


Is Produced Water Really Water?

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Is produced water flowing out of an oil/water separator actually water?

Before answering, consider the fact that this question has set off a high-stakes legal battle over who owns produced water—landowners or oil companies—which is likely to end up before the Texas Supreme Court.

An appeals court ruling recently confirmed the oil industry's control over produced water. The majority opinion supporting that decision said this noxious fluid is distinctly different from the groundwater that Texas law says is controlled by landowners.

However, one member of the three-judge panel dissented, saying that however chemically complex produced water is, it is not on the list of hydrocarbons covered by the oil lease.

The fact that anyone is fighting to own produced water, and the potential environmental and health liabilities that come with it, is a sign of how unconventional exploration and production has changed the Texas oil business.

"Questions about whether landowners owning produced water were sort of meaningless not that long ago because produced water was nothing more than waste," said Stephen A. Cooney, a real estate attorney who closely follows developments in oil and gas law. He is one of several attorneys who has written online about the case that multiple lawyers say has "huge implications."

The suit was originally filed in Pecos, Texas, which is the home of most of the people who live in Reeves County where the local facts of life help explain how produced water has become something worth fighting over.

The top tourist attraction in the area is the Balmorhea State Park which features a large "spring-fed swimming pool." It's an oasis of clear, cool water where only 0.3% of the 2,642-square-mile county is covered with water, according to the US Census Bureau.

Pressure to conserve fresh water has made fracturing with produced water increasingly the norm in the Permian Basin. Water reuse has spawned a growing network of produced water pipelines, water processing facilities, and injection wells to provide the millions of gallons needed for fracturing and disposal of the rest.

Reeves County is also in the heart of the Delaware Basin, where wells typically produce four times as much water as oil early on, and that ratio rises quickly as oil production plummets.

Reusing produced water reduces the amount of water that the operator must dispose in injection wells and provides a relatively cheap source of frac water.

And, most importantly, Reeves County is where two major landowners agreed to do something nobody had ever done before:

sign a produced water lease. The contract gave Cactus Water Services ownership of what lawyers refer to as the “produced water estate.”

Millions of Barrels of Water

On paper, Cactus controlled a large estate. Wells on the 37,000 leased acres produced 52 million bbl of water in the 15 years since the first oil leases were signed by COG Operating, then a unit of Concho Resources, according to the appeals court decision.

After the litigation began, Concho was bought by ConocoPhillips, but the court documents continue to identify the oil company as COG, as will this story.

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The produced water lease was drawn up by the founders of Cactus. One of the founders, Randy Stevens, CEO of Stanolind Permian, who said their analysis concluded that “50 years of Texas case law overwhelmingly supported the position that water entrained in oil and gas formations belonged to the surface owner,” in Cactus’s response to emailed questions.

In the summer of 2018, Cactus drafted a produced water lease agreement and was contacted soon after by “the oil and gas operations manager of one of the southern Delaware Basin’s largest landowners” who wanted to gain control of its produced water production.

Their argument for landowner control begins with the language in the leases. The fairly standard wording in the oil leases of their first customers said that a contract was “for the sole and only purpose of investigating, exploring, prospecting, drilling, mining, and operating for oil and gas and other hydrocarbons, and of

laying pipelines and of building tanks, power stations, and structures” to produce, process, and store production.

Stevens described Cactus as a “facilitator and ally” of landowners looking to share in profits from produced water now going to operators.

After the lease was signed in January 2019, Cactus asked for a meeting to discuss the handover of the produced water rights, which was followed by a meeting in early March, where COG refused to recognize the novel lease.

“COG refused to loop in anyone with negotiating authority, stonewalled Cactus’s counsel when it sought a discussion with COG general counsel, and subsequently filed suit,” Stevens said.

A few weeks later the oil company quickly responded by filing a suit seeking a judgment declaring that it is the rightful owner of the produced water.

Since then, the oil company has won at the district court and appeals court, but Cactus’s attorney, Marty Jones, said in a September interview that he will appeal it to the Texas Supreme Court.

The high court is being asked to clarify what is now a significant legal question in Texas.

Previous laws, regulations, and precedents focused on one of two issues—the water rights of property owners or the responsibility of oil companies to safely manage the produced water.

The opinions of the three-judge appeals court panel also was split along those lines.

The majority decision by Yvonne T. Rodriguez, chief justice, hinges on “whether ‘produced water’ is, as a matter of law, water or is it waste.”

The decision noted that Texas laws and regulations included multiple references to produced water as a form of oil and gas waste, as argued by the oil company’s legal team, making it part of the production stream controlled by the operator.

“It bears little resemblance to water given the ‘numerous constituents’ it contains other than water. Instead, produced water is more accurately

classified as a waste byproduct of oil and gas production,” the decision said.

The dissent by Judge Gina Palafox did not buy that distinction. She pointed out the lease only specifically granted COG the hydrocarbons it had produced. And she did not see how defining it as oil and gas waste made produced water not water.

“Simply because water is produced from an oil-and-gas well does not necessarily change its character,” she said, adding, “I would conclude the surface estate’s water rights were conveyed to Cactus by the assignment of rights to produced water.”

What’s the Difference?

For members of the Texas Oil & Gas Association the importance of this case justified hiring an attorney to file a brief in favor of continued control of produced water by oil companies.

It argued that if the produced water lease to Cactus is upheld, it “would upend the State of Texas’s regulatory regime and threaten the continued operations of nearly every oil and gas producer in the state.”

Cactus responded that its goal is to “provide confidence to operators” with a relationship with landowners that will not interrupt oil and gas production and allow “expanding, upgrading, and integrating water networks.”

The association’s brief attacked the legality of a produced water lease by saying that “the term ‘produced water’ is a misnomer,” and explained:

“Produced water does not pass the eye test; it looks nothing like water. And that makes sense, because the produced water has taken on characteristics of the rocks, minerals, oil, and/or gas that it has been trapped with deep below the surface.

“This process is like distilling bourbon. The largest part of bourbon by weight is water. But that water undergoes chemical changes when fermented with corn mash, barley, rye, and yeast. The water undergoes

more changes when heated, and then changes again while aging in oak. By the time that water is removed from the barrel and bottled for consumption, it has become bourbon and ceases to be water.”

It also noted that no one running a marathon would ever want to drink a glass of either bourbon or produced water.

While that brief offered the case’s best material for a script writer in the unlikely event this case ever inspires a movie, the judges focused on the drier stuff of past precedents.

Jones noted that even if produced water is chemically different from groundwater, he pointed out the oil and gas leases specifically gave the oil company the right to those two commodities and “I don’t think water is a hydrocarbon.”

Cactus’s brief said language from laws and regulations written to regulate waste disposal should not be used to determine ownership.

“Is the surface owner’s express contractual grant of ownership of produced water to Cactus Water rendered null and void—as a matter of law—by the Natural Resources Code and the Railroad Commission’s authority to regulate ‘waste’ from drilling operations?”

The makeup of groundwater that is clearly controlled by the landowner can include salt and other contaminants found in produced water, but it is still considered groundwater. The Cactus brief said giving the oil company control of produced water “unwisely changes nearly a century of settled Texas common law.”

And, So What?

The legal arguments offer dire statements about how an unfavorable decision might affect landowners or oil companies. The pleadings, though, offer little detail about what it would mean if landowners gained control of produced water.

When Jean-Philippe Nicot, a senior research scientist whose studies at the Bureau of Economic Geology at The University of Texas at Austin have

included extracting minerals from produced water, considered the question his verdict was:

“It seems straightforward to me that the operator/mineral right holder ‘owns’ the produced water, even more so if they plan to extract a mineral, such as lithium, from the water. [It’s] true that the landowner controls groundwater, but traditionally that applied to fresh water and maybe brackish water.”

Nicot added “The idea that ‘it’s mine if it’s valuable’ and ‘it’s yours if it’s only an expense,’ doesn’t pass my common man smell test.”

Separating, transporting, and disposing of produced water is expensive. For oil companies—including ConocoPhillips—water management has become a critical piece of its Permian operations.

“Water sourcing and produced water management are facilitated using centralized water gathering and distribution systems with strategically located recycling facilities. Water infrastructure is a key component of these gathering systems,” according to ConocoPhillips’ [sustainability report](#). It notes the company also works with midstream providers offering water, produced water treatment, and waste disposal.

Recently another major Permian producer, Diamondback Energy, showed the potential value of water assets with [a deal with a private-equity company](#) creating a water company that paid Diamondback \$500 million and gave 30% ownership of the midstream company called Deep Blue Permian.

For Jones, this is evidence of the value of controlling produced water.

“The idea that produced water is a waste product that has no value, that is just an expense, goes by the boards when I saw that Diamondback deal,” he said.

While the big cash payment plus the possibility of more based on the performance of Deep Blue Permian looks lucrative, that included infrastructure Diamondback paid to build over the years including 800 miles of water pipelines plus water recycling and disposal facilities.

And the oil company is supporting the startup by agreeing to a long-term contract for water management services.

The value flowing to Diamondback in that deal is an example of spending money to make money. Large landowners who leased their land are using leases to add to their income. They are fine with the operator building pipelines to move water around their property, but if it is making money on deals with third parties, they want to share in the profits.

And Cactus sees money being made.

“Produced water is now a multibillion-dollar business in the Permian Basin, and E&P companies will charge service providers hundreds of millions of dollars in upfront consideration for the exclusive right to water still in the ground,” Stevens said.

It said COG received \$79 million from WaterBridge Operating plus 100,000 preferred shares from the Permian water midstream company for water services in an area including the parties involved in the case.

As a result of the 2019 deal, WaterBridge said in a release that it will manage water for the operator in an 800,000-acre area covering Reeves, Pecos, and Ward counties.

Concho’s annual 2019 annual report mentioned “a gain of \$79 million related to the contribution of certain infrastructure assets in the southern portion of the Delaware Basin.”

The key asset in deals between oil and water companies is the exclusive right to future produced water production. That commitment ensures the continued income stream needed to build and run a growing industrial water company.

Announcements of water deals offer frustratingly brief looks at these relationships. When companies like ConocoPhillips describe how they handle water, they emphasize the economic and environmental benefits of the growing networks without getting into the details.

For an outsider it is hard to verify claims that oil companies are making money on produced water, or not. Just getting an accurate estimate of how

produced water is disposed of in Texas requires a lot of digging and some guesswork.

Texas does not require water pipeline owners to disclose basic information about their pipelines and how much flows through them, much less details such as water sales, said Laura Capper, principal at EnergyMakers Advisory Group, an energy industry produced water management expert.

The complex, intertwined nature of the water business could make identifying and pricing a water sale an accounting challenge in a young market with no public price reporting.

Cactus's plan was described by Jones as like the midstream companies now serving oil companies, but they will be working for landowners.

A release from the law firm representing COG—Davis, Gerald & Cremer—said Cactus's water business consisted of little more than its produced water lease: "Cactus Water ... had no ability or infrastructure to handle the waste. Nonetheless, Cactus Water demanded that COG pay Cactus Water for its 'produced water' rights."

The comment fails to mention that unless the Texas Supreme Court rules that landowners control produced water, Cactus is in no position to build anything.

But they do want to have a say on produced water management and could be involved in some future projects.

"Our goal is to be a long-term partner for oil and gas operators working in our areas of interest. If they prosper, so will we," Stevens said.

If the landowners win, Jones said they could lodge a claim for payment based on the value of their produced water. The method he described is based on the process used by a landowner to collect compensation from an oil company that drills a well on their land without a mineral lease.

Based on the available information, it is hard to know what activist landowners

would be doing at a time the business is fundamentally changing.

Capper describes the case as a sign of the increasingly complex business of managing oil operations in the Permian as new "business models trickle in."

The enormous scale of produced water has caused an upsurge in earthquakes in some parts of the basin, leading to limits on water injection that force operators to find water disposal alternatives to maintain production. Those range from moving it to wells able to handle it via growing pipeline networks to using desalination so it can be used for things beyond fracturing.

The fact that there is growing interest in a costly alternative like removing the salt, among other things, from produced water is testimony to the risk that injection limits will seriously affect future production in the Permian.

"What is largely missing from these conversations is the tremendous cost in setting up the plants to treat the produced water for reuse or desalination," Capper said. The long payout, and tremendous cost of industrial scale water treatment, could challenge the traditional royalty model where landowners do not pay for costs associated with production, she said.

Ideas like extracting minerals from produced water could set the stage for another lease law fight, and carbon dioxide storage projects will complete for the limited empty pore space.

Dealing with those issues will require the involvement of landowners.

"Like everything, it is a negotiation," she said. Larger landowners will have the most influence because oil companies have to negotiate with them on issues ranging from pipeline right-of-ways to permission to drill saltwater disposal wells.

She warned against underestimating the influence of ranchers. "I have seen those crusty old landowners chewing up those MBAs." **JPT**