

# Shale drilling plans create friction

Erica Bryant • Staff writer • May 23, 2010

In Pennsylvania, miners are pumping millions of gallons of chemical-laced water into horizontal wells to fracture underground shale formations and release valuable natural gas. Plans to do so in New York are mobilizing citizens by the thousands.

"It could be a gold rush," said Kenneth Knowles, chairman of the Steuben County Land Owners Coalition. He looks across the Pennsylvania border and sees new cars and full restaurants. Estimates suggest that horizontal drilling and high-volume hydraulic fracturing has pumped more than \$2 billion into the Pennsylvania economy, and Knowles wants the same benefits in his county, where the unemployment rate was 10.3 percent as of March. "It will be the one greatest benefit that this county has ever seen, no question about it."

Charles Tauck, principal owner of Sheldrake Point Winery in Ovid, Seneca County, looks south and sees 200-foot drilling rigs, five-acre well pads, hazardous waste holding ponds and accidents contaminating drinking water. He is part of a group of Finger Lakes winery owners and environmentalists who are pushing the state Department of Environmental Conservation to beef up proposed "hydrofracking" rules for fear of environmental destruction, water pollution, chemical spills and loss of quality of life. "It could lay waste to some areas of the Southern Tier," he said.

Their sharply contrasting opinions are found among more than 14,000 public comments sent to the state DEC regarding the 800-page draft Supplemental Generic Environmental Impact Statement for horizontal drilling and high-volume hydraulic fracturing to develop the Marcellus shale. Geologists estimate that up to 516 trillion cubic feet of natural gas lies trapped in this massive underground formation that stretches from West Virginia and eastern Ohio into Pennsylvania and parts of New York, including the Southern Tier and the Finger Lakes.

The U.S. Environmental Protection Agency, environmental advocates and several Finger Lakes

winery operators and Native American leaders say the proposed regulations are inadequate and their approval would likely mean polluted air and water, destroyed landscapes and health hazards.

Natural gas industry leaders counter that the rules are more than enough to ensure safe drilling, and that their rapid approval could mean tens of thousands of jobs for New Yorkers, hundreds of millions of dollars in state and local tax revenues and a step toward independence from foreign oil.

## Economic impact

A lot of money is at stake. Miners started drilling for natural gas in Pennsylvania's section of the Marcellus shale in 2003, and by 2008, there were permits for more than 550 wells. A study by Pennsylvania State University's College of Earth and Mineral Sciences found that the activity generated \$2.3 billion in economic activity, more than 29,000 jobs and \$240 million in state and local tax revenues in 2008. The study, which was funded by a coalition of natural gas producers, predicted more growth in the future, and Pennsylvania colleges are starting programs to train the thousands of workers needed to support the industry. Critics also point to Pennsylvania to bolster their arguments. Last year, for example, Cabot Oil and Gas Corp. was forced to temporarily halt drilling after it had three spills of hydrofracking fluid in Susquehanna County within one month, polluting a creek and a wetland. The company also has been cited for allowing methane gas to migrate into drinking water wells. Similar accidents, pollution, natural gas migration, well explosions and other problems have pushed

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Pennsylvania to draft new regulations for drilling, hire additional inspectors and create a department specifically to oversee natural gas drilling activity in the Marcellus shale.

A task force visit to Pennsylvania to observe the impact of hydrofracking led the Haudenosaunee Confederacy of Native Americans to oppose the drilling anywhere in New York.

"Even when things are done 'right,' the impacts are devastating," the Haudenosaunee said in a statement to the DEC. "We have seen first hand the impacts of hydrofracking: the vast industrialization of the landscape, the pollution of the air from hundreds of trucks ... the fragmentation of habitat and landscape by the incursions of roads ... the ruining of streams and wells from drilling-related contamination, and most heartbreakingly the permanent disruption of people's homes, lives and communities."

**Tough enough?**

Horizontal drilling and hydraulic **fracturing techniques** are already in use in many of New York's 13,000 active wells, but with significantly less water and chemicals than would be used in the Marcellus shale. About 80,000 gallons of water and chemicals are used in a traditional hydraulically fractured well. The low permeability of shale means that wells dug in the Marcellus shale would have to use millions of gallons per well, which is why new DEC regulations are needed.

DEC spokesman Yancey Roy said the proposed regulations would require the disclosure of chemicals used in fracturing fluids. In other parts of the country, the drilling industry has fought such disclosure requirements, citing the need to protect trade secrets and stoking fears that they are using toxic substances.

The regulations also will require the testing of nearby private wells before drilling to allow for water quality monitoring, and plans for mitigating greenhouse gas emissions and visual and noise impacts. Drillers who choose to store wastewater on-site would have to use steel tanks, and all drillers would have to come up with a plan to safely dispose of wastewater before permits would be issued. The state will be hiring 35 people in the departments of environmental conservation, health and public service to oversee natural gas drilling in the Marcellus shale.

Brad Gill, executive director of the Independent Oil and Gas Association of New York, said the DEC's proposed regulations would be the strictest in the country, and possibly the world.

But the U.S. Environmental Protection Agency says the DEC hasn't been tough enough. Though states have primary oversight over hydrofracking, the EPA has launched a \$2 million study of its environmental impacts and criticized New York's proposed regulations. In comments submitted to the DEC, the EPA said that the state has not offered a full analysis of cumulative and indirect impacts of hydrofracking and collecting and transporting natural gas from the Marcellus shale. It also said that a greater emphasis needs to be placed on the potential health effects that may be associated with gas drilling and hydrofracturing.

The Environmental Advocates of New York, the Atlantic Legal Foundation and the National Wildlife Federation also want stricter regulation, including bans on wells in sensitive watersheds. Concerns about watershed pollution led the DEC to announce that it will require case-by-case environmental review for hydrofracking projects in the watersheds of New York City and Syracuse, which both use unfiltered water. State Sen. Michael Nozzolio, R-Fayette, Seneca County, and others have asked why the DEC isn't providing the same protections to all of the lakes within the Finger Lakes watershed since many people get drinking water from these lakes. "I see no rationale or justification for giving priority to just two watersheds in New York State, as the contamination of any of our Finger Lakes would

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undoubtedly have severe and devastating effects," Nozzolio wrote in a letter to DEC Commissioner Pete Grannis.

Meanwhile, the recent BP Deep Water Horizon oil spill in the Gulf of Mexico has heightened fears, said Katherine Nadeau, water and natural resources program director for the Environmental Advocates of New York. "What's happening in the Gulf is an absolute tragedy and people are looking at what types could be happening here that could also harm the water supply and the ecosystem."

**Wastewater disposal**

The Finger Lakes Institute, a department of Hobart and William Smith Colleges in Geneva, has raised concerns about possible pollution of surface and groundwater, "especially in consideration of the high percentage of the drilling fluids that are not recaptured in the drilling process," it said in comments to the DEC. The institute stated that there is a "lack of adequate waste treatment facilities in New York state with the capacity to address and effectively treat the volume of waste fluids produced in this process."

According to the DEC, fracturing fluids can contain numerous additives. For example, friction reducers are included to allow the fracturing fluid to be pumped into wells at a higher rate, and biocides are added to prevent micro-organism growth and reduce bio-fouling of fractures. Acids may be used to remove drilling mud damage within the area near the wellbore. Mixtures are typically 99 percent water and sand and 1 percent chemicals.

The DEC says that the law will require fluid removed from wells to be handled, transported and disposed of properly, but Charles Tauck, owner of Sheldrake Point Winery, is among many who believe that enforcing the law will be a challenge. "The (DEC draft regulations) don't adequately address what they're going to do with millions of gallons of chemical-laden wastewater," he said. "I've got to believe drillers are going to do whatever they can when no one is looking."

The volume of hydrofracking wastewater produced in Pennsylvania has already pushed natural gas drillers to look outside the state and into New York for disposal solutions. This winter, Chesapeake Energy Corp. pulled a proposal to store wastewater from Pennsylvania drilling operations in an abandoned mine near Keuka Lake. The proposal met

vehement protest and stoked fears about what will be done with millions upon millions of gallons of wastewater that will be created if hydrofracking takes root in New York.

Gill, of the Oil and Gas Association, said that the DEC regulations would require a wastewater management plan and that the presence of wastewater will create big business opportunities.

"We have companies wanting to build water disposal facilities. It'll all be handled. It won't be, 'There's no place to put the water so it's going to be dumped in a field.'"

Assembly Minority Leader Brian Kolb, R-Canandaigua, whose district includes part of the Marcellus shale, said that New York needs the private-sector jobs that these energy exploration projects could provide but must take a careful and deliberate approach to assessing their potential impact, especially on watersheds.

The Independent Oil and Gas Association of New York has gotten more than 4,400 signatures on an online petition supporting natural gas exploration in the Marcellus shale formation.

A coalition of more than 50 citizen groups has slightly more signatures on its petition calling for a statewide ban on gas drilling in low permeability stone deposits such as the Marcellus shale.

DEC Commissioner Pete Grannis has said regulations could be finalized by the end of the

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summer. For now, the DEC is analyzing thousands of comments on its proposed regulations as advocates on both sides of the issue wait.

The state Legislature wouldn't have to approve the regulations but could pass separate laws to regulate hydrofracking.

The state shouldn't rush, said professor Anthony Ingraffea, who teaches engineering and rock mechanics at Cornell University and has spoken around the state about hydrofracking. "The gas has been down there cooking for 350 million years. It's not going to go away."

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**What's next**

The state Department of Environmental Conservation may release final regulations for natural gas drilling in the Marcellus shale by the end of the summer.

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**What's at stake**

Geologists estimate that up to 516 trillion cubic feet of natural gas lies trapped in the Marcellus shale, a massive underground black shale formation that stretches into the Finger Lakes. The natural gas industry wants to use a controversial technique called hydraulic fracturing, or "hydrofracking," to obtain it, and more than 14,000 people have weighed in on the state Department of Environmental Conservation's proposed regulations to govern this process.

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