EPA's Air Rules for the Oil & Natural Gas Industry

SUMMARY OF REQUREMENTS FOR EQUIPMENT AT NATURAL GAS TRANSMISSION COMPRESSOR STATIONS

On May 12, 2016, EPA issued final updates to its New Source Performance Standards (NSPS) for the oil and gas industry to reduce emissions of greenhouse gases – most notably methane – along with smog-forming volatile organic compounds (VOCs). The updates affect some equipment at natural gas transmission compressor stations, which move gas along a pipeline. In addition to compressors, compressors stations often include equipment to remove and store water vapor, condensate and other remaining impurities

The updates add requirements for detecting and repairing leaks, and requirements to limit emissions from compressors and pneumatic controllers used at compressor stations.

Requirements for New, Modified and Reconstructed Sources Not Covered in the 2012 Rules

Compressors

- Compression is necessary to move natural gas along a pipeline. The 2016 final rule sets requirements to control greenhouse gases (through a limit on methane emissions) and VOCs from two types of compressors used at natural gas compressor stations: centrifugal compressors and reciprocating compressors.
- ***Centrifugal compressors*** - Centrifugal compressors are equipped with either wet seal systems, or dry seal systems.
    - Compressors with wet seals use oil as a barrier to keep gas from escaping. The gas that becomes absorbed in the oil is continuously vented, along with the methane, VOCs and air toxics it contains. The final rule requires a 95 percent reduction of methane and VOC emissions from compressors with wet seal systems. This can be accomplished through flaring, or by routing captured gas back to a process.
    - Compressors using dry seal systems, which have low methane and VOC emissions, are not covered by the final rule. EPA encourages owners/operators to use compressors with dry seal systems where possible.
- ***Reciprocating compressors*** – The final rule requires the replacement of rod packing systems in reciprocating compressors. Over time, these packing systems can wear, leaking methane and VOCs. The rule provides two options for replacing rod packing:
    - On or before every 26,000 hours of operation (operating hours must be monitored and documented); or

- Every 36 months (monitoring and documentation of operating hours not required).

- As an alternative to changing rod packing, operators may opt to route emissions from the rod packing via a closed vent system under negative pressure to be reused or recycled by a process or piece of equipment.
- The final rule also includes requirements for recordkeeping and annual reporting.

Pneumatic Controllers

- Pneumatic controllers are automated instruments used for maintaining liquid levels, pressure and temperature. These controllers often are powered by high-pressure natural gas and may release gas (including methane and VOCs) with every valve movement, or continuously, in many cases, as part of their normal operations.
    - For continuous bleed, gas-driven controllers, the final rule sets a gas bleed limit of 6 standard cubic feet of gas per hour at an individual controller.
    - Low-bleed controllers used at compressor stations (with a gas bleed rate of 6 standard cubic feet per hour or less) are not subject to this rule.
- The rule includes exceptions for applications requiring high-bleed controllers for certain purposes, including operational requirements and safety. The rule also includes requirements for recordkeeping and annual reporting.

Finding and Repairing Leaks (Fugitive Emissions)

- Leaks, also known as "fugitive emissions," can occur at a number of points at a compressor station when connections are not properly fitted or when seals and gaskets start to deteriorate. Leaks can be a significant source of methane and VOC emissions in the oil and gas industry.
- The updated NSPS requires that owners/operators of compressor stations develop and implement a leaks monitoring plan. Owners/operators must use a technology known as optical gas imaging to conduct a leaks survey. Optical gas imaging equipment uses a special camera to "see" emissions of methane and VOCs.
    - Owners/operators may use "Method 21" as an alternative to optical gas imaging. Method 21 is an EPA method for determining VOC emissions from process equipment. The method is based on using a portable VOC monitoring instrument, such as an organic vapor analyzer (sometimes referred to as a "sniffer").
- For new and modified compressor stations, owners/operators must conduct the initial survey within one year after the final rule is published in the Federal Register or within 60

days of the startup of a new or modified compressor station, whichever is later. Monitoring must be repeated quarterly following the initial survey.

- The survey covers a number of components, including valves, connectors, pressure-relief devices, open-ended lines, flanges, compressors, and thief hatches on controlled storage tanks, among others.
- Any leaks found during the surveys must be repaired within 30 days, unless the repair would require shutting down. In that case, owners/operators are required to fix the leak at the next scheduled shutdown, or within two years.
    - Equipment that vents natural gas as part of normal operation is not considered to be leaking and is not be covered by this requirement; however, leaks surveys can also help operators detect malfunctions in these devices, such as pneumatic controllers.
- The final rule also creates a path for EPA to allow use of alternative leaks monitoring technology, which is developing rapidly. The rule outlines the information owners/operators must submit to show that using the alternative technology is capable of achieving equivalent methane and VOC reductions that can be achieved by using optical gas imaging or Method 21 to find leaks, and then repair them.

Pneumatic Pumps

- EPA is not finalizing requirements for pneumatic pumps used at compressor stations. After considering information in the record and comments on the proposed rule, EPA has determined information about the prevalence of pneumatic pump use at compressor stations is not reliable at this time.

Storage Tanks

- The 2012 rules included requirements for storage tanks across the oil and gas sector. The 2016 final NSPS does not change those requirements.

For More Information

- To read the final rule, and for summary information on requirements for other types of facilities in the oil and gas industry, visit www.epa.gov/airquality/oilandgas