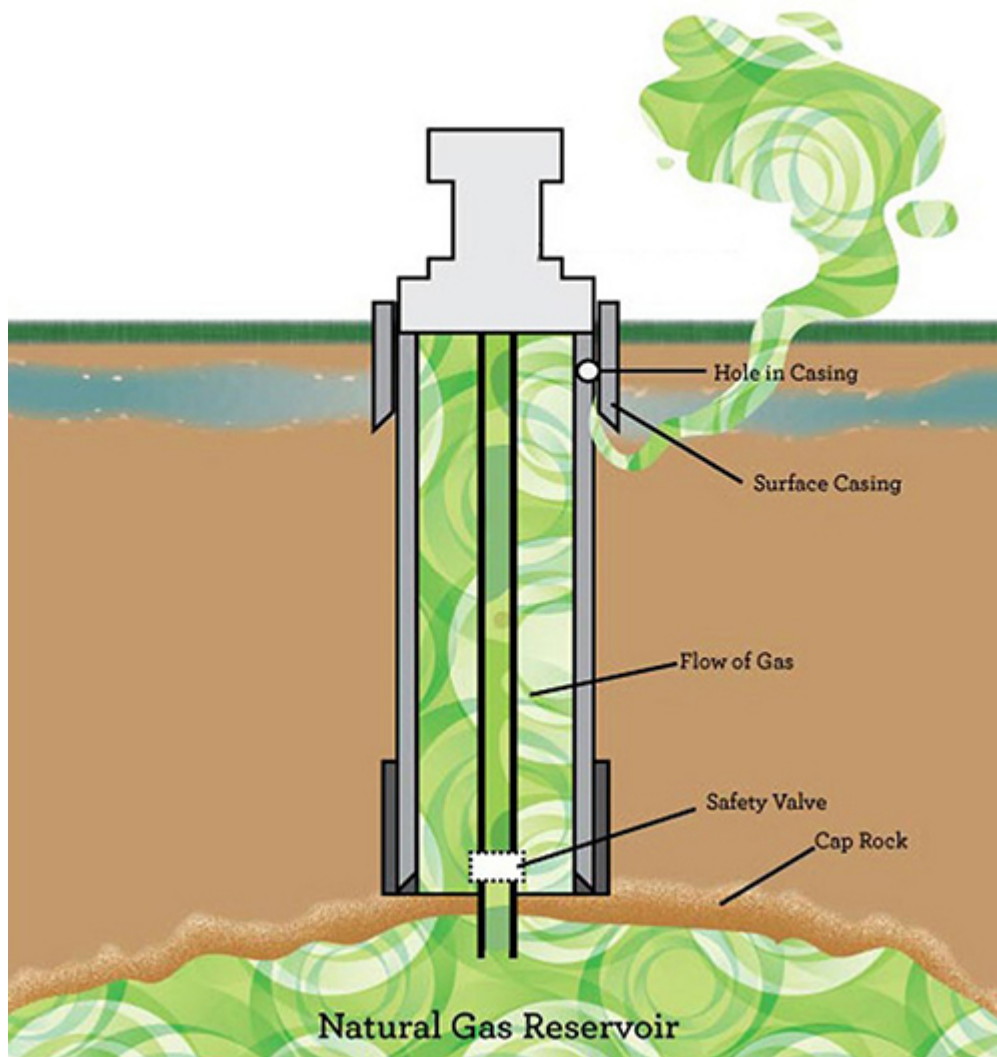


PRO-FRACKING STUDY DEFEATS ITSELF

February 21, 2016



Here is an article apparently written by the industry which is trying to promote fracking. The point of the article is that fracking wells do not leak methane any more than conventional gas wells. Their study is flawed, as we will explain shortly, but the interesting aspect is that the article unabashedly states that all wells leak:

The public debate has treated this leakage issue as specific to

the process of fracking. But “conventional” natural gas wells—vertical wells drilled through porous rocks that give up natural gas without the need for new fractures—have always leaked.

Environmentalists have always said that and have been poo-pooed by fracking advocates. Your writer has sat in subcommittees in Tallahassee and listened to lobbyists explain, with posters and graph visuals, how the concrete and steel casings surrounding the well bore are so safe and strong. Now we have one of their own admitting the environmentalists are correct.

Moreover, the premise of the study is completely undercut by the fact that the wells used in the leaking experiment are not the same:

While some of these fracked wells are shiny and new (the average age was just 2.5 years), the conventional gas wells are considerably older.

Everyone agrees that older wells are more prone to leakage, as the steel and concrete ages and cracks. So, to say the fracking wells (quite new) leak no more than conventional wells (“considerably older,”) renders the study meaningless: it is like comparing chickens and horses. Thus, the study is self-defeating.



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Fracking gas leaks are no worse than conventional wells

And quite often better—it's what's going on above ground that matters.

by [Scott K. Johnson](#) – Feb 9, 2016 9:21am EST

[Gerry Dincher](#)

Fracking, enabled by the technology to drill oil and gas wells that turn horizontal to follow specific layers of rock, has driven a boom in US natural gas production. But how much of that natural gas (which is mainly the potent greenhouse gas methane) is leaking into the atmosphere before making it to a power plant or your furnace? It's not just an idle question. When natural gas displaces the use of coal, it results in significant reductions in CO₂ and other pollutants. Leak enough, however, and that climate benefit might just disappear.

The public debate has treated this leakage issue as specific to the process of fracking. But “conventional” natural gas wells—vertical wells drilled through porous rocks that give up natural gas without the need for new fractures—have always leaked. A study by a Carnegie Mellon University group led by [Mark Omara](#) measured leakage at both conventional and fracked wells in Pennsylvania and West Virginia. The results are a little complicated.

The researchers visited 18 conventional natural gas sites and 17 fracked sites (including 88 fracked wells, which are commonly drilled down from a central pad before splaying out horizontally). Between 100 meters and a kilometer downwind, they made methane and ethane measurements. To control for the dilution of the leaked gas as it spread and swirled in the wind, they added a leak of their own. Right next to the gas wells, they set up tanks of nitrous oxide and acetylene and opened the valves to leak at a constant rate. By checking their measurements of those gases downwind, they could calculate the

true natural gas leak rate.

Four of the fracked sites were in the “flowback” stage where the water used to hydraulically fracture the rock is being sputtered back out of the well by the initial flow of natural gas. This is the phase with the greatest potential for leakage, depending on how the process is handled—gas can be carefully captured, or it can simply be burned off until the water clears out.

While some of these fracked wells are shiny and new (the average age was just 2.5 years), the conventional gas wells are considerably older. That’s the first complication for our leakage comparison. Regulations on equipment and maintenance have been tightened in recent years, and some of the conventional well sites had seen better days. The researchers brought along an infrared camera that makes methane gas about as visible as steam, and they spotted a number of leaks from rusty pipes and fittings, as well as broken pressure regulators, at these older sites.

In terms of the amount of measured methane leakage the fracked sites were the worst offenders, but that’s misleading. Far less natural gas was being produced at the conventional well sites. Calculated as a percentage of production, the fracked wells were far less leaky. The conventional wells ranged from 0.35 percent to a nightmarish 91 percent for an average of 10.5 percent leakage. The fracked wells, meanwhile, average 0.13 percent leakage with a max of just 1.2 percent.

As in other studies, the researchers found that a few wells with obvious problems could account for the bulk of the total leakage. Three conventional well sites contributed half the leakage, for example, while three fracked well sites were responsible for fully 85 percent.

And what about the fracked wells going through the sputtering

“flowback” process? New regulations requiring capture of that natural gas hadn’t yet kicked in at the time the researchers were out making measurements. Yet three of the four flowback sites were already doing it, with the fourth burning off the gas. All four were among the leakiest fracked sites, but the flared site was significantly worse than the other three. The techniques required by the new regulation make a big difference.

The researchers carefully attempted to scale these results up to the total number of natural gas wells in the region. There over 88,000 conventional natural gas wells active in Pennsylvania and West Virginia; with their high fraction of leakage but low production, they add up to an estimated 660 billion grams of leaked methane per year. The roughly 3,400 fracked wells—which produced almost twenty times as much natural gas—leak an estimated 490 billion grams per year. Add it all together, and that’s about 1.4 percent of the area’s natural gas production. That’s low enough that natural gas still beats a coal-fired power plant handily, in terms of climate impact. Of course, less leakage is always better.

Although this comparison isn’t perfectly apples-to-fracked-apples, it does indicate that leakage is a problem common to all natural gas production. And it comes down to techniques used and equipment integrity—a leaky valve is a leaky valve regardless of what kind of well you connect it to.

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