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[←--back to story](#)

On The Job: Chesapeake Details Operations

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POSTED: August 1, 2010

AVELLA, Pa. - With drilling operations well under way in Marshall and Wetzel counties and plans to drill in Oglebay Park in the near future, Chesapeake Energy has leased more than 100,000 acres of land in West Virginia's Northern Panhandle for natural gas development.

With lease payments ranging from \$750 per acre to \$3,600 per acre - and royalties set from 12.5 percent to 18.75 percent - the Marcellus Shale contracts Chesapeake has signed with local property owners has pumped hundreds of millions of dollars into the state's economy.

Chesapeake officials also note the company bolstered West Virginia's coffers with more than \$53 million in natural gas severance taxes over the past five years.

The natural gas company presently employs 636 Mountain State residents, with plans to hire more local workers in the future once those potential employees receive proper training.

Chesapeake has spent \$46 million with West Virginia-based vendors so far this year, including \$1 million in shops based in Marshall and Wetzel counties and several million dollars more with a company in St. Marys, W.Va. The company also donated more than \$400,000 to community organizations within Marshall and Wetzel counties during the past two years, Chesapeake leaders note.

Chesapeake, based in Oklahoma City, played a major role in boosting West Virginia's economy by \$1.3 billion in 2009, a recent American Petroleum Institute study finds. The firm also is the largest holder of Marcellus Shale land, with 1.5 million net acres under contract in Pennsylvania and Ohio.

However, as companies such as Chesapeake - currently the most active gas driller in the nation with 126 operating rigs, 27 of which are in the Marcellus Shale - and others proceed with their activities, residents are questioning how the drilling operations impact the area's environment. Already, some in Wetzel County have complained of water and air quality problems they believe may be related to drilling. And 10 days ago, about 1,200 people expressed their views of Marcellus drilling during a U.S. Environmental Protection Agency hearing in Canonsburg, Pa.

Many of the 120 speakers alleged that drilling activity has polluted their water, even though state agencies in Pennsylvania and West Virginia have not yet confirmed any such water contamination.

As part of the Sunday News-Register's in-depth look at the Marcellus Shale natural gas industry, several members of the newspaper's staff on Thursday were granted exclusive access to an active Chesapeake drilling site near Avella, Pa. Leading the tour was Drilling Superintendent Stacey Tubbs, a 35-year industry veteran from New Mexico who, along with most of those in his crew, recently relocated to the area from the Gulf Coast to drill the Marcellus wells.

Chesapeake Director of Corporate Development Stacey Brodak, who coordinated the tour, said Tubbs and other employees from Texas, Oklahoma and Louisiana have the expertise to properly drill the shafts, which delve 5,000 to 8,000 feet deep in the earth. Brodak said Chesapeake hopes to eventually replace the out-of-town workers with local employees.

"It takes time for us to transition to a local work force. The guys from the Gulf states are experienced in this," she said.

Chesapeake leaders said the company considers a number of factors in determining where to drill, including:

- favorable geology
- topography
- quality of access roads
- routes for pipelines and utilities
- proximity to schools or residential areas
- proximity to wetlands or sensitive wildlife areas

Article Photos



Stacey Tubbs, drilling superintendent for Chesapeake Energy, discusses the Marcellus Shale natural gas drill behind him at the Powers site near Avella, Pa.

(Photos by Casey Junkins)

- availability of water.

The first thing one may notice in traveling to a drilling site is a dusty, rocky road. Chesapeake officials said they typically need a 3- to 5-acre well pad to construct a horizontal Marcellus well, and Tubbs said the Avella site, known as the Powers well, fits within this range. The drilling phase of the activity - a non-stop operation - usually lasts 3-4 weeks. With motors running to cut deep into the Earth, there is a constant buzz.

The horizontal wells allow drillers to drain the natural gas from 640-acre units of leased property much more efficiently than previous vertical wells, Chesapeake officials said. Instead of needing 16 vertical wells spaced along that 640 acres, horizontal drilling companies now need only one 3- to 5- acre pad with six to eight wells within that pad to siphon gas from the 640-acre unit.

After Tubbs and his crew are finished with their work, another team of workers - known as the completion crew - will move in to initiate the hydraulic fracturing phase, more commonly known as "fracing." The process calls for workers to pump, under pressure, about 5.6 million gallons of water, sand and chemicals down through the well to break the shale and release the gas.

Many of those at the EPA hearing alleged that fracing allows pollutants to seep into their water sources, causing death of farm animals and possible water well contamination. Others fear the entire drilling and fracing operation may release methane into drinking water supplies. Among the chemicals industry leaders have said are used in fracing, ethylene glycol is a compound found in antifreeze, while dimethylformamide is used to manufacture plastics. Most of the other chemicals can be found in common household products such as table salt, detergent and swimming pool cleaner.

However, as Brodak and Tubbs showed at the well site, it would seem difficult for any of these chemicals - or gas for that matter - to escape from the well. That is because Chesapeake installs the following layers of protection in each gas shaft:

- surface casing
- cement to seal this casing in place
- production casing
- cement to seal this casing in place
- production tubing
- an additional string of casing and cement for some wells.

In terms of Chesapeake's safety record, it is worth noting that two recent Marshall County accidents - a gas well explosion on June 7 and a gas leak on July 24 - occurred at operations run by other companies.

Chesapeake filed for permits to drill near the current Oglebay Stables in May. Officials with the Wheeling Park Commission, however, issued comments regarding the company's plans for water usage and gas distribution, thus delaying the permits. Brodak said the two sides are working on a plan that will be acceptable to both, but cannot say when residents should expect to see activity along W.Va. 88.

The park commission and city of Wheeling are set to evenly split the 14 percent production royalties for the property. Earlier this year, the commission and city each earned \$386,629 in lease payments from Chesapeake as part of the drilling contract. Chesapeake also paid the park commission \$100,133 to lease property at Wheeling Park. Any of the 14 percent in drilling royalties for action at this park would go toward improving the facility.

In May, Chesapeake signed up the Ohio County Commission and Ohio County Development Authority for potential drilling at The Highlands, the Wheeling-Ohio County Airport and the former Ohio County Poor Farm. County leaders are set to gain 18 percent production royalties for action on its land, as well as lease revenues of \$3,600 per acre. However, Chesapeake has not yet applied for permits to drill on county lands.

In Marshall County, the Board of Education signed 177 acres over to Chesapeake for \$2,800 per acre and 18.75 percent production royalties. Also, the Marshall County Parks and Recreation Board reached an agreement with Chesapeake for drilling in Grand Vue Park. The park board will receive \$2,900 per acre through a lease, with gas royalties of 18.75 percent.

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