SURFACE OWNERS' RESPONSES
TO THE MYTHS AND DISTORTIONS PUT OUT BY THE INDUSTRY
ON THE DANGERS OF
MARCELLUS SHALE HORIZONTAL DRILLING
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Serious environmental concerns plus concerns about abuses of surface owners exist as a result of Marcellus Shale horizontal drilling. The industry hides what it is doing, then complains about citizen ignorance of the facts of Marcellus Shale drilling, and then in the name of education puts out a public relations campaign with distortions and myths. It is therefore necessary to debunk these myths and distortions.

1. DISTORTION: The industry claims that frac'ing is nothing new–we have been frac'ing oil and gas wells for 60 (or 85) years, so it is nothing to be afraid of.

And we have been flying airplanes since 1903, but biplanes are different from Boeing747's, or a space shuttle. Marcellus shale horizontal drilling is many orders of magnitude a more serious operation than the conventional frac' jobs that have gone on in West Virginia up until about 2009.

Start with the cost. One conventional, vertical gas well costs about $300,000 to drill. One Marcellus Shale horizontal well costs $3 million to $6 million to drill. They put not one, but six of the new Marcellus Shale horizontal gas wells on one well pad! All of those additional millions is paying for a lot more activity on the surface owner's land.

One huge difference in the impact of these new wells is the volume of frac' water itself. Conventional, vertical wells use two tractor-trailer loads of frac' water. The new Marcellus Shale horizontal wells use 1 to 3 to 6 million gallons of water for their frac jobs – enough to fill up to 8 Olympic sized swimming pools.

Then there is the time difference. A conventional, vertical shallow well of the past could take as little as 30 to 45 days from when the bulldozer starting making the road across your land until the completed well was turned into the pipeline. For a new Marcellus Shale well pad for drilling 6 or more horizontal wells, the driller takes 5 to 6 months from when the bulldozer first starts plowing across the surface owner's land until the driller finishes drilling just the first gas well on the pad. The drilling rig has to go for 30 days once it is set up each to drill each of two more wells. Then those wells have to be frac'ed. Then there are three more wells to drill and frac on that same pad. We know sites where the driller has been on the surface owners land for years and is still drilling or completing the wells.

2. DISTORTION: Only ½ of 1% of frac' water is chemical additives.

True. But that is 20 TONS of chemicals per million of gallons of frac' water. And 1 to 3 to 6 million gallons of water is used for these frac' jobs. That is 20 to 60 to 120 tons of chemical

additives trucked down the roads and onto the surface owner's land. The potential for pollution is enormous while getting those chemicals there, using them on the site, and then transporting and disposing of the flowback water laden with even more chemicals, including low level, naturally occurring, radioactive materials.

3. DISTORTION: The chemical additives are things that can be found in your home – under your kitchen sink even.

True. But you don't drink the chemicals under your kitchen sink, or even mix them together. When most people go to the kitchen for something to drink, they reach into their refrigerator.

4. DISTORTION: There are no cases where it has been proven that frac'ing has caused contamination.

This is a clear case of misdirection. The frac job itself is only one step of the many steps required to drill and produce a Marcellus Shale horizontal well. Others steps have caused problems. Andwe are finding problems near wells for which we do not know the cause.

-There are cases where chemicals leaked onto the well pad before or after frac'ing or drilling, and were then found leaking out the bank below the well pad, and into the water table.

-Near Dimmock, Pennsylvania, a cost cutting well casing cement job by the driller caused underground natural gas, not Marcellus Shale gas, but gas from formations the driller penetrated on the way down to the Marcellus Shale, to leak into ground water and polluted it with methane.

-A Duke University study found more methane in areas near gas well drilling than in other areas. Whether it came from the Marcellus Shale or from other formations – if it wasn't there before, then it shouldn't be there now. We need to know what caused it to be there now and how to prevent it.

-A Penn State University study (a study that did include some tests with base line data) found tracer chemicals in surrounding groundwaer that could have come from flow back water or some other source that was not there before. It doesn't matter whether it was the frac' process or some other step caused it. It wasn't there before; it shouldn't be there now; and we need to prevent it.

5. MYTH: Any effort to regulate the industry will make them go somewhere else to drill.

You probably live in a nice house. But you probably have a neighbor that has an even nicer house. So why don't you go and live in your neighbor's house? <u>Because you don't own</u> your neighbor's house.

A drilling company can only drill on the leases the drilling company owns – where it owns them. It cannot drill on leases owned by other companies in other places. All the companies want to make money and will drill wells on their leases – wherever they are.

Some members of the industry opposed a special permit fee for Marcellus shale wells of

$10,000 to help the State oversee the Marcellus Shale well drilling. Responsible geologists project that a Marcellus Shale horizontal well will produce 4 Billion cubic feet of gas. Assuming current prices of about $4.00 per thousand cubic feet of gas, a Marcellus shale horizontal well will therefore make $16 million during its lifetime. So the proposed permit fee is only 6/100ths of 1% of the projected revenue of the well. The desparately needed $10,000 fee is no reason to go somewhere else.

6. MYTH: We have enough inspectors.

Before the Marcellus shale boom hit, West Virginia had 5,000 existing oil and gas wells that drillers admit are no longer producing and need to be plugged, and for which there is still a responsible driller who has not gone out of business. There are an additional 4,500 wells that are orphaned and unplugged because the State did not have enough inspectors to go out to make the driller plug them before the drillers went out of business.

Before the Marcellus Shale boom hit, the State already had more than 50,000 producing oil and gas wells. A surface owner couple did a study of 30 of those producing gas wells operated by six companies in Kanawha and Putnam County and documented the following problems with those existing conventional, vertical wells:[1]

-70% (21) did not (on first inspection) have proper secondary containment for storage tanks, although some sites corrected this.

-43% (13) did not have a required identifying well number on them.

-27% (8) had inadequately buried pit waste on the surface. Evidence was is in the form of exposed pit liner and soil contamination.

-10% (3) had anecdotal evidence of a blowout, and 2 of those contaminated nearby drinking water supplies.

And that was all BEFORE the Marcellus Shale boom hit and started taking up inspector time issuing new permits and inspecting those huge new well sites.

Conclusion.

The oil and gas industry was under-regulated before the Marcellus Shale boom, and the regulations that did exist were under-enforced. The West Virginia DEP should have the funding to do the studies necessary to determine the requirements for safe drilling, and the money to hire inspectors to enforce those regulations. And West Virginia should be making the drillers plug existing, non-producing wells while, if not before, new wells are permitted. West Virginia should not make the same mistakes we made with coal.

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[1] Gas Well Study, 2008, 2009 and 2010, Monk, George and Schaffnit, Molly, http://members.citynet.net/sootypaws/Woods/gaswell/comments/otherwells/index.html.