



## A Photographic Tour of a Natural Gas Well in the Marcellus Shale

Posted by [David Murphy](#) on May 24, 2010 - 9:23am

Topic: [Geology/Exploration](#)

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Recently I had the opportunity to attend a tour of a natural gas well in Troy, Pennsylvania, courtesy of Talisman Energy USA. Founded in 2002 as Fortuna Energy, Talisman Energy USA is a subsidiary of Talisman Energy Inc., of Canada. They are currently producing over 100 wells in New York and Pennsylvania with 200 miles of pipeline, and according to the information provided to us, they plan to invest over 1 billion dollars in Pennsylvania gas before the end of 2010.

Specifically the gas they are trying to access is in the Marcellus Shale. The Marcellus Shale has become very popular because advances in horizontal drilling and hydrofracking have made it possible to access large amounts of gas trapped in unconventional shale plays. [Negative publicity](#) has been just as noticeable, with many organizations claiming that the fracking procedures are reeking havoc on local watersheds.

My goal in this post is to provide some pictures and statistics for one operation in the Marcellus Shale. For those familiar with the drilling and hydrofracking, this may seem a bit basic.

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On the day I visited the well, the drilling company, Pioneer, was in the process of moving the drilling rig to drill a second horizontal well on this pad. Pioneer uses a multi-well pad design that incorporates 4 to 6 horizontal wells per pad spaced 25 feet apart (Figure 1). Each well extends roughly 5000 to 6000 feet into the ground and then extends about 1000 feet out in the horizontal direction.

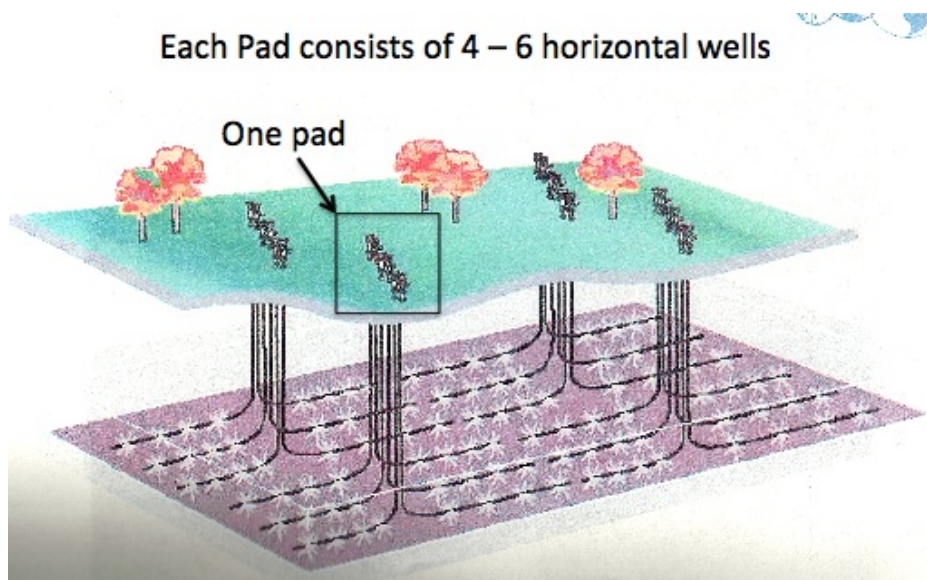


Figure 1



Photo 1

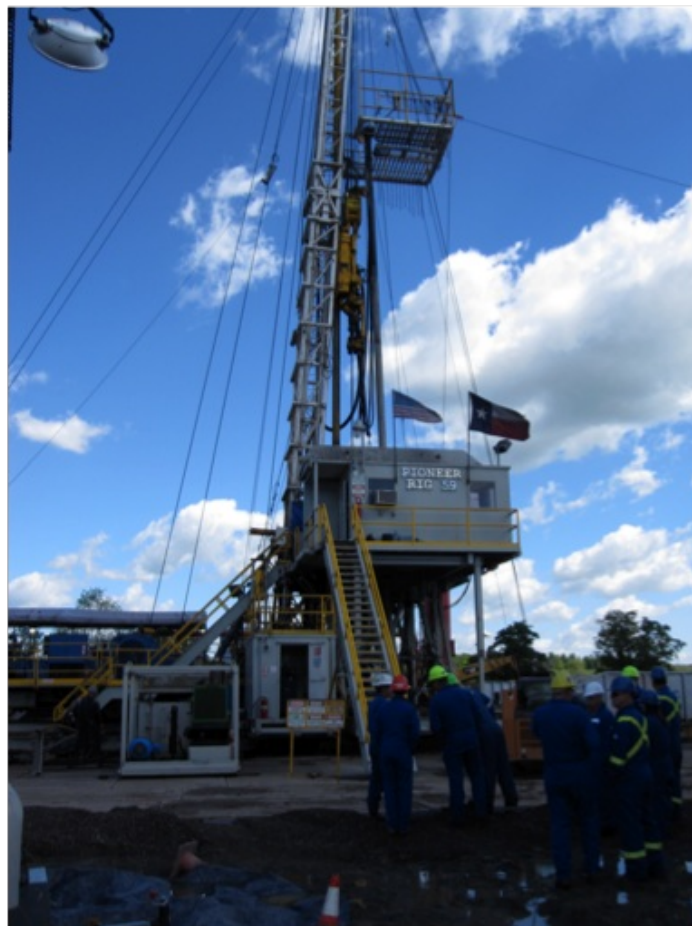


Photo 2

Photos 1 and 2: Pioneer Drilling Rig #59. I visited on a day when the rig was being moved, so neither drilling nor fracking were being performed. This explains why there is not much equipment on the drilling pad in Photo 1. The amount of equipment will increase during drilling and even more so during fracking as roughly 3 million gallons of water is used per well. We were

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also told that the drilling time for each pad (i.e. 4 to 6 wells) is roughly 6 months, and the time it takes to frack the wells is roughly 3 months.



Photo 3



Photo 4

Photos 3 and 4: 20 inch pipeline (soon to be subterranean) that will be used to transport gas from



Photo 5

Photo 5: The compressor station. This facility uses 3 compressors to elevate the pressure of the gas to 1200 psi so that it can join with the main gas pipeline in the region. It has a capacity of 108 million cubic feet per day and sits on roughly 2 hectares (5 acres) of ground area.

Anecdotal information:

My first question for the tour guide was “how much gas are you producing per well and for how long will it produce at that level?” The answer I received was between 1 – 6 million cubic feet per day and for 30 to 45 years. I found this very interesting as TOD’s Art Berman and my own analysis has shown that these type of drilling operations have very steep decline curves. My own analysis shows that the average production from a similar well in the Barnett Shale decreases to the level of a stripper gas well (60 mcf per day) in only 5 years. Also, if Talisman has been drilling in the Marcellus for only 2 years, how do they know that production will last for 30 – 45 years? Clearly more research needs to be done in this area to determine the appropriate decline curves of Marcellus gas wells.



Photo 6

Photo 6: Not to be without a sense of irony, a wind farm is located on the crest of the opposing hillside.



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