Climate, Air Quality and Permitting Proposals For the Oil and Natural Gas Industry

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Natural Gas STAR Implementation Workshop

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Overview

- At a Glance
- Highlights of Proposed Actions:
  - Updates to the 2012 New Source Performance Standards
  - Draft Control Technique Guidelines
  - Air Permitting Rules
    - Source Determination Rule
    - Federal Implementation Plan for Minor NSR in Indian Country
- Proposed NSPS updates in detail
- Emission Reductions, Benefits and Costs
- Timeline
- Resources

Proposed Actions – At a Glance

2012 New Source Performance Standards	• Updates that would set methane and VOC requirements for additional new and modified sources in the oil and gas industry
VOC emissions	• Draft Control Technique Guidelines (CTG) for reducing emissions from existing oil and natural gas sources in certain ozone nonattainment areas and states in the Ozone Transport Region
Air permitting rules	• Proposed updates to clarify agency's air rules as they apply to the oil and natural gas industry • Proposed Federal Implementation Plan to implement minor New Source Review permitting in Indian country

The Oil and Natural Gas Industry

Oil and natural gas systems encompass wells, gas gathering and processing facilities, storage, and transmission and distribution pipelines..

Production & Processing

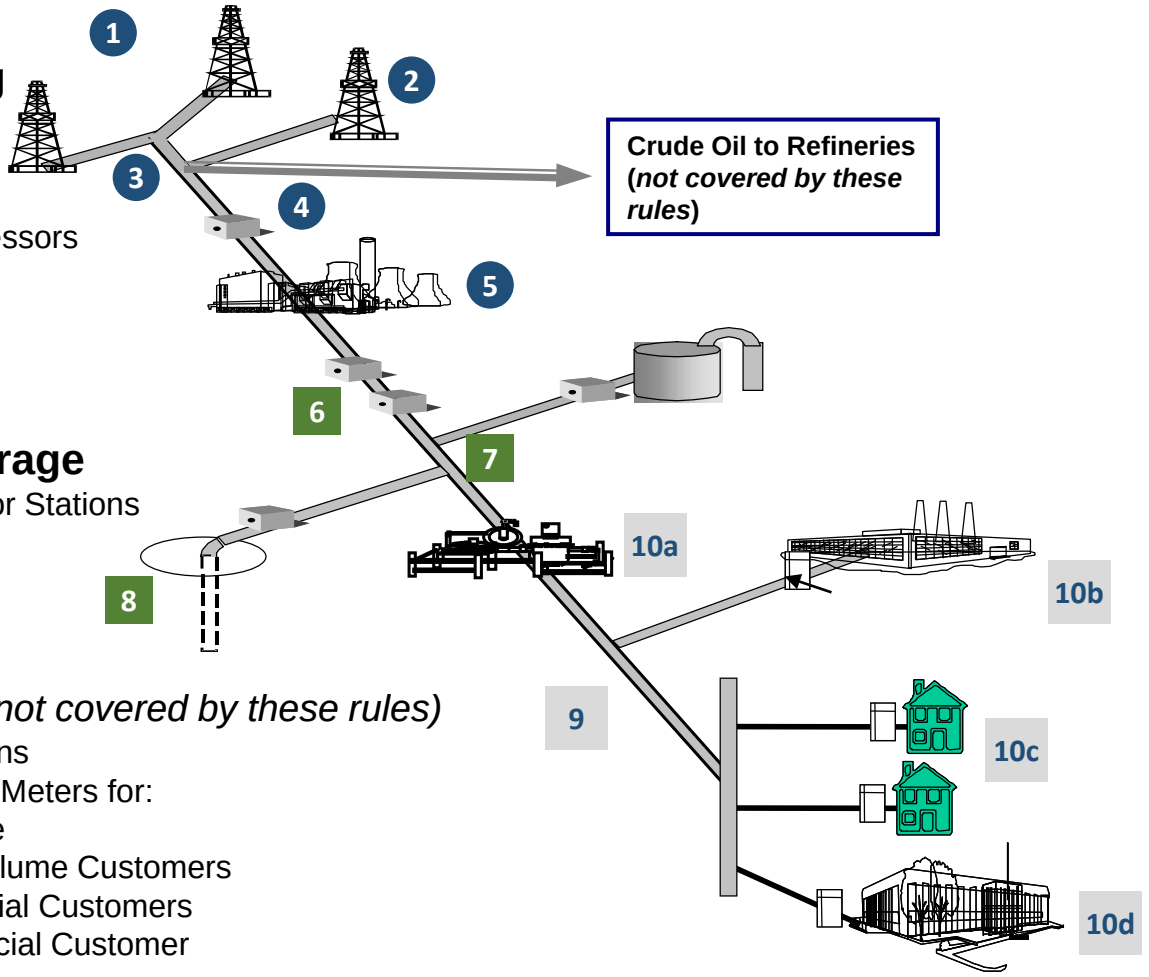
1. Drilling and Well Completion
2. Producing Wells
3. Gathering Lines
4. Gathering and Boosting Compressors
5. Gas Processing Plant

Natural Gas Transmission & Storage

6. Transmission Compressor Stations
7. Transmission Pipeline
8. Underground Storage

Distribution *(not covered by these rules)*

9. Distribution Mains
10. Regulators and Meters for:
    a. City Gate
    b. Large Volume Customers
    c. Residential Customers
    d. Commercial Customer



Source: Adapted from American Gas Association and EPA Natural Gas STAR Program

Proposed Actions

Update to the 2012 New Source Performance Standards

Building on the 2012 New Source Performance Standards (NSPS) for VOC emissions for the oil and natural gas industry, EPA's proposed updates would:

- Require that the industry reduce methane
- Add emissions reduction requirements for sources of methane and VOC pollution that were not covered in the 2012 rules. These include requirements that owners/operators:
  - Capture natural gas from the completion of hydraulically fractured wells
    - Natural gas wells were covered in the 2012 rule
    - Green completion/reduced emissions completion required; exemptions for some types of wells (those would have to reduce emissions using combustion)
  - Find and repair leaks (fugitive emissions)
  - Limit emissions from new and modified pneumatic pumps
  - Expand coverage to limit emissions from several types of equipment used at natural gas transmission compressor stations and gas storage facilities
    - Includes compressors and pneumatic controllers that were not covered by the 2012 rule

Sources already subject to the 2012 NSPS requirements for VOC reductions that also would be covered by the proposed 2015 methane requirements would not have to install additional controls, because the controls to reduce VOCs reduce both pollutants.

Proposed Actions

Draft Control Techniques Guidelines

Draft Control Techniques Guidelines (CTG) would reduce VOC emissions from existing equipment and processes in the oil and natural gas industry.

✓	**CTG provide recommendations for state/local air agencies to assist them in determining RACT** • **Are not regulations and do not impose legal requirements on sources** • **States may use different technology and approaches, subject to EPA approval** • **Other approaches must achieve required pollution reductions**
✓	Under the Clean Air Act, RACT applies in ozone nonattainment areas classified as "Moderate" and above, and throughout the Ozone Transport Region
✓	Draft guidelines include EPA's RACT recommendations for storage tanks, pneumatic controllers, pneumatic pumps, centrifugal and reciprocating compressors, equipment leaks from natural gas processing plants, and fugitive emissions
✓	Draft includes detailed information on the cost of available controls to assist states in determining RACT for their sources. Also includes model rule language

Proposed Actions

Air Permitting Rules

EPA is issuing two proposals to clarify permitting requirements in the states and in Indian country and make them more efficient.

1. Source Determination Rule:

Seeks broad public feedback on options for determining when multiple pieces of equipment and activities in oil and gas extraction and production must be deemed a single source that is subject to requirements under Clean Air Act air permitting programs.

- Prevention of Significant Deterioration and Nonattainment New Source Review preconstruction permitting programs
- Title V Operating Permits program.

- Proposal seeks public comment on two options for the definition of the term "adjacent:"
  - Proximity-based – equipment or activities would be considered adjacent if they are located on the same site or are on sites within ¼ mile of each other
  - Proximity or function-based – equipment or activities would be considered adjacent if they are near each other (1/4 mile) or related by function (such as connected by a pipeline)
- Would apply only to onshore operations; would not apply offshore
- Proposal only applies to sources engaged in oil and natural gas extraction/production

Proposed Actions

2. Proposed *federal implementation plan (FIP):*
Would implement the Minor New Source Review Program in Indian Country for oil and natural gas production. Would limit emissions of harmful air pollution while making the preconstruction permitting process more efficient for this rapidly growing industry.

- The proposed FIP would be used instead of minor New Source Review (NSR) preconstruction permits in Indian country
- It would incorporate emissions limits and other requirements from six federal air standards to ensure air quality is protected. These include:
  - The 2015 proposed updates to the New Source Performance Standards for the oil and natural gas industry
  - Standards for equipment, including stationary engines, boilers and liquid storage tanks
- The FIP would apply:
  - Throughout reservation areas in Indian country and
  - In any other areas of Indian country for which a tribe or EPA has demonstrated that the tribe has jurisdiction.
- But only in areas designated *attainment, attainment/unclassifiable or unclassifiable* for a National Ambient Air Quality Standard
- Requirements in the FIP would apply to all new and modified true minor sources in the production segment of the oil and natural gas industry

Proposed NSPS Updates in Detail

Proposed Standards – Well Completions

- 2012 NSPS regulated VOC emissions from completion of hydraulically fractured or refractured gas wells
- 2015 proposed requirements for oil well completions are the same as for gas well completions in the 2012 NSPS
- 2015 Proposal (methane and VOC):
  - Would exclude wells with a gas to oil ratio (GOR) less than 300 scf of gas per barrel of oil
  - Would require reduced emissions completion (REC) in combination with a completion combustion device; or
  - Would require only combustion in situations not meeting criteria for REC (and where flaring is not a hazard)
    - Exploratory and delineation wells
    - Low pressure wells

Proposed Standards – Fugitive Emissions

- 2012 NSPS requires leak detection and repair at natural gas processing plants to control VOC emissions
- 2015 Proposal (methane and VOC):
  - Would cover new and modified well sites and compressor stations across the category
  - Would exclude low production well sites with average daily production of less than 15 barrels of oil equivalent, and exclude well sites that contain only wellheads
  - "Fugitive emissions components" would include valves, connectors, open-ended lines, pressure relief devices, closed vent systems and thief hatches on tanks
  - Would require fugitive emissions surveys be conducted with optical gas imaging (OGI) technology
  - Would require repair of sources of fugitive emissions (i.e., leaks) found during those surveys

Proposed Standards – Fugitive Emissions, cont.

- Survey frequency:
  - Initial survey would be required within 30 days after startup of new facility
  - Co-proposing initial survey frequencies of semiannually and annually
  - Frequency would decrease to annual for sites that find fugitive emissions from fewer than 1% of their fugitive emission components during two consecutive surveys
  - Frequency would increase to quarterly for sites that find fugitive emissions from 3% or more of their fugitive emission components during two consecutive surveys
- We are soliciting comment on exemptions for owners or operators already implementing a corporate-wide fugitive emissions monitoring plan

Proposed Standards – Pneumatic Pumps

- Not covered in 2012 NSPS
- 2015 Proposal (methane and VOC):
  - At natural gas processing plants:
    - Would require emissions from natural gas-driven chemical/methanol pumps and diaphragm pumps to be zero
  - Everywhere else in the category:
    - Would require emissions from natural gas-driven chemical/methanol pumps and diaphragm pumps be controlled by 95% if a control device is already available on site
  - Non-natural gas-driven pumps (e.g., air, electric, solar) would not be affected facilities

Proposed Standards - Compressors

- 2012 NSPS (VOC) covers compressors in gas production & processing segments; excludes well site compressors
- 2015 Proposal (methane and VOC):
  - Proposed requirements are the same as 2012 except for scope
  - Centrifugal Compressors
    - Wet seal – would require 95% control across source category
    - Dry seal – would not be affected facilities (same as 2012)
  - Reciprocating Compressors
    - Would require rod packing replacement after 26,000 hours of operation or 36 calendar months, or
    - Would allow alternative of routing emissions from the rod packing to a process through a closed vent system under negative pressure
  - Well site compressors would not be affected facilities (same as 2012)

Proposed Standards – Pneumatic Controllers

- 2012 NSPS (VOC) covers pneumatic controllers in the production and processing segments
- 2015 Proposal (methane and VOC):
  - Proposed requirements are the same as 2012 except for scope
  - At natural gas processing plants:
    - Requires a zero natural gas bleed rate
    - Non-natural gas-driven controllers are not affected facilities (same as 2012)
  - Everywhere else in the category:
    - Requires continuous bleed, natural gas-driven pneumatic controllers to have a natural gas bleed rate limit of 6 standard cubic feet per hour (i.e., low-bleed)
    - Low-bleed controllers are not affected facilities (same as 2012)

Emission Reductions – Benefits and Costs

EPA's Regulatory Impact Analysis – *illustrative benefits and costs for proposed NSPS*

2025

- Would reduce and estimated 340,000 to 400,000 short tons of methane *(the equivalent of reducing 7.7 to 9 million metric tons of carbon dioxide)*
- EPA estimates the proposal will have climate benefits of $460 million to $550 million, which outweigh the costs of $320 to $420 million.
- Would yield estimated net climate benefits of $120 to $150 million
- Also expected to reduce 170,000 to 180,000 tons of ozone-forming VOCs, along with 1,900 to 2,500 tons of air toxics *(such as benzene, toluene, ethylbenzene and xylene).*
  - EPA was not able to quantify the benefits of these reductions

EPA did not conduct an RIA for the Control Techniques Guidelines, because CTGs are not regulations; they are RACT recommendations for states. The agency estimates that the CTG would reduce about 82,000 tons of VOCs a year, if affected states were to implement the recommendations as outlined in the guidelines.

Proposed Actions - Timeline

March 2014: The President's Climate Action Plan: Strategy to Reduce Methane Emissions directed EPA to determine how best to pursue methane reductions from the oil and gas sector

April 2014: As part of the Methane Strategy, EPA issued a series of technical white papers, focusing on emissions and mitigation techniques that targeted methane and VOCs

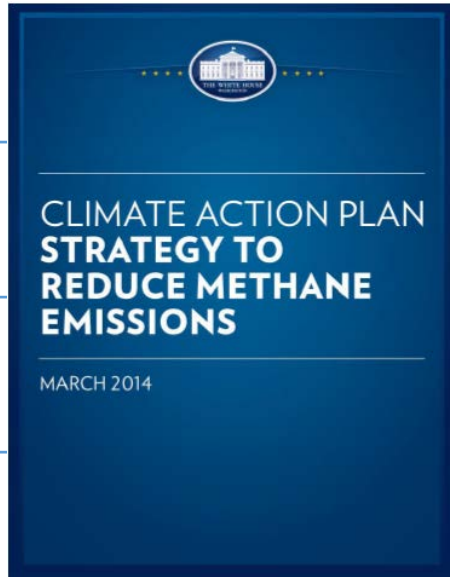
January 2015: EPA and the Administration announced a strategy to for reducing methane and VOCs from the oil and gas sector

March-May, 2015: Sought input from state and local air agencies and tribes that volunteered to participate in discussions

September 18, 2015: Published proposed standards, FIP and draft Control Techniques Guidelines (CTG). **(Comment period ends December 4, 2015)**

September 23 and 29, 2015: Held public hearings in Denver, Dallas and Pittsburgh

2016: Issue final rules and final CTG



Resources

Where to go for help

For information on these **proposed actions and instructions on submitting comments**, visit http://www3.epa.gov/airquality/oilandgas/actions.html

To read the **Climate Action Plan – Strategy to Reduce Methane Emissions**, visit https://www.whitehouse.gov/blog/2014/03/28/strategy-cut-methane-emissions

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