



SUBPART W FINAL AMENDMENTS EFFECTIVE FOR RY 2024

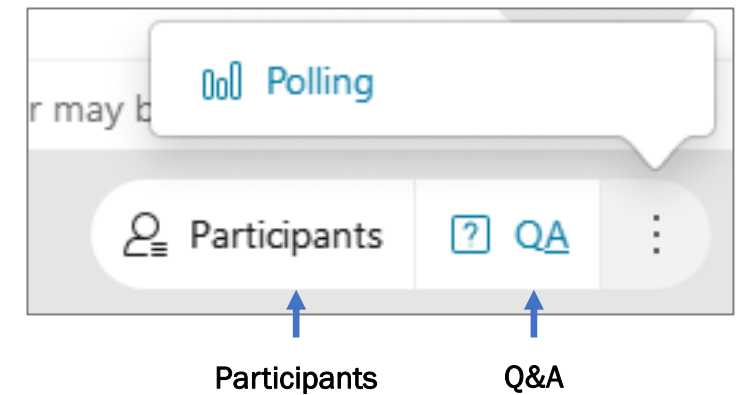
U.S. Environmental Protection Agency

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Call-in Details: 1-415-655-0002, ID 2429 402 2092

Webinar Panels

- We will use two panels
 - Participants and Question & Answer (Q&A)
 - Use the arrow to expand or collapse the panels
- Adding Panels
 - If some panels don't appear, select the desired panels in the lower right corner



Q&A

- Participants are muted
- Questions will be moderated at the end of the webinar
- To ask a question:
 - Select “All Panelists” from the drop-down menu
 - Enter your questions in the Q&A box
 - Hit “Send”

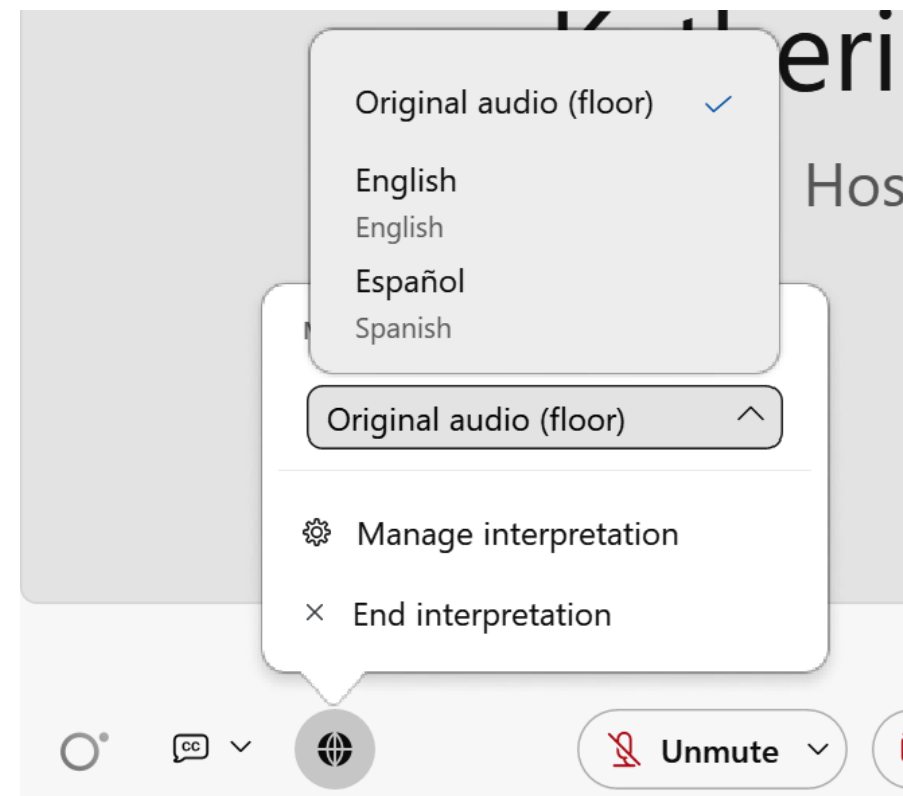


The screenshot shows a Q&A interface window titled "Q&A" with a close button (X) in the top right corner. Below the title bar, there is a header "All (0)". The main area contains a form with a dropdown menu labeled "Ask:" set to "All Panelists". Below the dropdown is a text input field containing the question "How can I get a copy of the slides?". To the right of the input field is a "Send" button, which is circled in red. Two red arrows point to the dropdown menu and the text input field.

Technical difficulties: If you are having technical difficulties, please send a message through the [Q&A](#) box or email katherine.rush@abtglobel.com.

Interpretation

- Simultaneous interpretation is available in **Spanish**
- To join an interpretation channel:
 - Click on the globe icon
 - Select desired language
- You may switch back to the original audio at any time



Final materials will be posted to the EPA website: <https://www.epa.gov/ghgreporting/training-and-testing-opportunities-ghg-reporting#training-w>

Overview

- **Background on Greenhouse Gas Reporting Program**
- **Overview of Amendments to Petroleum and Natural Gas Systems (40 CFR Part 98, Subpart W)**
- **Detailed Discussion of Provisions that are Effective for Reporting Year 2024**

Greenhouse Gas Reporting Program (GHGRP)

- Launched in response to Fiscal Year 2008 Consolidated Appropriations Act and codified at 40 CFR Part 98
- Annual reporting of GHGs by 46 source categories
- 37 types of direct emitters
- 6 types of suppliers of fuel and industrial GHGs
- 3 types of facilities that inject CO₂ underground
- For most subparts, including subpart W, facilities compare facility-level emissions to a 25,000 metric tons CO₂ equivalent (CO₂e) threshold to determine applicability. Currently, the GHGRP covers a subset of oil and gas facilities; for example, about half of onshore oil and gas producing wells are subject to the GHGRP,
- Direct reporting to EPA electronically via EPA electronic GHG Reporting Tool (e-GGRT)
- EPA verification of GHG data

Subpart W Emissions Reporting

- Facilities are required to report under Subpart W if their annual emissions are more than 25,000 metric tons CO₂e from all applicable sources at the facility (e.g., Subpart W sources as well as combustion devices)
 - In general, a “facility” for purposes of the GHGRP means all co-located emission sources that are commonly owned or operated
 - However, certain industry segments have unique “facility” definitions, e.g., Onshore Production and Gathering and Boosting facilities report emissions at the basin level
- Facilities use methods specified by Part 98 to calculate GHG emissions, such as direct emissions measurement, engineering calculations with measurement of input parameters or emission factors derived from direct measurements published in scientific literature.
 - In many but not all cases, there is some flexibility in choice of emission calculation method
 - The specific sources subject to reporting differ by industry segment

GHGRP Subpart W: Petroleum and Natural Gas Systems

Production & Processing

1. Onshore Petroleum & Natural Gas Production
2. Offshore Petroleum & Natural Gas Production
3. Total Crude Oil to Refineries
4. Petroleum Refining
5. Gathering and Boosting
*Data collection began in RY 2016
6. Gas Processing Plant
*May contain NGL Fractionation equipment
7. Natural Gas Liquids (NGL) Supply

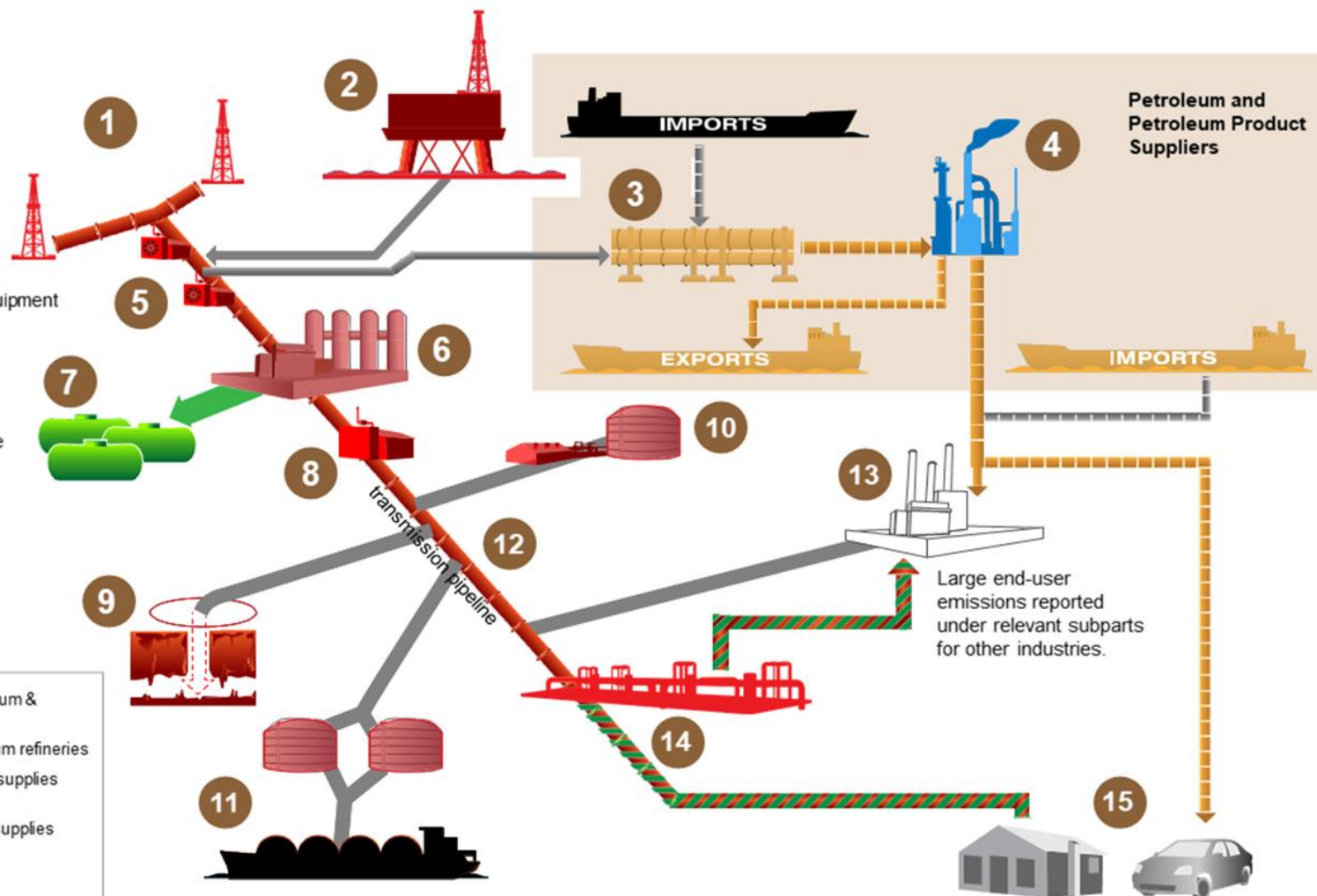
Natural Gas Transmission & Storage

8. Transmission Compressor Stations
9. Underground Storage
10. Liquefied Natural Gas (LNG) Storage
11. LNG Import-Export Equipment
12. Natural Gas Transmission Pipeline
*Data collection began in RY 2016

Distribution

13. Large End Users
14. Natural Gas Distribution
15. Natural Gas & Petroleum Supply to Small End Users

- Subpart W: Emissions from petroleum & natural gas systems
- Subpart Y: Emissions from petroleum refineries
- Subpart MM: CO₂ associated with supplies of petroleum products
- Subpart NN: CO₂ associated with supplies of natural gas & natural gas liquids
- Not reported under GHGRP





OVERVIEW OF THE INFLATION REDUCTION ACT AND THE TYPES OF AMENDMENTS THROUGHOUT SUBPART W

Inflation Reduction Act: Clean Air Act Section 136 Methane Emissions Reduction Program

IRA provides new authorities under Clean Air Act Section 136 to reduce methane emissions from oil and gas

- **Creates an incentive program for financial and technical assistance.**
- **Establishes a waste emissions charge** for methane from applicable facilities that report more than 25,000 metric tons CO₂e per year to GHGRP Subpart W and that exceed statutorily-specified waste emissions thresholds.
 - Waste emissions charge starts at \$900 per metric ton for 2024 emissions and increases to \$1,200 for 2025 and \$1,500 for 2026 and thereafter.
 - Includes certain exemptions and flexibilities related to the waste emissions charge.
- **Directs EPA to revise requirements in subpart W**
 - To ensure reporting and calculation of charges are based on empirical data.
 - And to allow owners and operators to submit empirical emissions data, in a manner to be prescribed by the Administrator, to demonstrate the extent to which a charge is owed.
 - And to accurately reflect total methane and waste emissions.
 - By August 2024.

Overview of Final Revisions

- EPA finalized revisions to ensure that emissions reporting under subpart W is **based on empirical data** and to allow owners and operators to submit appropriate empirical data to demonstrate the extent to which a charge is owed. Revisions include:
 - Additional direct measurement calculation methodologies, including optional use of relevant new calculation methodologies for reporting year 2024
 - Revisions to existing methodologies to require measurement of some related parameters, incorporate the latest data or improve the accuracy of emission calculations
 - Incorporation of data from remote sensing for other large release events
- EPA also finalized the **addition of emission sources** to ensure that subpart W **reflects total methane emissions** from the applicable facilities, including:
 - Adding entirely new sources (e.g., ‘Other large release events’)
 - Expanding reporting of existing sources to all relevant segments
- EPA also finalized revisions to **improve data verification and transparency**, including increasing the granularity of reporting for Onshore Petroleum & Natural Gas Production and Gathering & Boosting
 - Many data elements will be reported at the well, well-pad site or gathering and boosting site level
- This final rule also finalizes revisions to the general provisions (subpart A) and the general stationary fuel combustion (subpart C) source category of the Greenhouse Gas Reporting Rule



FINAL REVISIONS TO SUBPART W EFFECTIVE FOR REPORTING YEAR 2024

Natural gas pneumatic devices and pumps, Acid gas removal vents, Dehydrator vents, Completions and workovers with hydraulic fracturing, Blowdown vent stacks, Atmospheric storage tanks, Associated gas venting and flaring, Centrifugal compressors and Reciprocating compressors, Equipment leaks, Offshore Production, Combustion, Reporting of Throughput for Permanently Shut-in and Plugged Wells, Definitions

Effective Date for New Calculation Methodologies

- A number of optional additional calculation methods and other provisions that allow owners and operators of applicable facilities to submit empirical emissions data, consistent with CAA section 136(h), will be effective for RY 2024 as optional calculation methods.
- Examples of methods that will be effective and available for RY 2024 include:
 - Use of continuous flow measurement devices for associated gas venting and flaring, and for gas supplied to pneumatic devices and pumps
 - Measurement of the volumetric flow rate of each source for pneumatic devices and pumps, equipment leaks, and compressors in the onshore production and gathering & boosting segments
 - Monitoring to identify malfunctioning pneumatic devices
 - Use of multiphase flow meters for completions and workovers with hydraulic fracturing
 - Development of facility-specific leaker emission factors
 - For offshore, use of BOEM calculation methods for years between BOEM data collections
- Other provisions effective for RY 2024 revise the applicability for existing methods (e.g., allow small dehydrators and small storage tanks to use modeling rather than requiring use of emission factors)

Subpart W Calculation Method Types

	Pneumatic Devices	Pneumatic Pumps	Acid Gas Removal	Dehydrators	Liquids Unloading	Completions & Workovers with HF	Completions & Workovers without HF	Blowdown Vents	Hydrocarbon Liquids Storage Tanks	Condensate Storage Tanks	Well Testing	Associated NG	Flare Stacks	Centrifugal Compressors	Reciprocating Compressors	Equipment Leaks	EOR Injection Pumps	EOR CO ₂ in Hydrocarbon Liquids	Combustion Equipment
Direct Emissions Measurement	✓	✓	✓					✓		✓		✓	✓	✓	✓	✓			✓
Measurement + Engineering Calculations			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓
Engineering Calculations			✓	✓	✓	✓		✓	✓		✓	✓	✓				✓		✓
Emission Factors	✓	✓		✓			✓		✓					✓	✓	✓			✓

EOR = Enhanced Oil Recovery; HF = Hydraulic Fracturing; NG = Natural Gas

Red check marks indicate that the final rule includes a calculation methodology in a new calculation method category for that source type (e.g., final rule includes a direct measurement option where subpart W currently requires use of an emission factor).

Blue check marks indicate that the final rule adds a second type of calculation methodology in this category (e.g., adding a leaker emission factor option to the “Emission Factors” category for a source type that currently has population emission factors).

Subpart W - Natural Gas Pneumatic Devices and Pumps Amendments that are Effective for RY2024

- Prior to the final amendments, subpart W required calculation of GHG emissions using default population emission factors multiplied by the number of devices and the average time those devices are “in-service” (i.e., supplied with natural gas).
- Amendments effective for reporting year 2024:
 - Added Calculation Method 1 as an option (continuous flow meter on the natural gas supply line) for pneumatic devices and pumps, with associated reporting. *In RY2025, use of Calculation Method 1 will be required if a gas flow meter is present.*
 - Added Calculation Method 2 as an option (measure the volumetric flow rate of natural gas pneumatic devices venting directly to the atmosphere) for pneumatic devices and pumps, with associated reporting
 - For pneumatic devices:
 - Added Calculation Method 3 for pneumatic devices as an option applicable only for onshore petroleum and natural gas production and onshore petroleum and natural gas gathering and boosting facilities (monitor intermittent bleed pneumatic devices for malfunctions and either measure or use population emission factors for continuous high bleed and continuous low bleed pneumatic devices), with associated reporting
 - Retained default emission factors (now Calculation Method 4) for pneumatic devices.
 - Calculation Method 2 must exclude devices measured per Calculation Method 1. Calculation Method 3 may not be used for well-pad sites or gathering and boosting sites for which reporters elect to measure per Calculation Method 2 and must exclude devices elected to be measured per Calculation Method 1. Calculation Method 4 may not be used for devices for which reporters elect to measure per Calculation Methods 1 through 3.
 - For pneumatic pumps:
 - Retained default emission factor method (now Calculation Method 3) for pneumatic pumps.
 - Calculation Method 2 and Calculation Method 3 must exclude pumps measured per Calculation Method 1. For all pumps that a reporter does not elect to measure using Calculation Method 1, either Calculation Method 2 or Calculation Method 3 must be used. Reporters may not use Calculation Method 2 for some pumps and Calculation Method 3 for other pumps.

Subpart W - Acid Gas Removal Vents Amendments that are Effective for RY2024

- Requirements prior to these final amendments:
 - CO₂ emissions from AGR vents are calculated using one of four calculation methodologies provided in 40 CFR 98.233(d).
 - AGR vents without a CEMS but with a vent meter installed must use Calculation Method 2 in 40 CFR 98.233(d)(2).
- Amendment change effective reporting year 2024:
 - AGR vents without a CEMS but with a vent meter installed may elect to report using Calculation Method 4, modeling simulation via software (40 CFR 98.233(d)(4)).
 - Reporters who elect to use Calculation Method 4 for an AGR with a vent flow meter must:
 - Determine the difference between the annual volume of vent gas measured by the vent meter and the simulated annual volume of vent gas (as calculated by new equation W-4D)
 - Report the annual volume of vent gas measured by the vent meter and the simulated annual volume of vent gas calculated by the simulation
 - Report a reason for the difference in measured and simulated annual flow rates if it is greater than 20 percent (as calculated by new equation W-4D)

Subpart W – Glycol Dehydrator Vents Amendments that are Effective for RY2024

- Requirements prior to these final amendments:
 - Calculate emissions from large glycol dehydrators (throughput ≥ 0.4 MMscf/d) using Calculation Method 1 (process simulation with a software program), 40 CFR 98.233(e)(1).
 - Calculate emissions from small glycol dehydrators (throughput < 0.4 MMscf/d) using Calculation Method 2 (default population emission factors for CO₂ and CH₄), 40 CFR 98.233(e)(2).
- Amendment change effective reporting year 2024:
 - For small glycol dehydrators, reporters may use either Calculation Method 1 or Calculation Method 2.

Subpart W - Completions and Workovers with Hydraulic Fracturing Amendments that are Effective for RY2024

- Completion and workover activities are separated into two periods, an initial period when flowback is routed to open pits or tanks and a subsequent period when gas content is sufficient to route the flowback to a separator or when the gas content is sufficient to allow measurement by the devices specified in paragraph 40 CFR 98.233 (g)(1), regardless of whether a separator is utilized.
- Amendment change effective reporting year 2024
 - Allow use of a multiphase flow meter from initiation of flowback to the beginning of the period of time when sufficient quantities of gas are present to enable separation, as an alternative to assuming the flowrate is one half the flow rate at the beginning of separation. Reporters may choose either option to calculate the produced gas volume during the initial separation stage.

Subpart W - Blowdown Vent Stacks Amendments that are Effective for RY2024

- Requirements prior to these final amendments:
 - Subpart W allowed use of engineering estimates to determine the temperature and pressure of the unique physical volume for emergency blowdowns at onshore petroleum and natural gas gathering and boosting facilities when using equation W-14A, but not when using equation W-14B
 - Subpart W did not allow use of engineering estimates to determine the temperature and pressure of the unique physical volume for emergency blowdowns at onshore natural gas transmission pipeline facilities when using either equation W-14A or equation W-14B
- Amendment change effective reporting year 2024:
 - Allow use of engineering estimates based on best available information to determine the temperature and pressure of the unique physical volume for emergency blowdowns at onshore petroleum and natural gas gathering and boosting facilities and onshore natural gas transmission pipeline facilities when using either equation

Subpart W - Atmospheric Storage Tanks Amendments that are Effective for RY2024

- Requirements prior to these final amendments:
 - For hydrocarbon produced liquids streams to atmospheric storage tanks from gas-liquid separators or gathering and boosting non-separator equipment with throughput ≥ 10 bbl/d, reporters were required to calculate emissions using either Calculation Method 1 (process simulation) or Calculation Method 2 (assume all CH_4 and CO_2 in liquid are emitted)
 - For hydrocarbon produced liquids streams flowing directly to atmospheric storage tanks from wells with throughput ≥ 10 bbl/d, reporters were required to calculate emissions using Calculation Method 2
 - For hydrocarbon produced liquids streams to atmospheric storage tanks direct from wells, gas-liquid separators, or gathering and boosting non-separator equipment with throughput < 10 bbl/d, reporters were required to calculate emissions using Calculation Method 3 (default population emission factor)
- Amendment changes effective reporting year 2024:
 - Allow calculation of emissions for streams flowing directly to atmospheric storage tanks from wells with throughput ≥ 10 bbl/d using either Calculation Method 1 or Calculation Method 2
 - Allow calculation of emissions for streams from wells, gas-liquid separators, or non-separator equipment with throughput < 10 barrels per day using any of the three Calculation Methods (also minor revisions to reporting)

Subpart W - Associated Gas Venting and Flaring Amendments that are Effective for RY2024

- Requirements prior to the final amendments:
 - Calculate emissions from venting and flaring associated gas using the GOR equation, Equation W-18, a mass balance equation based on applying the average gas-to-oil (GOR) ratio for produced liquid hydrocarbons to the total barrels of oil production to determine total annual natural gas production and then subtracting out the volume of gas sent to sales to calculate a net volume of natural gas sent to the vent or to a flare
- Amendment change effective reporting year 2024
 - Allow the optional use of a continuous gas flow measurement device for gas routed to a vent, and the corresponding reporting requirement of indicating whether a continuous flow monitor was used to measure flow rates and a continuous composition analyzer was used to measure CH₄ and CO₂ concentration. *For RY2025, the use of gas flow measurements is required if a continuous gas flow measurement device is present.*

Subpart W - Centrifugal Compressors and Reciprocating Compressors Amendments that are Effective for RY2024

- Requirements prior to these final amendments:
 - Use default population emission factors for compressors at an onshore petroleum and natural gas production facility or an onshore petroleum and natural gas gathering and boosting facility.
- Amendment change effective reporting year 2024:
 - Allow emissions calculation using volumetric emission measurements for compressors at an onshore petroleum and natural gas production facility or an onshore petroleum and natural gas gathering and boosting facility, with associated reporting.

Subpart W - Equipment Leaks Amendments that are Effective for RY2024

- Requirements prior to these final amendments:
 - Depending on the industry segment, subject facilities must use the leaker method and/or the population count method to quantify emissions from equipment leaks.
 - *Leaker Method*
 - The leaker method requires the use of results from equipment leak surveys (i.e., count of leaking components) to quantify emissions. This calculation method used default component-level emission factors.
 - *Population Count Method*
 - The population count method requires an inventory or estimation of the number of components by service type to quantify emissions. The calculation method used default component-level emission factors.
- Amendments effective reporting year 2024:
 - *Methods Using Leak Surveys or Leaks Surveys with Measurements*
 - Added option to measure the volumetric flow rate of each leak identified during a leak survey.
 - Added option to develop site-specific component-level emission factors.
 - Exempted equipment in vacuum service from survey and emission estimation requirements.
 - There are no additional amendments to the leak survey method using default leaker factors or associated reporting requirements for RY 2024
 - *Population Count Method*
 - There are no amendments to the population count method or associated reporting requirements for RY 2024.

Subpart W – Offshore Production Reporting Amendments that are Effective for RY2024

- Requirements prior to these final amendments:
 - In years that overlap with the most recent BOEM (formerly BOEMRE) emissions study publication year, report the same emissions reported to BOEM or using BOEM emission calculation methods
 - In years that do not overlap with the most recent BOEM emissions study publication year, adjust emissions from the most recent study year using operating time for the facility.
- Amendments effective reporting year 2024:
 - The final amendments revise the operational hour scaling method to become 40 CFR 98.233(s)(1)(ii) and (s)(2)(ii) and also allow reporters to calculate their emissions following BOEM's methods per the new 40 CFR 98.233(s)(1)(i) or (s)(2)(i). Beginning with RY 2025 reporting, the operational hour scaling will only be allowed if the facility cannot follow BOEM's calculation methods.

Subpart W - Combustion Equipment Amendments that are Effective for RY2024

- Requirements prior to these final amendments for combustion of natural gas:
 - For pipeline quality natural gas with a minimum HHV of 950 Btu/scf, use any Tier (1, 2, 3, or 4) methodology in subpart C
 - For field gas, process vent gas, a blend containing field gas or process vent gas, or natural gas that is not of pipeline quality or that has a high heat value of less than 950 Btu per standard cubic feet, use 40 CFR 98.233(z)(2) and determine composition using continuous gas composition analyzer or industry segment-specific determination of gas produced or passing through the facility per 40 CFR 98.233(u)(2).
- Amendments effective reporting year 2024 for combustion of natural gas:
 - No change for pipeline quality natural gas with a minimum HHV of 950 Btu/scf
 - For natural gas that has a minimum HHV of 950 Btu/scf, a maximum HHV of 1,100 Btu/scf, and a minimum CH₄ content of 70 percent by volume, use Tier 2, 3, or 4 methodologies in subpart C
 - For natural gas that does not meet either of the above specifications (including field gas) use methodology in 40 CFR 98.233(z)(2)(i) through (vi) and determine composition using continuous gas composition analyzer, engineering estimates based on best available data, or industry segment-specific determination of gas produced or passing through the facility per 40 CFR 98.233(u)(2).

Subpart W – Reporting of Throughput for Permanently Shut-in and Plugged Wells that is Effective for Reporting Year 2024

- Throughput quantities for each well permanently shut-in and plugged during the calendar year must be reported beginning with RY 2024 reports
- Onshore Production
 - 40 CFR 98.236(aa)(1)(iii)(C) - The quantity of natural gas produced that is sent to sale for each well permanently shut-in and plugged during the calendar year
 - 40 CFR 98.236(aa)(1)(iii)(D) The quantity of crude oil and condensate produced that is sent to sale for each well permanently shut-in and plugged during the calendar year
- Offshore Production
 - 40 CFR 98.236(aa)(2)(iii) - The quantity of natural gas produced that is sent to sale for each well permanently shut-in and plugged during the calendar year
 - 40 CFR 98.236(aa)(2)(iv) - The quantity of crude oil and condensate produced that is sent to sale for each well permanently shut-in and plugged during the calendar year

Subpart W - Definitions Effective for Reporting Year 2024

- Five new definitions added to 40 CFR 98.238 for reporting year 2024:
 - “Centralized oil production site,” “gathering and boosting site,” “gathering compressor station,” “gathering pipeline site,” and “well-pad site”
 - Definitions are used for purposes of implementing new calculation methods for pneumatic devices, pneumatic pumps, and equipment leaks located at facilities in the Onshore Production and Gathering and Boosting industry segments
 - Definitions will not be used for purposes of disaggregated reporting until RY2025

Resources

- For more information on the GHGRP:
 - <https://www.epa.gov/ghgreporting>
- For more information on the Final Amendments to Subpart W:
 - <https://www.epa.gov/ghgreporting/rulemaking-notice-ghg-reporting>
 - The final rule and other background information is also available electronically at <https://www.regulations.gov>, EPA's electronic public docket and comment system (Docket ID No. EPA-HQ-OAR-2023-0234).
- To ask questions that were not answered in today's webinar, contact the GHGRP Help Desk:
 - Email ghgreporting@epa.gov
 - <https://www.epa.gov/ghgreporting/forms/contact-us-about-ghg-reporting>