Greenhouse Gas Reporting Program

Subpart W - Petroleum and Natural Gas Systems – 2015 Revisions Rule Implementation

January 20, 2016

U.S. Environmental Protection Agency

This material is provided 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.

Presentation Agenda

- Introduction
  - Rulemaking Background
  - Effective Date
  - Determining Applicability
  - Best Available Monitoring Methods (BAMM)
  - Missing Data Procedures
- New Requirements for RY 2016
  - Oil Well Requirements
  - Well Identification Reporting Requirements
  - Gathering and Boosting Requirements
  - Transmission Pipeline Requirements
- 2016 Subpart W Reporting
- Resources for Reporters

Rulemaking Background

- What has changed in Subpart W for RY 2016?
  - Addition of requirements for monitoring, calculation and reporting of emissions for:
    - Oil well completions and workovers with hydraulic fracturing
    - Gathering and boosting systems
    - Blowdowns of natural gas transmission pipelines
  - Addition of reporting requirements for well identification numbers
- Where can I find more information?
  - Federal Register: 80 FR 64262 (October 22, 2015, https://www.gpo.gov/fdsys/pkg/FR-2015-10-22/pdf/2015-25840.pdf)
  - Docket ID No. EPA-HQ-OAR-2014-0831 (www.regulations.gov)
  - GHGRP Subpart W website: http://www.epa.gov/ghgreporting/subpart-w-petroleum-and-natural-gas-systems

Effective Date

- The final rule is effective January 1, 2016.
  - The following facilities/sources must begin to monitor and calculate emissions occurring during reporting year 2016 (reports due March 31, 2017):
    - New Onshore Petroleum and Natural Gas Gathering and Boosting segment
    - New Onshore Natural Gas Transmission Pipelines segment
    - Oil well completions and workovers with hydraulic fracturing within Onshore Petroleum and Natural Gas Production segment
  - For reporting year 2015 (reports due March 31, 2016), facilities will continue to calculate emissions and other relevant data according to the applicable requirements for reporting year 2015

Determining Applicability

- Onshore Petroleum and Natural Gas Production
  - Report if all sources in a geologic basin emit ≥ 25,000 mt of CO_2e per year
  - Addition of emissions from oil well completions and workovers may cause a facility previously below this threshold to become subject to subpart W
- Onshore Petroleum and Natural Gas Gathering and Boosting
  - Report if all sources in a geologic basin emit ≥ 25,000 mt of CO_2e per year
- Onshore Natural Gas Transmission Pipeline
  - Report if all blowdown vent stacks emit ≥ 25,000 mt of CO_2e per year
- For all three segments, applicability determined separately from other subpart W segments due to unique definitions of “facility”

Best Available Monitoring Methods (BAMM)

- BAMM automatically granted for reporting year 2016 only for monitoring and measurements associated with:
  - Oil well completions and workovers with hydraulic fracturing
  - Onshore Petroleum and Natural Gas Gathering and Boosting segment (all applicable sources; see forthcoming FAQ for specific applicable parameters)
  - Natural Gas Transmission Pipeline segment (blowdowns)
- No extensions may be given beyond December 31, 2016
- BAMM may not be used for:
  - Reporting of well identification numbers
  - Any other sources (*e.g.*, gas well completions and workovers, compressors) or non-monitoring associated requirement (*e.g.*, equipment counts)
  - Alterations to calculation methods for the segments that allow BAMM

Missing Data

- Missing data provisions for new sources:
  - Provide flexibility, only if needed, in the following situations:
    - Facilities that become newly subject to subpart W
    - Facilities that are currently subject to subpart W that acquire new sources from another facility
      - Missing data applies only to the newly acquired sources
  - Best engineering estimates may be used for "any data that cannot reasonably be measured or obtained" right away
  - Only provided for the first 6 months of data collection
- Other missing data provisions may only be used when an event causes a irreparable loss of data or monitoring (*e.g.*, corrupted data file)

Oil Well Requirements

- A well is considered an oil or gas well depending on the formation type (see the definition of *Sub-basin category, for onshore petroleum and natural gas production*, § 98.238)
- Emission source: Completions and workovers with hydraulic fracturing for oil wells with a gas to oil ratio (GOR) of 300 scf/STB or greater
- Calculate emissions using Equation W-10A or W-10B
  - Equation W-10A: Measure inputs from representative wells
  - Equation W-10B: Measure inputs from all applicable wells
- Report aggregated emissions by sub-basin and well type combination

Oil Well Requirements (cont.)

- Measure flowback using a recording flow meter installed on the vent line downstream of a separator and ahead of a flare or vent
- Reporters that use Equation W-10A for oil wells:
  - Measure initial and average gas flowback rates for representative well(s) (Calculation Method 1)
  - Determine 30-day average gas production flow rate either by:
    - Measurement
    - Averaging results of individual well production tests (for representative well(s) only)
    - Using average GOR and average oil production rate in Equation W-12C

Well Identification Reporting Requirements

- Onshore Petroleum and Natural Gas Production segment reporters must report well identification numbers for wells and emission source types associated with wells
- The well identification number is defined as either:
  - The US Well Number
  - The unique well number assigned by its permitting authority (if the well does not have a US Well Number)

Well Identification Reporting Requirements (cont.)

Lists of wells in each sub-basin in a calendar year	• Producing • Acquired • Divested • Completed • Taken out of production
Lists of wells in the sub-basin meeting specific criteria	• Liquids unloading • Completions/workovers • Associated natural gas venting and flaring
Individual tested wells or wells used as representative wells	• Liquids unloading • Completions/workovers with hydraulic fracturing • Well testing venting and flaring

Gathering and Boosting Requirements

- Definitions
  - Industry Segment (§ 98.230)
    - Includes equipment used to collect petroleum and/or natural gas from onshore production wells and send it to a downstream endpoint
    - Includes, but not limited to, gathering pipelines, separators, compressors, acid gas removal units, dehydrators, pneumatic devices/pumps, storage vessels, and flares
    - Does not include equipment reported under any other subpart W industry segment
    - Does not include gathering pipelines operating on a vacuum or with a GOR less than 300 scf/STB

Gathering and Boosting Requirements (cont.)

- Definitions (cont.)
  - Gathering and boosting system (§ 98.238)
    - Single network of pipelines, compressors and process equipment, including equipment for natural gas compression, dehydration, and acid gas removal
    - Has one or more connection points to gas and oil production and a downstream endpoint
  - Owner or operator (§ 98.238)
    - Any person that holds a contract to transport petroleum or natural gas from one or more onshore production wells to a downstream endpoint, or
    - Any person responsible for custody of the petroleum or natural gas transported

Gathering and Boosting Requirements (cont.)

- Definitions (cont.)
  - Facility (§ 98.238)
    - All gathering pipelines and other equipment located along those pipelines under common ownership or common control by a single owner or operator and located in a single geologic basin
      - Could include multiple gathering and boosting systems that are not physically connected
      - Leased, rented, or contracted equipment associated with a single system is considered to be under common control of the owner or operator of the gathering and boosting system that contains the pipelines
    - Does not include equipment and pipelines that are part of any other subpart W industry segment

Gathering and Boosting Requirements (cont.)

- Emission source types to report:
  - Natural gas pneumatic device venting - § 98.233(a)
  - Natural gas pneumatic pump venting - § 98.233(c)
  - Acid gas removal vents - § 98.233(d)
  - Dehydrator vents - § 98.233(e)
  - ***Blowdown vent stacks - § 98.233(i)***
  - ***Storage tank vented emissions - § 98.233(j)***
  - Flare stack emissions - § 98.233(n)
  - ***Centrifugal compressor venting - § 98.233(o)***
  - ***Reciprocating compressor venting - § 98.233(p)***
  - ***Equipment leaks - § 98.233(r)***
  - ***Gathering pipeline equipment leaks - § 98.233(r)***
  - Combustion equipment - § 98.233(z)

Gathering and Boosting Requirements (cont.)

- Blowdown Vent Stacks
  - Same calculation methods as Onshore Natural Gas Processing
    - Emissions do not have to be calculated for unique physical volumes less than 50 scf
  - Calculate emissions using either:
    - Equations W-14A or W-14B
    - A flow meter according to methods in § 98.234(b)
  - When using Equation W-14A for an emergency blowdown, reporters may use engineering estimates based on best available information to determine the actual temperature and pressure

Gathering and Boosting Requirements (cont.)

- Storage Tanks
  - Same calculation methods as Onshore Petroleum and Natural Gas Production
    - Calculation Method 1: For separators or non-separator equipment with a throughput ≥ 10 bbl/day, use software to calculate emissions
    - Calculation Method 2: For separators, non-separator equipment, or wells flowing directly to storage tanks with a throughput ≥ 10 bbl/day, determine or estimate flow composition and assume all gas is emitted
    - Calculation Method 3: For tanks with a throughput < 10 bbl/day, use default emissions factors
  - If using Calculation Method 1 or 2, also calculate emissions from occurrences of gas-liquid separator liquid dump valves not closing during the calendar year using Equation W-16

Gathering and Boosting Requirements (cont.)

- Centrifugal and Reciprocating Compressor Venting
  - Same calculation methods as Onshore Petroleum and Natural Gas Production
  - Centrifugal compressors
    - Count the number of centrifugal compressors that have wet seal oil degassing vents
    - Use this count in Equation W-25 with the specified emissions factors
  - Reciprocating compressors
    - Count the number of reciprocating compressors
    - Use this count in Equation W-29D with the specified emissions factors

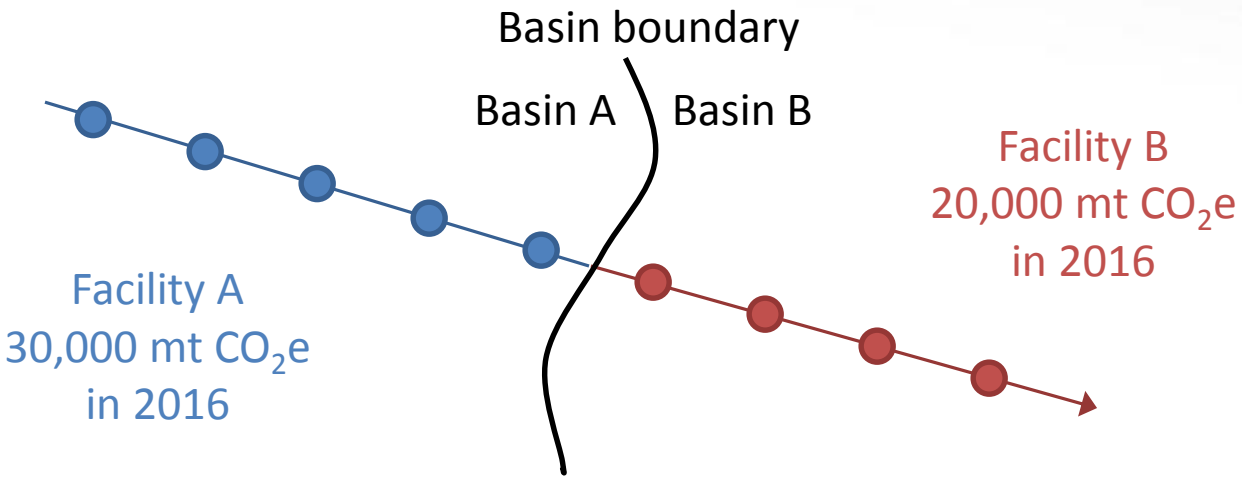
Gathering and Boosting Requirements (cont.)

- Equipment Leaks
  - Same calculation methods as Onshore Petroleum and Natural Gas Production
  - Determine the facility component count using either:
    - Method 1: Count major equipment listed in Table W-1B and multiply the count by the default average number of components per major piece of equipment
    - Method 2: Count all individual components in the facility
  - Multiply component counts by the appropriate whole gas emission factors in Table W-1A (Equation W-32A)
- Gathering Pipeline Equipment Leaks
  - Same calculation methods as equipment leaks, except component count (using Method 2) is the miles of gathering pipeline by material type

Gathering and Boosting – FAQ
Systems Spanning Multiple Basins

If my gathering and boosting system spans multiple basins, how do I determine if I have to report to the GHGRP?

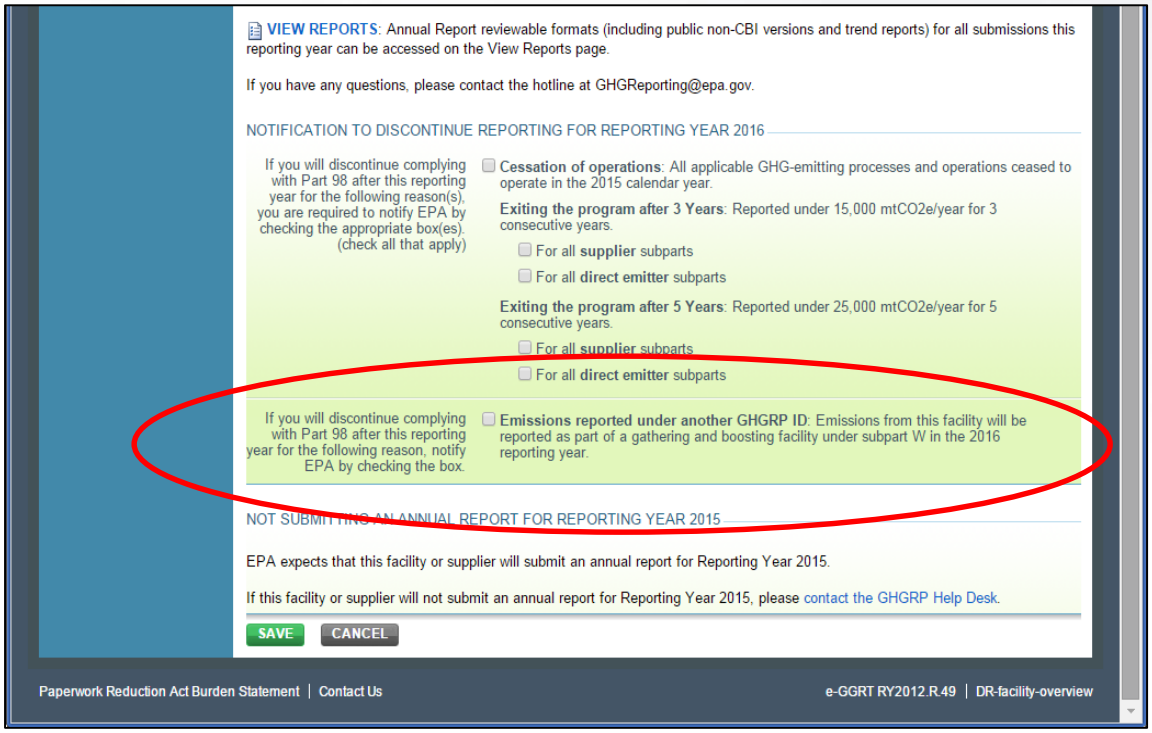
- Assign emissions from each applicable source in the gathering and boosting system to the basin in which that emission source is physically located
- Compare emissions to the 25,000 mt CO_2e per year reporting threshold in each basin separately
- Submit one report for each basin with emissions ≥ 25,000 mt CO_2e



Gathering and Boosting – FAQ
Existing Subpart C Facilities

What do I do if my Subpart C facility will become part of the Onshore Natural Gas and Petroleum Gathering and Boosting segment for 2016?

- For 2015 reporting (due March 31, 2016), continue to report combustion emissions per the methods found in Subpart C using your current GHGRP ID
  - Notify EPA of your intent to discontinue reporting for your current facility
- For 2016 reporting (due March 31, 2017), register a new GHGRP facility under Subpart W in the Onshore Natural Gas and Petroleum Gathering and Boosting segment, which would include reporting of combustion emissions



Transmission Pipeline Requirements

- Definitions
  - Transmission Pipeline (§ 98.238)
    - A Federal Energy Regulatory Commission rate-regulated Interstate pipeline,
    - A state rate-regulated Intrastate pipeline, or
    - A pipeline that falls under the “Hinshaw Exemption” in the Natural Gas Act
  - Industry Segment (§ 98.230)
    - All natural gas transmission pipelines as defined in subpart W
  - Facility (§ 98.238)
    - Total U.S. mileage of natural gas transmission pipelines owned and operated by an onshore natural gas transmission pipeline owner or operator (defined in subpart W)
    - Does not include pipelines that are part of any other subpart W industry segment

Transmission Pipeline Requirements (cont.)

- Definitions (cont.)
  - Owner or operator (§ 98.238)
    - Interstate pipeline: the pipeline owner or operator on the Certificate of Public Convenience and Necessity
    - Intrastate pipeline: the owner or operator on the pipeline's Statement of Operating Conditions under section 311 of the NGPA
      - Intrastate pipeline not subject to the NGPA: the owner or operator on reports to the state regulatory body regulating rates and charges for the sale of natural gas to consumers
    - Pipeline under the "Hinshaw Exemption": the owner or operator on blanket certificates issued under 18 CFR 284.224

Transmission Pipeline Requirements (cont.)

- Emission source type to report:
  Blowdown vent stacks
  - Same basic calculation methods as Onshore Natural Gas Processing and Onshore Petroleum and Natural Gas Gathering and Boosting
    - Emissions do not have to be calculated for unique physical volumes less than 50 scf
  - Calculate emissions using either:
    - Equations W-14A or W-14B
    - A flow meter according to methods in § 98.234(b)
  - Report emissions, number of blowdowns, and total pipeline mileage by state

Transmission Pipeline Requirements (cont.)

- Blowdown vent stacks (cont.)
  - If using Equations W-14A and W-14B, assign emissions to one of the following equipment/ event type categories:
    - Pipeline integrity work
    - Traditional operations or pipeline maintenance
    - Equipment replacement or repair
    - Pipe abandonment
    - New construction or modification of pipelines
    - Operational precaution during activities
    - Emergency shutdowns
    - All other pipeline segments

Transmission Pipeline – FAQ
Emissions Allocation by State

If my transmission pipeline crosses state lines, how do I allocate the emissions to the state level?

- Emissions from each blowdown vent stack would be assigned to the state in which that blowdown vent stack is located, even if the physical volume being blown down crosses state lines
- Emissions for each state would be the aggregated total emissions from all of your blowdown vent stacks physically located in that state

2016 Subpart W Reporting

- EPA plans to add these new segments and sources into the existing Subpart W e-GGRT reporting spreadsheet
- If time allows, we will provide a “sandbox” testing period in Fall 2016 for the new reporting form
- The final form and XML schema should be ready in early 2017
- Questions on the new requirements or Subpart W in general should be sent to GHGReporting@epa.gov

Resources for Reporters

- Resources for 2015 Revisions to Subpart W
  - Federal Register: 80 FR 64262 (October 22, 2015, https://www.gpo.gov/fdsys/pkg/FR-2015-10-22/pdf/2015-25840.pdf)
  - Docket ID No. EPA-HQ-OAR-2014-0831 (www.regulations.gov)
- General Subpart W Resources:
  - GHGRP Subpart W website: http://www.epa.gov/ghgreporting/subpart-w-petroleum-and-natural-gas-systems
  - GHGRP Help Desk: GHGReporting@epa.gov
  - Subpart W reporting forms & help content: www.ccdsupport.com