



**Air Quality Regulation of Oil and Gas Development:  
Hydraulic Fracturing Leads to Evolving and New State  
and Federal Standards, and Increased Efforts to Ban  
Development at the Local Level**

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Environmental Challenges to Controversial  
Development Projects***

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I. Introduction

Over the past several years, oil and gas production and related midstream activities in the several regions of the United States - - including Texas, the Intermountain West, North Dakota, and Pennsylvania and its border states - - have increased due to spectacular discoveries in unconventional resource plays, such as shale gas, and new technologies, such as horizontal drilling and hydraulic fracturing. Although crude oil and natural gas prices have declined due to oversupply and other factors, oil and gas development will likely continue to grow and intensify, and will move into other regions where shale resources are as yet untapped, such as Illinois and, if the recently enacted state-wide hydraulic fracturing ban is successfully challenged, in New York.

The pace of this activity is facing gale-force headwinds caused by air quality regulation and disputes, include efforts by local governments to entirely ban hydraulic fracturing or oil and gas development. The Environmental Protection Agency (“EPA”) and state and local agencies already have an intimidating array of Clean Air Act rules applicable to drilling, natural gas processing, storage, compression, dehydration, and pipeline transportation. The scope and stringency of the regulations in these sectors is growing.



EPA recently added to the complexity by amending the nationally applicable “New Source Performance Standards” (NSPS) for upstream and midstream oil and gas production facilities. The new regulations cover several operations and equipment, including hydraulic fracturing, also referred to as “fracing.” The regulations overlay rules and policies in states that already regulate the air quality impacts associated with fracing and other upstream activities. The oil and gas industry is concerned that complexities and uncertainties in the new rules may significantly impact the planning, capital investment, and time for installation of required controls needed to achieve compliance. Accordingly, oil and gas operators face increased costs, regulatory burdens, public scrutiny, and delay.

This paper focuses on new regulations that specifically address the hydraulic fracturing phase of oil and gas production. In addition, we hope that the reader will better understand the fundamental and important distinction between fracing and the other oil and gas development phases. Finally, while fracing is the focus of this paper, our goal is to emphasize that vigorous emission control programs for the oil and gas sector as a whole already exist, and as development increases and moves into more populated areas, are becoming even more stringent. On top of the comprehensive federal and state controls already in place, local governments have now decided to step into the fray and enact regulations to ban fracing or oil and gas development entirely, based in substantial part on perceived impacts to health and the environment from air emissions. Colorado and New York have already weighed in on opposite sides of the debate about whether local governments may regulate oil and gas activities, with California and Ohio waiting in the wings.

A. Fracing is a Brief Phase of Drilling and Production

A common misunderstanding is that hydraulic fracturing is a drilling technique, or that fracing is the same as oil and gas production. In fact, fracing is a very brief phase in the life-cycle of a well, often lasting just a few days. Consequently, the potential air quality impacts associated with the actual process of fracing are limited to that short time-frame. Oil and gas production causes other emissions, which are subject to various controls, but these occur either before fracing - - during the drilling phase - - or after, when, for example, gas is processed or oil is stored.

B. What is Hydraulic Fracturing and How Does it Generate Emissions?

After the well is drilled, the well bore is cased with steel and cement to protect against any fluid or gas loss during operation of the well. After the drill rig is removed, the well is completed and stimulated. Hydraulic fracturing is a well stimulation technique utilized to optimize well performance. The shale resource is typically a mile or more below groundwater supplies, separated by layers of bedrock. Fracing is necessary to create small fissures in the rock to release the gas or oil. This involves injecting a typical mixture of 90 percent water, 9.5 percent sand and proppants (which hold open the fissures), and 0.5 percent chemicals (these help reduce friction and bacteria growth) into



the well at high pressures. Engineering experts continually monitor the process using sophisticated pressure measuring and other equipment.<sup>1</sup>

Prior to turning the newly drilled and completed well to production, operators must remove accumulated fracturing fluids from the wellbore, a process referred to as “flowback.” During flowback, natural gas, oil, and other liquids are expelled from the well, releasing VOCs and greenhouse gases (GHG).<sup>2</sup> The composition of the flowback materials changes as the flowback progresses. Initially, the flowback consists of water, sand, and fracturing fluids. Over time, liquid flow decreases and gas and hydrocarbon vapor flow increases.<sup>3</sup> Conventional methods for handling liquids and vapors during the well completion (or fracing) phase include producing the well into an open pit or tank to collect sand, cuttings and reservoir fluids for disposal. Traditionally, the natural gas that was produced was vented or flared. Several states have long regulated the practice of venting or flaring during fracing operations by mandating the use of “green completions” to capture the vapors, and operators increasingly utilize green completion technology as a best practice.<sup>4</sup> The new NSPS regulations discussed here codify the practice of green completions.

### C. Other Operations and Equipment that Cause Emissions

#### 1. Drill Rigs

Reciprocating internal combustion engines (RICE) can be found at well sites during various phases of the life of the well. Drill rigs, workover rigs, and completion equipment all may use RICE during certain phases of the life of the well. Additionally, some locations may utilize RICE to run stationary onsite compression for gas lift systems that remove formation liquids from the wellbore. State and federal regulations generally mandate controls on most RICE engines.

#### 2. Flaring

As gas production begins, volumes and pressures may be inadequate or the gas may not meet specifications and must be either vented or flared. In many cases, once the gas meets minimum sales specifications, the gas is routed to a sales line. Sometimes, operators must temporarily flare the gas because the gathering pipeline and processing

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<sup>1</sup> For a general discussion of fracing, *see* Natural Resources Law Center, “Hydraulic Fracturing – Oil and Gas Drilling Best Management Practices, Intermountain Oil and Gas BMP Project,” <http://www.oilandgasbmps.org/resources/fracing.php> (last visited September 20, 2013).

<sup>2</sup> *See* 76 Fed. Reg. 52,758, 52,756 (Aug. 23, 2011); *see also* 40 C.F.R. § 60.5430.

<sup>3</sup> 76 Fed. Reg. 52,738, 52,757 (Aug. 23, 2011).

<sup>4</sup> *See e.g.*, 2 Colo. Code Regs. 404-1 § 805(b)(3) (COGCC regulation); Wyo. Dep’t of Env’tl. Quality, Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance 15, 20 (revised ed. Mar. 2010).



plant infrastructure are not present. Even after an operator connects a well to such facilities, excessive gathering system pressures may necessitate short-term flaring. Accordingly, several states have required the use of combustion or capture of these emissions under specified circumstances.<sup>5</sup>

### 3. Storage Vessels

Hydrocarbon liquid storage tanks are ubiquitous in upstream and midstream operations. At the well site, operators extract the hydrocarbons and separate the mixture of liquid hydrocarbons and gas from water and solids. Operators typically store crude oil, condensate, and produced water in fixed-roof storage tanks. Operators often remove liquids at midstream facilities as well. Storage tanks may emit VOCs through working, breathing, and flash losses. For example, flash losses occur when crude oils or condensates flow into a storage tank from a processing vessel operated at a higher pressure. Controls for tank emissions generally involve a combustion or flare process, but may also involve vapor recovery.

### 4. Processing and Dehydration

Produced natural gas is typically saturated with liquids, including water and condensable hydrocarbons. The hydrocarbon liquids can be recovered for profit, while water can create operational difficulties if it is not removed. Glycol dehydrators remove water vapor from natural gas streams at well sites and compressor facilities. The glycol desiccants absorb VOCs that operators then vent or route to a control device, which is often a combustor or flare. Large gas plants remove additional impurities from the gas stream by various processes.

### 5. Compression

Operators compress natural gas at many locations throughout upstream and midstream operations to move the gas along through the pipeline network. They use combustion turbines as well as RICE, which may emit federally designated hazardous air pollutants (HAPs) and, depending on the type of RICE, may emit significant amounts of NO<sub>x</sub> and CO. Many complex regulations apply to RICE, and operators typically use an oxidizing catalyst that removes various pollutants as a control.

## II. EPA's New Federal Air Regulations Governing Hydraulic Fracturing

### A. General Background on Federal Regulations Applicable to Oil and Natural Gas Production Sources

#### 1. Oil and Gas Development is Primarily Regulated by the States

While this paper focuses on new or revised nationally applicable EPA CAA regulations targeting hydraulic fracturing and other oil and gas operations, it is critical to

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<sup>5</sup> *Id.* See also Mont. Admin. R. 36.22.1221(1).



remember that states have primary responsibility to regulate air quality under the Clean Air Act. States are reacting to increased development with extensive regulatory initiatives of their own, based on regional air quality conditions and oil and gas development-specific refinement of long-standing permitting regimes. Operators must vigilantly monitor and comply with state rules, which vary by state and even producing region. For example, as development has rapidly increased in shale plays, states have reacted equally quickly with regulations and guidance that restrict emissions for operators in those particular regions. States confront operators with a dizzying and ever-changing array of forms, permit requirements, and informal guidance.

Also, the state environmental agencies share responsibility for regulating oil and gas activities with other agencies. State oil and gas commissions regulate the drilling for and production and gathering of oil and gas through requirements for drilling permits, spacing, drilling, plugging, and abandonment methods, and the protection of fresh water resources. Increasingly, state oil and gas commissions also regulate air quality impacts of upstream and midstream activities. Moreover, various state commissions have addressed concerns over well-completion emissions. Some states require combustion of such emissions, while others require practices intended to capture gas and condensate vapors under various circumstances. These state-only rules in many cases are essentially the same as the recently enacted federal rules discussed here.

## 2. New Source Performance Standards

In 1970, Congress enacted CAA section 111, which requires EPA to establish emission standards for new and modified stationary sources falling within particular industrial categories. NSPS may apply when a stationary source begins construction, reconstruction, or modification after proposed regulations are promulgated for a source category. The CAA refers to such sources as “affected facilities.”<sup>6</sup>

In 1985, EPA promulgated NSPS for equipment leaks of VOCs from onshore natural gas processing plants.<sup>7</sup> The rules applied to “two types of ‘affected facilities,’ which include specific equipment with the potential to leak VOC. Each gas plant compressor is an affected facility. Each process unit is also an affected facility.”<sup>8</sup> Other than natural gas processing plants, and until the new rules that are the subject of this paper, EPA had not previously set NSPS specifically for the oil and natural gas source category. (Although, as noted above, state construction permitting and other programs established as part of SIPS’s have long-regulated many aspects of oil and gas development.)

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<sup>6</sup> See 40 C.F.R. § 60.2 (“Affected facility means, with reference to a stationary source, any apparatus to which a standard is applicable.”).

<sup>7</sup> 50 Fed. Reg. 26,122, 26,124 (June 24, 1985) (codified in their current form as Subpart KKK at 40 C.F.R. §§ 60.630 to -.636).

<sup>8</sup> *Id.* at 26,122.



## B. National Emission Standards for Hazardous Air Pollutants

The CAA Section 112 NESHAP program predominantly regulates “major stationary sources,” which the CAA defines as sources of emissions of 10 tons per year (tpy) of any hazardous air pollutant (HAP) or 25 tpy of a combination of HAPs. New and existing HAP sources must control HAP emissions based on the degree of emission control achievable through the application of technologies used by the best performing sources in a given category. This is known as “MACT.” As with NSPS, EPA generally develops and implements the NESHAP and then delegates them to the states; however, even after delegating, EPA retains authority to implement and enforce the standards. Upstream and midstream oil and gas operations may emit HAPs such as n-hexane, formaldehyde, and “BTEX,” i.e., benzene, toluene, ethylbenzene and xylene.

In 1999, EPA promulgated two NESHAP (subparts HH and HHH) for the oil and natural gas industry. The emission standards in NESHAP HH apply to owners and operators of facilities that process, upgrade, or store hydrocarbon liquids to the point of custody transfer, and natural gas from the well up to and including the natural gas processing plant.<sup>9</sup> The standards limit HAP emissions from process vents on glycol dehydration units, storage vessels with flash emissions, and equipment leaks at natural gas processing plants. An oil or natural gas facility that is a major source of HAPs is required to, among other things: install MACT-level controls on the specified sources; demonstrate the effectiveness of such controls; continuously monitor the controls; record applicable monitoring data; and submit various notifications and reports regarding the source to assure compliance with applicable pollution control requirements. Subpart HHH applies to gas transmission facilities.

## C. EPA Promulgation of New Performance Standards and Revised Emission Standards for Oil and Gas Operations

On January 14, 2009, two organizations, WildEarth Guardians and San Juan Citizens Alliance, sued EPA alleging that EPA had failed to review and revise the NSPS and NESHAP for oil and natural gas production sources as required by the CAA. EPA entered into a consent decree with the plaintiffs in 2010, and agreed to review and revise the regulations. On August 16, 2012, EPA published NSPS OOOO and revised NESHAP HH and NESHAP HHH as the culmination of its reviews of standards applicable to oil and gas sources under sections 111 and 112.<sup>10</sup> The most publicized component of EPA’s August 16, 2012 rulemaking is NSPS OOOO,<sup>11</sup> and in particular the publicity has focused on hydraulic fracturing.

## D. Hydraulic Fracturing Under NSPS OOOO

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<sup>9</sup> 40 C.F.R. §§ 63.771 to -.775.

<sup>10</sup> 77 Fed. Reg. 49,490 (Aug. 16, 2012).

<sup>11</sup> See 40 C.F.R. §§ 60.5360-.5430.





## 1. Requirement to Control Emissions During Well Completions

The “affected facilities” under the new rules are certain natural gas wells undergoing completions and recompletions that commence after October 15, 2012.<sup>12</sup> Notably, the standards *only* apply to natural gas wells, not oil wells,<sup>13</sup> and define “natural gas well” as an “onshore well drilled principally for production of natural gas.”<sup>14</sup> At some well sites this distinction creates uncertainty and implementation difficulties because many oil wells also produce significant quantities of natural gas.

While the new rules *apply* to such completions beginning October 15, 2012, they require different actions for *compliance* at different times. There is a “phase-in” period for the more rigorous requirements. Prior to January 1, 2015, operators performing completions or recompletions must either (1) utilize a combustion device with continuous ignition *or* (2) perform “reduced emission completions” (REC), a.k.a. “green completions” with combustion.<sup>15</sup> Beginning on January 1, 2015, operators will have to perform green completions, routing all “salable quality gas” to the flow line *as soon as practicable* and combusting all gas that is not suitable for the flow line.<sup>16</sup>

## 2. Some Key Definitions

### a. Modification Clarification

Many existing and future natural gas wells could potentially be “affected facilities” under the new rules. One big concern is that EPA may consider re-completions prior to 2015 to be “modifications” that trigger NSPS applicability. However, in order to encourage green completions before 2015, EPA has provided that operators will not trigger NSPS by “modifying” a well during re-completion if the re-completion uses REC and combustion controls that would meet the post-2015 standards.<sup>17</sup> This may be a double-edged sword, however, because in order to avoid NSPS applicability, not only must operators use green completions and combustion controls, but operators must meet all the post-2015 notification, recordkeeping, and reporting requirements.

### b. Green Completion

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<sup>12</sup> 40 C.F.R. §§ 60.5370(a), -5410.

<sup>13</sup> 77 Fed. Reg. 49,490, 49,492 (Aug. 16, 2012) (“Oil wells (wells drilled principally for the production of crude oil) are not subject to this rule.”).

<sup>14</sup> 40 C.F.R. § 60.5430.

<sup>15</sup> 40 C.F.R. § 60.5375(a); 77 Fed. Reg. at 49,497 Table 3.

<sup>16</sup> 40 C.F.R. § 60.5375(a)(2). Operators may alternatively use, inject, or re-inject non-salable gas. *Id.* § 60.5375(a)(1).

<sup>17</sup> 40 C.F.R. § 60.5365(h)(2).

EPA defines a “REC” or “green completion” as:

[A] well completion following fracturing or refracturing where gas flowback that is otherwise vented is captured, cleaned, and routed to the flow line or collection system, re-injected into the well or another well, used as an on-site fuel source, or used for other useful purpose that a purchased fuel or raw material would serve, with no direct release to the atmosphere.<sup>18</sup>

Operators must also either re-inject produced liquids or route them to storage vessels.<sup>19</sup> Interestingly, whether a completion is “green” only depends on whether it meets the definition of REC. In other words, there are no compliance standards measuring the effectiveness of a green completion. However, operators have a “general duty” to minimize emissions specifically applicable to such completions.<sup>20</sup>

The new rules do not require capture of all emissions occurring during completions. Rather, the capture requirement comes into play once the gas portion of the flowback “is of sufficient volume to operate a separator, which is then used to separate and recover various components of the flowback.”<sup>21</sup> During green completions, operators must route salable gas to a gas flow line “as soon as practicable.”<sup>22</sup> According to the EPA, this cannot be done until *after* separation of gases from recovered liquids.<sup>23</sup> Consequently, the initial gas that comes to the surface during flowback is not necessarily a “flowback emission” and may not be subject to the completion combustion requirement in the new rules.<sup>24</sup> However, because the new rule has a “general duty clause,” operators

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<sup>18</sup> 40 C.F.R. § 60.5430.

<sup>19</sup> *Id.* § 60.5375(a)(1).

<sup>20</sup> *Id.* § 60.5375(a)(4) (“You have a general duty to safely maximize resource recovery and minimize releases to the atmosphere during flowback and subsequent recovery.”). Green completions are not be required for wildcat, delineation, and low-pressure wells.

<sup>21</sup> Letter from Peter Tsirigotis, Director, Sector Policies & Programs Division, U.S. Environmental Protection Agency, to Matthew Todd, Regulatory & Scientific Affairs, American Petroleum Institute (Sept. 28, 2012).

<sup>22</sup> 40 C.F.R. § 60.5375(a)(2).

<sup>23</sup> *See* Letter from Peter Tsirigotis, *supra* note 21, at 2. EPA does not define the term “recovered liquids,” but has clarified that it meant the term to cover “condensate, crude oil and produced water recovered through the separation process.” *Id.* Initial flowback of such liquids can be “routed to temporary ‘fracture tanks’” or more permanent storage vessels. *Id.*

<sup>24</sup> According to EPA, “releases of gas or vapor during operations that occur prior to separation, such as ‘screenouts’ and ‘coil tubing cleanouts,’ are not ‘flowback emissions.’” *Id.* at 4.





do have an ongoing obligation to “*minimize*” such releases to atmosphere even before separation.

c. Completion Combustion Device

EPA has also explained what counts as a “completion combustion device.” EPA defines such device as “any ignition device, installed horizontally or vertically, used in exploration and production operations to combust otherwise vented emissions from completions.”<sup>25</sup> As with the “green completion” requirement, there are not currently any compliance standards measuring the effectiveness of a “completion combustion device.” In other words, the new rules do not regulate such devices the way that they have historically regulated flares.

3. Notification, Reporting and Record-keeping

Before an operator completes or recompletes a natural gas well, it must submit a written or email notification to EPA.<sup>26</sup> The notification must contain the operator’s contact information, API well identification number, geographic coordinates, and the planned date for commencing flowback.<sup>27</sup> The new rules require operators to submit the notification at least “two days” prior to commencing the completion or recompletion operations.<sup>28</sup> This requires operators to forecast the production quantity and quality from a new well, a difficult task.

Operators must keep daily well-completion records and submit an annual report. There are two different types of annual report for completions, and the operator can choose which one to submit. The “standard” annual report must contain copies of well completion records for each well completed during the reporting period, and a “self-certification.” Alternatively, EPA has created a “streamlined” reporting option, in which the operator must submit a list of all gas wells completed during the reporting period along with photographs of green completions in-progress at each well along with a self-certification of compliance. The operator must keep electronic copies of the photographs containing time and date and geographic coordinates stamps. a senior “responsible official,” must certify to the truth, accuracy, and completeness of the various reports submitted under the new rules.<sup>29</sup>

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<sup>25</sup> *Id.* § 60.5430.

<sup>26</sup> *Id.* § 60.5420(a)(2)(i).

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.* § 60.5420(b)(1)(iv).



#### 4. Methane and Hydraulic Fracturing

In NSPS OOOO, EPA uses methane emissions as a proxy for measuring VOCs.<sup>30</sup> After proposing this proxy measurement, EPA received many comments stating essentially that the proposal impermissibly expands EPA’s regulatory authority to methane.<sup>31</sup> EPA denied that its use of methane as a “proxy” for VOC amounted to “regulation” of methane, and did not change the provision in its final rules.<sup>32</sup> In any case, opponents of fracing claim that it should be subject to even more regulation, or banned entirely, because it emits large quantities of methane. A recent study indicates that these concerns are misplaced.

A new study made possible through a partnership between the Environmental Defense Fund, certain industry companies, and an independent Scientific Advisory Panel shows that the extraction of shale gas through hydraulic fracturing has not materially impacted methane emissions from the natural gas sector.<sup>33</sup> The study was based on direct emissions monitoring at 190 production sites throughout the United States. The monitoring included emissions during well completions using fracing in 2012 and 2013. The researchers found that:

two-thirds of the well completion flowbacks measured in the study either captured or combusted emissions, resulting in emissions measurements that were 99 percent lower than would have occurred in the absence of capture and combustion. The remaining one-third of completion flowbacks vented methane, but these were low-emitting wells, so in total, the emissions from completion flowbacks were 97 percent lower than current EPA estimates. The results confirm that current controls reduce emissions in

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<sup>30</sup> e.g., 40 C.F.R. § 60.5390(a)-(b) (applying standards to pneumatic controllers based on those controllers’ natural gas bleed rates).

<sup>31</sup> EPA, Office of Air Quality Planning and Standards, Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 40 CFR Parts 60 and 63, Response to Public Comments on Proposed Rule August 23, 2011 (76 FR 52738), at 415-16, 419-20 (2012) (responding to comments on the newly promulgated NSPS OOOO alleging that EPA’s requirement to measure natural gas emissions as a surrogate for VOC emissions is actually direct, unauthorized regulation of methane, i.e., greenhouse gases).

<sup>32</sup> See, e.g., 77 Fed. Reg. at 49,513 (“We consider natural gas to be an appropriate surrogate for VOC . . . . The inclusion of natural gas . . . was not an indication that EPA was proposing natural gas as a pollutant to be regulated, as some commenters mistakenly thought.”).

<sup>33</sup> <http://www.pnas.org/content/early/2013/09/10/1304880110.full.pdf>



such wells by 99% compared to sites where the technology is not used.<sup>34</sup>

The study indicated that fugitive emissions from pneumatic controllers remain a source of concern.

## 5. Proposed Changes to Well Completion Rules

In July 2014, EPA announced several proposed changes to the well completion rules.<sup>35</sup> As summarized by EPA. The proposal more specifically defines the stages that are regulated under the well completion requirements. For example, the new rules would structure the stages as follows, each stage having specific requirements for handling of gases and liquids:

- The “initial flowback stage” would extend from the beginning of flowback following hydraulic fracturing or refracturing and would end when there is enough gas present in the flowback for a separator (green completion equipment) to operate. The liquids could be sent to an vessel, e.g. an open top frac tank, a lined pit or any other vessel. During the initial flowback stage, there would be no requirement for controlling emissions from the tank, and any gas in the flowback during this stage could be vented.
- The next stage would be known as the “separation flowback stage.” During this stage operators must direct the flowback to use special equipment to separate gas and liquid hydrocarbons that come from the well as it is being prepared for production. The captured gas and hydrocarbons can then be treated and sold. This is the REC process discussed above. Under the proposal, wells subject to green completion requirements must begin using green completions no later than Jan. 1, 2015.
- The final stage is characterized as the “production stage” which begins when the flowback volume has subsided and the well is producing gas continuously to a flow line. At this point separated and recovered condensate, produced water and crude oil must be routed to storage tanks, and operators must begin the process of estimating the tanks’ emissions of volatile organic compounds (VOCs). Those emissions must be controlled within 60 days of the beginning of the production stage. Flaring or venting of gas is not allowed after this 60 day period.

EPA is also seeking comment on the definition of “low pressure well” for which REC is infeasible because of the characteristics of the reservoir and the well depth that will not allow the flowback to overcome the gathering system pressure due to the back pressure imposed by the REC surface equipment.

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<sup>34</sup> <http://www.utexas.edu/news/2013/09/16/understanding-methane-emissions/>

<sup>35</sup> <http://www.epa.gov/airquality/oilandgas/pdfs/20140701proposal.pdf>



### III. The New EPA Regulations Cover Much More than Hydraulic Fracturing

#### A. Storage Vessels

Generally, new or modified storage vessels located in the oil and natural gas production segment, natural gas processing segment, or natural gas transmission and storage segment with VOC emissions of at least six tpy must achieve 95% reduction in those emissions.<sup>36</sup> EPA has subsequently provided clarification that the six-tpy threshold is measured *after* accounting for legal or practically enforceable controls.<sup>37</sup> So, if a state already has a mandatory control program for storage tanks, that program is part of an approved SIP, then operators should measure emissions after factoring in the controls. EPA also recently provided a list of manufacturers who offer a control device meeting the control requirements as defined in the rules.<sup>38</sup>

The new performance standards create several potential compliance dilemmas. It is not clear whether operators can avoid applicability by switching throughput from one tank to another in a tank battery in order to keep each individual tanks under the applicability threshold. The rules also do not clarify whether operators may estimate emissions using production decline curves, which would provide more accurate estimates, or without production decline curves, which would provide inaccurate but conservative results. Meanwhile, operators may encounter difficulty obtaining the emissions control equipment necessary for compliance, particularly considering the new monitoring and manufacturer requirements.

There is another potential issue regarding storage tanks at well sites. Portable tanks are often used during flowback following hydraulic fracturing. EPA defined the term “storage vessel” in the rule to exclude portable tanks on site less than 180 days. However, this means that EPA has extended applicability to “portable” storage vessels that remain on-site for 180 days or more. Given the continuing trend of multi-well pads, the definition of “storage vessel” has potential to include fracturing tanks. Emissions estimates for fracturing tanks are extremely difficult to calculate due to the highly variable composition and volume of the fluids contained. Additionally, these vessels are not pressure rated and cannot be safely controlled. As a result, the extension of applicability to such tanks could lead to the installation of more fracturing tanks and a larger environmental footprint in order to keep fracturing tank emissions below the control thresholds.

EPA has included extremely stringent control device monitoring and testing requirements in the rule. The rules basically cross-reference to NESHAP Subpart HH, which is a very complex and burdensome control regulation for storage tanks at “major”

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<sup>36</sup> 40 C.F.R. § 60.5395(a).

<sup>37</sup> Letter from Peter Tsirigotis, *supra* note 21, at 5. EPA recently codified this interpretation. 78 Fed. Reg. 58,416, 58,435 (September 23, 2012).

<sup>38</sup> <http://www.epa.gov/airquality/oilandgas/pdfs/20130903list.pdf>



sources of HAP emissions (among other “area” sites). As discussed below, the new regulations amend and strengthen the control device and monitoring and testing aspects of Subpart HH. Since these have largely become applicable to storage tank emissions subject to Subpart OOOO by way of incorporation, the NSPS and the stringent NESHAP regulations for storage tanks are substantially identical.

On August 2, 2013, EPA updated Subpart OOOO.<sup>39</sup> The updates focus on storage tanks, and recognize that EPA underestimated the number of storage tanks that would become subject to the new performance standards. Industry participants filed several administrative reconsideration petitions after EPA promulgated NSPS OOOO. These were stayed pending EPA reconsideration of the issues raised by the industry petitioners. While the amendments address some of the issues raised in the administrative reconsideration petitions, EPA must continue to evaluate other issues raised such as those related to compliance monitoring. In the preamble to the storage tank amendments, EPA notes that it intends to complete any such reconsideration by the end of 2014.

The final rule was published in the Federal Register on September 23, 2013.<sup>40</sup> The update pushes storage tank control compliance deadlines back as follows:

- Tanks that come online after April 12, 2013, must control VOC emissions as required by NSPS OOOO by April 15, 2014, or within 60 days, whichever is later; and
- Tanks that came online between August 23, 2011, and April 12, 2013, must control VOC emissions as required by NSPS OOOO by April 15, 2015.

The revisions also:

- establish alternative emission limits for tanks where emissions have declined;
- clarify test protocols for control equipment;
- clarify the types of tanks subject to the rule; and
- adjust requirements for submitting annual reports.

In July 2014 EPA proposed revisions to the storage tank regulations. As summarized by EPA they include:

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<sup>39</sup> <http://www.epa.gov/airquality/oilandgas/pdfs/20130805fr.pdf>

<sup>40</sup> 78 Fed. Reg. 58,416 (September 23, 2012).



- Clarifying that VOC emissions that are captured as a result of permit requirements do not count toward determining whether a tank is subject to emission control requirements under these air regulations.
- More flexible thief hatch requirements, i.e. EPA is proposing to allow other mechanisms besides weighted thief hatches to ensure these hatch lids remain properly sealed.
- Adding to notification requirements the date a storage tank is removed from service and the date a storage tank is returned to service.

These and other revisions regulations were finalized on December 19, 2014.<sup>41</sup>

#### B. Pneumatic Controllers

Operators must reduce emissions of every single continuous-bleed, natural gas-driver pneumatic controller that “commenced construction” after August 23, 2011, and emits at least six scfh by October 15, 2013.<sup>42</sup> For pneumatics at gas plants, EPA is imposing a zero-bleed limit, while all other “affected” pneumatic controllers must have a bleed rate less than or equal to six scfh.<sup>43</sup> Operators must tag affected pneumatics with the installation date and identification information. EPA created an exemption to these bleed limits if a higher-bleed-rate controller is “required based on functional needs,” which include response time, safety, and positive actuation.<sup>44</sup>

#### 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.<sup>45</sup> Operators trigger NSPS by “commenc[ing] construction” when they install compressors, not when they relocate them within their operations.<sup>46</sup> So, the NSPS are only applicable to compressors *installed* after August 23, 2011. If an operator chooses to use wet seals, EPA requires the operator to capture the emissions and route them to a control device that achieves a 95% reduction of VOCs.<sup>47</sup>

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<sup>41</sup> See <http://www.epa.gov/airquality/oilandgas/pdfs/20141219fr.pdf>

<sup>42</sup> *Id.* §§ 60.5365(d), -.5390(c)(1).

<sup>43</sup> *Id.* § 60.5390(c)(1).

<sup>44</sup> *Id.* § 60.5390(a).

<sup>45</sup> *Id.* §§ 60.5380, -.5385.

<sup>46</sup> 77 Fed. Reg. at 49,523-24 (“The NSPS also does not apply to relocated compressors. As provided in the NSPS General Provisions at 40 CFR 60.14(e)(6), relocation of an existing facility is not modification.”).

<sup>47</sup> *Id.* § 60.5380(a)(1).





The rules require replacement of rod packing systems either every 26,000 hours of operation or every 36 months.<sup>48</sup>

#### D. Leak Detection and Repair

In the new NSPS OOOO, EPA revised the LDAR requirements by lowering the definition of “leak” in newly constructed or modified gas plants from 10,000 ppm to 500 ppm.<sup>49</sup> These equipment leak provisions apply only at onshore gas processing plants, not to storage vessels, compressors, completions, etc.<sup>50</sup>

#### E. Revised Emission Standards in Subparts HH and HHH

EPA also amended existing NESHAP regulations applicable to the oil and gas production sector.<sup>51</sup> Subpart HH affects glycol dehydrators, storage tanks, and equipment leaks at regulated sources of HAP emissions. The revised regulations, for example, create a “small glycol dehydrators” category, which it defines as units with actual annual average natural gas flow rate less than 85,000 scm/day, which is roughly 3 mmscf/day, or actual annual average benzene emissions less than 0.9 MG/year.<sup>52</sup> EPA will only regulate this new category of small glycol dehydrators at major sources of HAPs.

A very important and far-reaching aspect of the new Subparts HH regulations is that EPA updated flare definitions and requirements that had not been changed in over two decades. EPA’s revised emission standards define “flare” for the first time.<sup>53</sup> This change relates to whether an operator must conduct performance testing on a control device. The control requirements in emission standards authorize owners and operators of affected sources at oil and gas production facilities to utilize: an “enclosed combustion device”; or a “vapor recovery device”; or a “flare that is designed and operated in accordance with the requirements § 63.11(b).”<sup>54</sup> Performance testing is not required on those devices that qualify as a “flare.”<sup>55</sup> Operators have questioned whether to subject a device 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).”<sup>56</sup> Therefore, only devices meeting this definition can avoid the more stringent compliance requirements in

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<sup>48</sup> *Id.* §§ 60.5385(a), -.5415(c)(3).

<sup>49</sup> *Id.* § 60.5401(b)(2).

<sup>50</sup> Letter from Peter Tsirigotis, *supra* note 21, at 7.

<sup>51</sup> 77 Fed. Reg. at 49,568-81 (codified as 40 C.F.R. §§ 63.760 to -.775).

<sup>52</sup> 40 C.F.R. § 63.761.

<sup>53</sup> *Id.* at 49,569 (codified as 40 C.F.R. § 63.761).

<sup>54</sup> 40 C.F.R. § 63.771(d)(1).

<sup>55</sup> *Id.* § 63.772(e)(1)(i).

<sup>56</sup> 77 Fed. Reg. at 49,569 (codified as 40 C.F.R. § 63.761).

the regulation. For other control equipment, the revised emission standards require performance testing or manufacturer guarantees.<sup>57</sup>

Operators must keep records of their control device flow rate calculations, and report any periods when the flow rate exceeds manufacture's performance test.<sup>58</sup> They must also keep records of periods when the pilot flame is absent.<sup>59</sup> For malfunctions, operators must keep records of occurrence and duration of each operational malfunction of air pollution control and monitoring equipment, as well as a description of actions taken during the malfunction to minimize emissions.<sup>60</sup> They must also keep records of the date of each semi-annual maintenance inspection.

#### 1. Startup, Shutdown and Malfunction

Some equipment cannot meet emission standards during "cold starts" or during shutdown periods.<sup>61</sup> Regulators recognize that even the best operated equipment can occasionally malfunction, causing excess emissions. Accordingly, EPA historically exempted excess emissions during startup, shutdown, and malfunction (SSM) events from compliance determinations, provided that the operator met certain conditions. However, in 2008, a federal court vacated the SSM exemption for the purposes of the NESHAP program.<sup>62</sup> As a result, EPA has eliminated the SSM exemption for both NSPS OOOO and NESHAP HH and HHH.<sup>63</sup>

#### IV. Legal Challenges to EPA's New Regulations

Immediately after EPA published the new and revised rules in the *Federal Register*, the American Petroleum Institute (API) and other groups sought reconsideration.<sup>64</sup> Subsequently, at least nine Petitions for Review have been filed in the

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<sup>57</sup> *Id.* at 49,573-74 (codified as 40 C.F.R. § 63.772(e)).

<sup>58</sup> 40 C.F.R. §§ 63.774(h)(1), -.775.

<sup>59</sup> 77 Fed. Reg. at 49,509.

<sup>60</sup> *Id.*

<sup>61</sup> *See* 75 Fed. Reg. 9448, 9656-57 (Mar. 3, 2000).

<sup>62</sup> *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008) (vacating the General Provision, 40 C.F.R. § 63.6, which, when incorporated into specific NESHAP, exempted sources from those regulations during periods of SSM).

<sup>63</sup> 77 Fed. Reg. 49,508-09, 49,557-58, 49,569-70 (to be codified at 40 C.F.R. §§ 60.5415(h), 63.762).

<sup>64</sup> e.g., Letter from Howard J. Feldman, Director, Regulatory & Scientific Affairs, American Petroleum Institute, to Lisa P. Jackson, Administrator, U.S. Environmental Protection Agency (Aug. 16, 2012).

D.C. Circuit.<sup>65</sup> Several of the arguments have been addressed in the discussions of the new standards above. Generally, the challenges include the following, non-exhaustive, list of issues:

- EPA made errors in the final rule based on its flip-flopping on whether to keep certain provisions;<sup>66</sup>
- EPA failed to submit certain portions of the final rule to industry for public comment;<sup>67</sup>
- The rules have a disproportionate impact on smaller producers;<sup>68</sup>
- The purported need for the new rules is illusory because it is based on an overestimation of emissions from oil and gas operations;<sup>69</sup>
- Similarly, EPA's cost-benefit analysis is based on flawed data and incorrect assumptions;
- The final rule imposes costly, inflexible requirements with little, if any, corresponding environmental benefit;<sup>70</sup>
- The rules impose monitoring, recordkeeping, and other compliance requirements that are "simply impossible";<sup>71</sup> and

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<sup>65</sup> *Gas Processors Ass'n v. EPA*, No. 12-1406 (D.C. Cir. Oct. 15, 2012); *Domestic Energy Producers v. EPA*, No. 12-1407 (D.C. Cir. Oct. 15, 2012); *Independent Petroleum Ass'n of America v. EPA*, No. 12-1408 (D.C. Cir. Oct. 15, 2012); *Natural Resources Defense Council v. EPA*, No. 12-1409 (D.C. Cir. Oct. 15, 2012); *California Communities Against Toxics v. EPA*, No. 12-1410 (D.C. Cir. Oct. 15, 2012); *Texas Oil & Gas Ass'n v. EPA*, No. 12-1411 (D.C. Cir. Oct. 15, 2012); *Western Energy Alliance v. EPA*, No. 12-1412 (D.C. Cir. Oct. 15, 2012); *Texas v. EPA*, No. 12-1417 (D.C. Cir. Oct. 15, 2012). These cases have been consolidated as *Independent Petroleum Ass'n of America v. EPA*, No. 12-1408 (D.C. Cir. Oct. 15, 2012).

<sup>66</sup> See, e.g., Request for Administrative Reconsideration by Interstate Natural Gas Association of America, Letter from Dan Rega, Regulatory Attorney, Interstate Natural Gas Association of America, to Lisa P. Jackson, Administrator, U.S. Environmental Protection Agency, at 2-3 (Sept. 14, 2012).

<sup>67</sup> IPAA Reconsideration Letter, *supra* note 92, at 2-3.

<sup>68</sup> *Id.*

<sup>69</sup> *Id.* at 4-5.

<sup>70</sup> *Id.* at 7.

<sup>71</sup> See, e.g., *id.* at 10-11; GPA Reconsideration Letter, *supra* note 113, at 9; Petition for Reconsideration by Texas Commission on Environmental Quality, Letter from Zak

- EPA’s attempts at clarifying the new rules subsequent to publication in the *Federal Register* merit formal clarification through the notice and comment rulemaking requirement.<sup>72</sup>

On the other hand, several environmental groups have expressed concern that the new and revised rules do not *go far enough* in reducing emissions.<sup>73</sup> EPA said that it may grant some of the petitions, and has proposed to reconsider various aspects of the new and revised rules in 2014.<sup>74</sup> As noted above, EPA recently revised Subpart OOOO primarily to address certain storage tank issues raised in the petitions for reconsideration, and proposed and finalized further revisions to and clarifications of the rules in 2014. The manner in which the remaining issues are addressed will not only impact ongoing compliance, but also the current legal challenges. Nevertheless, the new and revised rules are largely effective *now*, and operators may be well served by reviewing whether they are currently in compliance, and by making plans to deal with the phase-in of future requirements.

#### V. State Implementation of Stricter Standards

The states have been busy adopting and implementing the new and revised Subpart OOOO regulations. In particular, Colorado made headlines by not only adopting the regulations, but layering them with even more stringent controls on tanks, valves, wells and other emissions sources of VOC’s. The regulations include the first direct mandate to limit methane emissions from oil and gas production.<sup>75/</sup>

#### VI. Local Government Regulation

In addition to the new, more stringent NSPS regulations, each state has a regulatory framework governing the oil and gas industry. Despite the comprehensive federal and state regulations that have long been in place, and the expert federal and state regulators, the recent public debate concerning fracing has led some local governments to enter the mix by banning fracing or oil and gas production altogether. In two states,

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Covar, Executive Director, Texas Commission on Environmental Quality, to Lisa P. Jackson, Administrator, Environmental Protection Agency, at 4-8 (Oct. 12, 2012) (“Texas Letter”).

<sup>72</sup> e.g., Texas Letter, *supra* note 234, at 10-13;

<sup>73</sup> See generally Petition for Reconsideration by Earthjustice *et al.*, Letter from Emma C. Cheuse, Earthjustice, *et al.*, to Lisa P. Jackson, Administrator, U.S. Environmental Protection Agency (Oct. 15, 2012).

<sup>74</sup> See generally Unopposed Motion of Respondent EPA to Sever the Challenges to the NSPS and NESHAP Rules, to Hold Litigation in Abeyance, and to Govern Further Proceedings, *American Petroleum Institute v EPA*, No. 12-1405 (D.C. Cir. Jan. 16, 2013).

<sup>75</sup> See [https://www.colorado.gov/pacific/sites/default/files/003\\_030614-729AM-R3-6-fact-sheet-003\\_1.pdf](https://www.colorado.gov/pacific/sites/default/files/003_030614-729AM-R3-6-fact-sheet-003_1.pdf)



Colorado and New York, courts have weighed in on the propriety of such local regulations, while two others, California and Texas, have legal challenges pending.

A. Colorado

(1) COGCC

Colorado has declared that “[i]t is in the public interest to foster the responsible, balanced development, production, and utilization of the natural resources of oil and gas in the state of Colorado in a manner consistent with protection of public health, safety, and welfare, including protection of the environment and wildlife resources.” C.R.S. § 34-60-102 (1)(a)(1). Further, it is the intent and purpose to “permit each oil and gas pool in Colorado to produce up to its maximum efficient rate of production...consistent with the protection of public health, safety, and welfare.....” C.R.S. § 34-60-102(1)(b).

Consistent with this intent, the Colorado Oil and Gas Conservation Commission (“COGCC”) has enacted regulations that expressly permit and regulate hydraulic fracturing in Colorado while protecting the environment e.g., COGCC Rule 205A (requiring an operator to disclose the chemicals used in hydraulic fracturing); Rule 305(c)(1)(iii) (oil and gas location assessment notice given to nearby surface owners to include the COGCC’s information sheet on fracturing operations); Rule 317 (specifying casing requirements and cementing procedures to protect and isolate groundwater formations); Rule 318A.(e)(4 )(providing for groundwater sampling and monitoring); Rule 325 (addressing underground disposal of fluids used in hydraulic fracturing); Rule 805 (addressing odors and dust regulations); Rule 802 (addressing noise abatement); Rules 1002 & 1003 (outlining reclamation requirements).

While COGCC generally defers to CDPHE regarding air quality regulation, COGCC plays an increasing role. For example, the COGCC rule dealing with odors and dust limits emissions from tanks, glycol dehydrators, pits and pneumatic devices that have potential to emit 5 tpy or greater VOC in Garfield, Mesa and Rio Blanco Counties within ¼ mile of a building unit. COGCC regulations also require “Green Completions” where technically feasible. Operators must employ sand traps, surge vessels, separators and tanks as soon as practicable during flowback and cleanout operations to safely maximize resource recovery and minimized releases to the environment.

(ii) The Preemption Battle

Colorado has served as an important battle ground in the recent fight to determine whether local governments may regulate the oil and gas industry through regulations or outright bans, especially as it relates to fracking. Perceived impacts from air emissions play an important role in the enactment of these local regulations and ordinances. Four cities in Colorado have enacted fracking or drilling bans that have been challenged by the oil and gas industry in court. Each case has resulted in a victory for the industry challenger.

By way of review, the following is a summary of Colorado law on preemption that had developed prior to the recent controversies over hydraulic fracturing:

- Counties are not independent sovereigns, but, rather, are political subdivisions of the state with only those powers expressly granted to them by the Colorado Constitution or the General Assembly. *Board of County Comm'rs v. Bainbridge, Inc.*, 929 P.2d 691, 699 (Colo. 1996)(quoting *Board of County Comm'rs v. Love*, 172 Colo. 121, 125, 470 P.2d 861, 862 (1970))
- “A county regulation and a state statute may both remain in effect so long as their express or implied conditions do not irreconcilably conflict with each other.” *Bd. of Cty. Comm'rs v. BDS Int'l, LLC*, 159 P.3d 773, 778 (Colo. App. 2006).
- Three types of state preemption: (1) express preemption of all local authority over subject matter; (2) implied legislative intent to occupy completely a given field; or (3) county regulations’ operational effect would conflict with application of the state statute. *Board of County Comm'rs v. Bowen/Edwards Assoc., Inc.*, 830 P.2d 1045 (Colo. 1992).
- Operational conflict arises when effectuation of the local interest would “materially impede or destroy the state interest.” *Id.*
- The State has enacted a comprehensive statutory scheme under the COGCA designed to regulate all aspects of oil and gas development. See C.R.S. § 34-60-101, et seq.
- The Colorado Supreme Court has recognized that while the COGCA does not preempt all local government land use authority over oil and gas activities within its boundaries, local regulation must yield when it materially impedes or destroys the state's interest, including in technical areas related to oil and gas development where the state has a strong interest in uniform regulations. *Board of County Comm'rs v. Bowen/Edwards Assoc., Inc.*, 830 P.2d 1045, 1059 (Colo. 1992).
- The State has exclusive authority to regulate: “the technical aspects of drilling, pumping, plugging, waste prevention, safety precautions, and environmental restoration,” so local regulations are preempted if they impose requirements on technical conditions of drilling or pumping or on safety regulations. *Id.*; citing *Voss v. Lundvall Bros. Inc.*, 830 P.2d 1061, 1067-68 (1992).
- A Municipality cannot prohibit drilling of any oil or gas wells within city limits because state’s interest in regulating oil and gas production was “sufficiently dominant” to override the entirety of municipal ordinance prohibiting drilling because the ordinance “substantially impedes the interest of the state in fostering the efficient development and production of oil and gas resources.” *Voss v. Lundvall Bros., Inc.*, 830 P.2d 1061, 1068 (Colo. 1992); see also *Oborne v. Board of County Comm'rs*, 764 P.2d 397 (Colo. App. 1989; *Town of Frederick v. North American Resources Co.*, 60 P.3d 758 (Colo. App., 2002).

In late 2012 and 2013, four Colorado cities enacted prohibitions on fracking or oil and gas production in general: (i) Fort Collins enacted a five year moratorium on fracking and the storage of fracking waste; (ii) the City of Lafayette enacted a three year moratorium on all oil and gas activities; (iii) the City of Longmont enacted a permanent ban on fracking or the storage of fracking waste; (iv) City of Broomfield enacted a five year





moratorium on fracking or the storage of fracking waste.<sup>76</sup> Each of these local restrictions was challenged by the oil and gas industry in court. In each of these cases the courts granted summary judgment in favor of the industry challenger.

Although each case presented unique issues, the primary basis for judgment in favor of the oil and gas industry in three of the four cases was that the local regulation was preempted by the Colorado Oil and Gas Conservation Act (C.R.S. 34-60-101, et seq.). In *Sovereign Operating Co., LLC v. City of Broomfield*, No. 14-cv-30092 (Broomfield County Dist. Ct. September 15, 2014), the court held that the legislation constituted a breach of contracts that the city had entered into with oil and gas producer.<sup>77</sup>

In examining whether the local ordinances were preempted by the state regulatory framework, the courts examined whether the state had a significant and dominant interest in regulating oil and gas production and whether the local regulation prohibited conduct that the state regulations permitted. To determine these issues the courts looked to four factors, (1) the need for state-wide uniformity in regulation; (2) whether the regulation had extraterritorial impact; (3) whether the state traditionally allowed local regulation; and (4) whether the regulation violated the Colorado Constitution. Each court that examined these factors determined that the Colorado Oil and Gas Conservation Act preempted the local regulation because the state has a dominant interest in preventing a patchwork approach to regulation that would result in inefficient and unfair development of natural resources.

The determination that local regulations affecting the production of oil and gas (whether an outright ban or a ban on fracking) are preempted by the statewide regulatory framework is important not just because it invalidated three ordinances, but because it has placed a high hurdle on any attempts by local governments to regulate the industry.

#### B. New York

In *In re Mark S. Wallach*<sup>78</sup> the New York Court of Appeals (the highest New York court) determined two consolidated appeals regarding the ability of local governments to ban oil and gas activities within the city limits, including fracking.

As with the Colorado cases, the New York Court of Appeals examined several issues related to the zoning ordinances, most prominently whether they were preempted by the New York Oil, Gas and Solution Mining Law (“OGSML”). The OGSML specifically addresses preemption and provides that “The [OGSML] shall supersede all

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<sup>76</sup> *Sovereign Operating Co., LLC v. City of Broomfield*, No. 14-cv-30092 (Broomfield County Dist. Ct. September 15, 2014); *Colorado Oil and Gas Ass’n v. City of Lafayette*, No. 2013-cv-31746 (Boulder County Dist Ct. September 2, 2014); *Colorado Oil and Gas Ass’n v. City of Fort Collins*, No. 13-cv-31385 (Larimer County Dist. Ct. August 7, 2014); *Colorado Oil and Gas Ass’n v. City of Longmont*, No. 2013-cv-63 (Boulder County Dist. Ct. July 24, 2014).

<sup>77</sup> Bryan Cave represented the oil and gas operator in this case.

<sup>78</sup> See <http://www.fracktracker.org/a5ej20sjfwe/wp-content/uploads/2012/04/Court-of-Appeals-Decision.2014-06-30.pdf>

local laws or ordinances relating to the regulation of the oil, gas and solution mining industries; but shall not supersede local government jurisdiction over local roads or the rights of local governments under the real property tax law.”

Despite the apparent prohibition on local regulations that would affect the oil and gas industry, the New York Court of Appeals upheld both zoning ordinances that explicitly banned all oil and gas production within the city limits. The court reasoned that the OGSML prevents local governments from interfering with or regulating the actual operation of oil and gas facilities but does not prevent them from enacting zoning laws that prohibit the use of land for the production of oil or gas. The court, thus, weighed the right of local governments to regulate land use within their boundaries more heavily than the state’s interest in a uniform regulatory scheme.

Outside the courtroom, the Cuomo administration very recently decided that it would ban fracking in the state. The decision was based on a state department of health report concluding that there are unknown risks associated with high volume hydraulic fracturing.<sup>79</sup> The report is basically a summary of a collection of reports describing theoretical risks associated with fracing, without any independent data collection or scientific analysis.<sup>80</sup> The report concludes that “as with most complex human activities in modern societies, absolute scientific certainty regarding the relative contributions of positive and negative impacts of HVHF on public health is unlikely to ever be attained.”<sup>81</sup> Unfortunately, this finding doomed fracing from the start, because the state report essentially adopts “absolute certainty” as the hurdle for approving fracing. For example, with regard to air quality and human health, none of the “major reports” relied on in the summary actually make a causal link between fracing and adverse health conditions; at most some of them suggest a possible link based on the proximity of oil and gas production to homes, some recommend further study, and several used methodologies that, at best, were incomplete.<sup>82</sup> Nonetheless, because the reports do not reach what the state study itself admits is an unattainable standard (“absolute certainty”), the report recommends that fracing should be banned. Fracing never had a chance in New York.

Governor Cuomo did not help the matter. He dodged the fracing issue, repeatedly stating that he “is not a scientist, I’m not an environmental expert. I’m not a health expert. I’m a lawyer. I’m not a doctor. I’m not an environmentalist. I’m not a scientist.” Of course, politicians routinely make policy decisions based in part on weighing controversial or complex scientific data. If the Governor truly intended to defer to “the

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<sup>79</sup> [http://www.nytimes.com/2014/12/18/nyregion/cuomo-to-ban-fracking-in-new-york-state-citing-health-risks.html?\\_r=0](http://www.nytimes.com/2014/12/18/nyregion/cuomo-to-ban-fracking-in-new-york-state-citing-health-risks.html?_r=0)

<sup>80</sup> A Public Health Review of High Volume Hydraulic Fracturing, December 2014, [http://www.health.ny.gov/press/reports/docs/high\\_volume\\_hydraulic\\_fracturing.pdf](http://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf)

<sup>81</sup> *Id.* at cover letter.

<sup>82</sup> *Id.* at 24-31. For a critique of the data relied on in the New York report, *see* <http://energyindepth.org/national/the-dubious-scientific-foundation-for-new-yorks-fracking-ban/>

science” then his decision should have gone the other way. “Absolute certainty” is not and never has been a wise or accepted standard for making scientific judgments. No industrial operation - - and fracking and oil and gas production are industrial operations - - is entirely “safe.” In this case, there are numerous studies, findings and determinations by both federal and state agencies, and peer-reviewed scientific studies, along with years of real-world experience, concluding that properly regulated fracking is relatively benign from a health and environmental standpoint.<sup>83</sup> In addition, the recent avalanche of air quality regulations addressed in this paper, aimed at fracking, betrays the notion that air emissions associated with drilling, fracking and production are not understood or properly and stringently regulated.

### C. California and Texas

In 2014, local governments in California began enacting fracking bans similar to those seen in Colorado and New York. As of December 2014, the City of Beverly Hills, the City of Compton, the City of Santa Cruz, Mendocino County, and San Benito County have enacted bans on fracking. Industry organizations have challenged or are preparing to challenge each regulation asserting similar arguments to those used in Colorado and New York, including whether they are preempted by SB 4 under which the California Natural Resources Agency is issuing fracking permits.

In November 2014, the City of Denton, Texas enacted a ban on fracking within the city limits. As with most fracking bans, the ordinance was met with an immediate challenge by the local oil and gas industry, including that the ordinance is preempted by the Texas Constitution and the other state-wide regulations.<sup>84</sup> Interestingly, the Texas Railroad Commission (which regulates the oil and gas industry in Texas) is also challenging the Denton ordinance. As of December 2014, the Denton ordinance is the only one of its kind in Texas and has not yet been adjudicated.

Colorado, California, and Texas will serve as the test cases to which other jurisdictions will look in determining the extent to which local governments are permitted to regulate the oil and gas industry, including fracking. According to BNA’s Daily Environment Report, Interior Secretary Sally Jewell recently commented that local regulation is “the wrong way to go” and that “there is a lot of misinformation about fracking. ...I think that localized efforts or statewide efforts in many cases don't understand the science behind it, and I think there needs to be more science.”<sup>85/</sup>

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<sup>83</sup> For an ongoing dialogue from the industry viewpoint of the data and reports, see the web site Energy In Depth, at <http://energyindepth.org/>

<sup>84</sup> [http://txoga.org/assets/doc/TXOGA\\_Petition\\_Against\\_the\\_City\\_of\\_Denton.pdf](http://txoga.org/assets/doc/TXOGA_Petition_Against_the_City_of_Denton.pdf)

<sup>85</sup> [http://news.bna.com/deln/DELNWB/split\\_display.adp?fedfid=61063004&vname=dennotallissues&jd=a0g0x3x8p1&split=0](http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=61063004&vname=dennotallissues&jd=a0g0x3x8p1&split=0)

## VII. Conclusion

The word “frack” is not literally a “four letter word,” but it sounds like a certain well known expletive, and is used in the same linguistic sense as the latter by some opponents of hydraulic fracturing. Initially, activists argued that our subsurface drinking water supplies were being “fracked.” However, as for the fracing process itself, there is no plausible mechanism by which frac fluids could migrate thousands of feet upwards through impervious bedrock into drinking water aquifers. Activists have shifted the argument to potential risks associated with the casing and cement that surround the flowing fluids precisely to protect aquifers. There have been instances of improper casing or cementing jobs. These have been isolated, often associated with abandoned wells. For modern drilling, state oil and gas regulators have lengthy, highly technical, and scientifically engineered requirements to assure that wells are properly designed, monitored and closed.

The focus on hydraulic fracturing and environmental risk now encompasses air quality. Air quality has become a lightning rod for environmental regulatory action and stakeholder disputes regarding oil and gas development in the United States, and allegations about supposed links between fracing and health have been at the forefront of efforts by local governments to ban the practice. As with the water quality debate, however, fracing and air quality must be examined with an understanding of what fracing is, and is not. Fracing constitutes a very brief phase of development, and the emissions specifically associated with the limited fracing phase are short-term. Moreover, as confirmed by a recent study co-sponsored by an environmental organization, methane emissions associated with natural gas fracing have been overestimated, and are well-controlled when operators use best practices such as green completions, which have become common in many jurisdictions, and are now federally mandated.

There are other operations in the life-cycle of a well, such as engines, storage and fugitive emissions, that have potential emissions. And, it is true that without fracing, we would not be experiencing the growth in oil and gas development for which these operations and equipment are necessary. However, it confuses the issues and feeds alarmism to demonize hydraulic fracturing based on potential impacts that do not derive from hydraulic fracturing itself. Further, doing so distorts the fact that states have regulated oil and gas equipment for years through state SIP programs, and the that new federal regulations meet challenges such as fugitive emissions from valves and pumps head on with zero emission standards. Meanwhile, states like Colorado, where oil and gas development does increasingly encroach on somebody’s “backyard,” the state is quickly and decisively moving to impose even more stringent controls to reduce if not eliminate emissions. Despite these extensive state and federal regulations, and oil and gas commission regulations that increasingly address air, water and waste, local governments are now entering the fray, seeking outright bans on oil and gas development, claiming that, among other things, air quality impacts are not regulated or understood. As demonstrated above, this is a serious misconception.



We should have a vigorous, continuing debate about the risk/reward calculation for oil and gas development in the United States, especially as it becomes more productive thanks to improved techniques such as fracing and horizontal drilling. We should do so based on the recognition that the fracing phase is a limited one with well-managed potential environmental impacts. We will never recognize the promise of domestic oil and gas resources if a vocal minority drowns out reasoned debate about the economic, employment, foreign policy, and environmental aspects of oil and gas development by screaming that they are being “fracked.” “Fact” and not “frack” should be the four letter word that garners our attention and focus.