

# Knapp Acquisitions & Production PA Shale Gas Blog

An insider's perspective on the rapid development of the Marcellus Shale in Western Pennsylvania.



Drilling into the Marcellus - Manor Township, Armstrong County, PA

SATURDAY, JANUARY 7, 2012

## Wet Gas vs. Dry Gas - Do you know what these are? If not, you need to!

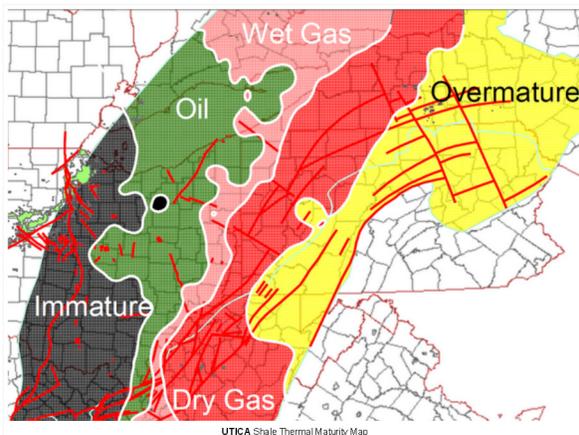
Wet gas, dry gas, hot gas, cold gas, one fish two fish red fish blue fish. Condensates. NGL's. Pentanes, Butanes, and Propanes, OH MY!

If you're watching Marcellus, you may have heard these terms. If you don't fully understand them, you need to because they are of vital importance.

First of all, we have to define "natural gas" Natural gas is a gas comprised of multiple hydrocarbons, the most prevalent being methane. The higher the methane concentration, the "drier" or "colder" the gas is. Other constituents of natural gas are evaporated liquids like ethane and butane, pentane, etc. We refer to these collectively as natural gas liquids (NGLs), or "condensates". The higher the percentage of NGL's, the "hotter" or "wetter" the gas is. NGL's must be stripped out of the gas before it can be put in a pipeline and used. Ethane, which is prevalent in Western PA wet gas, is the feedstock for Ethylene, which is what we use to make plastics.

Now, let's discuss at WHY some areas have NGL's and others do not.

Time to look at more definitions: There are two different types of methane. *Biogenic* and *Thermogenic*. Biogenic methane is basically swamp gas. A byproduct of decomposition of organic matter usually seen at or very near ground level. Thermogenic methane, as the name implies, is generated by heat. Millions of years ago, Western Pennsylvania was an ocean. Organic matter settled to the bottom and over the millenia the ocean dried up and was covered with thousands of feet of sediment. The pressure of all this sediment over top of it creates heat. It is this heat that "cooks" the hydrocarbons out of the organic material. Just how much it has been cooked is referred to as Thermal Maturity.



As a formation becomes more and more thermally mature, it will yield different hydrocarbons. First, you will have oil. As time goes on and formation cooks longer, the oil will turn to natural gas with a large amount of NGLs. Wait a few more million years and you will find that the liquids will almost all cook off and you are left with dry gas. Eventually, all of the hydrocarbons cook off, and you are left with a formation that is "overcooked" or "overmature". There are places where the Marcellus is 200 feet thick, and has a high organic content, but contains NO gas or oil because it has all cooked away. The above map shows that the subsurface formations in this region (this map shows the Utica, not the Marcellus) are more thermally mature as you move to the southeast. This is why they are hitting oil in Ohio, wet gas in extreme Western PA, and dry gas in the rest of the state.

Now, the \$64,000 question. WHY SHOULD I CARE IF I HAVE WET GAS OR DRY GAS?

Whether you are in a wet gas or dry gas area is going to have a huge impact on the value of your lease. Right now, the NGL's are worth considerably more than dry gas. In some areas, the value of the gas is more than doubled because of the NGL's. Right now, the commodity price for natural gas is very low due to an oversupply situation. Companies in dry gas areas are LOSING money because of this, while companies in areas with large amounts of NGLs are doing much better. Dry gas areas are dead as a doornail right now for leasing, but wet gas areas are seeing nice offers. With the impressive (read: jaw-dropping) results companies have been having in the Utica in Ohio with oil production (which is far more profitable than wet or dry gas) dry gas areas have been reduced to a distant third tier. Dry gas areas will not be in high demand for a long time, possibly decades. That is not to say that they will not be drilled. There is a



Wet/Dry Gas Line in Western Pennsylvania



Michael S. Knapp

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### ABOUT ME



Mike Knapp

President of Knapp Acquisitions & Production, a natural gas land leasing company

working with landowners to help them develop their resources in a respectful and environmentally conscious manner. I've been featured in the New York Times, Pittsburgh Post-Gazette, Pittsburgh Tribune-Review, National Public Radio,

boatload of gas there, but companies will not be competing and landowners shouldn't expect to see the huge up front bonuses (that they did a few years ago) again any time soon. With the low price of gas, it's simply not economical to pay out thousands of dollars per acre just to be able to pull a rig on the property to spend millions to drill a well that will barely make a profit at these prices. Wet gas area landowners have a bit more leverage (**NOTE: Not all wet gas areas are created equal**). But with oil looking more and more like it's going to stay at a high price, expect the attention and the big money to be flowing into Ohio, and away from dry gas areas in PA.

StateImpact PA, Penn State's Marcellus Shale Public Outreach Project, and various other media outlets. Born, raised, and living in the middle of the Marcellus Shale Fairway, here in Western Pennsylvania. [View my complete profile](#)

Posted by [Mike Knapp](#) at 8:37 AM

Labels: [natural gas](#) [thermal maturity](#) [NGL condensates](#) [land leasing](#) [utica](#) [marcellus shale](#) [ohio](#) [pennsylvania](#) [ethane](#) [propane](#) [butane](#)

## 6 comments:



**Kenneth Sherwood** January 10, 2012 6:07 AM

Would you classify NGLS (ethane and butane, pentane) as byproducts?

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**Mike Knapp** January 10, 2012 6:39 AM

No, I would classify them as constituents.

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**Heather Neumann** April 27, 2012 10:32 AM

Great article very helpfull

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**Sam Orr** May 20, 2012 3:40 AM

Superb article and maps. Have property in Venango County Pa and can clearly see that I am in wet gas area. Wish I could find Venango County on the multi-colored map. Am looking closely for its shape, but can't find it.

[Reply](#)



**Tom Young** September 17, 2012 8:20 AM

Some maps I see in Beaver County show wet gas and others show wet gas. Is it a flip of a coin? I am about 2-3 miles from the Ohio line...

[Reply](#)



**Tom Young** September 17, 2012 8:22 AM

I am in Beaver County about 2-3 miles from the Ohio line, from what I see on maps it is a dry gas or wet gas area. The rep from Chesapeake told me it was a dry gas area... Is it a flip of a coin?

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