

Hydraulic Fracturing: A Status Report On Regulations

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*The Editor interviews **Wayne J. D'Angelo**, Special Counsel in the Washington, DC office of Kelley Drye & Warren LLP.*

Editor: Please tell us about your professional background.

D'Angelo: After college I went to work for a congressman on Capitol Hill, where I was involved with energy and environmental issues. I was then named a presidential appointee at the EPA, where I worked first as the director of advance and strategic planning, helping to articulate and promote the President's environmental agenda, and then in the general counsel's office. I joined Collier Shannon Scott, which later merged with Kelley Drye & Warren, as a summer associate and stayed on. In 2010, I left to work for the American Petroleum Institute, and I returned to Kelley Drye in June 2012.



[Wayne D'Angelo](#)

Editor: What are the major shale plays at the moment, and where is the gas easiest to recover?

D'Angelo: Shale can hold both gas and oil, depending on the formation. The largest natural gas shale play is the Marcellus Shale formation, which underlies Pennsylvania and parts of New York, West Virginia, eastern Ohio and into the panhandle of Maryland. It's estimated to contain about 410 trillion square feet of natural gas.

The largest oil shale formation is the Bakken Shale in North Dakota; where they ~~are pulling out over 20 million barrels per month.~~ As oil prices are high right now, they're working the hair off that formation, and North Dakota has the lowest unemployment rate in the country. The Eagle Ford and the Barnett Formations, both in Texas, are also very large shale formations.

Some of the most economically accessible gas is in the Marcellus, which is why it's seeing so much activity. In northern Pennsylvania, the formation is very thick and consequently holds the most gas. What's motivating decisions about where to produce or explore right now is the cost of natural gas, which is pretty low – in fact, so low that some companies are not finding it economical to drill for it. Rather, they are drilling where there is either "wet gas" (which

contains other chemicals that are selling at a good price) or oil.

Editor: I'm gathering that the cost efficiency of extracting oil and/or gas from a shale play varies widely.

D'Angelo: It does. Hydraulic fracturing and horizontal drilling are the two technologies that make it feasible to extract oil and gas from source rock, but because the source rock is very different as you go around the country, the drilling practices differ substantially. Practices also differ for oil and for gas.

Geology and hydrology are location-specific, so one-size-fits-all regulation may not be protective enough in one area and unnecessarily overprotective in another – a major justification for state-level regulation.

Editor: How have the communities around the various plays benefited financially and socially?

D'Angelo: They're benefiting a great deal directly and indirectly. Natural gas and oil production create all kinds of jobs, ranging from working on the rigs to transporting water and materials. The secondary work that supports the domestic oil and gas industry has created a renaissance for manufacturing in a number of ways: first, the companies that supply the increased operations with steel, pipe and valves; second, the many companies that use some of the chemicals from natural gas (e.g., ethane) as feedstock; and third, those with high energy costs. We represent a lot of energy-intensive industries, many of them in the steel industry, for whom energy is a huge, huge cost input. A healthy domestic natural gas industry has driven the price of natural gas down.

Local communities also benefit through increased tax revenue from companies and employed individuals.

Businesses in the area are likewise succeeding. If you have a trucking business or a few backhoes to lease in the Marcellus region, or if you own a hotel or restaurant, you're probably doing exceptionally well. Finally, there are impact fees. In Pennsylvania last year, \$204 million was dispersed back to these communities.

Editor: How are regulations different among the states that are home to major shale plays – the Bakken, the Marcellus, the Barnett?

D'Angelo: Certainly all states where hydraulic fracturing occurs – and some where it doesn't – are cataloging, assessing and updating their regulations regarding oil and gas extraction. Hydraulic fracturing has been around for over 60 years. In the U.S., 1.2 million wells have been drilled and hydraulically fractured, but the real growth in this industry has been in the last 10 years, so many states with oil and gas regulations could not have envisioned the particular technical and operational nuances of hydraulic fracturing.

For instance, Pennsylvania hadn't seen significant oil and gas development in a century, so their regulations were fairly dated. Pennsylvania, Ohio, North Carolina, Maryland, California and Colorado are all involved in major regulatory overhauls at this point. New York operates under a moratorium on hydraulic fracturing, but they are updating their regulations as well.

Some of the common themes being addressed are water usage, disclosure of chemicals, permitting, setbacks from residences and schools, and reporting requirements.

Editor: Many of the shale plays are the targets of lawsuits by environmental groups. What plays see the greatest opposition?

D'Angelo: Certain environmental groups are decidedly anti-hydrocarbon, and they oppose shale gas development anywhere. When federal lease sales are involved, these groups can lodge protests and often sue the leasing agency. I don't know of a single major federal lease sale in recent years that has not been opposed by an environmental group. When federal leases are not involved, these groups are filing lawsuits against natural gas infrastructure such as pipelines and LNG export facilities that are necessary to get natural gas to market. Many environmental groups have recognized that they will not succeed in getting an outright hydraulic fracturing ban, but they may still be able make shale drilling less profitable by severing the products from downstream markets. Even the most minor pipelines are being protested by environmental groups.

Editor: Environmental groups sometimes cite violations of the Endangered Species Act (ESA) to file suits against natural gas developers and government agencies. Has this proved a successful strategy for opponents of fracking?

D'Angelo: The ESA is one of two major tools these environmental groups use where there's a proposed oil and gas project, lease sale or pipeline. They will find an endangered or threatened species that lives within miles of a project, or note that a critical habitat overlies an area that may be explored for oil and gas, and seek to hold up the project on that fact. Sometimes the ESA challenges are credible, but often the driving concern is the group's opposition to hydrocarbons – not protecting the species.

The same could be said of the groups' use of NEPA, in which they make a NEPA challenge that the federal government did not effectively weigh or analyze the environmental impacts of a federal action. Certain environmentalists are looking for increasingly expansive analysis – for instance, with hydraulic fracturing, all of the impacts that may stem from drilling to when the actual end product is sold and combusted, which I believe is an improper extrapolation of NEPA.

Editor: The EPA was supposed to release its first study on the impacts of fracking on drinking water resources. Where does this stand?

D'Angelo: In 2010, Congress directed EPA to study the impacts of hydraulic fracturing on drinking water. They have yet to release the study, but in December they put out a rather substantive progress report about what they plan to address and what they've addressed thus far, along with methodological explanations. The matters they are focusing on include water acquisition, hydraulic fracturing fluid spills, well injection, the flow-back of produced water and, ultimately, the total lifecycle of wastewater treatment and disposal options.

As for methods, first, EPA is administering case studies of hydraulic fracturing sites where there has been some indication of groundwater contamination to determine if there is a causal relationship.

Second and very important, EPA is conducting before-and-after testing of ground water and aquifers in selected hydraulic fracturing sites to examine potential impacts against a known baseline. EPA is working with industry on this, which I think is a very good thing for both parties.

Editor: President Obama has been consistent in his support of an “all of the above” policy when it comes to energy production. Meanwhile, federal regulations would provide more predictability (and therefore more comfort) for natural gas producers and their stakeholders. Are federal regulations on fracking in the works?

D’Angelo: They are. The Bureau of Land Management has proposed and is now reproposing regulations that would regulate hydraulic fracturing on all federal lands. EPA has also issued a final rule for dealing with air emissions from upstream oil and gas operations that would include hydraulic fracturing operations, which in the natural gas context are largely focused on methane emissions.

BLM also promulgated guidance under the Safe Drinking Water Act, effectively applying that statute to hydraulic fracturing practices that utilize diesel fuel in the injection fluid. In addition, EPA has been petitioned by many environmental groups for additional regulation under the Emergency Planning and Community Right-to-Know Act and the Fungicide Insecticide and Rodenticide Act (FIRA), the Clean Water Act, and the Toxics Substances Control Act.

Editor: President Obama recently appointed Gina McCarthy to head EPA and Ernest Moniz to run the Department of Energy. How will these appointments impact the natural gas industry?

D’Angelo: Having worked personally with Gina McCarthy, I think she’s a great choice. Her views often greatly differ philosophically from my clients, understandably, but she has always shown a willingness to sit down and listen to industry concerns and find the areas of common interest – those gray areas where solutions lie. She’s always been an excellent communicator and is highly knowledgeable about the industry. The National Emissions Standards for Hazardous Air Pollutants (NESHAPs) and the New Source Performance Standard (NSPS) rules, which industry has challenged, came through the Office of Air & Radiation when she was its assistant administrator.

I think the President made an excellent choice with Dr. Moniz as well, because he shares the President’s energy philosophy. As former deputy secretary and at MIT, he worked intently on nuclear issues. While at MIT, Dr. Moniz and his colleagues analyzed the methane emissions of hydraulic fracturing and also concluded that hydraulic fracturing, like any energy technology, has impacts, but that those impacts are manageable. He also served on the President’s Scientific Task Force, which recommended throwing real money at renewable technologies like wind and solar. He gives every one of the energy constituencies reason to cheer and reason to be upset because he truly is an “all of the above” energy pick.

Editor: Methane gas leaks present one of the dangers of hydraulic fracking, but methane may also be recaptured and sold at a profit. Is the LNG industry looking to investigate and leverage such technologies?

D’Angelo: They are, and they’ve begun deploying them at an even greater rate. EPA has

recently estimated that methane emissions have decreased 66 percent. This is so for a few reasons: one, there's value to methane, so companies have a vested interest in capturing it and selling it. Additionally, the NESHAP and NSPS are adding requirements for methane emission control technologies (called reduced emissions completions [RECs] or green completions), so companies are deploying more resources for the sake of compliance. If there's been any lag, it's because hydraulic fracturing operations have grown so exponentially that there simply aren't enough third-party RECs suppliers to meet the need. Nonetheless, the market for methane is there, and technology is being increasingly deployed – which means we will see methane emissions continue to drop.

Please email the interviewee at wdangelo@kelleydrye.com with questions about this interview.

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