

## SUMMARY OF REQUIREMENTS FOR PROCESSES AND EQUIPMENT AT NATURAL GAS WELL SITES

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Equipment and processes at the well site may be covered by requirements under the New Source Performance Standards (NSPS) for volatile organic compounds, and the National Emissions Standard for Hazardous Air Pollutants (NESHAP) for oil and natural gas production. EPA has made a number of changes to these final rules based on public comments.

### VOC REDUCTIONS DURING NATURAL GAS WELL COMPLETIONS

#### NSPS Requirements for New Hydraulically Fractured Wells (drilled after Aug. 23, 2011)

- To ensure that smog-forming volatile organic compounds (VOCs) are controlled without slowing natural gas production, EPA's final NSPS for VOCs establishes two phases for reducing VOCs during well completion. This approach will provide industry time to order and manufacture enough equipment to capture natural gas using a process called *green completions*, also known as "reduced emissions completions."
- EPA established the phased approach to address concerns raised in comments related to the availability of equipment and operators to conduct green completions in time to meet compliance dates in the proposed rule.
  - **Phase 1:** In the first phase (before Jan. 1, 2015), industry must reduce VOC emissions either by flaring using completion combustion device or by capturing the gas using green completions with a completion combustion device (unless combustion is a safety hazard or is prohibited by state or local regulations).
  - A completion combustion device burns off the gas that would otherwise escape during the well-completion period (combustion generally would occur through pit flaring). Industry may use completion combustion devices to reduce VOC emissions until Jan. 1, 2015, unless state or local requirements prohibit the practice or require more stringent controls. EPA encourages industry to begin using green completions during this time.
  - **Phase 2:** Beginning Jan. 1, 2015, operators must capture the gas and make it available for use or sale, which they can do through the use of green completions.
    - EPA estimates that use of green completions for the three- to 10-day flowback period reduces VOC emissions from completions and recompletions of hydraulically fractured wells by 95 percent at each well.
    - Both combustion and green completions will reduce the VOCs that currently escape into the air during well completion. However, capturing the gas through a green completion prevents a valuable resource from going to waste and does not generate NO<sub>x</sub>, which is a

byproduct of combustion.

- Methane, a potent greenhouse gas, and air toxics, which are linked to cancer and other serious health effects, also would be significantly reduced as a co-benefit of reducing VOCs.
- **Exceptions for new wells:**  
Green completions are not required for:
  - New exploratory (“wildcat”) wells or delineation wells (used to define the borders of a natural gas reservoir), because they are not near a pipeline to bring the gas to market.
  - Hydraulically fractured low-pressure wells, where natural gas cannot be routed to the gathering line. Operators may use a simple formula based on well depth and well pressure to determine whether a well is a low-pressure well.
  - Owners/operators must reduce emissions from these wells using combustion during the well-completion process, unless combustion is a safety hazard or is prohibited by state or local regulations.

### **NSPS Requirements for Refractured Natural Gas Wells**

- Natural gas wells can be re-fractured to stimulate production or to produce natural gas from a different production zone. Today’s rules provide an incentive for owners and operators of existing wells to use green completions earlier than required:
  - Gas wells that are refractured and recompleted ***will not be considered to be “modified”*** if well owners and operators use green completions rather than flaring to reduce emissions, and they meet notification and reporting requirements for new wells.
    - In a number of states, this will allow owners/operators to refracture wells without triggering state permitting requirements. This flexibility reduces burden both to industry and permitting agencies, without compromising the environmental benefits of today’s rule.
  - Owners/operators of refractured gas wells may choose to reduce emissions through flaring until January 1, 2015, when they must use green completions. These wells would be considered to be modified under today’s rule.

### **NSPS Notification and Reporting Requirements for Well Completions**

- EPA has added notification and reporting requirements that improve accountability while reducing burden to owners and operators.
- **Notification:**
  - Owners or operators of hydraulically fractured and refractured natural gas wells must notify EPA (or in some cases, a state or local air agency) by e-mail no later than two days before completion work begins. The notification must include geographic coordinates of the affected wells and the estimated date that well completion will begin. In response to comments, EPA did not finalize a 30-day notification requirement.

- Well owners/operators who are subject to state advance notification requirements for well completions will meet EPA's requirements by meeting the state notification requirements.
- **Reporting :**
  - Each year, owners/ operators must submit a report on their well completions that is certified by a senior company official attesting to the report's truth, accuracy and completeness. This report may be submitted in two forms:
    - A traditional report detailing each well completion, along with information on compressors, pneumatic controllers and storage tanks constructed, modified or reconstructed during the year. The report also must report any deviation from the requirements in today's rules.
    - In lieu of the traditional report for well completions, owners/operators may submit a list of well completions accompanied by a digital photograph of each green completion in progress. The photo must include digital stamps the geographic coordinates of the well and the date of the well completion.

## **REQUIREMENTS FOR OTHER EQUIPMENT AT NATURAL GAS WELL SITES**

### **NSPS Requirements for New & Modified Pneumatic Controllers**

- Pneumatic controllers are automated instruments used for maintaining a condition such as liquid level, pressure, and temperature at wells and gas processing plants, among other locations in the oil and gas industry. These controllers often are powered by high-pressure natural gas and may release gas (including VOCs and methane) with every valve movement, or continuously in many cases as part of their normal operations.
- The final rule affects high-bleed, gas-driven controllers (with a gas bleed rate greater than 6 standard cubic feet per hour) that are located between the wellhead and the point where gas enters the transmission pipeline.
  - Today's rule sets limits for controllers based on location. For controllers used at the well site, the gas bleed limit is 6 cubic feet of gas per hour at an individual controller.
  - The final rule phases in this requirement over one year, to give manufacturers of pneumatic controllers time to test and document that the gas bleed rate of their pneumatic controllers is below 6 cubic feet per hour.
  - Low-bleed controllers used at well sites (with a gas bleed rate less than 6 standard cubic feet per hour) are not subject to this rule.
- The final rule includes exceptions for applications requiring high-bleed controllers for certain purposes, including operational requirements and safety. The rule also includes requirements for initial performance testing, recordkeeping and annual reporting.

### **Requirements for Storage Vessels at the Well Site**

- Storage tanks at natural gas well sites are commonly used to store condensate, crude oil and produced water. These tanks may be subject to two standards: the NSPS for VOCs, and the major source air toxics standards (NESHAP) for Oil and Natural Gas Production.

- **NSPS requirements:** New storage tanks with VOC emissions of 6 tons a year or more must reduce VOC emissions by at least 95 percent. EPA expects this will generally be accomplished by routing emissions to a combustion device.
  - To ensure enough combustion devices are available, the final rule provides a one-year phase-in for this requirement.
  - After one year, owners/operators of new storage tanks at sites with wells in production must comply. Owners/operators at sites with no wells in production will have 30 days to determine the emissions from a tank; and another 30 days to install controls.
- **Air toxics requirements:** In response to public comments, EPA did not finalize proposed air toxics standards for storage vessels *without* the potential for flash emissions, which currently are not regulated under the NESHAP for Oil and Natural Gas Production. The agency determined that it needs additional data in order to establish emission standards for this type of storage vessel. The previous standards for storage tanks *with* the potential for flash emissions remain in place.
- The final rule amends the definition of “associated equipment,” meaning that emissions from all storage vessels now will be counted toward determining whether a facility is a major source under the NESHAP for Oil and Natural Gas Production

#### **Air Toxics Requirements for Glycol Dehydrators at the Well Site**

- Glycol dehydrators, used to remove water vapor from gas, are subject to one of two air toxics standards, depending on their location. Dehydrators located at the well site are subject to the NESHAP for Oil & Natural Gas Production.
- Today’s rule retains the existing standards for large glycol dehydrators and sets new standards for small glycol dehydrators. A glycol dehydrator is used to remove excess water vapor from natural gas.
  - **Large dehydrators:** The final rule also retains the existing the 1-ton-per year benzene compliance option for large glycol dehydrators, meaning operators may reduce benzene emissions from large dehydrators to less than 1 ton per year as an alternative to reducing total air toxics emissions by 95 percent.
  - **Small dehydrators:** A dehydrator is considered small if it has an annual average natural gas throughput of less than 85,000 standard cubic meters per day, or actual annual average benzene emissions of less than 1 ton per year.
    - Both existing and new small glycol dehydrators must meet a unit-specific limit for emissions of BTEX (benzene, toluene, ethylbenzene and xylene) that is based on the unit’s natural gas throughput and gas composition. The limit is determined by applying a formula set out in the final rule.
- New small glycol dehydrators must comply with the air toxics requirements immediately upon startup or within 60 days after the final rule is published in the Federal Register, whichever is later. Existing small glycol dehydrators must comply within three years after the effective date of the rule. A small glycol dehydrator is considered existing if construction or reconstruction

began before Aug. 23, 2011.

- Today's rule applies only to sources that are considered "major sources" of air toxics. A major source emits 10 or more tons a single air toxic and 25 tons or more of a combination of toxics in a year.

#### **MORE INFORMATION**

- For summary information on requirements for other types of facilities, or to read the final rules, visit [www.epa.gov/airquality/oilandgas](http://www.epa.gov/airquality/oilandgas)