



2 profs say drilling safe

But extraction must be done right, they say

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Two WVU professors — a geologist and a water expert — say if Marcellus drilling and extraction is done right, it can be safe and good for the state.

Dr. Tim Carr is the Marshall S. Miller professor of energy in the Eberly College geology and geography department. Dr. Paul Ziemkiewicz directs WVU's Water Research Institute. Both do presentations for WVU Extension's Marcellus education program. Both talked to The Dominion Post.

Tim Carr

Carr admits up front he worked in the energy industry for 15 years, and that money for the Extension informational program comes from the industry. "Somebody's got to pay for it," he said. He travels and has to be reimbursed for his expenses. And who better to know gas drilling than somebody who has worked in it. Somebody outside the field isn't going to have the background, he said.

Drilling activity is messy, he said. "It is an industrial activity." Roads get torn up; land gets torn up and reclaimed — hopefully reclaimed properly.

But the world needs energy, the nation needs energy, and natural gas is a domestic resource that can serve us for the next 100-plus years: 84 percent of gas consumed in the U.S. is produced here; 97 percent is produced in North America.

Around the world, natural gas comprises about 23 percent of the energy supply, and is expected to remain at about that level. With a possible 500 trillion cubic feet (tcf) of gas, the Marcellus gas field could be the first- or second-largest in the world, making it a "world-class resource." An Iranian field also has about 500 tcf.

Turning to economics, he ticks off some likely benefits of Marcellus operations, cited in studies by the National Energy Technology Laboratory and the WVU Bureau of Business and Economic Research:

The annual value of the gas produced in West Virginia is projected to grow from \$5 billion in 2010 to \$40 billion in 2020.

The annual West Virginia gross economic output from the Marcellus industry is projected to grow from \$1.161 billion in 2010 to \$2.896 billion in 2020. The "value added" to the economy (gross output minus capital and labor) should grow from \$658 million to \$1.639 billion.

Marcellus-related jobs in West Virginia are projected to grow from 5,998 in 2010 to 16,863 in 2020.

Tax revenues from West Virginia Marcellus activity are projected to climb from \$266 million in 2010 to \$872 million in 2020. This includes corporate income taxes, which should triple from \$104.3 million to \$369.78 million, and personal income taxes, which should nearly quadruple from \$25.71 million to \$92.26 million.

Natural gas contains byproducts — ethane, propane and butane — that also have commercial value. The Legislature's "cracker bill," SB 465, provides incentives for developing ethane cracker facilities to serve the plastics industry.

While some have alleged that earthquakes in Texas stem from Marcellus fracking, Carr doesn't think so. The explosive force of the fracking is minute, and the cracks it causes aren't likely to make the hard, thick shale unstable.

He said it's also unlikely that fracking will have longterm effects on the water supply. The fracking is a mile or more deep, and isn't likely to seep thousands of feet upward to freshwater aquifers. Frack water is salty, and water at lower depths is salty, too.

And drillers have a vested interest in making sure the fracking doesn't penetrate other strata, he said. You frack too high and the gas leaks off, you lose pressure and have no product to come up through your well. What flows into your well pipe is salty water, which you don't need.

The industry does need more inspectors, he said, and given the lack of Marcellus legislation so far — including permit fee increases to pay for them — he advocates using some of the increased severance tax income to hire them.

Paul Ziemkiewicz

Ziemkiewicz said his chief concern is surface water protection.

Aquifer contamination comes from casing failures, he said, not from fracking deep below the surface. If casing is constructed and tested properly, water in the Marcellus wells won't leach into the water supply.

Ziemkiewicz said a recent Duke University study of methane in drinking-water wells from certain Marcellus areas in New York and Pennsylvania appears to back that up. It posed several reasons why the gas could get in the water, but said faulty casings seems most likely.

Ziemkiewicz noted some flaws in the study, and many have criticized the Duke study, apart from its comments on leaky casings, for a number of flaws in its methods, statements and overall conclusions, including a former Pennsylvania DEP secretary.

What's needed in terms of regulation, he said, is better tracking of the volumes, quantities and sources of disposal of frack water.

"I don't think anyone has a good handle on [on that], and if you can't measure it you can't manage it."

There is talk, anecdotal evidence, and some documented evidence of trucking subcontractors dumping used frack water into streams.

And until recently, he said, the Pennsylvania DEP allowed public water treatment plants to treat and dump frack water into the rivers, which raised the salts to potentially unsafe levels. Since the ban, there has been some improvement.

For coal and gas operations, he advocates managed discharge and withdrawals. During high-flow periods, there is more water available to take, and the streams and rivers have more capacity to assimilate and dilute pollutants.