Subject: : Conservation
Topic: : Duke Univ. Marcellus Study
Re: Duke Univ. Marcellus Study
Author: : Gone4Day
Date: : 2011/5/12 19:43:47
URL:

Quote:

> pcray1231 wrote:
> Gone4Day, thanks, good info as always. I do have a question. I am aware that the gas can be chemically traced to a formation, likely even to an area within a formation. But I'm not sure how specific they can get. For instance, if 2 wells are 3 miles apart and tapping the same shale formation, could you chemically determine which exact well the gas came from?

Just trying to inform the discussion. Short answer is no. The longer answer...

There are two types of gas found in nature - biogenic, formed from the decay of organic matter and thermogenic, formed from the thermal cracking of organic matter. The former is almost all methane while the latter contains longer chain hydrocarbons that can only be formed through thermal cracking. These two are easy to distinguish from their gas chromatograms. Shallow gas can be one or the other or a mixture of the two.

With themogenic gas, it is often possible to correlate them to their source rocks or each other using biomarkers and/or isotopic composition. However, the Devonian shales all have very similar organic matter and there is substantial mixing making it nearly impossible to correlate them with a specific shale layer. So basically all the thermogenic gas looks about the same and it would therefore be unlikely that you could distinguish gas of one well from another nearby. The best you can do is constrain it by depth based on maturity.

Looking at the study, its actually from the Nicholas School of the Environment. The Duke guy is the last author mentioned, which usually means he had the least to do with it. He probably runs the geochemistry lab at Duke. Generally these studies are attributed to the lead author, not the last contributor. So that's a little bit misleading.

Since they had to resort to comparing isotope ratios, it suggests that most if not all their samples are of mixed origin. All they are really showing is more thermogenic gas near gas wells. Its a chicken or egg argument. Do they drill because of higher gas content or is higher gas content because they drilled? Without before and after data, there's no way to tell.

The simple way to test a well for leakage is by pressure testing. If it can't maintain pressure, its leaking.