

Marcellus, Utica Shales Make Northeast Focal Point Of Growing U.S. Production

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The Northeast region continues to amaze.

In an October report on drilling productivity, the U.S. Energy Information Administration says natural gas production from the Marcellus Shale has surpassed even some of the most optimistic projections to reach 12 billion cubic feet a day. That represents a sixfold increase in Marcellus production since 2009, and makes it the nation’s top gas-producing province.

What is even more surprising to many observers, EIA points out, is that Marcellus gas production has roughly tripled over the past three years, even as the regional rig count has declined by a third because of low gas prices. “New technologies for drilling and producing natural gas and oil have made traditional measures of productivity, such as a simple count of active rotary drilling rigs, obsolete,” the agency states.



Indiana, Pa.-based Horizontal Exploration LLC is targeting Devonian sands that lie above the Marcellus Shale and range in thickness from 10 to 100 feet. President Mark Thompson says the company also is interested in the Balltown, Bradford, Cooper Town and Lewis Run zones.

But these numbers come as no great revelation to many Appalachian operators, who continue working to raise per-well productivity while incrementally lowering drilling and completion costs. Through their experiences, these companies have seen firsthand the vast potential of the Marcellus—and now the Utica Shale right behind it—realized in steadily increasing production rates.

Shallower Formations

Horizontal drilling and hydraulic fracturing are not limited to the Marcellus and Utica shales in the Appalachian Basin. A number of smaller companies, such as Horizontal Exploration LLC, are targeting shallower formations such as the Upper Devonian, using the same techniques.

Mark Thompson, president and owner of Horizontal Exploration, says he drilled vertical oil and gas wells in the re-



Although Horizontal Exploration is still evaluating the first horizontal wells it drilled on its northwestern Pennsylvania acreage, President Mark Thompson says he expects them to be comparable to wells drilled a little south that produced 28,000 barrels of oil equivalent the first year, 18,000 boe the second year and 15,000 boe the third year.

gion for years before selling his assets in 2005. He re-entered the business by forming Horizontal Exploration two years ago. The company drilled its first horizontal well in 2011 and has drilled two more this year.

“We spent time evaluating what we had,” he explains.

The Indiana, Pa.-based company is targeting Devonian sands, which are shallower than the Marcellus. They range in thickness from 10 to 100 feet, and have many of the same characteristics as the Marcellus. Thompson says Horizontal Exploration also is targeting the Balltown, Bradford, Cooper Town and Lewis Run zones.

By using horizontal drilling, Thompson says his company is able to develop wetlands or other areas that couldn't be drilled previously. Horizontal Exploration controls 27,000 acres, according to Thompson, and is focused on seven counties in northwest Pennsylvania: Clarion, Elk, Forest, Jefferson, McKean, Venango and Warren. It is drilling to 1,800-2,400 feet total vertical depth in Forest and McKean counties, and is targeting the Bradford Elk Sand at 4,000 feet in other areas.

“We are still getting the technology down,” he notes. “There is a learning curve. It makes sense to us that if you drill vertically 2,400 feet, your lateral should

be 2,400 feet. We are finding out that the longer the lateral, the more issues you have on shallow wells.

“The results are still out on the wells we drilled this year,” Thompson goes on. “They take several months to evaluate. There were some wells south of us drilled three years ago. They produced 28,000 barrels of oil equivalent the first year, 18,000 boe the second year and 15,000 the third year. We think our area is comparable. Ours is a big, naturally fractured area. Some vertical cores come in at 800-900 psi.”

He says Horizontal Exploration may drill as many as 100 vertical wellbores and then put in the laterals, once it identifies the thickness of the formation. About half of the company's acreage is 50 percent oil and 50 percent gas, while the other half is 80 percent oil, Thompson mentions.

He says it costs only \$200,000 to drill a vertical wellbore. The company's first horizontal well cost \$2.3 million, but Thompson says he believes he can lower that to \$1.3 million. He says Horizontal Exploration has discovered it doesn't need mud to drill, and instead drills the laterals on brine, soap fluid and air.

“There is a 6-to-1 return on horizontal compared with vertical wells,” he states, “because you can drain a couple hundred acres.” □