

EXPERT ANALYSIS

All Politics is Local: Varying Responses To Regulation of Hydraulic Fracturing

By Peter McGrath, Esq.
Moore & Allen

North Carolina has recently taken steps to allow hydraulic fracturing for development of shale gas, which had long been prohibited in the state. Moving in the opposite direction, at the end of 2014, the administration of Democratic Gov. Andrew Cuomo in New York banned hydraulic fracturing by executive order. In June 2014, New York's highest court ruled that localities could ban hydraulic fracturing through zoning regulation, but the executive order effectively bans shale gas extraction statewide. The actions of these two states show that localities will view the risks and benefits of fracturing differently and should, therefore, be left to address those risks and benefits in the ways they see best.

HYDRAULIC FRACTURING

The U.S. Geological Survey recognizes two classes of oil and gas resources: conventional and unconventional, or continuous. A conventional reserve is composed of three parts: the source rock, the reservoir rock and the cap rock. The source rock is the organic rich material that has been matured by heat and pressure to create and release oil and gas hydrocarbons. The reservoir rock is a porous rock layer containing interconnected pore spaces into which the oil and gas can migrate. The cap rock is an impermeable layer, which traps the oil and gas to prevent them from migrating upwards above the cap.

Unconventional, or continuous, oil and gas resources contain only two parts: source/reservoir rock and cap rock. Shale gas is found in such continuous formations. Hydraulic fracturing, in general terms, means oil or gas well development by the application of hydraulic pressure using fluids, proppants (materials that can keep, or prop, open newly created fractures) and additives under pressure. This process creates artificial fractures or opens existing fracture networks in a continuous formation for the purpose of improving the capacity to produce hydrocarbons.

In hydraulic fracturing for shale gas exploration and development, a driller lowers a perforated well casing to a desired depth and then fires a number of shaped explosive charges along the length of the well casing. The charges blast holes through the steel casing and ground and then shatter the surrounding rock.

Once the well is perforated, expandable rubber baffles are inserted into the shattered rock to form a vertical segment of the well. This allows pumping of the hydraulic fluid, composed of water, proppant (usually sand) and other chemicals through the well to fracture the surrounding rock.

Typically, in the eastern United States, the vertical drilling stops approximately 500 feet above the level at which horizontal drilling will occur. The standard drill bit is replaced with a steerable drilling head that can be driven to change the well bore from vertical to horizontal. The transition takes

Localities will view the risks and benefits of fracturing differently and should, therefore, be left to address those risks and benefits in the ways they see best.

about a quarter of a mile. For traditional drilling in a conventional formation, a vertical well is simply drilled directly through the cap rock into the reservoir.

NORTH CAROLINA

Prior to 2012, North Carolina banned horizontal drilling at any angle greater than 2 degrees, essentially making any type of hydraulic fracturing impossible. After expansion of fracturing in the northeast part of the United States, and discovery and mapping of shale gas resources in the Triassic basins in central North Carolina, North Carolina revisited the prohibition on horizontal drilling.

In 2012, the North Carolina General Assembly enacted the Clean Energy and Economic Security Act, N.C. Sess. Law 2011-276. The new act directed the North Carolina Department of Environment and Natural Resources, or DENR, to study the possibility of allowing horizontal drilling and hydraulic fracturing for shale gas production in the state. At the same time, the North Carolina Legislature directed the state's Department of Commerce to study the economic impact of shale gas extraction in North Carolina.

In response to that legislative mandate, DENR studied:

- The nature and extent of oil and gas resources present in the Triassic basins.
- Potential methods of exploration and extraction of those resources.
- Potential impacts of exploration and extraction on infrastructure, the environment and public health in the state.
- Potential issues, concerns and problems that could be associated with an oil and gas regulatory program.

According to DENR's report, most of the shale gas in North Carolina exists in the "Deep River" geologic basin, a 150-mile-long area in the center of the state.¹ After completing its study, the department concluded that production of natural gas through hydraulic fracturing could be done safely, as long as proper regulatory protections were in place.

DENR's report indicates that such regulations should include limiting water withdrawals to 20 percent of stream flow and prohibiting withdrawals during times of drought and periods of low flows. In addition, the state is developing a stormwater regulatory program for oil and gas drilling sites. DENR will require full disclosure of all hydraulic fracturing chemicals and constituents to regulatory agencies prior to drilling.

The state also encourages, but does not require, drillers to fully disclose that information to the public. DENR also said any set of regulations should prohibit the use of diesel fuel in hydraulic fracturing fluids. DENR recognized that conditions in the Triassic basins of North Carolina are different from those found in other states where fracturing was already in use to develop shale gas. For example, DENR said a better understanding of the depth of usable groundwater in the basin is necessary to set well construction standards to adequately protect drinking water resources and that North Carolina should not simply mimic other states' standards.

North Carolina has now promulgated an extensive proposed set of fracturing regulations to be implemented and enforced by the state's mining and energy commission. The regulations cover all topics recommended by the DENR study: drilling permits, well location and construction standards, maintenance, reporting, chemical disclosure, water supply protection and testing, and stormwater control.

NEW YORK

New York initially legalized fracturing (at least "low-volume" fracturing) in 1992 after the New York State Department of Environmental Conservation completed the "Generic Environmental

Impact Statement on the Oil, Gas and Solution Mining Regulatory Program.”² Although the terms are imprecise, New York considered “low-volume” fracturing to mean fracturing that did not require horizontal drilling and multi-well pad development.

Thereafter, though, drillers began using “high-volume” hydraulic fracturing in shale gas-rich regions of the state, particularly in the Marcellus and Utica shales. In response, in 2008, the DEC began developing a supplement to the 1992 study to specifically address natural gas development using high-volume fracturing and horizontal drilling in unconventional formations.

In developing the supplement, the DEC requested that the New York State Department of Health assess any potential public health impacts of high-volume fracturing. While the Department of Health study was progressing, approximately 220 municipalities either adopted zoning regulations to ban fracturing or imposed drilling moratoriums. In June 2014, New York’s highest court held that such zoning regulations and moratoria are enforceable under New York law.³

In this legal environment, Cuomo, originally elected in 2010 and re-elected in 2014, indicated that he would defer taking any administrative or executive action on fracturing until the Department of Health study was complete. That study was issued in December 2014.

The study found that many potentially material negative impacts had been, or could be, associated with high-volume fracturing. Specifically, the Department of Health concluded that air quality impacts could affect respiratory health due to increased levels of particulate matter, diesel exhaust or volatile organic chemicals. The study said climate change impacts could result from methane and other volatile organic chemical releases, and drinking water impacts could occur as a result of underground migration of methane or chemicals in fracturing solutions, especially as a result of faulty well construction.

Furthermore, earthquakes could be induced during fracturing. Finally, the Department of Health considered social effects, such as increased vehicle traffic, road damage, noise, odor complaints, increased demand for housing and medical care, and stress could result from the increased economic activity from oil and gas development.⁴

After the report was issued at a year-end cabinet meeting, Cuomo announced his decision to ban high-volume fracturing completely. A Quinnipiac poll released shortly after Cuomo’s announcement indicated that 55 percent of those surveyed said they approved of the ban, compared to 25 percent who did not.⁵ An aggrieved party could bring a legal action to overturn the ban, but it appears no one has yet done so. It is possible that Cuomo issued the ban knowing it would be popular but expecting a legal challenge, which would force the state judiciary to ultimately resolve the question of the legality of high-volume fracturing.

CONCLUSIONS

Regulators in North Carolina and New York each conducted detailed studies of the circumstances and effects of hydraulic fracturing in their states. Each state reviewed data from other jurisdictions but came to its own conclusions. Certainly, fracturing affects interstate commerce, so it appears inarguable that federal regulation of fracturing would be permissible under the U.S. Constitution.

If each state conducts a thorough assessment of the costs and benefits of fracturing in the state, and enacts a regulatory regime based on the study, the result would be a set of site-specific regulatory environments. These would allow development of resources in each state only under circumstances tailored narrowly to the state’s environment, or disallow fracturing completely. There would be no need to develop a set of national standards to regulate fracturing across a wide range of environmental, social and economic landscapes.

States should develop such studies and regulatory regimes through the legislative process, to the extent possible, instead of relying on executive or judicial action, in order to maximize democratic participation in the system.

North Carolina will require full disclosure of all hydraulic fracturing chemicals and constituents to regulatory agencies prior to drilling.

NOTES

¹ N.C. Dep't of Env't & Natural Res., North Carolina Oil and Gas Study under Session Law 2011276 (Apr. 30, 2012), available at <http://portal.ncdenr.org/web/guest/denr-study>.

² N.Y. State Dep't of Envtl. Conservation, Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program, available at <http://www.dec.ny.gov/energy/45912.html>.

³ *Wallach v. Town of Dryden et al.*; *Cooperstown Holstein Corp. v. Town of Middlefield*, 23 N.Y.3d 728 (N.Y. 2014).

⁴ North Carolina's proposed regulations cover all of these issues, except for earthquake risk. It is possible, though, that North Carolina could use its well location, installation and permitting requirements to address that risk.

⁵ Scott Waldman, *The Politics of Cuomo's Fracking Decision*, CAPITAL N.Y., Dec. 23, 2014, <http://www.capitalnewyork.com/article/albany/2014/12/8559101/politics-cuomos-fracking-decision>.



Peter McGrath of **Moore & Allen** in Charlotte, N.C., is a frequent lecturer and author on diverse environmental issues. He brings to his wide-ranging clients extensive counseling and litigation experience with environmental issues arising in businesses and real estate transactions.

©2015 Thomson Reuters. This publication was created to provide you with accurate and authoritative information concerning the subject matter covered, however it may not necessarily have been prepared by persons licensed to practice law in a particular jurisdiction. The publisher is not engaged in rendering legal or other professional advice, and this publication is not a substitute for the advice of an attorney. If you require legal or other expert advice, you should seek the services of a competent attorney or other professional. For subscription information, please visit www.West.Thomson.com.