

EPA Proposes New Methane and VOC Emissions Limits

Proposed new limits, intended to combat global warming, potentially affect numerous oil and gas operations.

On September 18, 2015, the United States Environmental Protection Agency (EPA) proposed new limits on emissions of methane and volatile organic compounds (VOC) for oil and natural gas operations, including production, processing, transmission and storage.¹ The proposal adds methane standards for certain new, modified and reconstructed sources currently regulated for VOC, and methane and VOC standards for currently unregulated sources. EPA cites the global warming potential of methane as the primary justification for establishing new standards for this pollutant. Sectors potentially affected by the proposed standards include:

- Crude petroleum and natural gas extraction
- Natural gas liquid extraction
- Natural gas distribution
- Pipeline distribution of crude oil
- Pipeline transportation of natural gas

Specific operations, equipment and processes subject to the proposed standards include:

- Well completions
- Fugitive emissions
- Pneumatic pumps
- Pneumatic controllers, centrifugal compressors and reciprocating compressors
- Equipment leaks at natural gas processing plants

Legal and Regulatory Authority

The new standards are proposed under authority granted to EPA in Section 111 of the Clean Air Act, which authorizes EPA to develop technology based standards for specific categories of new, modified and reconstructed stationary sources.² These standards are referred to as New Source Performance Standards (NSPS).

EPA has the authority to define source categories, determine the pollutants for which standards should be developed, and identify within each source category the facilities for which standards of performance would be established.³ The term “standard of performance” means “a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.”⁴ Thus, the standard of performance must be based on controls that constitute the best system of emission reduction (BSER) that has been adequately demonstrated. Generally, the standards are numerical emissions limits, expressed as a performance level. EPA does not typically prescribe a particular technological system that must be used to comply with a standard of performance, but allows sources to select any measure or combination of measures that will achieve the emissions level of the standard.

The NSPS apply to new, modified and reconstructed sources.

- The term “new source” means “any stationary source, the construction or modification of which is commenced after the publication of regulations (or, if earlier, proposed regulations) prescribing a standard of performance under this section which will be applicable to such source.”⁵
- The term “modification” means “any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted.”⁶
- The term “reconstruction” means “the replacement of components of an existing facility to such an extent that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and (2) It is technologically and economically feasible to meet the applicable standards set forth in this part.”⁷

The NSPS are set forth at Title 40 of the Code of Federal Regulations (CFR) Part 60. EPA’s current proposal would amend existing Subpart OOOO and create a new Subpart OOOOa. Subpart OOOO would apply to facilities constructed, modified or reconstructed after August 23, 2011 (*i.e.*, the original proposal date of Subpart OOOO) and before September 18, 2015 (*i.e.*, the proposal date of the new Subpart OOOOa) and would be amended only to include certain implementation improvements. New Subpart OOOOa would apply to facilities constructed, modified or reconstructed after September 18, 2015 and would include current VOC requirements already provided in Subpart OOOO as well as new provisions for methane and VOC.

Natural Gas Source Category

EPA provides extensive support for a broad interpretation of the natural gas source category. EPA initially identified the “crude oil and natural gas production” source category as one for which it would promulgate standards of performance in 1979.⁸ In the current proposal, EPA interprets the 1979 category listing to broadly cover the oil and natural gas industry, including all segments of the natural gas industry (production, processing, transmission and storage). EPA further states that to the extent there is ambiguity as to the scope of the prior listing, it is proposing to revise the category listing to include the various segments of the natural gas industry. In support, EPA provides information and analyses detailing the public health and welfare impacts of greenhouse gas, VOC and sulfur dioxide emissions and the amount of these emissions from the oil and natural gas source category (in particular from the various segments of the natural gas industry).

Summary of Proposed Standards

Compressors. EPA is proposing a 95% reduction of methane and VOC emissions from wet seal centrifugal compressors (except for those located at well sites). For reciprocating compressors (except for those located at well sites), EPA is proposing to reduce methane and VOC emissions by requiring that owners and/or operators replace the rod packing based on specified hours of operation or elapsed calendar months or route emissions from the rod packing through a closed vent system under negative pressure.

Pneumatic controllers. EPA is proposing a natural gas bleed rate limit of six standard cubic feet per hour (scfh) to reduce methane and VOC emissions from individual, continuous bleed, natural gas-driven pneumatic controllers at locations other than natural gas processing plants. At natural gas processing plants, the proposed rule regulates methane and VOC emissions by requiring natural gas-operated pneumatic controllers to have a zero natural gas bleed rate.

Pneumatic pumps. The proposed standards for pneumatic pumps would apply to certain types of pneumatic pumps across the entire source category. At locations other than natural gas processing plants, EPA is proposing that the methane and VOC emissions from natural gas-driven chemical/methanol pumps and diaphragm pumps be reduced by 95% if a control device is already available on site. At natural gas processing plants, the proposed standards would require the methane and VOC emissions from natural gas-driven chemical/methanol pumps and diaphragm pumps to be zero.

Hydraulically fractured oil well completions. For subcategory 1 wells (non-wildcat, non-delineation wells), EPA is proposing that for hydraulically fractured oil well completions, owners and/or operators use reduced emissions completions, also known as “RECs” or “green completions,” to reduce methane and VOC emissions and maximize natural gas recovery from well completions. To achieve these reductions, owners and operators of hydraulically fractured oil wells must use RECs in combination with a completion combustion device. The proposed rule does not require RECs where their use is not feasible (e.g., if it is technically infeasible for a separator to function). For subcategory 2 wells (wildcat and delineation wells), EPA is proposing that for hydraulically fractured oil well completions, owners and/or operators use a completion combustion device to reduce methane and VOC emissions.

Fugitive emissions from well sites and compressor stations. EPA is proposing that new and modified well sites and compressor stations (which include the transmission and storage segment and the gathering and boosting segment) conduct fugitive emissions surveys semiannually with optical gas imaging (OGI) technology and repair the sources of fugitive emissions that are found during those surveys within 15 days. EPA is also co-proposing OGI monitoring surveys on an annual basis for new and modified well sites, and requesting comment on OGI monitoring surveys on a quarterly basis for both well sites and compressor stations. EPA intends to continue to encourage corporate-wide voluntary efforts to achieve emission reductions through responsible, transparent and verifiable actions that would obviate the need to meet obligations associated with NSPS applicability, as well as avoid creating disruption for operators following advanced responsible corporate practices. Based on this concept, EPA solicits comment on criteria it can use to determine whether and under what conditions well sites and other emission sources operating under corporate fugitive monitoring plans can be deemed to meet the equivalent of the NSPS standards for well site fugitive emissions.

Opportunity for Comments

Written comments on the proposed limits must be received by EPA on or before November 17, 2015. EPA also plans to hold public hearings on the proposed rules at times and locations to be announced.

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Endnotes

¹ 80 FR 56593 (September 18, 2015).

² 42 U.S.C. § 7411.

³ 42 U.S.C. § 7411(b).

⁴ 42 U.S.C. § 7411(a)(1).

⁵ 42 U.S.C. § 7411(a)(2).

⁶ 42 U.S.C. § 7411(a)(4).

⁷ 40 CFR Part 60 Section 60.15(b).

⁸ 44 FR 49222 (August 21, 1979).