

Dry Permian Basin Leading Uptick in Recycling in Texas

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Large-scale water recycling for hydraulic fracturing could be finally becoming a reality, thanks to the drilling boom underway in the parched Permian Basin of West Texas.

Oil and gas industry watchers have long been looking to the Eagle Ford Shale for signs of an emerging side industry in the recycling of brackish, produced and used frack water for reuse in shale oil and gas extraction. Though technological solutions that seem relatively affordable are abundant, water treatment and recycling remain relatively rare in the oil patch.

But signs of growing interest and optimism were on display last week at a special hearing of the Railroad Commission of Texas, hosted by Commissioner Christi Craddick. The Railroad Commission regulates oil and gas operations and not railroads in Texas.

Craddick organized the meeting to get the latest on how industry is embracing water recycling and reuse. The commission has been encouraging drillers to put less wastewater into disposal wells and treat more of it for their continuing operations. Texas faces the ever-present threat of drought, and some communities complain of dropping water tables in areas where hydraulic fracturing is widely practiced.

The answer Craddick got was that water recycling is fast becoming the norm in the Permian Basin and that there are signs of it spreading elsewhere in the state, including in the Panhandle and the South Texas Eagle Ford region.

"It's definitely not possible everywhere, but when it is possible, we try to do it as much as we can," Evan Taranta, government affairs manager at Apache Corp., told the commissioner.

Taranta said a more favorable regulatory climate explains why water recycling is taking hold in Texas' portion of the Permian Basin, even though it remains rare in the part of the formation found in neighboring New Mexico. She said the rules in New Mexico make it harder for companies to rely more on water recycling, while these days, on the Texas side, "it makes a lot of economic sense."

Though the disposal of drilling wastewater is arguably cheapest in the Permian Basin, company representatives said concerns over possible water scarcity in the Midland and Odessa area that rests on top of the Permian are real. Mindful of this, companies are quickly adapting an array of water treatment options. They are also experiencing cost savings in terms of money not spent on procuring fresh water or disposing of wastewater, a fact that competitors are quickly catching on to.

Jimmy Carlile, an official with the small producer Fasken Oil and Ranch, said his company began removing sulfates from brackish and produced water it was encountering in March 2013, in response to a lack of large supplies of fresh water on its property. The nano-filtration being employed will hopefully free the company from any dependence on fresh water for its hydraulic fracturing operations, he said.

"Next month we hope to discontinue the use of fresh water," Carlile said.

Different technologies at work

Michael Dunkel, director of sustainable development at Pioneer Natural Resources, credited a Railroad Commission rule change last year that was designed to encourage greater use of non-fresh water for oil field operations.

Dunkel predicted that his company would be recycling about 30,000 barrels of water per day by the middle of this year. He and others explained that there is no single technological solution that seems to be taking hold -- different water sources require different treatment methods, and a wide variety of them are relied on, they said.

"We've got our foot in a lot of different technologies," Dunkel said.

Many of the water recycling systems now gaining in popularity were pioneered by smaller companies. But the major oil field service providers seem to be taking it more seriously, as well.

Steve Monroe, a manager for water management and surface treatment at Baker Hughes Inc., told Craddick and an audience that 2014 "could be a very transitional year for us." He reported that his

company processed 30 million barrels of water last year and said that Baker Hughes definitely sees an emerging trend.

Nevertheless, Monroe cautioned that the spread of water technology will likely be uneven in different parts of Texas.

"The Eagle Ford water is not Barnett water is not Permian water," Monroe said.

Push for incentives

Many industry officials at the meeting called for the Railroad Commission to consider introducing some system of incentives that would further encourage the spread of produced and brackish water treatment and flowback water recycling, to further lessen the industry's dependence on fresh water.

Craddick said that is something the Legislature would have to consider, which could happen next year when lawmakers return to Austin for their regular session.

Meanwhile, Craddick said she would look into forming a special advisory committee that would track the growth of water recycling, while looking for input from the field as to how it could be encouraged to spread to more areas across the state.

The commissioner said at the close of the meeting that it appeared Texas was moving forward with the long-promised push toward less fresh water use in hydraulic fracturing.

"We're clearly proving that we're doing our part," she said.

Analysts at the information and consulting firm PacWest Consulting Partners estimate that, nationwide, just 1 percent of the water encountered by drillers is recycled and reused for hydraulic fracturing operations. About 60 percent of produced water is reinjected into formations to encourage more hydrocarbon production, while 23 percent of it is destined for injection well disposal, PacWest analyst Christopher Robarts said at a recent event in Houston.

Robarts estimated that the oil field water recycling industry is growing at a rate of about 4 percent per year. "Individual segments here are growing faster than others," he said.