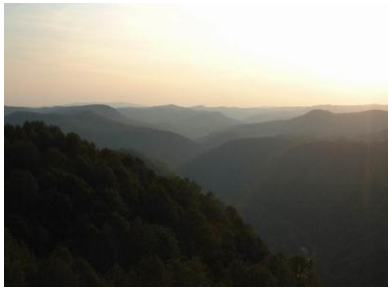
Air Permitting Issues Surrounding Natural Gas Compressor Stations



West Virginia Division of Air Quality

Air Quality Permits are Required for the Following

- The source is subject to any substantive requirement
- Discharges **> 144 lbs per/day, 6 lbs per/hr, 10 tons per/yr,** of any regulated air pollutant
- Discharges more than 2 pounds per hour or 5 tons per year of hazardous air pollutants
- Discharges any toxic air pollutant(s) in an amount greater than Table 45-13A

The Permitting Process

- Applicant submits the necessary application forms to the Division of Air Quality (DAQ).
- Application is reviewed for completeness and applicant is notified of any deficiencies.
- Application undergoes a technical review to determine which air quality rules apply.

The Permitting Process *(cont'd.)*

- If the application meets all applicable air quality rules, the DAQ publishes a notice of intent to approve the draft permit which provides for a 30 day public comment period.
- A copy of the engineering evaluation and draft permit is available for public review.
- Any received comments are reviewed and addressed by the DAQ.
- Final permit decision is made.

What is a natural gas production site?

- Located at an existing OOG permitted well pad
- Gathers gas from all of the well heads on the site and prepares the gas for use by removing unwanted liquids and other impurities.
- Equipment generally found at these sites include
  - Compressors
  - Gas production units
  - Heater-treaters
  - Low-pressure towers
  - Vapor combustors
  - Condensate & storage tanks

Equipment

What is a natural gas compressor station?

- The compressor station is the “engine” that powers a natural gas pipeline. The compressor station compresses the natural gas (pumping up its pressure) thereby providing energy to move the gas through the pipeline.

- Natural gas companies install compressor stations along a pipeline route. The size of the station and the number of compressors varies, based on the diameter of the pipe and the volume of gas to be moved.

Construction Stormwater Permitting

Types of Pollutants

Combustion Sources – Nitrogen Oxides, Carbon Monoxide, Volatile Organic Compounds, Sulfur Dioxide, Particulate Matter.

- Sources of combustion include engines, emergency generators, reboilers and hot oil heaters.

Types of Pollutants *(cont'd.)*

Natural Gas Dehydration – Volatile Organic Compounds, Benzene, Toluene, Ethylbenzene, Xylene, trace amounts of other constituents.

In the dehydration process, gas passes through a contactor vessel where water is absorbed.

Types of Pollutants *(cont'd.)*

Tanks – Volatile Organic Compounds.

- Condensate dropout from produced water and other pipeline fluids are stored in storage tanks and transported off-site.

What Rules Apply?

- EPA's operating and construction permit rules
- West Virginia's pre-construction permit rules
- National Emissions Standard for Hazardous Air Pollutants (NESHAPs)
- New Source Performance Standards (NSPS)
- Greenhouse Gas Reporting

What Rules May Apply?

Rule	Sources	Pollutants	Requirement
45CSR13	Criteria pollutants emitted above 6 pph and 10 tpy. HAPs emitted above 2 pph or 5 tpy.	Criteria Pollutants (Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Volatile Organic Compounds (VOC), Sulfur Dioxide (SO_2), Particulate Matter (PM)), Hazardous Air Pollutants (HAPs)	Required to obtain air quality permit.
45CSR2	Hot Oil Heater, Reboiler	PM	Visible emission readings, particulate matter emission limits.
45CSR6	Flare	PM	Particulate matter emission limits. Temporary flares meeting specific requirements are exempt from this rule.
40CFR60.18	Flare	VOC	98% destruction efficiency of VOC emissions.
40CFR60 Subparts K, Ka, Kb	Storage Tanks	VOC	Prescribed control devices on storage tanks to reduce VOC emissions.
40CFR60 Subpart GG	Gas Turbines	NO_x, SO_2	Must meet the emission control limits for NO_x and SO_2. Must conduct performance testing.
40CFR60 Subpart KKK	Natural Gas Processing Plants	VOC	Must conduct Leak Detection and Repair (LDAR) on all processing equipment to reduce VOC emissions.
40CFR60 Subpart LLL	Natural Gas Sweetening Plants	SO_2	Must conduct appropriate testing and monitoring to show compliance of SO_2 limit for the gas sweetening facility.

What Rules May Apply? *(cont'd.)*

40CFR60 Subpart IIII	Diesel Fired Engines	VOC, NO_x, CO, PM	Emission limits that may require the use of air pollution control devices. Must conduct performance testing.
40CFR60 Subpart JJJJ	Natural Gas Fired Engines	VOC, NO_x, CO	Emission limits that may require the use of air pollution control devices. Must conduct performance testing.
40CFR60 Subpart KKKK	Gas Turbines	NO_x, SO_2	Must meet the emission control limits for NO_x and SO_2. Must conduct performance testing.
40CFR60 Subpart OOOO	Gas Wells, Compressors, Pneumatic Controllers, Storage Vessels, Sweetening Units	VOC, SO_2	Must meet the emission control limits for VOC and SO_2. Must conduct appropriate testing, monitoring and recordkeeping.
40CFR63 Subpart H	Equipment Leaks	HAPs	Varies depending upon source category.
40CFR63 Subpart HH	Tanks, Equipment Leaks, Glycol Dehydration Units at Production Facilities	HAPs	Must control HAP emissions from tanks, equipment leaks, and glycol dehydration units. Must conduct appropriate testing, monitoring and recordkeeping.
40CFR63 Subpart VV	Oil-Water Separators	HAPs	Varies depending upon source category. Must conduct appropriate testing, monitoring and recordkeeping.
40CFR63 Subpart HHH	Glycol Dehydration Unit	HAPs	Must control HAP emissions from glycol dehydration units. Must conduct appropriate testing, monitoring and recordkeeping.

What Rules May Apply? *(cont'd.)*

40CFR63 Subpart YYYY	Gas Turbines	HAPs	Must control HAP emissions from stationary gas turbines. Must conduct appropriate testing, monitoring and recordkeeping.
40CFR63 Subpart ZZZZ	Reciprocating Internal Combustion Engines	HAPs	Emission limits that may require the use of air pollution control devices. Must conduct appropriate testing, monitoring and recordkeeping.

Questions about DEP Considering Cumulative Impacts

Q: Why doesn't DEP consider the combined effects from multiple facilities/activities located in the same geographical area emitting**: < 144 lbs per/day, 6 lbs per/hr, 10 tons per/yr?**

A: DEP does consider it, to some degree.

1) Statewide Ambient Monitoring Network
   - Six principal pollutants:
     1. ground-level ozone
     2. particulate matter
     3. sulfur dioxide
     4. carbon monoxide
     5. nitrogen dioxide
     6. lead.

2) DEP must have Legislative Authority

3) WVDEP reports to USEPA

Working with EPA

Q: What happens if WV fails to meet AQ standards?

A: EPA designates the region as a “nonattainment area”

- DEP is then required to develop a state implementation plan to achieve and maintain air quality standards in that area.
- State implementation plans must be approved by EPA.

In addition:

- EPA must conduct periodic reviews to determine whether AQ standards should be revised.

- EPA is in the process now and expects to see more “green completions”, giving us a 95% reduction in VOC emissions

- Estimated revenues from selling the gas that currently goes to waste are expected to offset the costs of compliance,

- EPA’s analysis of the rules show cost savings of $11 to $19 million when the rules are fully implemented in 2015.

A Work in Progress

Report from EPA's Office of Inspector General
February 20, 2013

"EPA Needs to Improve Air Emissions Data for the Oil and Natural Gas Production Sector" www.epa.gov

Thank You

Questions…….Comments.....Complaints?

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