

# EPA takes new look at gas drilling, water issues

July 21 2010, By MARC LEVY and MARY ESCH , Associated Press Writers

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In this April 23, 2010 photo, workers move a section of well casing into place at a Chesapeake Energy natural gas well site near Burlington, Pa., in Bradford County. So vast is the wealth of natural gas locked into dense rock deep beneath Pennsylvania, New York, West Virginia and Ohio that some geologists estimate it's enough to supply the entire East Coast for 50 years. But freeing it requires a powerful drilling process called hydraulic fracturing or "fracking," using millions of gallons of water brewed with toxic chemicals that some fear threaten to pollute water above and below ground, deplete aquifers and perhaps endanger human health and the environment. (AP Photo/Ralph Wilson)

(AP) -- So vast is the wealth of natural gas locked into dense rock deep beneath Pennsylvania, New York, West Virginia and Ohio that some geologists estimate it's enough to supply the entire East Coast for 50

years.

But freeing it requires a powerful drilling process called hydraulic fracturing, or "fracking," using millions of gallons of water brewed with [toxic chemicals](#), that some fear could pollute water above and below ground and deplete aquifers.

As gas drillers swarm to this lucrative Marcellus Shale region and blast into other shale reserves around the country, the U.S. [Environmental Protection Agency](#) is taking a new look at the controversial fracking technique, currently exempt from federal regulation. The \$1.9 million study comes as the nation reels from the Deepwater Horizon environmental and economic disaster playing out in the Gulf of Mexico.

The oil and gas industry steadfastly defends the process as having been proven safe over many years as well as necessary to keep the nation on a path to energy independence.

Studies have "consistently shown that the risks are managed, it's safe, it's a technology that's essential ... it's also a technology that's well-regulated," said Lee Fuller, director of the industry coalition Energy In Depth.

"A fair study," Fuller added, "will show that the procedures that are there now are highly effective and do not need to be altered - the federal government does not need to be there."

But because of the oil spill, conservation groups say the drilling industry has lost its credibility and the rapid expansion of shale drilling needs to be scrutinized.

"People no longer trust the oil and gas industry to say, 'Trust us, we're not cutting corners,' " said Cathy Carlson, a policy adviser for

Earthworks, which supports federal regulation and a moratorium on fracking in the Marcellus Shale.

Just six years ago, an EPA study declared the fracking process posed "little or no threat to underground sources of drinking water" and with that blessing, Congress a year later exempted hydraulic fracturing from federal regulation.

Now the agency, prodded by Congress even before the Gulf disaster and stung by criticism that its 2004 study was scientifically flawed and maybe politically tainted, will bring the issues to the heart of the land lease rush in the Marcellus Shale: Canonsburg, Pa., on Thursday and Binghamton, N.Y., on Aug. 12.

EPA hearings earlier this month in Fort Worth, Texas, and Denver focused on issues including drilling in the Barnett Shale of Texas, and in Colorado and Wyoming, which have experienced similar natural gas booms. Natural gas is also being recovered from the Haynesville Shale in north Louisiana, the Fayetteville Shale in northern Arkansas and Woodford Shale in southern Oklahoma.

In Texas, where drillers have sunk more than 13,000 wells into the Barnett Shale in the past decade, fear of the cancer-causing chemical benzene in the air above gas fields from processing plants and equipment has spurred tests by environmental regulators and criticism of the state's safeguards. In Colorado, numerous residents contend gas drilling has spoiled their water wells.

Advancements in horizontal drilling and hydraulic fracturing technology in the late 1990s significantly increased the yield and economic viability of tapping shale gas wells and led to the current natural gas boom, starting in Texas with the Barnett Shale. Fracking is now considered the key to unlocking huge, untapped natural gas reserves across the United

States at a time when natural gas is emerging as a greener energy alternative to coal or oil.

The Marcellus Shale is 10 times the size of the Barnett, spanning 50,000 square miles compared with the 5,000-square-mile Barnett. It is also three times thicker than the Barnett at up to 900 feet and is estimated to have a potential yield of 10 times as much gas (500 trillion cubic feet versus 50 trillion cubic feet).

At stake in the debate over how best to manage and regulate this enormous new natural resource is not just the safety of water supplies but also thousands of jobs, profits for the gas drilling and delivery industry and a bonanza of royalties for landowners.

"We've got to get it right," said Sen. Bob Casey, D-Pa., a sponsor of the so-called FRAC Act, which would repeal the 2005 exemption and require regulation of fracking by the EPA under the federal Safe Drinking Water Act.

"We allowed coal over many, many decades to be an industry that was so unregulated that it was allowed to do virtually whatever it wanted, and now we have numerous environmentally adverse impacts," he said.

Though the drilling rush into Pennsylvania is barely two years old, more than 3,500 permits have been issued and about 1,500 wells drilled, with thousands more expected. Environmental problems are already bubbling up: methane leaks contaminating private water wells, major spillage of diesel and fracking chemicals above ground, and fish kill in a creek.

A well blowout in north-central Pennsylvania last month spewed natural gas and toxic fracking water out of control for 16 hours. State regulators found EOG Resources Inc. of Houston had failed to install a proper blowout prevention system - taking cost shortcuts. The state fined EOG

Resources and a contractor more than \$400,000.

A wary New York state has had a virtual moratorium on drilling permits for the Marcellus Shale region for two years while it completes an environmental review.

Fear of water pollution is so high that a sweet spot of the Marcellus Shale - the Delaware River watershed in southern New York and northeastern Pennsylvania that provides drinking water for 17 million people from Philadelphia to New York City - is virtually off-limits to drilling for now.

The industry says there is no evidence that fracking chemicals - some of them suspected human carcinogens - contaminate drinking water, wells or aquifers once blasted deep underground.

EPA summarized numerous reports of "water quality incidents" in residential wells, homes, or streams in Alabama, Colorado, Montana, New Mexico, Virginia, West Virginia and Wyoming but said there was inconclusive evidence linking the incidents to fracking.

Hydraulic fracturing, first used commercially in 1949 by petroleum services giant Halliburton Co. of Houston, was developed to eke gas and oil from impermeable rock. Water mixed with chemicals and sand is injected at high pressure to fracture shale, the sand holding fractures open so gas can flow up the well.

Each frack job uses an average of 4 million gallons of water, delivered to a well site by hundreds of tanker trucks. Some of the "produced" wastewater remains in the well - estimates range from 20 percent to 90 percent. What comes back up the well - briny, chemical-laden and possibly radioactive from exposure to naturally existing radon underground - is usually stored in open pits until it's trucked to treatment

plants or underground injection wells.

In the northeastern Pennsylvania town of Dimock, state regulators have repeatedly penalized Houston-based Cabot Oil & Gas Corp. for contaminating the drinking water wells of 14 homes with leaking methane and for numerous spills of diesel and chemical drilling additives, including one that contaminated a wetland and killed fish.

Even as Pennsylvania officials work to improve their regulation of drilling, the state's environmental protection secretary does not want to cede authority.

"I'm not ready to turn Pennsylvania's resources over to the federal government," said John Hanger. "Right now, Pennsylvania has just about the very best drilling oversight in the country and we continue to keep working at it every day."

Hanger is quick to criticize the regulatory debacle of the federal Minerals Management Service and its cozy relationship with oil and gas corporations before the Deepwater Horizon explosion on April 20.

"That agency was captured by the drilling industry," he said.

The industry says it believes state oversight is sufficient and worries the new EPA study will lead to new and costly safety and environmental rules that would rob them of decades of profits.

In West Virginia, however, state officials concede they're overwhelmed trying to regulate the Marcellus juggernaut that has added hundreds of Marcellus wells to tens of thousands of traditional, shallow gas wells.

If passed, the FRAC Act would remove what's widely known as the "Halliburton loophole" - which exempted fracking from the Safe

Drinking Water Act when the 2005 energy bill was passed.

The EPA, in a statement to The Associated Press, did not criticize its previous study. But given the rapid expansion of the industry and "serious concerns" about the impact of hydraulic fracturing, the agency said it concluded it was necessary to conduct a peer-reviewed study that draws upon best available science, independent experts and the public.

**More information:** EPA's hydraulic fracturing website:  
<http://www.epa.gov/safewater/uic/wells-hydrofrac.html>

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Citation: EPA takes new look at gas drilling, water issues (2010, July 21) retrieved 25 April 2024 from <https://phys.org/news/2010-07-epa-gas-drilling-issues.html>

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