inputs you have provided or the system has calculated so far:

The CH<sub>4</sub> leakage from this anaerobic process in metric tons, which is the result of Equation II-5. e-GGRT calculates the result of this equation from previously entered data.

The annual quantity of methane recovered, in metric tons, which is the result of Equation II-4 entered on a previous page

# GHG Info – Biogas Is Recovered



Unique Identifier (type)	Reactor 1 (Anaerobic Reactor)
Biogas Recovered	Yes

---

EQUATION II-6

$$CH_4E_n = CH_4L_n + R_n \left( 1 - \left[ (DE_1 \times f_{Dnest,1}) + (DE_2 \times f_{Dnest,2}) \right] \right)$$

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

---

EQUATION INPUTS

CH <sub>4</sub> L <sub>n</sub> : Leakage at the Anaerobic Process	90.9091 (metric tons CH <sub>4</sub> )	Value displayed is the result of equation II-5 as calculated by e-GGRT using inputs provided on other screens.
R <sub>n</sub> : Annual quantity of CH <sub>4</sub> recovered from the Anaerobic Process	9.000 (metric tons CH <sub>4</sub> /yr)	Value displayed is the result of equation II-4 as entered on a previous screen.
Does CH <sub>4</sub> destruction occur at the facility, off-site, or both?	On-Site	
Annual operating hours for the primary destruction device	<input type="text"/>	
Destruction efficiency for the primary destruction device	<input type="text"/>	
	lesser of manufacturer's specified destruction efficiency and 0.99. If biogas is transported off-site for destruction, use 1	
Is a back-up destruction device present at the facility?	<input type="radio"/> Yes <input type="radio"/> No	

←BACK    NEXT→

Scrolling down on the same page, you are also shown:

- Whether CH<sub>4</sub> destruction occurs on site, off-site, or both, as entered on a previous screen
- If, on a previous page, you indicated that destruction occurs either on-site or both, you must then enter:

The annual operating hours of the primary destruction device  
 The destruction efficiency for the primary destruction device which is the lesser of the manufacturer's specified destruction efficiency and 0.99. If biogas is transported off-site for destruction, use 1 for the destruction efficiency.

If there is a back-up destruction device present at the facility (yes or no)

# GHG Info – Biogas Is Recovered



**EQUATION INPUTS**

**$CH_4E_{in} = CH_4L_{in} + R_n (1 - [(DE_1 \times f_{Dnet 1}) + (DE_2 \times f_{Dnet 2})])$**   
Hover over an element in the equation above to reveal a definition of that element.

<b>CH<sub>4</sub>L<sub>in</sub>: Leakage at the Anaerobic Process</b>	90,9091 (metric tons CH <sub>4</sub> ) Value displayed is the result of equation II-5 as calculated by e-GGRT using inputs provided on other screens.
<b>R<sub>n</sub>: Annual quantity of CH<sub>4</sub> recovered from the Anaerobic Process</b>	9,000 (metric tons CH <sub>4</sub> /yr) Value displayed is the result of equation II-4 as entered on a previous screen.
<b>Does CH<sub>4</sub> destruction occur at the facility, off-site, or both?</b>	On-Site
<b>Annual operating hours for the primary destruction device</b>	<input type="text" value="8760"/>
<b>Destruction efficiency for the primary destruction device</b>	<input type="text" value=".99"/> lesser of manufacturer's specified destruction efficiency and 0.99. If biogas is transported off-site for destruction, use 1
<b>Is a back-up destruction device present at the facility?</b>	<input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Annual operating hours for the back-up destruction device</b>	<input type="text"/>
<b>Destruction efficiency for the back-up destruction device</b>	<input type="text"/> lesser of manufacturer's specified destruction efficiency and 0.99. If biogas is transported off-site for destruction, use 1

[←BACK](#) [NEXT→](#)

Lastly on this page, if there is a back up destruction device present, enter the annual operating hours of the back-up destruction device and the destruction efficiency of the back-up destruction device which is the lesser of the manufacturer's specified destruction efficiency and 0.99. If biogas is transported off-site for destruction, use 1 for the destruction efficiency.

Then click "NEXT" at the bottom of the page.



The screenshot shows the e-GGRT interface for calculating GHG emissions. The main heading is "GHG Info – Biogas Is Recovered". The page is titled "Test Facility 1 for XML" and "Subpart II: Industrial Wastewater Treatment (2013)". The primary calculation is "SUBPART II GHG EMISSIONS CALCULATIONS", which involves determining the annual mass of methane generated from an anaerobic wastewater treatment process. The interface includes a sidebar with navigation options like "CH4 Generation (Eq. II-1)", "Biogas Recovery & Monitoring (Eq. II-4)", and "GHG Emissions (Eq. II-6)". A central box displays the calculated result: "9,090.31 (Eq. II-6) Annual quantity of CH4 emitted from the process from which biogas is recovered (metric tons)". Below this, there is a section for "ANAEROBIC PROCESS INFORMATION" with fields for "Unique Identifier (type)" and "Biogas Recovered". The "EQUATION II-6" section shows the formula:  $CH_4E_n = CH_4L_n + R_n (1 - [(DE_1 \times f_{DEST1}) + (DE_2 \times f_{DEST2})])$ . A table lists the input values:  $CH_4L_n$  (90,9091),  $R_n$  (9,000),  $DE_1$  (0.99),  $f_{DEST1}$  (1),  $DE_2$  (0.99), and  $f_{DEST2}$  (0.6187). The resulting "Total  $CH_4E_n$ " is 9,090.31. At the bottom, there are radio buttons to select the reporting method and a "FINISHED" button.

You are then brought to the Equation II-6 Summary and Results page. You will be shown the inputs to Equation II-6:

$CH_4L_n$  - the  $CH_4$  leakage from this anaerobic process in metric tons, which is the result of Equation II-5

$R_n$  - the annual quantity of methane recovered, in metric tons, which is the result of Equation II-4

$DE_1$  - the destruction efficiency of the primary destruction device (decimal)

$f_{DEST1}$  - the fraction of hours the primary destruction device was operating (device operating hours/hours in the year). If the biogas was transported off-site for destruction,  $f_{DEST1} = 1$ .

$DE_2$  - the destruction efficiency of the back-up destruction device (decimal). If there is no back-up destruction device, this field will be blank.

$f_{DEST2}$  - the fraction of hours the back-up destruction device was operating (device operating hours/hours in the year). If there is no back-up destruction device, this field will be blank.

e-GGRT will calculate the result of Equation II-6 based on these inputs and display them in the Result column. You have to option to use the result calculated by e-GGRT or enter your own result by clicking on one of the following:

“Use the calculated result rounded.”

“Enter my own result (value will be rounded)”. If you clicked this button, you must enter an alternate value that will be used in your report.

Then select "FINISHED"

**Total GHG Emissions**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview

**OVERVIEW OF SUBPART REPORTING REQUIREMENTS**  
 Subpart II requires affected facilities to report a) CH<sub>4</sub> generation, CH<sub>4</sub> emissions, and CH<sub>4</sub> recovered from treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor, b) CH<sub>4</sub> emissions and CH<sub>4</sub> recovered from each anaerobic sludge digester, and c) CH<sub>4</sub> emissions and CH<sub>4</sub> destruction resulting from each biogas collection and biogas destruction device. If you are subject to other subparts (e.g. Subpart C) you should return to the Facility Overview page, select the appropriate subpart(s), and complete the data reporting requirements of each subpart.

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

**DESCRIPTION OR DIAGRAM(S) (of wastewater treatment systems)**

Uploaded File Name	Attached By	Date	Delete
Test Report Template_012114.docx	Rachel Schmeltz	February 5, 2014	✖

ADD an Attachment

**ANAEROBIC PROCESSES**

Name/ID	Type	Biogas	Status <sup>1</sup>	CH <sub>4</sub> E	GHG INFO	Delete
Digester 1	Anaerobic Sludge Digester	Yes	Complete	25,252.57	GHG INFO	✖
Lagoon 1	Anaerobic Shallow Lagoon	No	Complete	1,000.00	GHG INFO	✖
Lagoon 2	Anaerobic Deep Lagoon	Yes	Complete	5,608.21	GHG INFO	✖
Reactor 1	Anaerobic Reactor	Yes	Complete	9,090.31	GHG INFO	✖

ADD an Anaerobic Process

Facility Overview

<sup>1</sup>A status of "Incomplete" means that one of more elements of required GHG INFO is incomplete. See the Equation 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.)

**40 951.09**  
 (Eq. II-7) Annual mass of CH<sub>4</sub> emitted from all anaerobic processes at the facility (metric tons)

Subpart II: View Validation

e-GGRT will return to the Subpart Overview screen. The status for this anaerobic process should say "Complete", If the status say "Incomplete" then you must go back into "GHG INFO" for that process and complete the data entry.

From this page, check to make sure the status of all anaerobic processes are complete.

On the Subpart Overview page e-GGRT will display the methane emissions (CH<sub>4</sub>E) for each anaerobic process. Methane emissions is the Equation II-3 result for processes without biogas recovery and the Equation II-6 result for processes with biogas recovery. e-GGRT will also display the total CH<sub>4</sub> emissions for subpart II for this facility, which is the result of Equation II-7. Equation II-7 is the sum of tall Equation II-3 and Equation II-6 results for all anaerobic processes at the facility. The result of Equation II-7 is displayed in the blue calculator box in the upper right corner of the Subpart Overview page.

It is recommended that you now click on the View Validation link next to the yellow triangle on the upper right side.

**Validation Report**

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
 Subpart Overview » **Validation Report**

**SUBPART VALIDATION REPORT**  
 This report contains a complete set of validation messages at the subpart level. Clicking the message text will redirect you to the screen that contains the field that generated the validation message. [Print-friendly version](#)

**FACILITY-LEVEL VALIDATION MESSAGES**

Validation Type <sup>1</sup>	ID <sup>2</sup>	Message <sup>3</sup>
No facility-level validation messages found.		

**PROCESS-LEVEL VALIDATION MESSAGES**

Validation Type <sup>1</sup>	Process Name#ID	Equation	ID <sup>2</sup>	Message <sup>3</sup>
Data Completeness	Lagoon 2	II-4	II0531	<b>Volumetric Biogas Flow for week 1. This data element is required.</b>
Data Quality	Lagoon 2	II-4	II0557	Biogas CH4 Concentration for week (1). 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	Lagoon 2	II-4	II0557	Biogas CH4 Concentration for week (1). 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	Lagoon 2	II-4	II0557	Biogas CH4 Concentration for week (1). 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.

This will take you to your Validation Report for Subpart II and will tell you if there are any issues with the data you entered.

Critical errors are indicated by red stop signs. If you do not fix the critical errors, you will not be able to submit your report.

Note that the Validation Report is intended to assist users in entering data, but it is not an indication that the reporter has entered all necessary information, nor is it an indication that the reporter is in compliance with part 98. Furthermore a negative finding on the validation report is not a guarantee that a data element was entered incorrectly.

**Validation Report**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Data Quality	Lagoon 2	II-4	II0557	Biogas CH4 Concentration for week (1). 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	Lagoon 2	II-4	II0557	Biogas CH4 Concentration for week (1). 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	Lagoon 2	II-4	II0557	Biogas CH4 Concentration for week (1). The value you have provided is outside the EPA estimated range for this data element. Please double check this value and revise, if necessary. If you believe it to be correct, please submit the value as is.

← Subpart Overview

**STOP** Critical Validation Error: Messages that appear with the stop sign icon will prevent you from generating and submitting your annual report. You should first address the errors described. If you feel you have received one of these messages in error, or there's a reason why your report should be submitted despite the message, please [submit a request to the e-GGRT Help Desk](#).

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

- Screen Error: a data condition that requires correction and would stop the user from saving a particular screen.
- Equation Completeness: missing data (an equation input) that is preventing e-GGRT from calculating a result for a particular equation.
- Data Completeness: missing data (not an equation input) that is required for reporting.
- 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.
- Invalid Emissions: a calculated emissions value is either negative or outside a reasonable range.

<sup>2</sup> ID: Each message has a unique ID that may help when communicating issues to e-GGRT Help Desk.

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

Aside from the Critical Errors, the Validation Report shows several types of checks which are listed at the bottom of the page:

Screen errors: a data condition that requires correction and would stop the user from saving a particular screen.

Equation completeness: if there is data missing that prevents e-GGRT from calculating an equation result

Data Completeness: Data required for reporting that are missing or incomplete, other than an equation input

Data Quality: Data that are outside of the expected range of values.

Invalid emissions: if the resulting emission value is negative or outside a reasonable range

Also note here, in the description of the Critical Validation error, if you think you received one of these messages in error, or there is a reason why your report should be submitted despite the message, you should submit a request to the e-GGRT Help Desk.

In the right hand column is what the issue is and provides a link to the page on which you can look at and correct the issue, if appropriate. You see these last two are showing that the value entered for CH4 concentration of the biogas is outside of the expected range of values.

# Validation Report



e-GGRT Help  
Help with Subpart II Equation II-4 Input Page

Test Facility 1 for XML  
**Subpart II: Industrial Wastewater Treatment (2013)**  
Subpart Overview » Lagoon 2 » GHG Info

**SUBPART II GHG EMISSIONS CALCULATIONS**  
Calculate the annual mass of methane generated from an anaerobic wastewater treatment process.

- CH<sub>4</sub> Generation (Eq. II-2)
  - Eq. II-2 Summary and Results
- Biogas Recovery & Monitoring (Eq. II-4)**
  - Eq. II-4 Summary and Results
- GHG Emissions (Eq. II-6)
  - Eq. II-6 Summary and Results

**ANAEROBIC PROCESS INFORMATION**

Unique Identifier (type) Lagoon 2 (Anaerobic Deep Lagoon)  
Biogas Recovered Yes

**BIOGAS RECOVERY & MONITORING INFORMATION**

Facilities with weekly monitoring are not required to enter biogas flow, CH<sub>4</sub> concentration, temperature, pressure, or moisture. Please indicate if a missing data procedure was used for CH<sub>4</sub> concentration or biogas flow for each week the anaerobic treatment process was operated.

Week	Volumetric Biogas Flow (acf) MDP <sup>1</sup>	Biogas CH <sub>4</sub> Concentration (%) MDP <sup>2</sup>	Biogas Temperature (°R)	Biogas Pressure (atm)	Biogas Moisture (chw/cfb)
1	15000000 <input checked="" type="checkbox"/>	66 <input type="checkbox"/>			
2	13000000 <input type="checkbox"/>	72 <input checked="" type="checkbox"/>			
3	11000000 <input type="checkbox"/>	64 <input type="checkbox"/>			

←BACK    NEXT→

Clicking on that message, take you back to the page where that validation issue is found.

# Critical Errors



Test Facility 1 for XML

## Subpart II: Industrial Wastewater Treatment (2013)

Subpart Overview

**OVERVIEW OF SUBPART REPORTING REQUIREMENTS**

Subpart II requires affected facilities to report a) CH<sub>4</sub> generation, CH<sub>4</sub> emissions, and CH<sub>4</sub> recovered from treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor; b) CH<sub>4</sub> emissions and CH<sub>4</sub> recovered from each anaerobic sludge digester; and c) CH<sub>4</sub> emissions and CH<sub>4</sub> destruction resulting from each biogas collection and biogas destruction device. If you are subject to other subparts (e.g. Subpart C) you should return to the Facility Overview page, select the appropriate subpart(s), and complete the data reporting requirements of each subpart.

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

**DESCRIPTION OR DIAGRAM(S) (of wastewater treatment systems)**

Uploaded File Name	Attached By	Date	Delete
Test Report Template_012114.docx	Rachel Schmeltz	February 5, 2014	✖

ADD an Attachment

**ANAEROBIC PROCESSES**

Name/ID	Type	Biogas	Status <sup>1</sup>	CH <sub>4</sub> E	Delete
Digester 1	Anaerobic Sludge Digester	Yes	Complete	25,252.57	GHG INFO ✖
Lagoon 1	Anaerobic Shallow Lagoon	No	Complete	1,000.00	GHG INFO ✖
Lagoon 2	Anaerobic Deep Lagoon	Yes	Complete	5,608.21	GHG INFO ✖
Reactor 1	Anaerobic Reactor	Yes	Complete	9,090.31	GHG INFO ✖

ADD an Anaerobic Process

[Facility Overview](#)

<sup>1</sup>A status of "Incomplete" means that one of more elements of required GHG INFO is incomplete. See the Equation 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.)

If you do not fix your critical issues, you will not be able to generate and submit your report.

At your subpart overview page, click Facility Overview.

**Critical Errors**

Test Facility 1 for XML  
**e-GGRT Greenhouse Gas Data Reporting (2013)**  
 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 entry via e-GGRT web-forms (Change)

REPORT DATA

2013 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	None	OPEN
Subpart C—General Stationary Fuel Combustion Sources	Cannot Submit-View Critical Errors	OPEN
Subpart P—Hydrogen Production	None	OPEN
Subpart Y—Petroleum Refineries	Cannot Submit-View Critical Errors	OPEN
Subpart HH—Landfills	View Messages	OPEN
Subpart II—Industrial Wastewater Treatment	Cannot Submit-View Critical Errors	OPEN

ADD or REMOVE Subparts

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

SUBMIT ANNUAL REPORT

Summary of GHG Emissions:

- CO<sub>2</sub> equivalent emissions from facility subparts C-II, SS, and TT (metric tons): 2,293,944.8
- Biogenic CO<sub>2</sub> emissions from facility subparts C-II, SS, and TT (metric tons): 20,000.0
- CO<sub>2</sub> equivalent emissions from supplier subparts LL-QQ (metric tons): 0.0

VIEW GHG DETAILS

Again you are alerted that there are critical errors and will not be able to submit your report.

**Critical Errors**

United States Environmental Protection Agency

e-GGRT Help

Generate and Review | Certify and Send | Confirmation

Test Facility 1 for XML

**e-GGRT Greenhouse Gas Annual Report Submission (2013)**

Select Facility » Facility Overview » **Generate and Review**

**PRE-CERTIFICATION PREPARATION**

Preparation includes generating then reviewing the Annual Report. When complete, you will be able to proceed to certify and submit the Annual Report. [Print-friendly version](#)

Report	Status	Last Generated
2013 Annual Report v1	Generated with errors	02/05/2014 4:17:06 PM

**GENERATE REPORT**

Generating the report may take from 1 to 10 minutes depending upon the volume of data.

Once your facility has generated a report, it is still possible to return to the data reporting screens to make changes. Those changes, however, will not be reflected in your Annual Report until you generate it again.

**GENERATE REPORT**

**Cannot submit until critical validation errors are corrected**

Your annual report contains the following validation errors that must be corrected before you can successfully generate and submit. Use the BACK button to return to the Facility or Supplier Overview page, and then use the "Cannot Submit-View Critical Errors" link for each subpart listed below to review each of the validation messages listed below. When you have corrected all of the following validation errors, return to this page and click GENERATE REPORT to proceed with annual report submission and certification.

Subpart	Critical Validation Error ID(s)	
C	C-EU-1, C350, C351, C352, C353	<a href="#">View Validation Report</a>
II	II0531	<a href="#">View Validation Report</a>
Y	Y272	<a href="#">View Validation Report</a>

**Need help?** Visit the [XML Upload Critical Errors help page](#) for additional information about the cause of any of the critical errors identified in the table below, and for guidance about how to resolve those errors.

The report can be generated, but it will be generated with errors and you will get this screen that you cannot submit the report until the critical errors are corrected.

e-GGRT will list all of the critical errors in this report in all subparts that are included. You can click to View the Validation Report for those subparts for which there are critical errors.

The purpose of the critical errors preventing a reporter from submitting the report is so that these issues can be fixed ahead of time. If they are not fixed before submission, then the reporter will get messages after submission saying that you need to review the report and resubmit if there is indeed an error.



**Generate Report**

Test Facility 1 for XML  
**e-GGRT Greenhouse Gas Data Reporting (2013)**  
 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 entry via e-GGRT web-forms ([Change](#))

**⚠ The Annual Report has already been prepared.** Any changes you make to report data will not be reflected in that version. After making changes to report data you must choose GENERATE/RESUBMIT below, then click GENERATE REPORT for those changes to be included in an updated version of the Annual Report.

**REPORT DATA**

2013 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	None	<a href="#">OPEN</a>
Subpart P—Hydrogen Production	None	<a href="#">OPEN</a>
Subpart HH—Landfills	<a href="#">View Messages</a>	<a href="#">OPEN</a>
Subpart II—Industrial Wastewater Treatment	<a href="#">View Messages</a>	<a href="#">OPEN</a>

[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	Submitted Date	Certification Date	
2013 Annual Report		Generated with			<a href="#">GENERATE / SUBMIT</a> ✖

**Summary Panel:**

- CO<sub>2</sub> equivalent emissions from facility subparts C-II, SS, and TT (metric tons): **2,293,944.8**
- Biogenic CO<sub>2</sub> emissions from facility subparts C-II, SS, and TT (metric tons): **20,000.0**
- CO<sub>2</sub> equivalent emissions from supplier subparts LL-DQ (metric tons): **0.0**

[VIEW GHG DETAILS](#)

After you've entered data for all applicable subparts.

If your validation report did not have any critical errors then you will be able to generate and submit your report from the facility overview page. Click GENERATE/SUBMIT

**Generate Report**

United States Environmental Protection Agency

e-GGRT Help

Generate and Review   Certify and Send   Confirmation

Test Facility 1 for XML  
**e-GGRT Greenhouse Gas Annual Report Submission (2013)**  
 Select Facility » Facility Overview » **Generate and Review**

**PRE-CERTIFICATION PREPARATION**  
 Preparation includes generating then reviewing the Annual Report. When complete, you will be able to proceed to certify and submit the Annual Report.

Report	Status	Last Generated	Refresh
2013 Annual Report v1	In progress	02/05/2014 4:17:06 PM	Refresh

**GENERATE REPORT**  
 Generating the report may take from 1 to 10 minutes depending upon the volume of data.  
 Once your facility has generated a report, it is still possible to return to the data reporting screens to make changes. Those changes, however, will not be reflected in your Annual Report until you generate it again.

**REPORT IS GENERATING**  
 Please wait while the report is generating.  
 You may leave, then return later to complete the remaining steps, or  
 You may wait on this page; clicking Refresh Current Status will show if the Annual Report has generated.

BACK

Generating a report takes a few minutes, you can see here that it is in progress.

**View HTML**

Environmental Protection Agency • UNITED STATES OF AMERICA

e-GGRT Help

Generate and Review    Certify and Send    Confirmation

Test Facility 1 for XML

**e-GGRT Greenhouse Gas Annual Report Submission (2013)**

Select Facility » Facility Overview » **Generate and Review**

**PRE-CERTIFICATION PREPARATION**  
Preparation includes generating then reviewing the Annual Report. When complete, you will be able to proceed to certify and submit the Annual Report.

Report	Status	Last Generated
2013 Annual Report v1	Ready for review	02/05/2014 4:26:17 PM

**GENERATE REPORT**

Generating the report may take from 1 to 10 minutes depending upon the volume of data.

Once your facility has generated a report, it is still possible to return to the data reporting screens to make changes. Those changes, however, will not be reflected in your Annual Report until you generate it again.

**GENERATE REPORT**

**⚠ The Annual Report has already been prepared.** Clicking this button will regenerate the report. This action will reflect any changes that have been made to the reported data.

**REVIEW REPORT**

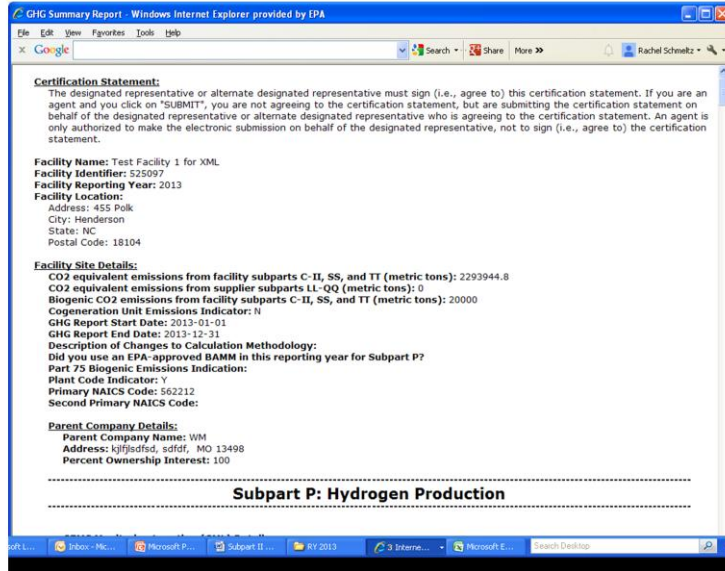
Prior to the submission and certification of your report to EPA, you may review it by using either the **VIEW REPORT** or **VIEW XML** buttons. You may also review **PUBLIC** versions of your report which include the information EPA intends to make publicly available through Envirofacts.

**VIEW REPORT**    **VIEW XML**    **DOWNLOAD XML**    **VIEW PUBLIC REPORT**    **VIEW PUBLIC XML**

**TREND REPORT**

Now the report is ready for review. See at the bottom that you have various options for viewing the report. The public report means that if there is any CBI, that it is not shown. This is not applicable for subpart II. Click on the version you'd like to view. We recommend that you do look at the report in some version so that you make sure the data was entered correctly.

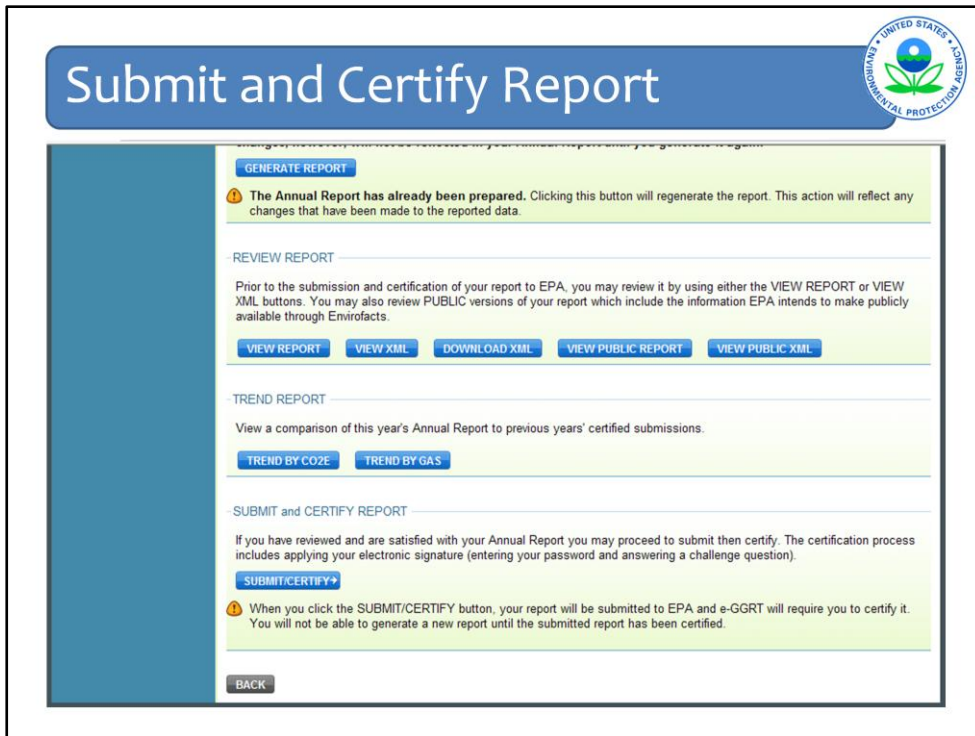
# View HTML



Here is a View of the HTML version.

Scroll down to see all of data entered.

If you see something incorrect, you can go back into your report to change it by opening back up that subpart.



After you have viewed the report, click **SUBMIT/CERTIFY** to complete the submission of your report.

As it says at the bottom of this screen, the certification process includes applying your electronic signature (entering your password and answering a challenge question).

You have now completed your report and submitted it.

## Any question or issues?



- First check the FAQs
  - Click on e-GGRT Help in left column of each screen



- Contact the GHGRP Help Desk with any questions or issues with completing or submitting your GHG report
  - [GHGreporting@epa.gov](mailto:GHGreporting@epa.gov)
  - 1-877-444-1188

Thank you!