
Subject: : Conservation

Topic: : Back against the well or wall as they say.

Re: Back against the well or wall as they say.

Author: : pcray1231

Date: : 2011/7/27 13:31:54

URL:

MelvinP,

I'll still expect Gudgeonville's response as he certainly has more expertise than I. I'm only involved in the periphery of the industry, the material side (including supply and failure analysis), and it's only a small % of what I do. But it has forced me to get a more detailed look at how the process is being done, so I'll attempt to answer your questions to the best of my ability. Again, they should not supplant Gudgeonville's response if one is forthcoming.

Quote:

1 what is going to happen with the Billions of gallons of frack water that is pumped under ground(will it stay there or is it going to slowly leach out)

It will stay there. We're talking below sea level here. Anything above the water table would leach out, anything below wouldn't. And everything above the water table is protected by steel and concrete liners to prevent contamination. That said, all is well ONLY IF everything goes well.

Some engineer has to evaluate the depth of the water table. There's a safety factor included, but errors in this could result in contamination above the water table, and errors could result from unknown fault lines, a screwed up test, etc. Further, steel and concrete can fail, especially under adverse conditions involving heat, pressure, and corrosion, such as what occurs down hole. Further, the installation procedures are non-trivial, and it's easy to screw up. For instance, if there's a poor seal at the bottom of the liner, fluid under pressure can rise up the hole on the outside of the seal. Further, errors can occur on the surface, such as accidental spills, busted pipes, etc, which puts frac fluid outside the confines of the protective layers. That's enough "furthers" for now, the point is, there are lots of failure modes and virtually all of them result in the possibility of contamination of the water table.

Reality tells us there will be some % of failures. You can reduce the danger by allowing the geologist to do more tests and thus giving him a clearer picture of the rock structures, choosing better grades of steel for the liner and piping, thoroughly testing all of the seals, training your workers more, etc. But all of this costs \$. And nomatter how much \$ you spend to fail-safe things you will never get a 0% failure rate. Never. There are always unforeseen failure modes. Call it once in a million, perfect storm, whatever. If a failure rate on this part is controlled down to 1 in a million, that's great, but what if you use a million of them? How much \$ to spend preventing failures follows the law of diminishing returns. More money = more control, but you can't get to zero failures.

So what rate of failure is acceptable? 0.01%, 0.1%, 1%? Now, keep in mind, there are thousands of wells going in. You can do the math, but it is an absolute certainty that incidents of contamination will occur.

I fully support controls beyond the current status quo. So in that sense I'm not a "pro-drilling" guy, frankly I don't think they're doing nearly enough. But I also have to admit that it rubs me the wrong way when people (media, "anti" movement, etc.) take the most severe failure that has ever occurred and try to convince the public that it is the "typical" result. Painting it as a "danger" is fine. But Joe Schmoe, who has a well going in down the street, should not be led to believe that his water well and his favorite stream are doomed because sometime, somewhere, there was a case where that happened.

Quote:

2 what about the shale layer that is being broken up will it settle causing seismic activity at a later date. Nationwide is starting to sell seismic insurance in are area.

Good question and out of my area of expertise for sure. Looking forward to an answer from the geologist....