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WATER FREE FRACKING?

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An emerging technology in hydraulic fracturing might help end debate over the decades-old drilling technique. A new propane-based gel is replacing the need for water in the fracking process.

Liquefied propane gas (LPG) fracturing, or simply "gas fracking," was developed by a small energy company, GasFrac, based in Calgary, Alberta.

The technique has been used mostly in Canada, but some producers in Texas, Pennsylvania, Colorado, New Mexico and here in Oklahoma have tried it.

The process is much the same as hydro-fracking. The propane gel is pumped into the deep shale formation a mile or more underground, carrying sand or other particles into small cracks to prop them open and release the natural gas.

But, here is where this new gel differs from the water. While the water must be returned to the surface and contained, (along with all of the drilling chemicals, salts and naturally occurring underground radioactivity) the gel turns into a vapor underground due to the pressure, returns to the surface as a gas and is captured.

And, because the gel is in vapor form when it returns to the surface, it does not bring anything else back to the surface with it.

As GasFrac Chief Technology Officer Robert Lestz said, "We leave the nasties in the ground, where they belong."

Lestz also claims propane fracking allows more natural gas to be produced. He says all the propane leaves the fractured rocks, unlike water, which can be absorbed into the rocks and block the gas's escape.

Some in the industry believe "gas fracking" can better protect the environment and save money by doing away with the costs of handling and disposing of tainted water.

Also, the propane method uses only about one quarter of the number of truck trips that water-based fracking employs, so the impact on roads, the noise and dust annoyance to neighbors, and the trucking costs for drillers are reduced.

But, many in the industry are approaching the product cautiously.

David Burnett, a professor of petroleum engineering at Texas A&M University says data and research will be critical.



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"This is a very conservative industry," Burnett said. "Engineers want to see what someone else did first, and they want the data." Most companies that have tried the GasFrac technique have not published data publicly, he said, possibly out of fear of tipping off potential competitors to its benefits.

So, what are the drawbacks? The gel costs more initially, but the propane gas can be resold once it is recovered. It is explosive and requires special equipment to be handled. And, right now, LPG is proprietary to GasFrac, so the supply is limited. Many producers have found the product is not cost-effective for natural gas wells at this time.

However, in states like Pennsylvania and New York where hydraulic fracturing waste water is a hot button issue, state officials and energy producers are taking a long, hard look at this product and considering whether it might be the answer to their issues.

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