



Bureau of Air Quality

# **Preliminary Draft Proposed RACT Regulation for the Oil and Natural Gas Industry**

Oil and Gas Technical Advisory Board

March 21, 2019

Tom Wolf, Governor

Patrick McDonnell, Secretary

# CTG BACKGROUND

- The United States Environmental Protection Agency (EPA) issues guidance called Control Technique Guidelines (CTG), in place of regulations, where they will be “substantially as effective as regulations” in reducing volatile organic compounds (VOC) from a product or source category in ozone nonattainment areas. States use CTG as guidance in determining reasonably available control technology (RACT) requirements.
- States in ozone nonattainment areas, including the ozone transport region (OTR), must revise their state implementation plans (SIP) to implement RACT for sources of VOC covered by a CTG.
- After a state promulgates a regulation implementing the requirements of the CTG, the State must submit the regulation to the EPA for approval as part of the state’s SIP.

## CTG BACKGROUND

- Section 172(c)(1) of the Clean Air Act (CAA) provides that a SIP for nonattainment areas must include “reasonably available control measures,” including RACT, for existing sources of emissions.
- CAA Section 184(b) requires that states in OTR must revise their SIP to implement RACT with respect to all sources of VOC covered by a CTG in the state.
- Pennsylvania (PA) is in the Northeast OTR, so RACT is required under Section 184 of the CAA for covered categories.

## WHAT IS RACT?

- EPA has defined RACT as: “the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.”
- The term “reasonably available” rather than “best available” is intended to take into account the remaining economic life of the unit as well as factors that could increase the cost of installing a technology on an existing unit, when determining the appropriate control technology.

# EPA'S PROPOSAL OF CTG

- On October 27, 2016, EPA issued the CTG for the Oil and Natural Gas Industry for emissions of VOC from existing sources.
- Within 2 years, DEP is required to submit SIP regulations to address RACT requirements for VOC emissions from the Oil and Gas Industry.
- EPA has applied an implementation deadline of January 1, 2021, for all RACT requirements of the CTG as provided in 40 CFR 51.1112(a)(3).

## EPA'S WITHDRAWAL REQUEST OF CTG

- On March 9, 2018, EPA requested public comment on a potential withdrawal of the CTG due to its reconsideration of requirements of the 2016 NSPS.
- The EPA's rationale for the potential withdrawal was that the CTG relied upon data and conclusions made in the 2016 New Source Performance Standards (NSPS) that is currently under reconsideration.
- DEP submitted comments to EPA on April 23, 2018, expressing opposition for the comprehensive withdrawal of the CTG.

## EPA'S WITHDRAWAL REQUEST OF CTG

- On October 15, 2018, EPA proposed amendments to the 2016 NSPS requirements as a result of reconsideration.
- The proposed amendments include changes to the frequency for monitoring fugitive emissions (also known as “leaks”) at well sites and compressor stations, requirements for pneumatic pumps at well sites, and requirements for professional engineer certification.
- Despite EPA’s proposed withdrawal of the CTG, DEP intends to develop the regulations for existing sources at natural gas and oil facilities with due consideration to the proposed changes.

# DEP'S DRAFT REGULATION

- DEP's Draft Regulation places controls on VOC emissions, which reduces methane emissions as a co-benefit since both VOC and methane are found in field gas.
- Each source that was selected for RACT recommendations in the CTG was evaluated to determine RACT and whether the proposed regulation complies with the CTG.
- For each source, the regulation achieves equivalent or greater VOC reductions than the comparable CTG requirement.

## SOURCES COVERED

- The regulation will affect the following sources of VOC emissions in the oil and natural gas industry that were in existence on or before the effective date of adoption of the regulation:
  - Storage vessels
  - Natural gas-driven pneumatic controllers
  - Natural gas-driven diaphragm pumps
  - Compressors (Centrifugal and Reciprocating)
  - Fugitive emissions components

# STORAGE VESSELS

- Storage vessels installed prior to August 10, 2013:
  - 95% reduction of VOC emissions is required.
  - If PTE is less than 6 TPY as determined monthly, for 12 consecutive months, 95% control is not required.
  - If actual VOC emissions without controls are less than 4 TPY, as determined monthly, for 12 consecutive months, 95% control is not required, provided uncontrolled VOC emissions remain below 4 TPY.
- Storage vessels installed on or after August 10, 2013:
  - 95% reduction of VOC emissions is required if VOC emissions are over 2.7 TPY.

# PNEUMATIC CONTROLLERS

- Natural gas processing plant:
  - Natural gas bleed rate of zero standard cubic feet per hour (scfh). There are exceptions for functional needs including, but not limited to, response time, safety and positive actuation that require higher bleed rate.
- Wellhead and gathering & boosting stations to processing plants or point of custody transfer:
  - Natural gas bleed rate  $\leq 6$  scfh. There are exceptions for functional needs including, but not limited to, response time, safety and positive actuation that require higher bleed rate.

# PNEUMATIC PUMPS

- Well site:
  - Require routing of VOC emissions from the pump to an existing onsite control device or process with 95% control unless:
    - The pump is in operation for less than 90 calendar days per year.
    - There is no existing control device at the location.
    - The onsite existing control device cannot achieve 95%. The emissions must still be routed to the control device.
    - Routing the VOC emissions to an existing control device or process is technically infeasible.
- Natural gas processing plant:
  - Zero VOC emissions is required.

# CENTRIFUGAL COMPRESSORS

- Centrifugal compressor using wet seals that is located between the wellhead and point of custody transfer to the natural gas transmission and storage segment:
  - Reduce VOC emissions from each centrifugal compressor wet seal fluid gassing system by 95%.
  - Centrifugal compressors using wet seals located at a well site, or an adjacent well site and serving more than one well site are exempt from RACT requirements.
  - Centrifugal compressors using dry seals are exempt from RACT requirements.

# RECIPROCATING COMPRESSORS

- Reciprocating compressor located between the wellhead and point of custody transfer to the natural gas transmission and storage segment:
  - Reduce VOC emissions by replacing reciprocating compressor rod packing on or before 26,000 hours of operation or 36 months since the most recent rod packing replacement.
  - Alternatively, route rod packing emissions to a process through a closed vent system under negative pressure.
  - Reciprocating compressors at a well site, or an adjacent well site and servicing more than one well site are exempt from RACT requirements.

# FUGITIVE EMISSIONS COMPONENTS

- Fugitive emissions (leaks) from individual well sites with wells with a gas-to-oil ratio (GOR)  $\geq 300$  that produce, on average,  $> 15$  barrel of oil equivalents (boe) per well per day:
  - Develop and implement quarterly leak detection and repair (LDAR) program covering fugitive emissions components within a company-defined area.
  - Survey methods include optical gas imaging (OGI), EPA Method 21, or a DEP approved alternative. A leak is defined as any visible emission in OGI, a reading of 500 ppm as methane for Method 21, or as detailed in the alternative method.
  - Owners or operators may reduce the inspection frequency to semiannually if less than 2% of components are discovered to be leaking in two consecutive quarterly tests. Quarterly inspections resume if 2% or more of components are found leaking in any semiannual inspection.

## LEAKS (EQUIPMENT LEAKS & FUGITIVE EMISSIONS)

- Fugitive emissions at individual gathering & boosting stations and natural gas processing plants located from the wellhead to the point of custody transfer to the natural gas transmission and storage segment, or an oil pipeline:
  - Develop and implement quarterly LDAR program covering fugitive emissions components within a company-defined area.
  - Survey methods include OGI, EPA Method 21, or a DEP approved alternative. A leak is defined as any visible emission in OGI, a reading of 500 ppm as methane for Method 21, or as detailed in the alternative method.

# CONCLUSION

- On October 27, 2016, EPA issued CTG for the Oil and Natural Gas Industry for emissions of VOC from existing sources.
- On March 9, 2018, EPA requested public comment on a potential withdrawal of the CTG because EPA believed the CTG relied upon data and conclusions made in the 2016 NSPS that is currently under reconsideration. DEP provided comments on April 23, 2018.
- Despite EPA's proposed withdrawal of the CTG, DEP intends to develop RACT regulations for existing sources at natural gas and oil facilities, and will demonstrate that additional VOC emission reductions from the source category are technically and economically feasible.



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DEPARTMENT OF ENVIRONMENTAL PROTECTION



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## **Questions and Contacts**

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