SOMETHING IN THE AIR: THE OIL AND GAS RULE

Jeff Voorhis
HY-BON ENGINEERING COMPANY

New technologies have made hydraulic fracturing an economical possibility and have allowed industry to tap into shale gas that was previously far too expensive to extract. Not only has science and technology allowed us to tap into previously unattainable resources, it has also allowed us to better understand the effect of oil and gas drilling and production operations have on public health and the environment. The most up-to-date science and emission detection systems have greatly evolved revealing large amount of waste gas are being released in the air. Unfortunately, our laws have not…until recently. Up to the present, most states have been applying old permit standards to an industry where science and technology are evolving on a daily basis. For example; Texas still operates under the same standard permit that it adopted in 1996. Due to better understanding of emissions and lawsuits recent federal regulations have been passed which will have a major effect on the industry.

A new federal air quality rule governing midstream and upstream activity is in effect. Federal rules will supersede state rules. The 'Oil and Gas' rule was published in the *Federal Register* on August 16, 2012. Sixty days following publication (October 15, 2012) the rule became final which means the clock is ticking. The rule, also known by its more formal citation 40 CFR Part 60 Subpart OOOO, or 'New Source Performance Standards (NSPS) Subpart Quad O' contains new regulations and revisions to existing statutes. This rule will have a major impact on how the Oil and Gas industry has been operating regarding waste gas emissions. Reverberations will be felt across the industry by these more stringent rules governing upstream exploration and production segment as well as the midstream segment. The largest source of waste emissions will be generated by storage vessels.

According to World Oil's estimate of oil producing wells, based on surveys of state agencies and company sources, indicates there are over 536,000 oil producing wells and 485,000 gas producing wells. A summing total of 1,021,000 active wells in the United States (US). These numbers are increasing as the price of oil is hovering around $100/bbl as of February 2013. Also new discoveries of oil rich and gas plays throughout the US such as the Cline, Bakken, Eagle Ford are increasing drilling activity.

According to the Energy Information Administration (EIA) the rig activity was approximately 1950 per month for year 2012. The average time to drill a 10,000 foot well is 4 weeks. Therefore, 12 months x 1950 wells = 23,400 new wells. Assume 75% percent will go to central gathering systems tanks, resulting in 5850 tank batteries that will require emission control. The world demand for oil and gas is increasing; along with US efforts towards energy independence will cause the rig activity to remain in the 1900- 2000 range for the next 5 years. A conservative 5 year estimate would be 22,000 new tank batteries in the US that will need emission controls to meet the new required regulations.

Stakeholders operating in the industry should take careful notice. Technology advances in monitoring; identifying; and measurement have increased drastically in the last 10 years and are being used for inspection by both industry and government. Vapor recovery and other capture techniques have also improve with more reliability and better function controls from new technology. This will allow capture and recovery of emissions with economic payback while maintaining compliance. The increased recordkeeping/reporting and testing requirements will likely require additional staff or contract workers. The possibility of short-term regional equipment shortages may also exist due to the highly regional nature of the work and rapid implementation requirements.

HYDRAULIC FRACTURING

Perhaps the most publicized portion of the rule deals with Hydraulic Fracturing (or fracking). As written, a phase-in period has been implemented immediately following the publishing of the rule in the *Federal Register*.

Prior to January 1, 2015: At a minimum a completion combustion device must be used to reduce VOC emissions at any new or recompleted well. Alternatively a Reduced Emissions Completions (REC) process may be used. A REC process allows for the capture, re-injection or sale of captured VOC from the flow back phase of a fracking operation. Some states such as Colorado already require this process. A processor will be required to meet the more stringent of the standards.

On or after January 1, 2015: All new or recompleted gas well will be required to use a REC process to capture VOC emissions. Some exemptions will be allowed for low-pressure, exploration or 'infeasible' wells. Operators will be required to provide email notification to the agency at least two days prior to the commencement of completion work.

STORAGE TANKS

New, modified or reconstructed 'storage tanks' that have the potential to emit over six tons per year of VOCs are required to reduce those emissions by at least 95%. Following a one year phase in period, a new site with no existing wells will have 30 days to determine potential emissions and another 30 days to install the tank and controls. New wells at existing sites are required to install tank controls at the time of startup. Storage tanks will be the largest source of waste emissions. Therefore, this area has the greatest opportunity for compliance requirements, combustion, vapor recovery and economic payback.

COMPRESSORS

Compressors in the natural gas transmission and storage segments are not impacted, however all other segments of the oil and gas industry are subject to the rule. Centrifugal compressors with wet seal systems will be required to reduce VOC emissions. An initial test to demonstrate emission reductions is required. Reciprocating compressors must replace rod packing every 36 months or every 26,000 hours.

PROCESSING PLANTS

SO2 emission must be reduced at natural gas processing plants by at least 99%; this applies only to plants that have sulfur production rates of five long tons per day or more.

OTHER IMPACTS

The rule also outlines strict new standards for glycol dehydrators, pneumatic controllers and lead detection and repair.

Subpart Quad O will affect the industry in a very real way. Short-term impacts include:

- Implementation of recordkeeping and reporting requirements
- Engineering requirements to install equipment as required by the regulations
- Acute and/or localized shortages of emission control equipment
- Operational and logistical challenges to ensure that new regulations are being implemented and upheld

Longer-term impacts include:

- Greater cost of production/processing/etc.
- Uncertain impact on future regulatory requirements such as greenhouse gases and ozone non attainment areas
- Development of infrastructure to meet industry requirements

What is relatively certain is the fact that the regulatory environment surrounding the development and production of oil and gas in the US will continue to become more complex. Historically, similar increases in waste and emission regulations occurred in the petrochemical industry 15 years ago. The outcome was an increase in productivity and efficiency. The new requirements should be looked upon as an opportunity to increase better operating efficiency and productivity. Industry players should begin preparing to comply with this regulation as soon as possible. Prior preparation and a strategic plan will help a company integrate these regulations as smoothly as possible. Common sense and conservation of this finite resource will cause everybody both side of regulatory rules issues to breathe easier

SOURCES

World Oil, established in 1916 as ***The Oil Weekly***, is published monthly by Gulf Publishing Company. For over 90 years, the ***World Oil*** team has covered the Upstream Oil and Gas Industry by "Defining Technology for Exploration, Drilling and Production."

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