Minimizing Methane Emissions from Natural Gas Compressor Stations and other Related Equipment
Presentation Outline

• Overview of Oil and Natural Gas Industry

• Federal New Source Performance Standards (NSPS)

• Proposed Regulatory Requirements

• Discussion/Questions
Oil and Natural Gas Industry in General

This is the segment covered by Maryland’s proposed regulation

Source: https://www.epa.gov/natural-gas-star-program/overview-oil-and-natural-gasindustry#sources
• Fossil fuel industry methane emissions comprise of emissions in the transmission and storage segment and the distribution segment.
Shifting EPA Requirements

- EPA finalized New Source Performance Standards (NSPS) for the Oil and Natural Gas Industry to curb emissions of methane.
- EPA issued Control Technique Guidelines (CTG) for existing sources.

2016

- EPA proposed relaxation of NSPS requirements and withdrawal of the 2016 CTG.

2018

- EPA reconsidering regulating methane and sources in the transmission and storage segment.

2019

- Maryland working with other states to challenge more recent relaxations.
  - Reducing methane is not just a Maryland issue.
MDE’s Stakeholder Process

**MEETING 1 – June 29, 2017**
Overview of the Natural Gas Industry

**MEETING 2 – July 10, 2018**
Regulatory and Voluntary Concepts - General

**MEETING 3 – March 8, 2019**
Regulatory and Voluntary Concepts - Specifics

**MEETING 4 – June 28, 2019**
Summary and Discussion of “Discussion Draft” of Regulation

**MEETING 5 – October 11, 2019**
Responded to comments received and presented updated “Discussion Draft”

- MDE has also been meeting with affected businesses, communities, environmental advocacy groups and other stakeholders in 1-on1 meetings or calls since 2017
Other State Programs

USCA also has working group on this issue
PROPOSED REGULATORY REQUIREMENTS
Overview of Requirements

Proposed Regulatory Requirements

- Natural Gas-Powered Pneumatic Devices
- Leak Detection and Repair
- Blowdown Notifications
- Reporting and Record-keeping
- Reciprocating Engines

• Built from 2016 NSPS OOOOa, and leading states with methane reduction programs such as Colorado and California
Applicability

- Existing and “Any new, modified, or reconstructed natural gas compressor station, natural gas underground storage facility, or liquefied natural gas facility.”

- Four compressor stations
  1. Dominion, Myersville
  2. TC Energy, Rutledge
  3. Transco, Ellicott City
  4. Texas Eastern, Accident

- One underground storage facility
  - Texas Eastern, Accident

- One import and liquefaction/export facility
  5. Dominion, Cove Point
Overview of Requirements

Proposed Regulatory Requirements

- Leak Detection and Repair
- Natural Gas-Powered Pneumatic Devices
- Blowdown Notifications
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- Reciprocating Engines
Leak Detection & Repair (LDAR): Summary of Requirements

Reg .03 (pgs. 2-4)

- Facilities to submit initial methane emissions monitoring plan within 90 days of regulation adoption - §A(5)
  - Procedures, equipment and observation path
  - Unsafe-to-monitor (UTM) and difficult-to-monitor (DTM) components with explanation

- First LDAR monitoring survey due within 180 days of effective date of regulation. - §A(8)(a)
  - Within 180 days at the startup of new facility

- Quarterly monitoring survey using Optical Gas Imaging (OGI) or Method 21 - §A(8)(a)
  - Exception for electric engines (monthly AVO, annual LDAR inspections) - §.03(B)
  - LNG specific requirements: Climate Action Plan and Maryland’s Public Service Commission Certificate of Convenience and Public Necessity (CPCN) LDAR requirements - §.03(C)

- Weekly Audio/Visual/Olfactory (AVO) Inspections - §A(7)
  - Natural Gas Storage field specific requirements §A(10)
Repairs should be made and confirmed within 30 days of discovering a leak.

Delay of Repair (DOR) provisions for documentation showing:
- Repair will take longer than 30 days due to need of specialty part
- Repair requires a vent or station blowdown
- Repair is unsafe to repair due to the operation of unit
- Repair can not be successfully completed due to technical issue, will require a plan to be approved by the Department
Overview of Requirements

Proposed Regulatory Requirements

- Natural Gas-Powered Pneumatic Devices
- Leak Detection and Repair
- Blowdown Notifications
- Reporting and Record-keeping
- Reciprocating Engines
Pneumatic Devices: Summary of Requirements

Reg .04 (pg. 4)

January 2021
• All natural-gas powered pneumatic devices subject to LDAR

January 2022
• Continuous bleed natural gas-powered pneumatics cannot exceed 6 standard cubic feet per hour (scfh)

January 2023
• Continuous bleed pneumatics shall use compressed air or electricity to operate unless exempt

• Additional requirements for exempt continuous bleed natural gas-powered devices - §D(1):
  1. Use a vapor collection system; or
  2. Tag device, inspect monthly, and perform maintenance
Overview of Requirements

Proposed Regulatory Requirements

- Reciprocating Engines
- Leak Detection and Repair
- Reporting and Record-keeping
- Blowdown Notifications
- Natural Gas-Powered Pneumatic Devices
Reciprocating Engines: Summary of Requirements

Reg .05 (pg. 4-5)

• Subject to LDAR - §A

• Two mitigation options:
  1. Vented gas is routed to a vapor control device - §B(1); OR
  2. Rod packing flow rate required to be measured annually and if exceeds emission threshold of 1 scfm:
     1. Replace rod packing; or
     2. Measure rod packing flow rate every six months until rod packing reaches 2 scfm, then replace within 30 days
## Reciprocating Engines: Rod Packing Replacement Schedule

<table>
<thead>
<tr>
<th>Condition</th>
<th>Rod packing flow rate (scfm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past Normal lubed packing, New</td>
<td>0.2 – 0.5</td>
</tr>
<tr>
<td>Past Non-lube Packing, New</td>
<td>0.5 – 1.0</td>
</tr>
<tr>
<td>Past Normal lubed packing, Partially Worn</td>
<td>1.0 – 2.0</td>
</tr>
<tr>
<td>Recommended Alarm Set point</td>
<td>2.0 – 3.0</td>
</tr>
<tr>
<td>Recommended Shutdown Set point</td>
<td>4.0 – 5.0</td>
</tr>
</tbody>
</table>

- The Department also reviewed information used to establish California standard (2 scfm) and Canada standard (0.81 scfm).

* November 7, 2019 e-mail from Cook Compression
Vapor Collection System: Summary of Requirements

Reg .06 (pg. 5)

• All gases collected with a VCS shall route all gases, vapors and fumes to:
  – Process gas system;
  – Fuel gas system; or
  – Vapor control device (VCD)

• VCS subject to LDAR and AVO inspections - §§ C and D

• VCD standards for destructive and non-destructive types - §E
Overview of Requirements

Proposed Regulatory Requirements

- Leak Detection and Repair
- Reporting and keeping
- Reciprocating Engines
- Natural Gas-Powered Pneumatic Devices
- Blowdown Notifications
Blowdowns:
Summary of Requirements

Reg .07 (pg. 6-7)

• Affected facilities shall submit blowdown notification plan to the Department for blowdown events in the excess of 1 million standard cubic feet (scf). Plans shall include:
  – Notification format (e.g. website, e-mail, text message, social media announcement)
  – Public outreach plan

• Affected facilities shall notify the Department and make blowdown information publicly available at least 7 days prior to any planned blowdown event. Any planned blowdown less than 7 days before event should be explained
  – Emergency blowdowns notification within one hour of occurrence, if possible

• All blowdown events within the facility fence-line that is greater than 50 scf shall be reported to MDE annually
  – Reporting format similar to EPA’s Greenhouse Gas Reporting Program.
Overview of Requirements

Proposed Regulatory Requirements

- Leak Detection and Repair
- Reporting and Record-keeping
- Reciprocating Engines
- Blowdown Notifications
- Natural Gas-Powered Pneumatic Devices
Reporting and Recordkeeping: Summary of Requirements

Reg .07 (pg. 5)

- LDAR report summary to be publicly posted on company website and submitted to the Department
- LDAR is part of the annual GHG reporting
- DOR records on-site unless requested
- Recordkeeping requirements
GHG Reporting: Summary of Requirements

Reg .07 (pg. 7)

- All facilities, regardless of the size of GHG emissions, will be required to report their GHG emissions to the Department annually - §§ C(1) and (3)

- MDE’s reporting requirements, calculation methodology, and procedures mirror EPA’s Greenhouse Gas Reporting Program - § C(2)

- Maryland reporting requirement will harmonize reporting with federal rule with modification
  - Facilities will be required to provide back-up calculation details
Tentative Schedule

• Air Quality Control Advisory Council: Today

• Proposed Regulation in the Maryland Register: May 2020

• Public Hearing and final comment period: June 2020

• Rule Adoption and Effective: Fall 2020
QUESTIONS AND DISCUSSION