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Propane fracking slowly gaining attention as Canadian company uses technique in Texas

Process uses propane, butane instead of water

By Rick Spruill

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CORPUS CHRISTI — A Canadian company is experimenting in Texas with a drilling technique as a substitute for the enormous amount of water used in the hydraulic fracturing process.

Jadela Oil Corp., a Canadian exploration and production company, fractured its El Indio No. 1 horizontal well in Maverick County near Eagle Pass with more than 5,000 barrels of liquid propane and butane, a process known as gas fracking.

Traditional hydrofracking has created a boom in drilling in shale formations, including the Eagle Ford Shale across South Texas.

But it also has caused environmental concerns because of the amount of water used — a single well requires millions of gallons — and because the water used becomes contaminated and cannot be reused.

The method using a propane and butane jell hopefully will reduce production costs because, unlike water, the gas mixture can be recovered and reused or sold, Jadela CEO Greg Leia said. The secondary benefit, Leia said, is environmental.

"No. 1, there is no water used," he said. "Second, water damages the shale, dampening production. Third, the deeper water goes, the less of it comes back, and what it comes back with is contaminated with the chemicals added to it, plus strontium, a radioactive element."

Leia said the company has completed about 1,000 propane fracking wells in Canada and a number in Texas, but only on vertical wells.

He said the El Indio well in the Eagle Ford Shale was the company's first horizontal well fractured with propane and butane.

Whether they use the method again depends on the outcome of the well that produced 2,077 barrels of oil and almost 24 million cubic feet of gas before the company shut it down for testing.

Of the 5,000 barrels of propane injected into the well, the company reported recovering 21 percent, or 1,143 barrels.

The well is now being pumped and a pipeline installed.

Leia acknowledged the risk of pumping chemical-laced water into the ground.

"When you put this stuff down in the ground, depending on the depth, you've potentially got issues," he said.

He said a common misconception is fracking far below the surface is a source of chemical seepage into water tables when, in fact, methane can leak into shallower water sources if well casing is faulty.

"A Texas permit requires frackers to send down 150 feet only for surface casing," he said. "This means methane gets transferred into the groundwater."

Gas fracking is a promising but unproven option, said David Burnett, director of technology at Texas A&M University's Global Petroleum Research Institute.

Burnett said until companies grow less reticent about publishing results from wells fracked with gas, the practice will remain on the fringe of production options.

"It's expensive," Burnett said. "There are some safety issues with using a flammable material."

In Canada, where it is more common, gas fracking provides an attractive alternative to water because it does not freeze in arctic conditions.

Brackish saltwater also may one day be used as an alternative to freshwater, Burnett said.

"This will be particularly helpful in areas where there is pressure — perceived or otherwise — on the freshwater aquifer," he said.

The obstacle, he said, comes from landowners.

He said it is a common practice for West Texas ranchers to require fracking operators to drill a freshwater well, not a brackish one.

"The freshwater well then becomes the property of the rancher when the well is complete," Burnett said. "It's a benefit to them."