

Environmental Client Service Group Energy and Natural Resources Client Service Group

To: Our Clients and Friends

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OIL AND NATURAL GAS PRODUCTION SUBJECT TO NEW AIR RULES

EPA targets potential emissions associated with hydraulically fractured wells. Other activities at upstream and midstream facilities also impacted by the new rules.

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On April 17, 2012, EPA issued new rules to reduce emissions of volatile organic compounds (VOC), sulfur dioxides (SO₂), and hazardous air pollutants (HAP) from the oil and natural gas production sector. The new requirements include:

- Performance standards mandating the use of "green completions" on certain hydraulically fractured wells to capture VOC emissions during flowback.
- Other performance standards applicable to centrifugal and reciprocating compressors, pneumatic controllers, storage vessels, and leaking components.
- Revised emission standards for SO₂ emissions at natural gas plants.
- A trigger for applicability of the storage tank control requirements of 6 tons per year (tpy) of emissions of VOC with a control requirement of 95% destruction.
- Revised standards regulating HAP emissions from storage vessels, glycol dehydrators, and other equipment.
- New and clarified performance testing requirements for HAP control devices.
- Elimination of the startup, shutdown, and malfunction (SSM) exemption for HAP emissions.

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- Additional notification, recordkeeping, and reporting burdens.
- New leak detection and control requirements.

The final rules did accommodate some of the concerns expressed by the oil and natural gas sector about the proposed rules.

- EPA postponed the deadline for the hydraulic fracturing green completion requirements due to the unavailability of equipment and personnel.
- EPA agreed that certain wells in low-pressure reservoirs would not be subject to the green completion requirement.
- Unlike the proposal, EPA did not mandate the use of particular equipment for green completions. Operators have more flexibility to adopt methods to capture liquids and natural gas.
- EPA did not finalize a proposal to use third-party verification to assure compliance with the new rules.
- EPA provided some relief on the proposed VOC performance standards for compressors and pneumatic controllers.

The applicability provisions and compliance dates for the NSPS are as follows:

- The new oil and natural gas performance standards apply to facilities that commenced construction or were modified beginning on or after August 23, 2011, which was the date the proposed rules were published in the *Federal Register*.
- These facilities must be in compliance within 60 days after the final rules are published in the *Federal Register*.
- Some of the specific requirements have a phase-in period for compliance.
- All future new or modified facilities must comply with the regulations at the time of commencement of construction or modification.

The new rules applicable to natural gas production are complex and burdensome. As with most Clean Air Act programs, the rules are very technical, fraught with detailed distinctions and nuances, and contain off-ramps that should be used with extreme caution. Numerous upstream and midstream activities, from drilling to storage to compression to processing, are affected by the requirements. The new requirements reflect a "one-size-fits-all" approach to regulating air emissions. There is little flexibility based on particular aspects of producing regions or reservoirs.

While operators may feel secure that many states already regulate much of the same equipment that is subject to the new rules, an overriding factor is that the rules have nationwide applicability. Operators need to be aware that the new regulations may impose essentially the same requirements as applicable state rules in certain areas, inconsistent requirements in other areas, and may impose new requirements not yet imposed in a particular state. Some states may already have permitting programs in place that address well completions and tanks, while other states may change their permitting programs based on the new rules. Moreover, the new rules will likely become a focus of renewed federal inspection and enforcement, and EPA may not have the same experience or practical flexibility as state regulators on air issues pertaining to upstream and midstream operations.

The new rules will factor into strategic planning. They may impact expansion and drilling plans as operators consider whether the added burden and expense can justify capital expenditures, and whether equipment is available to meet compliance requirements. The rules may impact the timing of planned construction. The regulation of emissions from well completions may impact permitting under other regulatory programs, such New Source Review (NSR) preconstruction permitting. It is unclear whether potential emissions of VOC associated with flowback must now be considered in calculating potential to emit for purposes of NSR applicability. Other permitting may be affected, such as state construction permit programs, under which the new NSPS and HAP requirements will be incorporated into Title V operating permits. In addition, states must wrestle with how to incorporate the new rules into their State Implementation Plans, and operators should monitor those developments to determine whether the states will impose more stringent requirements.

While the rules are intimidating for many reasons, the hydraulic fracturing requirements will undoubtedly garner the most attention. As an initial matter, well completions are part of well construction. Applying performance standards to a construction activity is a departure from EPA's historic interpretation and application of NSPS. This remains controversial. In addition, there is concern that, while VOC emissions associated with oil and natural gas development in certain areas present legitimate issues worthy of reasonable and scientifically defensible regulatory scrutiny, the rules do not adequately consider the wide variability in oil and natural gas production operations and emissions.

EPA's decision to federalize the regulation of potential air emissions from fracturing, despite arguments that it lacks the legal authority to do so and has not made the case for across-the-board controls, and even though many states have already imposed reasonable requirements with the support of industry, may fuel the anti-fracturing frenzy that, until now, has focused on water quality. Considerable misinformation has clouded the discussion about fracturing and drinking water aquifers. Much of the backlash against fracturing does not recognize even basic, elementary facts, such as the extensive regulatory framework that is already in place to protect water, the technology, which drills at depths thousands of feet below drinking water supplies, and the lack of any incidents where credible science shows that hydraulic fracturing itself caused contamination to a drinking water supply. The oil and natural gas industry should be prepared to address misconceptions about hydraulically fractured well completions and air quality, and must be in a position to recognize public concerns while vigorously defending against claims that are unfounded in science and law and that lack any context about the relationship between fracturing and air quality.

1. New Source Performance Standards

New Source Performance Standards (NSPS) apply to specifically designated new or modified "affected" facilities and equipment. Previously, the oil and natural gas performance standards only applied to natural gas processing plants. The new rules update the oil and natural gas performance standards by greatly expanding the universe of covered facilities and equipment. The new performance standards primarily target the reduction of VOC emissions, which are a precursor to the formation of ozone.

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a. Hydraulic fracturing for gas wells

The new performance standards cover onshore wells drilled principally for production of natural gas, and target VOC emissions during the "flowback" stage of hydraulic fracturing of gas wells when fracturing fluids, water, and reservoir gas come to the surface, accompanied by emissions of VOC at varying rates.

The new performance standards require the use of (1) "reduced emission completion" (REC) technology, i.e., "green completions," to reduce VOC emissions; and (2) completion combustion devices, such as pit flaring. In a green completion, special equipment separates the multi-phase flow (e.g., gas and liquid hydrocarbons, sand) from the flowback that comes from the well and transfers the natural gas to pipeline. This is not required until January 1, 2015. EPA agreed to the phase-in because the oil field services and drilling sector lacked sufficient equipment and personnel to allow for immediate compliance with the new rules. Not all wells will be subject to the green completion requirement. For "exploratory" (i.e., "wildcat") and "delineation" wells, and for wells in low-pressure reservoirs (as determined by a formula), EPA will not require green completions. Rather, EPA will require combustion of emissions. But for all other fractured or refractured natural gas wells EPA will require green completions combined with combustion.

In order to provide an incentive for the use of green completions prior to 2015, EPA will not consider refracturing to be a "modification," which would normally trigger applicability of the performance standards, for wells that are using green completions to capture emissions immediately upon the start of flowback.

b. Oil wells

The new performance standards do not apply to wells drilled principally for the production of crude oil.

c. Compressors

The new performance standards regulate VOC emissions from reciprocating compressors powered by reciprocating spark ignition engines and from centrifugal compressors powered by turbines. EPA originally proposed to require the use of dry seals on all centrifugal compressors. But, after receiving comments that the use of dry seals might not be technically feasible on certain regulated equipment, EPA is also allowing the use of wet seals in the new performance standards as long as emissions are captured and routed to a control device that achieves a 95% reduction of VOC emissions. For reciprocating compressors, the new performance standards require replacement of rod packing systems either every 26,000 hours of operation or every 36 months.

d. Pneumatic controllers

The new performance standards also regulate continuous-bleed, natural gas-driven pneumatic controllers that control valve movements at wells and natural gas processing plants. The new performance standards do not regulate pneumatic controllers located in the natural gas transmission and storage segments. There is a 1-year phase-in period for the new pneumatic controller performance standards. There are also exemptions from the performance standards for certain situations, such as the use of controllers on large emergency shutdown valves.

The new performance standards deviate from the proposed performance standards by exempting lowbleed controllers but limiting the bleed rate from high-bleed controllers. EPA is imposing a natural gas bleed-rate limit of 6 standard cubic feet of natural gas per hour per controller for new or replaced high-bleed pneumatic controllers that are not located at natural gas processing plants. However, EPA is imposing a zero-bleed limit for each controller at a natural gas processing plant.

e. Storage vessels

Under the new performance standards, vessels with VOC emissions of at least 6 tpy must achieve 95% reduction in VOC emissions. EPA originally proposed to determine applicability based on crude oil and condensate throughput, but found that procedure to be unworkable. The proposed performance standards also contained several cross-references to "National Emission Standards for Hazardous Air Pollutants" (NESHAP) Subpart HH, which is a very complex and burdensome regulation. In the final rules, EPA has incorporated storage vessel requirements from Subpart HH directly into the performance standards. There is a 1-year phase-in period for the new storage vessel performance standards.

The new performance standards provide two additional regulatory grace periods for vessels at well sites. For vessels at well sites where there are no wells already producing, EPA has provided 30 days to determine whether the vessels will trigger the 6 tpy VOC threshold, and then an additional 30 days to install and operate a control device. On the other hand, EPA has not provided the grace period for storage vessels at producing well sites.

f. Leak detection and repair and SO₂ emissions at natural gas plants

The new performance standards tighten the definition of a "leak" under the leak detection and repair (LDAR) regulations from 10,000 ppm to 500 ppm.

The new performance standards also revise the existing NSPS requirements for SO_2 emission reductions by raising the emission reduction standard from 99.8% reduction to 99.9% reduction at certain units.

2. Revised National Emission Standards for Hazardous Air Pollutants

NESHAP apply to facilities that emit "hazardous air pollutants" (HAP) if the emissions exceed certain threshold amounts, rendering a facility a "major source." NESHAP Subpart HH sets emission standards for certain equipment used in the oil and natural gas production sector, notably dehydrators and certain storage vessels if various criteria are established.

a. Storage vessels with potential for flash emissions

HAP emissions from storage vessels can result from "working" (emptying and filling), "breathing" (daily temperature and pressure fluctuations), and "flash" (transferring liquids between vessels of differing pressures) losses. Subpart HH only regulates HAP emissions from vessels with potential for flash emissions (PFE), a specifically defined term. Vessels with PFE basically include those with a throughput in excess of 500 barrels per day.

In its proposed rules, EPA announced that it would broaden the applicability of Subpart HH by expanding the definition of PFE to include barrels with very low throughput. The proposal would have

subjected thousands of additional crude oil and condensate vessels to stringent emissions limits. In a notable departure from the proposal, EPA did not change the definition of PFE in the final rules. Accordingly, facilities subject to Subpart HH do not need to change their compliance procedures for storage tanks under Subpart HH pursuant to the new regulations.

b. New definition of "flare" impacts performance testing

EPA revised NESHAP Subpart HH to define "flare" for the first time. This change relates to whether an operator must conduct performance testing on a control device. The control requirements in Subpart HH authorize owners and operators of affected sources at oil and natural gas production facilities to utilize:

- 1. An "enclosed combustion device"; or
- 2. A "vapor recovery device"; or
- 3. "A flare that is designed and operated in accordance with the requirements §63.11(b)."

Performance testing is not required on those devices that qualify as a "flare." However, Subpart HH has not previously defined "flare." Therefore, it has not been entirely clear whether a device has been subject to performance testing, or whether the operator could show compliance by meeting the design criteria. The new rules now explicitly define a "flare" as "a thermal oxidation system using an open flame (i.e., without enclosure)." Therefore, only devices meeting this definition may comply with Subpart HH by installing a device that meets the §63.11(b) design criteria. A performance test must be done on all other control devices.

For those non-flare devices, the new rules require performance testing every five years after the initial performance test. In the alternative, an operator may rely on a manufacturers guarantee (based on manufacturer performance testing) that the type of device achieves the required destruction efficiency. The new rules have detailed testing conditions and procedures that a manufacturer must meet. This "manufacturers guarantee" option is not available for flares.

c. Dehydrators

EPA eliminated exemptions for certain small glycol dehydrators at natural gas production and natural gas transmission and storage facilities. In other words, EPA will regulate previously unregulated small glycol dehydration units in Subpart HH. EPA made similar revisions in NESHAP Subpart HHH, which regulates HAP from natural gas transmission and storage facilities.

d. Leak detection and repair

EPA tightened the LDAR emission standards to match the new LDAR performance standards. The new emission standards change the definition of a leak, defining "leak" as 500 ppm, thus requiring application of LDAR requirements at a lower detection level.

3. Elimination of the startup, shutdown, and malfunction exemption

EPA has previously provided an exemption in Subpart HH for certain emission exceedences that occurred during periods of "startup, shutdown or malfunction" (SSM). In 2008, a court vacated EPA's SSM exemption. In its revised rules, EPA eliminated this significant exemption for SSM. In its place, EPA added an affirmative defense to civil penalties (but not injunctive relief) in the performance and emission standards for violations of the standards that are caused by malfunctions.

4. Compliance dates and the "third-party verification" issue

EPA has attempted to resolve two additional, compliance-related issues. First, the regulated community expressed confusion as to when it would have to comply with the new performance standards. EPA clarified that the new performance standards do apply retroactively to affected facilities constructed since August 23, 2011, but that those affected facilities do not have to establish compliance until the "effective date" (generally, 60 days after the new rules are published in the *Federal Register*). Moreover, as noted above, the new rules phase in compliance for certain affected facilities.

Second, EPA considered using third-party verification to assure compliance with the new rules. EPA decided not to move forward with the use of third-party verification at this time so that it could "more fully explore the logistics of organizing and overseeing such a program for the oil and natural gas industry."

5. Notification, recordkeeping, and reporting burdens

EPA included various notification, monitoring, inspection, recordkeeping, and reporting requirements, but streamlined some requirements. For example, EPA removed several notification requirements for construction and initial performance testing of well completions, compressors, pneumatic controllers, and storage vessels, and shortened the notice requirement for well completions from 30 days to 2 days prior to completions. If state regulations require advance notification of completions, then the NSPS notification requirement is met by complying with the state requirement. On the other hand, regulated entities must submit annual reports certified by a senior company official detailing each well completion or listing well completions accompanied by digital photographs of green completions in progress. Regulated entities also must submit annual reports indicating any deviations from the performance standards, and annual reports identifying construction, modification, and reconstruction of equipment. The annual reports must be signed and certified by a senior company official.

6. Regulatory overlap and permitting

Many state and local agencies regulate oil and natural gas operations, and have regulatory, permitting, and policy standards that require control of emissions from various pieces of equipment used in oil and natural gas fields. The regulating agencies include environmental departments and oil and natural gas commissions. These agencies already regulate air quality associated with many of the activities subject to the new rules, such as tank flash emissions and well operations. Operators will need to comply with both state and federal regulations and address potential pitfalls if the requirements are inconsistent or if they impose duplicative notice and reporting requirements.

Federal Title V operating permit regulations, and many state operating permit rules, require a permit if a source is subject to the NSPS program. This presented a conundrum for EPA and industry because of the dramatic rise in the number of sources that would become subject to the performance standards under the new rules. Thus, for example, it would be unlawful for a producer to perform a natural gas well completion subject to the new rules without an operating permit. Accordingly, EPA exempted from certain permitting triggers (i.e., Title V) the "non-major sources" that will be subject to the new performance standards for well completions, pneumatic devices, compressors, and storage vessels.

However, EPA did not exempt "major sources" from the operating permit requirement triggered by NSPS OOOO. Moreover, if a SIP-approved state would require a minor source permit for any source "regulated by a NSPS," then a source in that state may still have to get a minor source permit for well completions because now well completions are regulated by the NSPS program. Also, the performance standards are "federally enforceable" emissions limits and therefore can be considered when determining whether a source triggers applicability thresholds. Therefore, operators should take advantage of the VOC reductions that will result from compliance with the new performance standards in calculating potential emissions.

7. Greenhouse gases

A fulcrum of EPA's proposed rules was that natural gas emissions would be used as a surrogate for VOC because of the alleged proportional relationship between them. EPA softened this approach in the final rules, but remained adamant that the surrogate relationship is valid. In addition, one regulation is based squarely on the surrogate concept. EPA's new performance standards impose a natural gas bleed-rate limit on high-bleed pneumatic controllers as a surrogate for VOC. EPA denies that it is regulating natural gas as a greenhouse gas pollutant. EPA maintains that the "inclusion of natural gas in the proposed definition for modification was not an indication that EPA was proposing natural gas as a pollutant to be regulated."

If you would like to discuss how this matter may affect your organization, please contact Mr. Harris or Mr. London at their offices listed above. Bryan Cave has a lawyer in your region who can assist you with air quality, energy or environmental matters. Some of the additional members of our <u>Energy and</u> <u>Natural Resources Client Service Group</u> or <u>Environmental Client Service Group</u> are:

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