

Fracking Comes to the Prairie State

Dr. Lora Chamberlain, a family physician in the Chicago area, strode to the front of a packed assembly hall at the University of Illinois at Chicago last November. Facing representatives of the Illinois Department of Natural Resources (IDNR), she leaned into the microphone and said in a quiet but passionate voice, “The lack of chemical disclosure in these regulations is reprehensible.” Much of the crowd of about 300 burst into applause.

Chamberlain was voicing her displeasure over the draft regulations for implementing the Illinois Hydraulic Fracturing Regulatory Act, which the General Assembly passed and Governor Pat Quinn signed on June 17, 2013. She spoke at one of the public hearings that the IDNR was holding—right during the heart of the holiday season—to allow citizens to weigh in on the regulations.

And boy, did they weigh in. Hydraulic fracturing—“fracking,” in popular parlance—has barged its way to the top of the environmental agenda in Illinois because energy companies are pushing to start drilling for natural gas in downstate Illinois, which sits on top of the vast New Albany shale formation. Lying more than a mile deep, this bed of rock holds as much as 11 trillion cubic feet of natural gas, enough to meet the needs of at least 10 million households for 15 years. It’s invisible gold, if you will.

Since the late 1990s, fracking has set off a boom in domestic oil and natural gas. In 2012, Merrill Lynch reported that fracking has catapulted domestic energy production from \$70 million a day in January 2010 to \$900 million a day in April 2012. The boom in natural gas has lowered prices, saving the American economy more than five hundred million bucks a day.

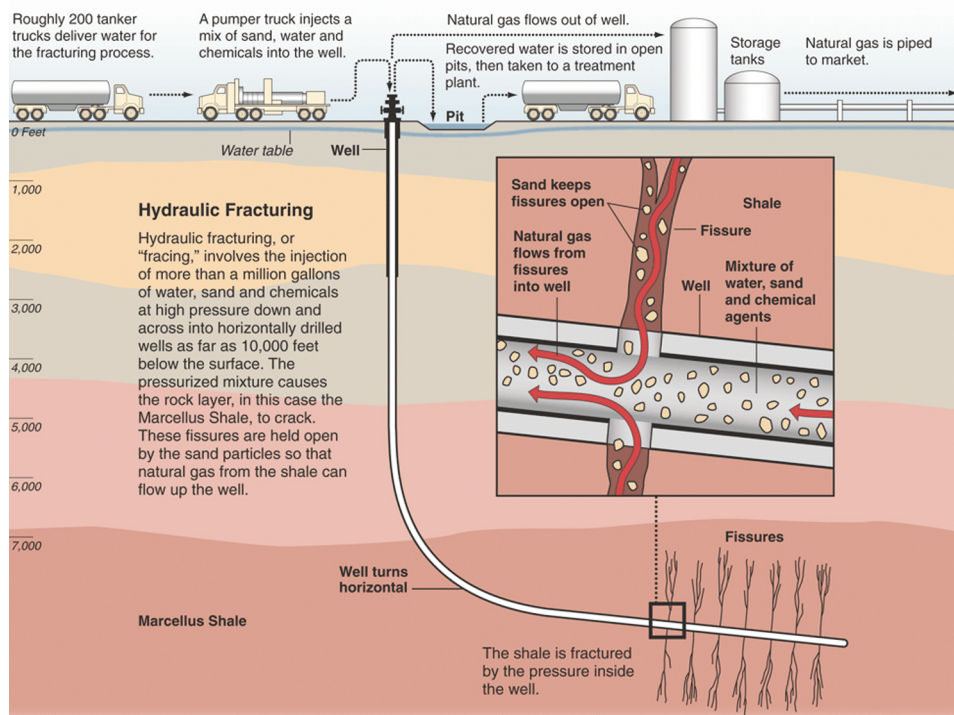
Pro-fracking forces claim that the technology will give a big boost to downstate Illinois’s foundering economy. Brad Richards, the Executive Vice President of the Illinois Oil and Gas Association, said, “New developments like the Bakken Shale in North Dakota and the Marcellus Shale in Pennsylvania have created tens of thousands

BY CHRISTOPHER JOHNSON

of new jobs with billions of dollars in economic output.”

To opponents, though, fracking is a highly dangerous procedure that will foul water, soil, and air and threaten the health of anyone who lives anywhere near a well. Even though fracking will be done in

central and southern Illinois, the effects could reach all the way to Chicago. Chamberlain explained, “When companies dispose of these toxic wastes by injecting them into the earth, they have caused earthquakes. And those earthquakes could be felt in Chicago.” But if fracking causes health problems downstate, the costs could fall on all Illinois taxpayers.



Energy companies can coax oil and natural gas from once-inaccessible shale formations in the Midwest because of new technologies—horizontal drilling, compression of water at very high pressure, and the use of chemicals. Operators drill vertically for as much as a mile and then direct the drill bit horizontally, giving access to a greater percentage of the shale. The drillers set off small explosive charges to create fractures in the shale and then pump as much as four million gallons of water, chemicals, and sand at very high pressure to open new fissures and enlarge the existing ones. The sand acts as a proppant, holding the fissures open so that oil or natural gas can flow to the well and back to the surface.

A cocktail of chemicals improves the efficiency of the process. A provision in the Energy Policy Act of 2005—popularly known as the Halliburton loophole—lets companies keep these chemicals secret. Even so, The Endocrine Disruption Exchange, a Colorado-based nonprofit that examines the environmental impact of chemicals, got hold of lists of the chemicals and ID’d 944 fracking products containing 632 chemicals, including benzene, xylene, toluene, and other toxins. Seventy-five percent of the chemicals can affect the

skin and eyes.

Forty percent to fifty percent can impact the brain and nervous system. Thirty-seven percent can damage the endocrine system. Twenty-five percent can cause cancer and mutations. Fracking may also release radium and other radioactive materials buried in the earth.

The energy industry holds that these chemicals cannot leak into surrounding soil and groundwater. According to Energy in Depth, a pro-drilling group, “There are zero confirmed cases of groundwater contamination from hydraulic fracturing.”

Yet one study in 2011 linked contamination of 68 water wells in Pennsylvania and New York to fracking. According to Dr. Anthony Ingraffea, Professor of Engineering at Cornell University, about 6 percent of Pennsylvania’s oil and natural gas wells have been proven to be leaky, allowing contaminants to escape into soil and groundwater.

Another contentious issue is the impact of fracking on climate change. Methane is the main component of natural gas, and it is much more potent than carbon dioxide as a greenhouse gas. In April 2013, the EPA reported that the industry leaked less methane than it once did. But Dr. Joseph Romm, a Senior Fellow at the Center for American Progress, disputes this conclusion, citing a study by the National Oceanic and Atmospheric Administration showing leakage rates between 6 percent and 12 percent at a large gas field.

Controversy also surrounds the disposal of wastewater, of which there are two kinds. Flowback is the liquid that belches back up to the surface right after fracking. Produced water is contaminated water that emerges from the well over time. Companies store wastewater either in open pits, where the toxins can evaporate and pollute the air, or in enclosed storage tanks. The operators carry the wastewater away to specialized treatment facilities. Researchers have found, though, that even after treatment, the water contains radioactive substances, chloride, and bromide, posing dangers for drinking water and aquatic life. Energy companies have also injected flowback into wells, but in 2012, the process was blamed for earthquakes in Youngstown, Ohio.

Another threat, environmentalists say, is that fracking uses huge amounts of water—70 billion to 140 billion gallons of water a year. According to Energy in Depth, though, “In the Barnett Shale in north Texas, water used for oil and gas activity only accounted for about 0.5 percent of total demand in 2011.” In addition, energy companies have been reusing as much of 70 percent of the water in ongoing fracking operations.

In 2012, the General Assembly debated two approaches to fracking: a two-year moratorium, or tight regulation. According to Ann Alexander, Senior Attorney in the Chicago office of the Natural Resources Defense Council, “In the fall of 2012,

momentum was moving toward a regulatory bill, so environmental groups, the legislature, and the industry negotiated a bill. We wanted as strong a regulatory bill as we could get." In addition to the NRDC, environmental groups included the Illinois Environmental Council, the Environmental Law and Policy Center, Faith in Place, the Respiratory Health Association, and the Sierra Club.

What finally emerged was the Illinois Hydraulic Regulatory Act. According to Alexander, "Overall, the bill was the strongest package of regulations in the country." The law prohibited storage of wastewater in open pits, forced operators to shut down wells if chemicals were found outside the shale formation, required monitoring of water quality, set rigorous standards for well construction, and stipulated that wells be placed away from water sources. If contamination was found, the operator had to prove that the contamination was not the result of fracking.

The IDNR then started to draft the rules for implementing the law. Environmental groups alleged that the draft regulations opened up too many loopholes. Brad Richards disagreed, citing "the cumulative effect of so

much new regulation." He continued, "For some perspective, California recently released their draft regulations for hydraulic fracturing. They are 13 pages in length. Our regulations are 130 pages."

Environmental groups were especially critical of the rules laying out what happens when an accident occurs. Chamberlain, who is an organizer for the anti-fracking group Frack Free Illinois, said, "It's unclear in the regulations how health professionals are supposed to get information about the chemicals after an accident. Doctors and other health professionals have to access the DNR to find out what specific chemicals are being used, but they may not be able to reach the DNR. Also, doctors have to sign a non-disclosure agreement about the chemicals. Signing an NDA is totally onerous."

Another point of contention is the temporary use of open pits to store wastewater. If storage tanks are temporarily filled, the law allows operators to store wastewater in open pits for up to seven days. But, as Ann Alexander pointed out, "The regulations weaken the law because they allow the operator to remove the flowback seven days after fracking is completed." As a result, the fluids

might sit in an open pit for as much as a month.

Environmental groups also attacked the level of fines, which start at \$50 for the first violation. Alexander asserted, "The fines are ridiculously low. They just become a cost of doing business."

Some time this spring, the IDNR will issue revised regulations. After that, the Joint Committee on Administrative Rules in the General Assembly must approve of the rules. Only then can the IDNR begin to issue fracking permits. The process will unfold over the next several months.

During a recent debate in Pennsylvania, Dr. Terry Engelder of Penn State, who has long been a fracking fan, said, "It's all about natural gas. There is no other route." Chamberlain strongly disagrees, explaining, "Fracking delays a transition to renewable fuels. We stay dependent on fossil fuels. Our government has subsidized fracking rather than renewable energy. We need to be going in another direction." At the heart of the fracking debate, then, is an even more charged argument over the future of America's energy policies. The stakes are huge, and other states will be watching closely as Illinois begins to drill deep beneath its soil. □