



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

U.S. Environmental Protection Agency
Greenhouse Gas Reporting Program (GHGRP)
September 4 2012
3:00 PM EDT



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.

Topics for Today's Q &A



- Please only submit questions regarding e-GGRT functionality
- Questions on other topics (requirements of the Greenhouse Gas Reporting Rule, legal issues, etc.) should be submitted to **ghgreporting@epa.gov**

Webinar Outline/Overview



- Background on Petroleum and Natural Gas systems, Subpart W
- Confidential Business Information
- Use of Calculation Spreadsheets
- Overview of Submission Process
- Overview of Subpart W Reporting Form
- Reporting General Provisions
- Review of Select Emission Sources
- Questions and Answers Resources

Subpart W – General Background



Reporting is required by facilities in specific segments of the petroleum and natural gas industry that emit GHGs $\geq 25,000$ metric tons carbon dioxide equivalent (CO₂e) per year:

- Offshore petroleum and natural gas production
- Onshore petroleum and natural gas production facilities, basin level reporting*
- Natural gas processing facilities
- Natural gas transmission compression
- Underground natural gas storage
- Liquefied natural gas (LNG) storage
- LNG import and export terminals
- Natural gas distribution, owned or operated by Local Distribution Companies (LDCs)*

* Due to their unique characteristics, the facility definition for onshore petroleum and natural gas production and natural gas distribution differs from the definition of facility in subpart A.



- Amendments to subpart W since promulgation of the final rule in 2010:
 - Revisions to BMM provisions – Final Rule (09/27/11)
 - 2011 Technical Revisions and Clarifications – Final Rule (12/23/11)
 - 2012 Technical Corrections and Clarifications – Final Rule (08/24/12)



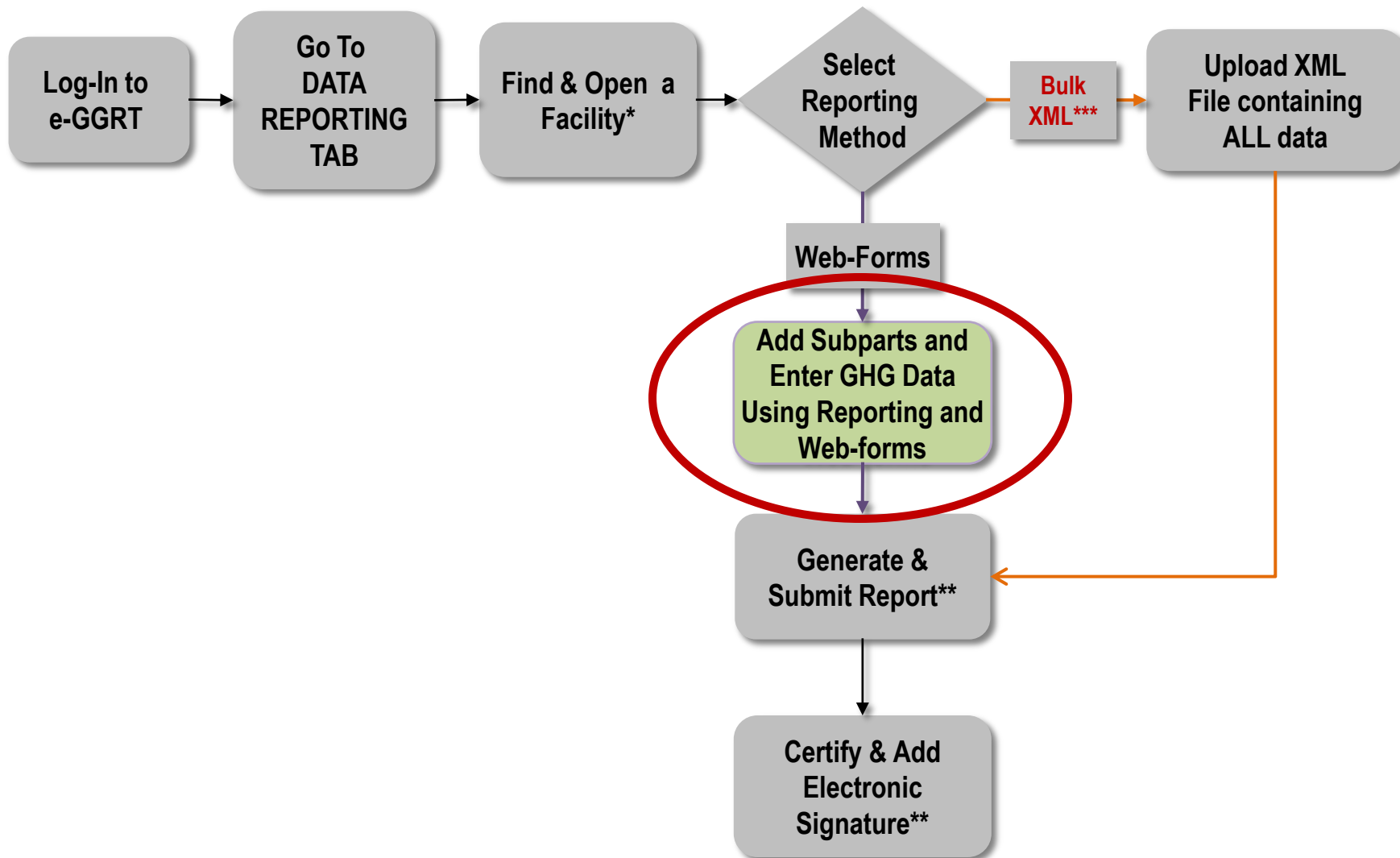
- All elements included in e-GGRT are required reporting elements, as applicable
- E-GGRT reflects the final rule deferring the reporting deadline for inputs to emission equations for direct emitters (76 FR 53057, published Aug. 25, 2011, and 77 FR 48072, published August 13, 2012)
- Data elements that have been determined to be CBI must be reported
- Reporting elements that have been determined to be CBI will be protected under the Clean Air Act (Sec. 114(c)) and EPA regulations (40 CFR Part 2)

Use of Optional Calculation Spreadsheets



- Optional spreadsheets available to assist with performing calculations
- Will NOT be collected by e-GGRT and should NOT be submitted

e-GGRT Data Reporting Workflow



Adding Subpart W Module to Your Facility in e-GGRT



HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Hello, Akachi Imegwu | My Profile | Logout

e-GGRT Help

- How to add a subpart and report data
- General reporting information
- How to submit an annual report

e-GGRT Greenhouse Gas Data Reporting (2011)

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).

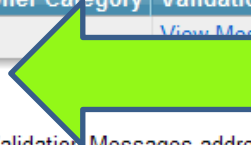
Facility's GHG Reporting Method: Data entry via e-GGRT web-forms ([Change](#))

	<input type="text"/>
CO ₂ equivalent emissions (excluding biogenic) from subparts C - HH (metric tons)	
	<input type="text"/>
Biogenic CO ₂ emissions from subparts C - HH (metric tons)	
	<input type="text"/>
CO ₂ equivalent quantity from supplier categories (metric tons)	
VIEW GHG DETAILS	

REPORT DATA

2011 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	View Messages	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](#)

Subpart Selection Page in e-GGRT



www.epa.gov/climate... e-GGRT

EPA United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

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e-GGRT Greenhouse Gas Data Reporting (2011)

Select Facility » Facility Overview » Subpart Selection

SUBPART SELECTION
Please check all relevant subparts for this facility or supplier. Further information can be found in the e-GGRT Help links to the left.

FACILITY SUBPARTS

- D—Electricity Generation**
Description ([SHOW](#) | [HIDE](#))
- E—Adipic Acid Production**
Description ([SHOW](#) | [HIDE](#))
- F—Aluminum Production**
Description ([SHOW](#) | [HIDE](#))
- G—Ammonia Manufacturing**
Description ([SHOW](#) | [HIDE](#))
- H—Cement Production**
Description ([SHOW](#) | [HIDE](#))

GENERAL STATIONARY FUEL COMBUSTION

- C—General Stationary Fuel Combustion (Standard Reporting)**
Description ([SHOW](#) | [HIDE](#))

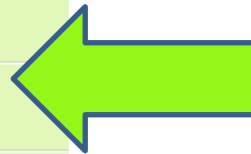
LANDFILL SUBPARTS

- HH—Municipal Solid Waste Landfills**
Description ([SHOW](#) | [HIDE](#))
- TT—Industrial Waste Landfills**
Description ([SHOW](#) | [HIDE](#))

SUPPLIER SUBPARTS

- U—Suppliers of Coal-based Liquid Fuels**

- V—Nitric Acid Production**
Description ([SHOW](#) | [HIDE](#))
- W—Petroleum and Natural Gas Systems**
Description ([SHOW](#) | [HIDE](#))
- X—Petrochemical Production**
Description ([SHOW](#) | [HIDE](#))
- Y—Petroleum Refineries**
Description ([SHOW](#) | [HIDE](#))
- Z—Phosphoric Acid Production**
Description ([SHOW](#) | [HIDE](#))
- AA—Pulp and Paper Manufacturing**
Description ([SHOW](#) | [HIDE](#))



Facility Overview Page



HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

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e-GGRT Help

- How to add a subpart and report data
- General reporting information
- How to submit an annual report

e-GGRT Greenhouse Gas Data Reporting (2011)

Select Facility » [Facility or Supplier Overview](#)

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Facility's GHG Reporting Method: Data entry via e-GGRT web-forms ([Change](#))

CO₂ equivalent emissions (excluding biogenic) from subparts C - HH (metric tons)

Biogenic CO₂ emissions from subparts C - HH (metric tons)

CO₂ equivalent quantity from supplier categories (metric tons)

[VIEW GHG DETAILS](#)

REPORT DATA

2011 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	View Messages	OPEN
Subpart C—General Stationary Fuel Combustion Sources	View Messages	OPEN
Subpart W—Petroleum and Natural Gas Systems	View Messages	OPEN
Subpart RR—Geologic Sequestration of Carbon Dioxide	None	OPEN

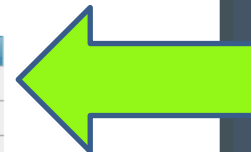
[+](#) ADD or REMOVE Subparts

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

SUBMIT ANNUAL REPORT

Report	Uploaded File Name	Status	Submitted Date	Certification Date	
					GENERATE / RESUBMIT

[VIEW REPORTS](#): Annual Report reviewable formats (including public, non-CBI versions and trend reports) for all submissions this reporting year can be accessed on the View Reports page.



Subpart A- General Information



- All must report Subpart A information:
- NAICS codes
- U.S. Parent Company
- Start date and end date for report
- Methodological changes during the year, if applicable
- Best Available Monitoring Methods used, if applicable
- Indicate if emissions include emissions from co-generation

Subpart A Screenshot



EPA United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

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Facility Reporting Information (2011)
Select Facility » Facility or Supplier Overview » Subpart A

SUBPART A – GENERAL INFORMATION
Each facility or supplier, and for each reporting year is required to supply some basic facility level information, including the entering and reporting of relevant NAICS codes and the entering and reporting of all highest-level United States parent companies.

EPA has finalized a rule that defers the deadline for reporting data elements used as inputs to emission equations for direct emitters. See 76 FR 53057 (published August 25, 2011). In accordance with the rule, e-GGRT is not currently collecting data used as inputs to emission equations.

Subpart A: View Validation

NAICS CODES

NAICS Code	Description	Relevance	Delete
No NAICS codes found.			
+ADD a NAICS Code			

U.S. PARENT COMPANIES

Parent Company	Address	% of Ownership	Delete
No parent companies found.			
+ADD a Parent Company			

GHG report start date: * 01/01/2011

GHG report end date: * 12/31/2011

Facility Overview Page



- HOME
- FACILITY REGISTRATION
- FACILITY MANAGEMENT
- DATA REPORTING

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e-GGRT Help

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e-GGRT Greenhouse Gas Data Reporting (2011)

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CO₂ equivalent emissions (excluding biogenic) from subparts C - HH (metric tons)

Biogenic CO₂ emissions from subparts C - HH (metric tons)

CO₂ equivalent quantity from supplier categories (metric tons)

[VIEW GHG DETAILS](#)

REPORT DATA

2011 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	View Messages	OPEN
Subpart C—General Stationary Fuel Combustion Sources	View Messages	OPEN
Subpart W—Petroleum and Natural Gas Systems	View Messages	OPEN
Subpart RR—Geologic Sequestration of Carbon Dioxide	None	OPEN

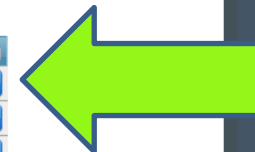
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Report	Uploaded File Name	Status	Submitted Date	Certification Date	
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Facility Overview Page



EPA Agency



HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

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e-GGRT Help

Subpart W: Petroleum and Natural Gas Systems (2011)

Subpart Overview

OVERVIEW OF SUBPART REPORTING REQUIREMENTS

Subpart W requires affected facilities to report CO₂, CH₄, and N₂O emissions from onshore and offshore petroleum and natural gas production. 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. To satisfy the Subpart W reporting requirements you will first download the Subpart W reporting form(s). Use the link provided to access the form(s) and find instructions for completing those forms. Next, you will upload the completed form(s) and e-GGRT will validate the data contained within them. Use the "View Validation" link to review any issues found in your reporting forms. If necessary, make any revisions necessary to your reporting forms and upload the revised reporting forms.

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

Annual mass of CO₂ (metric tons)

Annual mass of CH₄ (metric tons)

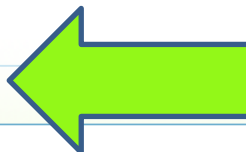
Annual mass of N₂O (metric tons)

 [Subpart W: View Validation](#)


SUBPART W SUMMARY INFORMATION FOR THIS FACILITY

1.) DOWNLOAD FORM

[Subpart W GHG Reporting](#)



2.) UPLOAD COMPLETED SUBPART W INTEGRATED REPORTING FORM

 EPA has finalized a rule that defers the deadline for reporting data elements used as inputs to emission equations for direct emitters. See 76 FR 53057 (published August 25, 2011) and 77 FR 48072 (concerning additional inputs in this subpart, published August 13, 2012). In accordance with the rule, e-GGRT is not currently collecting data used as inputs to emission equations. If you choose to report these inputs to EPA through these simplified reporting pages, please note that the inputs may be subject to public release.

Uploaded File Name	Attached By	Date	Delete
No files found.			

[Facility Overview](#)

Subpart W Reporting Form: Introduction Tab



Subpart W: Petroleum and Natural Gas Systems

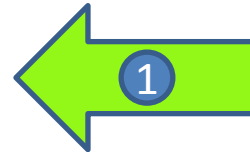
Version e-GGRT RY2011.R.01

Updated: 8/28/2012

1.) Select the applicable industry segment for this workbook:

Note: One workbook must be submitted for each industry segment. If your facility is required to report emissions under more than one industry segment, a workbook should be filled out for each of the industry segments which that facility falls.

- Offshore petroleum and natural gas production [98.230(a)(1)]
- Onshore petroleum and natural gas production [98.230(a)(2)]
- Onshore natural gas processing [98.230(a)(3)]
- Onshore natural gas transmission compression [98.230(a)(4)]
- Underground natural gas storage [98.230(a)(5)]
- Liquefied natural gas (LNG) storage [98.230(a)(6)]
- LNG import and export equipment [98.230(a)(7)]
- Natural gas distribution [98.230(a)(8)]



Subpart W Reporting Form: 1

2.) Fill out the following table with general information about this facility:

Facility Name:	
GHGRP ID:	
Reporting Period:	2011
Annual throughput [98.236(d)] Gaseous Throughput (MMscf)	
Annual throughput [98.236(d)] Liquid Throughput (thousand barrels)	
Comments:	

3.) Fill out the applicable source reporting forms for your industry segment, as indicated with a green "Yes", below:

	Required for Offshore petroleum and natural gas production [98.230(a)(1)]:	Go to Reporting Spreadsheet	Total Reported CO ₂ Emissions (mt CO ₂)	Total Reported CH ₄ Emissions (mt CO ₂ e)	T
Sub-Basin Selection	No	Go to Form	N/A	N/A	
Natural Gas Pneumatic Devices [98.236(c)(1)]	No	Go to Form	0	0	
Natural Gas Driven Pneumatic Pumps [98.236(c)(2)]	No	Go to Form	0	0	
Acid Gas Removal Units [98.236(c)(3)]	No	Go to Form	0	N/A	
Dehydrators [98.236(c)(4)]	No	Go to Form	0	0	
Well Venting for Liquids Unloading [98.236(c)(5)]	No	Go to Form	0	0	

Subpart W Reporting Form: Introduction worksheet contd.,



Subpart W: Petroleum and Natural Gas Systems

Version e-GGRT RY2011.R.01.

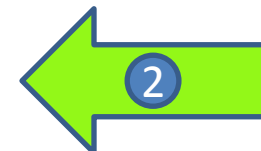
1.) Select the applicable industry segment for this workbook:

Note: One workbook must be submitted for each industry segment. If your facility is required to report emissions under more than one industry segment, a workbook should be filled for each that facility falls.

- Offshore petroleum and natural gas production [98.230(a)(1)]
- Onshore petroleum and natural gas production [98.230(a)(2)]
- Onshore natural gas processing [98.230(a)(3)]
- Onshore natural gas transmission compression [98.230(a)(4)]
- Underground natural gas storage [98.230(a)(5)]
- Liquefied natural gas (LNG) storage [98.230(a)(6)]
- LNG import and export equipment [98.230(a)(7)]
- Natural gas distribution [98.230(a)(8)]

2.) Fill out the following table with general information about this facility:

Facility Name:	
GHGRP ID:	
Reporting Period:	2011
Annual throughput [98.236(d)] Gaseous Throughput (MMscf)	
Annual throughput [98.236(d)] Liquid Throughput (thousand barrels)	
Comments:	



3.) Fill out the applicable source reporting forms for your industry segment, as indicated with a green "Yes", below:

	Required for Onshore petroleum and natural gas production [98.230(a)(2)]:	Go to Reporting Spreadsheet	Total Reported CO ₂ Emissions (mt CO ₂)	Total Reported CH ₄ Emissions (mt CO ₂ e)	Total Reported H ₂
Sub-Basin Selection	Yes	Go to Form	N/A	N/A	
Natural Gas Pneumatic Devices [98.236(c)(1)]	Yes	Go to Form	0	0	
Natural Gas Driven Pneumatic Pumps [98.236(c)(2)]	Yes	Go to Form	0	0	
Acid Gas Removal Units [98.236(c)(3)]	Yes	Go to Form	0	N/A	
Dehydrators [98.236(c)(4)]	Yes	Go to Form	0	0	

Subpart W Reporting Form: Introduction worksheet contd.,



Subpart W: Petroleum and Natural Gas Systems

Version e-GGRT RY2011.R.01.

1.) Select the applicable industry segment for this workbook:

Note: One workbook must be submitted for each industry segment. If your facility is required to report emissions under more than one industry segment, a workbook should be filled out for each that facility falls.

- Offshore petroleum and natural gas production [98.230(a)(1)]
- Onshore petroleum and natural gas production [98.230(a)(2)]
- Onshore natural gas processing [98.230(a)(3)]
- Onshore natural gas transmission compression [98.230(a)(4)]
- Underground natural gas storage [98.230(a)(5)]
- Liquefied natural gas (LNG) storage [98.230(a)(6)]
- LNG import and export equipment [98.230(a)(7)]
- Natural gas distribution [98.230(a)(8)]

2.) Fill out the following table with general information about this facility:

Facility Name:	
GHGRP ID:	
Reporting Period:	2011
Annual throughput [98.236(d)] Gaseous Throughput (MMscf)	
Annual throughput [98.236(d)] Liquid Throughput (thousand barrels)	
Comments:	



3.) Fill out the applicable source reporting forms for your industry segment, as indicated with a green "Yes", below:

	Required for Onshore petroleum and natural gas production [98.230(a)(2)]:	Go to Reporting Spreadsheet	Total Reported CO ₂ Emissions (mt CO ₂)	Total Reported CH ₄ Emissions (mt CO ₂ e)	Total Reported H ₂
Sub-Basin Selection	Yes	Go to Form	N/A	N/A	
Natural Gas Pneumatic Devices [98.236(c)(1)]	Yes	Go to Form	0	0	
Natural Gas Driven Pneumatic Pumps [98.236(c)(2)]	Yes	Go to Form	0	0	
Acid Gas Removal Units [98.236(c)(3)]	Yes	Go to Form	0	N/A	
Dehydrators [98.236(c)(4)]	Yes	Go to Form	0	0	

Subpart W Reporting Form: Introduction Tab



3. Fill out the applicable source reporting forms for your industry segment, as indicated with a green "Yes", below:

	Required for Onshore petroleum and natural gas production	Go to Reporting Spreadsheet	Total Reported CO ₂ Emissions (mt CO ₂)	Total Reported CH ₄ Emissions (mt CO ₂ e)	Total Reported N ₂ O Emissions (mt CO ₂ e)	Total Reported Emissions (mt CO ₂ e)
Sub-Basin Selection	Yes	Go to Form	N/A	N/A	N/A	N/A
Natural Gas Pneumatic Devices [98.236(c)(1)]	Yes	Go to Form	0	0	N/A	0
Natural Gas Driven Pneumatic Pumps [98.236(c)(2)]	Yes	Go to Form	0	0	N/A	0
Acid Gas Removal Units [98.236(c)(3)]	Yes	Go to Form	0	N/A	N/A	0
Dehydrators [98.236(c)(4)]	Yes	Go to Form	0	0	0	0
Well Venting for Liquids Unloading [98.236(c)(5)]	Yes	Go to Form	0	0	N/A	0
Gas Well Completions and Workovers [98.236(c)(6)]	Yes	Go to Form	0	0	0	0
Blowdown Vent Stacks [98.236(c)(7)]	No	Go to Form	0	0	N/A	0
Gas from Produced Oil Sent to Atmospheric Tanks [98.236(c)(8)]	Yes	Go to Form	0	0	0	0
Transmission Tanks [98.236(c)(9)]	No	Go to Form	0	0	0	0
Well Testing Venting and Flaring [98.236(c)(10)]	Yes	Go to Form	0	0	0	0
Associated Gas Venting and Flaring [98.236(c)(11)]	Yes	Go to Form	0	0	0	0
Flare Stacks [98.236(c)(12)]	Yes	Go to Form	0	0	0	0
Centrifugal Compressors [98.236(c)(13)]	Yes	Go to Form	0	0	N/A	0
Reciprocating Compressors [98.236(c)(14)]	Yes	Go to Form	0	0	N/A	0
Other Emissions from Equipment Leaks Estimated Using Emission Factors [98.236(c)(15)]	Yes	Go to Form	0	0	N/A	0
Local Distribution Companies [98.236(c)(16)]	No	Go to Form	0	0	N/A	0
Enhanced Oil Recovery Injection Pump Blowdown [98.236(c)(17)]	Yes	Go to Form	0	N/A	N/A	0
Enhanced Oil Recovery Hydrocarbon Liquids Dissolved CO ₂ [98.236(c)(18)]	Yes	Go to Form	0	N/A	N/A	0
Onshore Petroleum and Natural Gas Production and Natural Gas Distribution Combustion Emissions [98.236(c)(19)]	Yes	Go to Form	0	0	0	0
Offshore Sources [98.236(c)(19)]	No	Go to Form	0	0	0	0
			0	0	0	0

Subpart W Reporting Form: Pneumatic Devices



Worksheet Instructions:

In accordance with 98.232, only the following industry segments must report data for natural gas pneumatic device venting:

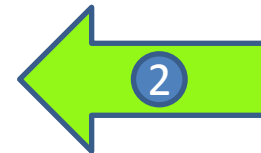
- Onshore petroleum and natural gas production [98.230(a)(2)]
- Onshore natural gas transmission compression [98.230(a)(4)]
- Underground natural gas storage [98.230(a)(5)]

External Links:

Subpart W Resources Page	http://www.epa.gov/climatechange/emissions/subpartw.html
Optional Calculation Spreadsheet	http://www.ccdsupport.com/Optional+Calculation+Spreadsheet+Instructions
Help Resources	http://www.ccdsupport.com/Subpart+W+-+Petroleum+and+Natural+Gas+Systems



Total Emissions for Pneumatic Device Venting [98.236(c)]			
mt CO ₂	mt CH ₄ (mt CO ₂ e)	mt N ₂ O (mt CO ₂ e)	Total Emissions (mt CO ₂ e)
0	0	N/A	0



Does the Facility have any continuous high-bleed pneumatic devices subject to reporting under 98.232?

Yes No

Does the Facility have any intermittent bleed pneumatic devices subject to reporting under 98.232?

Yes No

Does the Facility have any continuous low-bleed pneumatic devices subject to reporting under 98.232?

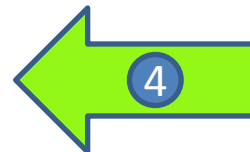
Yes No

Best Available Monitoring Methods (BAMM) and Missing Data:

Were BAMM used for any parameters to calculate GHG emissions? [98.3(c)(7)]	Provide a brief description of each BAMM used, parameter measured, and time period. [98.3(c)(7)]	Were missing data procedures used for any parameters to calculate GHG emissions? [98.235]



Type of Pneumatic Device	Total CO ₂ Emissions (mt CO ₂) [98.236(c)(1)(iv)]	Total CH ₄ Emissions (mt CO ₂ e) [98.236(c)(1)(iv)]
High-bleed Pneumatic Devices		
Intermittent Bleed Pneumatic Devices		
Low-Bleed Pneumatic Devices		



Gas Well Completions and Workovers With and Without Hydraulic Fracturing



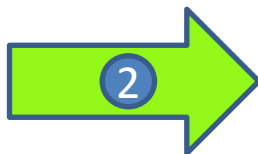
Total Emissions for Gas Well Completions and Workovers [98.236(c)]			
mt CO ₂	mt CH ₄ (mt CO ₂ e)	mt N ₂ O (mt CO ₂ e)	Total Emissions (mt CO ₂ e)
0	0	0	0

Did the facility have any gas well completions or workovers WITH hydraulic fracturing?

Yes No

Did the facility have any gas well completions or workovers WITHOUT hydraulic fracturing?

Yes No



Best Available Monitoring Methods (BAMM) and Missing Data:

Were BAMM used for any parameters to calculate GHG emissions?	Provide a brief description of the BAMM used, parameter measured, and time period.	Were missing data procedures used for any parameters to calculate GHG emissions?
[98.3(c)(7)]	[98.3(c)(7)]	[98.235]

For gas well completions and workovers WITH hydraulic fracturing:

[CLICK HERE](#)

For gas well completions and workovers WITHOUT hydraulic fracturing:

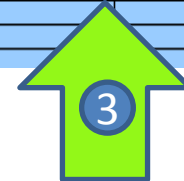
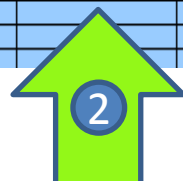
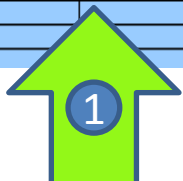
[CLICK HERE](#)



Gas Well Completions and Workovers With Hydraulic Fracturing



Sub-Basin ID	Well Type (Select from list)	Select the Equation Used to Calculate Emissions From Gas Well Completions With Hydraulic Fracturing	Select the Equation Used to Calculate Emissions From Gas Well Workovers With Hydraulic Fracturing	Total Count of All Types of Completions Combined	Total Count of Workovers that Flare Gas	Total Count of Workovers that Vent Gas to the Atmosphere	CO ₂ Emissions from Venting for Completions (mt CO ₂)	CH ₄ Emissions from Venting for Completions (mt CO ₂ e)	CO ₂ Emissions from Flaring for Completions (mt CO ₂)	CH ₄ Emissions from Flaring for Completions (mt CO ₂ e)	N ₂ O Emissions from Flaring for Completions (mt CO ₂ e)
[98.236(c)(6)(I)]	[98.236(c)(6)(ii)]	[98.236(c)(6)(ii)]	[98.236(c)(6)(ii)]	[98.236(c)(6)(i)(A)]	[98.236(c)(6)(i)(C)]	[98.236(c)(6)(i)(C)]	[98.236(c)(6)(i)(I)]	[98.236(c)(6)(i)(I)]	[98.236(c)(6)(i)(J)]	[98.236(c)(6)(i)(J)]	[98.236(c)(6)(i)(J)]



CO ₂ Emissions from Venting for Workovers (mt CO ₂)	CH ₄ Emissions from Venting for Workovers (mt CO ₂ e)	CO ₂ Emissions from Flaring for Workovers (mt CO ₂)	CH ₄ Emissions from Flaring for Workovers (mt CO ₂ e)	N ₂ O Emissions from Flaring for Workovers (mt CO ₂ e)	Number of well completions that employed purposely designed equipment that separates natural gas from the backflow	Number of workovers that employed purposely designed equipment that separates natural gas from the backflow
[98.236(c)(6)(i)(I)]	[98.236(c)(6)(i)(I)]	[98.236(c)(6)(i)(J)]	[98.236(c)(6)(i)(J)]	[98.236(c)(6)(i)(24J)]		



Gas Well Completions and Workovers without Hydraulic Fracturing



Complete the following table for gas well completions and workovers *without* hydraulic fracturing [GO BACK](#)

Sub-Basin ID [98.236(c)(6)]	Total Number of days of gas venting during backflow for completion [98.236(c)(6)(ii)(C)]	CO ₂ Emissions from Venting for Completions and Workovers (mt CO ₂) [98.236(c)(6)(ii)(D)]	CH ₄ Emissions from Venting for Completions and Workovers (mt CO ₂ e) [98.236(c)(6)(ii)(D)]	CO ₂ Emissions from Flaring for Completions and Workovers (mt CO ₂) [98.236(c)(6)(ii)(E)]	CH ₄ Emissions from Flaring for Completions and Workovers (mt CO ₂ e) [98.236(c)(6)(ii)(E)]	N ₂ O Emissions from Flaring for Completion and Workovers (mt CO ₂ e) [98.236(c)(6)(ii)(E)]



Centrifugal Compressor



Total Emissions for Centrifugal Compressors [98.236(c)]			
mt CO ₂	mt CH ₄ (mt CO ₂ e)	mt N ₂ O (mt CO ₂ e)	Total Emissions (mt CO ₂ e)
0	0	N/A	0

Does the facility have any centrifugal compressors with wet or dry seals subject to reporting under 98.232?

Yes No



Best Available Monitoring Methods (BAMM) and Missing Data:

Were BAMM used for any parameters to calculate GHG emissions? [98.3(c)(7)]	Provide a brief description of the BAMM used, parameter measured, and time period. [98.3(c)(7)]	Were missing data procedures used for any parameters to calculate GHG emissions? [98.235]

Centrifugal Compressors - Onshore Production Industry Segment



For Onshore Petroleum and Natural Gas Production Only	
Total annual compressor emissions CO2 Emissions (mt CO2)	Total annual compressor emissions CH4 Emissions (mt CO2e)
[98.236(c)(13)(v)(B)]	[98.236(c)(13)(v)(B)]



Compressor ID	Were BMM Used for This Compressor?	Seal Type (wet or dry)	For Centrifugal Compressors in OPERATION							
			For Centrifugal Compressors with WET SEALS							
			Annual throughput using an engineering calculation based on best available data (MMscf)	Number of wet seals connected to the degassing vent	Type of meter used for making measurements	Fraction of vent gas recovered for fuel	Fraction of vent gas recovered for sales	Fraction of vent gas recovered and flared	Measured	
									Seal vent CO ₂ emissions (mt CO ₂)	Seal vent CH ₄ emissions (mt CO ₂ e)
[98.236(c)(13)(i)(A)]	[98.236(c)(13)(i)(A)]	[98.236(c)(13)(i)(D)]	[98.236(c)(13)(i)(B)]	[98.236(c)(13)(i)(B)]	[98.236(c)(13)(i)(D)]	[98.236(c)(13)(i)(G)]	[98.236(c)(13)(i)(G)]			
[REDACTED]										

Centrifugal Compressors – Other Applicable Industry Segments



Compressor ID	Were BMM Used for This Compressor?	Seal Type (wet or dry)	For Centrifugal Compressors in OPERATING MODE							
			For Centrifugal Compressors with WET SEALS							
			Annual throughput using an engineering calculation based on best available data (MMscf)	Number of wet seals connected to the degassing vent [98.236(c)(13)(i)(A)]	Type of meter used for making measurements [98.236(c)(13)(i)(D)]	Fraction of vent gas recovered for fuel [98.236(c)(13)(i)(B)]	Fraction of vent gas recovered for sales [98.236(c)(13)(i)(B)]	Fraction of vent gas recovered and flared [98.236(c)(13)(i)(B)]	Measured	
									Seal vent CO ₂ emissions (mt CO ₂) [98.236(c)(13)(i)(G)]	Seal vent CH ₄ emissions (mt CO ₂ e) [98.236(c)(13)(i)(G)]



Annual throughput using an engineering calculation based on best available data (MMscf)	Number of wet seals connected to the degassing vent [98.236(c)(13)(i)(A)]	Type of meter used for making measurements [98.236(c)(13)(i)(D)]	For Centrifugal Compressors in OPERATING MODE							
			For Centrifugal Compressors with WET SEALS							
			Fraction of vent gas recovered for fuel [98.236(c)(13)(i)(B)]	Fraction of vent gas recovered for sales [98.236(c)(13)(i)(B)]	Fraction of vent gas recovered and flared [98.236(c)(13)(i)(B)]	Measured		Not Measured		
Seal vent CO ₂ emissions (mt CO ₂) [98.236(c)(13)(i)(G)]	Seal vent CH ₄ emissions (mt CO ₂ e) [98.236(c)(13)(i)(G)]	Seal vent CO ₂ emissions (mt CO ₂) [98.236(c)(13)(i)(G)]				Seal vent CH ₄ emissions (mt CO ₂ e) [98.236(c)(13)(i)(G)]				

Centrifugal Compressors – Other Applicable Industry Segments



For Centrifugal Compressors with <u>WET</u> or <u>DRY</u> SEALS			
Measured		Not Measured	
Blowdown Vent CO2 emissions (mt CO2)	Blowdown Vent CH4 emissions (mt CO2e)	Blowdown Vent CO2 emissions (mt CO2)	Blowdown Vent CH4 emissions (mt CO2e)
[98.236(c)(13)(ii)(C)]	[98.236(c)(13)(ii)(C)]	[98.236(c)(13)(ii)(C)]	[98.236(c)(13)(ii)(C)]

Centrifugal Compressors – Other Applicable Industry Segments



For Centrifugal Compressors in <u>NOT OPERATING, DEPRESSURIZED MODE</u>			
For Centrifugal Compressors with <u>WET or DRY SEALS</u>			
Measured		Not Measured	
Isolation valve leakage CO2 emissions (mt CO2)	Isolation valve leakage CH4 emissions (mt CO2e)	Isolation valve leakage CO2 emissions (mt CO2)	Isolation valve leakage CH4 emissions (mt CO2e)
[98.236(c)(13)(iii)(C)]	[98.236(c)(13)(iii)(C)]	[98.236(c)(13)(iii)(C)]	[98.236(c)(13)(iii)(C)]



Centrifugal Compressors – Other Applicable Industry Segments



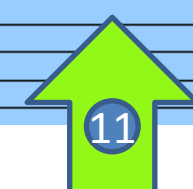
For Centrifugal Compressors Venting Emissions to FLARES

Does this compressor route gas to a flare?	Total annual CO ₂ emissions from flaring for all modes of operation combined (mt CO ₂)	Total annual CH ₄ emissions from flaring for all modes of operation combined (mt CO ₂ e)	Total annual N ₂ O emissions from flaring for all modes of operation combined (mt CO ₂ e)
[98.236(c)]	[98.236(c)]	[98.236(c)]	[98.236(c)]



For Centrifugal Compressors in ALL OPERATING MODES

Total annual CO ₂ emissions from all modes of operation combined (mt CO ₂)	Total annual CH ₄ emissions from all modes of operation combined (mt CO ₂ e)	Total annual N ₂ O emissions from all modes of operation combined (mt CO ₂ e)
[98.236(c)(13)(iv)]	[98.236(c)(13)(iv)]	[98.236(c)]



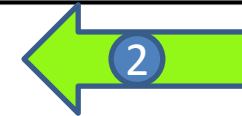
Reciprocating Compressors



Total Emissions for Reciprocating Compressors [98.236(c)]			
mt CO ₂	mt CH ₄ (mt CO ₂ e)	mt N ₂ O (mt CO ₂ e)	Total Emissions (mt CO ₂ e)
0	0	0	0

Does the facility have any reciprocating compressors subject to reporting under 98.232?

Yes No



Best Available Monitoring Methods (BAMM) and Missing Data:

Were BAMM used for any parameters to calculate GHG emissions? [98.3(c)(7)]	Provide a brief description of the BAMM used, parameter measured, and time period. [98.3(c)(7)]	Were missing data procedures used for any parameters to calculate GHG emissions? [98.235]

For Onshore Petroleum and Natural Gas Production Only	
Total annual compressor emissions CO ₂ Emissions (mt CO ₂) [98.236(c)(14)(v)(B)]	Total annual compressor emissions CH ₄ Emissions (mt CO ₂ e) [98.236(c)(14)(v)(B)]



Reciprocating Compressors – Other Applicable Industry Segments



Compressor ID	Were BMM Used for This Compressor?	Annual throughput using an engineering calculation based on best available data (million SCF)	Were blowdown vents manifolded to rod packing vents for this compressor?
		[98.236(c)(14)(iv)(A)]	[98.236(c)(14)(iv)(B)]

For Reciprocating Compressors in <u>OPERATING MODE</u>							
Measured		Not Measured		Measured		Not Measured	
Rod packing CO ₂ emissions when in operating mode (mt CO ₂)	Rod packing CH ₄ emissions when in operating mode (mt CO ₂ e)	Rod packing CO ₂ emissions when in operating mode (mt CO ₂)	Rod packing CH ₄ emissions when in operating mode (mt CO ₂ e)	Blowdown vent CO ₂ emissions when in operating mode (mt CO ₂)	Blowdown vent CH ₄ emissions when in operating mode (mt CO ₂ e)	Blowdown vent CO ₂ emissions when in operating mode (mt CO ₂)	Blowdown vent CH ₄ emissions when in operating mode (mt CO ₂ e)
[98.236(c)(14)(i)(C)]	[98.236(c)(14)(i)(C)]	[98.236(c)(14)(i)(C)]	[98.236(c)(14)(i)(C)]	[98.236(c)(14)(ii)(C)]	[98.236(c)(14)(ii)(C)]	[98.236(c)(14)(ii)(C)]	[98.236(c)(14)(ii)(C)]

Reciprocating Compressors – Other Applicable Industry Segments



For Reciprocating Compressors in <u>STANDBY, PRESSURIZED MODE</u>				For Reciprocating Compressors in <u>NOT OPERATING, DEPRESSURIZED MODE</u>			
Measured		Not Measured		Measured		Not Measured	
Blowdown vent CO ₂ emissions when in standby pressurized mode (mt CO ₂)	Blowdown vent CH ₄ emissions when in standby pressurized mode (mt CO ₂ e)	Blowdown vent CO ₂ emissions when in standby pressurized mode (mt CO ₂)	Blowdown vent CH ₄ emissions when in standby pressurized mode (mt CO ₂ e)	Isolation valve leakage CO ₂ emissions in not operating, depressurized mode (mt CO ₂)	Isolation valve leakage CH ₄ emissions in not operating, depressurized mode (mt CO ₂ e)	Isolation valve leakage CO ₂ emissions in not operating, depressurized mode (mt CO ₂)	Isolation valve leakage CH ₄ emissions in not operating, depressurized mode (mt CO ₂ e)
[98.236(c)(14)(ii)(C)]	[98.236(c)(14)(ii)(C)]	[98.236(c)(14)(ii)(C)]	[98.236(c)(14)(ii)(C)]	[98.236(c)(14)(iii)(C)]	[98.236(c)(14)(iii)(C)]	[98.236(c)(14)(iii)(C)]	[98.236(c)(14)(iii)(C)]

Reciprocating Compressors – Other Applicable Industry Segments



For Reciprocating Compressors Venting Emissions to FLARES

Does this compressor route gas to a flare?	Total annual CO ₂ emissions from flaring for all modes of operation combined (mt CO ₂)	Total annual CH ₄ emissions from flaring for all modes of operation combined (mt CO ₂ e)	Total annual N ₂ O emissions from flaring for all modes of operation combined (mt CO ₂ e)
[98.236(c)]	[98.236(c)]	[98.236(c)]	[98.236(c)]

For Reciprocating Compressors in ALL MODES

Total annual CO ₂ emissions from all modes of operation combined (mt CO ₂)	Total annual CH ₄ emissions from all modes of operation combined (mt CO ₂ e)	Total annual N ₂ O emissions from all modes of operation combined (mt CO ₂ e)
[98.236(c)(14)(iv)]	[98.236(c)(14)(iv)]	[98.236(c)]

Equipment Leaks



Total Other Emissions from Equipment Leaks Estimated Using Emission Factors [98.236(c)]			
mt CO ₂	mt CH ₄ (mt CO ₂ e)	mt N ₂ O (mt CO ₂ e)	Total Emissions (mt CO ₂ e)
0	0	N/A	0

Does the facility have any equipment leaks subject to reporting under 98.232?

Yes No



Best Available Monitoring Methods (BAMM) and Missing Data:



Were BAMM used for any parameters to calculate GHG emissions? [98.3(c)(7)]	Provide a brief description of the BAMM used, parameter measured, and time period. [98.3(c)(7)]	Were missing data procedures used for any parameters to calculate GHG emissions? [98.235]

Equipment Leaks contd.,



Complete the following table for each component type that uses emission factors for estimating emissions for equipment leaks found in each leak survey:

Component Type (Select from list) [98.236(c)(15)]	Date of first complete survey [98.236(c)(15)(i)(A)]	Total count of leaks found in the first survey [98.236(c)(15)(i)(A)]	Date of second complete survey (if applicable) [98.236(c)(15)(i)(A)]	Total count of leaks found in the second survey (if applicable) [98.236(c)(15)(i)(A)]	Date of third complete survey (if applicable) [98.236(c)(15)(i)(A)]	Total count of leaks found in the third survey (if applicable) [98.236(c)(15)(i)(A)]	Date of fourth complete survey (if applicable) [98.236(c)(15)(i)(A)]	Total count of leaks found in the fourth survey (if applicable) [98.236(c)(15)(i)(A)]

Diagram illustrating the table structure with numbered arrows pointing to specific cells:

- Arrow 4 points to the Component Type cell.
- Arrow 5 points to the Total count of leaks found in the first survey cell.
- Arrow 6 points to the Total count of leaks found in the second survey cell.
- Arrow 7 points to the Total count of leaks found in the third survey cell.
- Arrow 8 points to the Total count of leaks found in the fourth survey cell.

Equipment Leaks contd.,



Complete ONLY for Onshore Natural Gas Processing				DO NOT complete these columns if you selected Natural Gas Distribution as your industry segment. LDCs should report emissions on tab 16 - Local Distribution Companies	
Range of Concentrations of CO ₂ (volumetric fraction)		Range of Concentrations of CH ₄ (volumetric fraction)			
Minimum concentration of CO ₂ (volumetric fraction)	Maximum concentration of CO ₂ (volumetric fraction)	Minimum concentration of CH ₄ (volumetric fraction)	Maximum concentration of CH ₄ (volumetric fraction)	CO ₂ Emissions (mt CO ₂)	CH ₄ Emissions (mt CO ₂ e)
[98.236(c)(15)(i)(B)]	[98.236(c)(15)(i)(B)]	[98.236(c)(15)(i)(B)]	[98.236(c)(15)(i)(B)]	[98.236(c)(15)(i)(C)]	[98.236(c)(15)(i)(C)]



Equipment Leaks for Onshore Production and Population Count EF's



Complete the following table for each component type (major equipment type for onshore production) that uses emiss

Component Type (Select from list) [98.236(c)(15)]	CO2 Emissions (mt CO2) [98.236(c)(15)(ii)(C)]	CH4 Emissions (mt CO2e) [98.236(c)(15)(ii)(C)]
Storage wellheads, Gas Service - Connector		
Storage wellheads, Gas Service - Connector		
Storage wellheads, Gas Service - Valve		
Storage Wellheads, Gas Service - Pressure Relief Valve		
Storage Wellheads, Gas Service - Open Ended Line		
Gas Compressor - Vapor Recovery Compressor		
Onshore, gas service - valve		
Onshore, gas service - connector		
Onshore, gas service - open-ended line		



Local Distribution Company

Total Emissions for Local Distribution Company [98.236(c)]			
mt CO ₂	mt CH ₄ (mt CO ₂ e)	mt N ₂ O (mt CO ₂ e)	Total Emissions (mt CO ₂ e)
0	0	N/A	0



Best Available Monitoring Methods (BAMM) and Missing Data:

Were BAMM used for any parameters to calculate GHG emissions? [98.3(c)(7)]	Provide a brief description of the BAMM used, parameter measured, and time period. [98.3(c)(7)]	Were missing data procedures used for any parameters to calculate GHG emissions? [98.235]



Local Distribution Company contd.,



NOTE: If you do not have any metering-regulating stations or transmission-distribution transfer stations, enter zero, do not leave blank.

Complete the following table for the facility:

Total number of above grade T-D transfer stations [98.236(c)(16)(i)]	
Number of years over which all T-D transfer stations will be monitored at least once [98.236(c)(16)(ii)]	
Number of T-D stations monitored in calendar year [98.236(c)(16)(iii)]	
Total number of below grade T-D transfer stations [98.236(c)(16)(iv)]	
Total number of above grade metering-regulating stations (this count will include above grade T-D transfer stations) [98.236(c)(16)(v)]	
Total number of below grade metering-regulating stations (this count will include below grade T-D transfer stations) [98.236(c)(16)(vi)]	
Annual CO ₂ emissions from all above grade T-D transfer stations combined (mt CO ₂) [98.236(c)(16)(xvii)]	
Annual CH ₄ emissions from all above grade T-D transfer stations combined (mt CO ₂ e) [98.236(c)(16)(xviii)]	
Annual CO ₂ emissions from all below grade T-D transfer stations combined (mt CO ₂) [98.236(c)(16)(xviii)]	
Annual CH ₄ emissions from all below grade T-D transfer stations combined (mt CO ₂ e) [98.236(c)(16)(xviii)]	



Reporting of the following data elements is OPTIONAL	
<p>NOTE: EPA has deferred the deadline for reporting these data elements until March 31, 2015. You may wait until the 2015 deadline to report these data, or you may voluntarily report these data elements this year. These data elements may be subject to public availability once reported to EPA. Refer to the following page on the EPA website for more information: http://www.epa.gov/climatechange/emissions/CBI.html.</p>	
Leak factor for meter/regulator run developed in Equation W-32 of 98.233 [98.236(c)(16)(viii)] (NOTE: Report the leak factor for CH ₄ ONLY)	
Number of miles of unprotected steel distribution mains [98.236(c)(16)(ix)]	
Number of miles of protected steel distribution mains [98.236(c)(16)(x)]	
Number of miles of plastic distribution mains [98.236(c)(16)(xi)]	
Number of miles of cast iron distribution mains [98.236(c)(16)(xii)]	
Number of unprotected steel distribution services [98.236(c)(16)(xiii)]	
Number of protected steel distribution services [98.236(c)(16)(xiv)]	
Number of plastic distribution services [98.236(c)(16)(xv)]	

Offshore Petroleum and Natural Gas Production



Total Offshore Source Emissions			
mt CO ₂	mt CH ₄ (mt CO ₂ e)	mt N ₂ O (mt CO ₂ e)	Total Emissions (mt CO ₂ e)
0	0	0	0



Best Available Monitoring Methods (BAMM) and Missing Data:

Were BAMM used for any parameters to calculate GHG emissions?	Provide a brief description of the BAMM used, parameter measured, and time period.	Were missing data procedures used for any parameters to calculate GHG emissions?
[98.3(c)(7)]	[98.3(c)(7)]	[98.235]



Emission Source [98.236(b)]	mt CO ₂ [98.236(b)]	mt CH ₄ (mt CO ₂ e) [98.236(b)]	mt N ₂ O (mt CO ₂ e) [98.236(b)]	Total Emissions for Source (mt CO ₂ e)
Amine Unit				0.0
Combustion Flares - Light Smoke - No Pilot Fuel-flaring				0.0
Combustion Flares - Light Smoke - Pilot Fuel - pilot				0.0
Combustion Flares - Light Smoke - Pilot Fuel-flaring				0.0
Combustion Flares - Medium Smoke - No Pilot Fuel-flaring				0.0



Questions?



- GHG Reporting Program Information & Help
 - www.epa.gov/ghgreporting/reporters/index.html
 - mail: ghgreporting@epa.gov
- Subpart W GHG website
 - <http://www.epa.gov/ghgreporting/reporters/subpart/w.html>