Produced Water in Texas:

No Dedication Without Compensation

Oil & Gas Operators in Texas Must Share Produced Water Acreage Dedication Sale Proceeds With Surface Estate/Water Owners.

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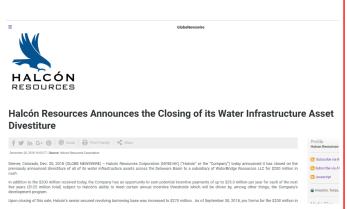
Disclosure Statement: The author holds an ownership interest in Cactus Water Services, LLC, an entity with business activities related to oilfield water ownership and management. The terms of this arrangement have been reviewed and approved by Rice University in accordance with its conflict of interest policies

Multiple Dedications, But No Landowner Compensation

Selected Produced Water Dedication Deals in Texas Permian Basin

Date	Seller	Buyer	Basin	Upfront Consideration Paid, Million \$	Contingent Consideration/Equity Stake, Million \$
October-18	Halcon Resources	WaterBridge Resources	Delaware	\$200	\$125
December-18	Concho Resources	WaterBridge Resources	Delaware	\$79	Not reported, likely substantial
May-19	PDC Energy	WaterBridge Resources	Delaware	\$125	N/A
February-20	Centennial Resource Development	Descriptions	erminated May 2020	\$150	\$75

Source: Company Reports





- At least 10 E&P companies have sold, or initially agreed to sell, produced water assets and associated exclusive dedication rights in the Texas Permian Basin since 2017.
- Hundreds of millions of dollars of consideration have changed hands.
- Hundreds of thousands of acres have been impacted to date.
- Author not aware of any instances in which landowners were compensated for their water ownership as part of sale.
- The total presented above undercounts the full value transacted, as several recent deals involved <u>privately held firms</u> that did not disclose terms.
- These include Jetta Permian, Primexx, Sabalo, and Tall City.
 Encana (now Ovintiv) also did not disclose terms of its 2017 produced water asset sale to H2O Midstream.
- The tally also includes E&P operator dedications to publicly-traded midstream entities that they own significant stakes in.

 These in many cases involve monetization of water that landowners will likely need to be compensated for.

Roots of The Texas Produced Water Dedication Problem

Crude Oil Gathering Agreement



Produced and Flowback Water Gathering and Disposal Agreement

Traditional Oil & Gas G&T Dedications

- When an oil and gas producer dedicates acreage to a midstream oil gathering and transportation company, it has the legal capacity to dedicate two core items.
- First is the exclusive right to gather and handle the molecules. Second is title to the molecules themselves.
- The E&P can grant both of these rights because it owns the right to recover the oil & gas under its holdings and also has clear title to the hydrocarbons once severed from the formation and at all points thereafter until it transfers title to the midstream company.

Water Is Different

- E&Ps can validly dedicate the physical infrastructure (produced water lines, pits, and SWDs)—because they actually own those items. Not so for the water under a tract.
- Even though produced water is co-located with the oil & gas molecules in the subsurface formations, the only legally valid way for the mineral owner to acquire ownership of the formation water would be through an explicit conveyance from the surface owner or produced water estate owner.

Strategic Implications

- <u>The surface estate owns produced water as real private property in Texas</u>. This means that companies that have already sold dedications have sold exclusive rights to something they don't own. They will likely need to compensate landowners.
- Firms currently contemplating sales of water assets and associated exclusive water handling rights in Texas should factor landowner/water owner compensation into the equation as they structure the deals.

Exclusive Rights to The Produced Water Itself Are the Core Driver of Deal Value

Key Assets Conveyed

- Disposal wells
- Surface contracts
- Equipment
- Produced water pipelines, fittings, connections, valves, gauges, tanks, taps, etc.
- Contracts
- Permits
- All produced water, hydrocarbons and other salable materials located "in or on" the assets when the transaction closes.

Key Associated Rights Conveyed

- E&P Operator will deliver to Midstream Firm <u>all</u> produced water from acreage it owns or controls that has been dedicated to Midstream Firm.
- Further, E&P further agrees to <u>exclusively utilize</u> the Midstream Firm to perform services pertaining to water from the dedicated acreage.
- Such exclusive Water Services Agreements are signed alongside the asset conveyance and can have terms as long as 20 years.
- Water owned by the surface estate or its successors in interest has thus been encumbered for decades, but without any sharing of the economic upside created.

The water flow from dedicated acres is an irreplaceable contributor of value to the deals. Without those water volumes, the pipe/SWD/pit infrastructure becomes an underutilized "stranded asset." But despite produced water's critical role in underpinning water system sale values, water owners are generally not being compensated. This means water asset sales and dedications executed thus far in Texas are likely subject to unfulfilled financial liabilities to the surface estate/water owner.

Risk Factor: If You Don't Own It, You Can't Legally Sell It

- Texas law is clear that the surface estate owns all underground water other than subterranean river flows as a matter of law.*
- E&P operators in Texas enjoy a common law right to *reasonable* use of the surface. But operators <u>do not</u> have a right to take and monetize water (a/k/a surface estate property) without compensating the owner. Furthermore, water is being monetized to serve high-level corporate objectives, which takes those actions beyond the bounds of activities longstanding common law doctrines seek to protect.
- See, for instance, Centennial Resource Development's recent disclosure statement on its February 2020 produced water asset sale to WaterBridge Resources (sale was terminated in May 2020, but the associated statements remain a useful indicator of intent):
 - "Upfront cash proceeds will be used to repay existing borrowings under the credit facility and are expected to essentially fund the 2020 cash flow deficit and reduce leverage metrics." **

E&Ps Could Face Multiple Legal Claims For Monetizing Produced Water They Do Not Own

- Conversion
- Unjust Enrichment
- Bad Faith Trespass

E&Ps could also face claims from water midstream asset buyers who learn they may not own the entirety of what they thought the E&P sold them or that water owners have superior claim to the H2O molecules the midstreamers need to fill their systems (and paid a lot of money for exclusive rights to)

*See caselaw discussed in https://texaswaterintelligence.files.wordpress.com/2020/02/collins_twi_produced-water-ownership-in-texas_27-february-2020.pdf

**CDEV Fourth Quarter and Full-Year 2019 Earnings Presentation, 24 February 2020. http://ir.cdevinc.com/events-and-presentations/presentations

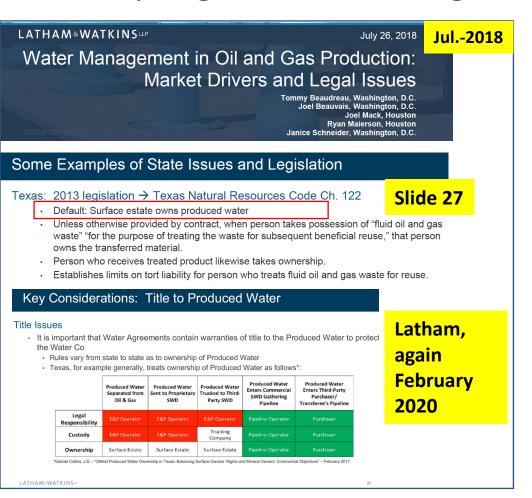
Not a New Issue: E&P Dedicators Were On Notice of Legal Risks For Years

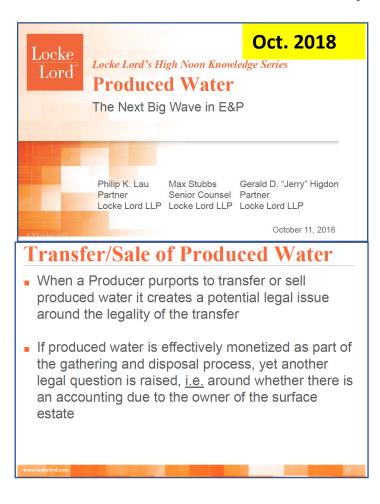
Surface estate ownership of water in oil & gas-bearing formations is not a new issue.

Multiple research pieces pointing to ownership-related obligations and risks have been in the public domain for years. See for instance:

- 1. Peter E. Hosey and Jesse S. Lotay, "Quench My Thirst: Water Rights in the Context of Water Treatment Technologies,"
 https://www.tlta.com/legallibrary/papers/2013/B_WaterRights.pdf (presented at 23rd Annual Robert C. Sneed Texas Land Title Institute, December 5-6, 2013, Hyatt Regency Hill Country Resort, San Antonio, Texas)
- 2. Maxwell B. Kallenger, "Who Owns All This Fracking Water?," Louisiana Law Review, 29 October 2015, https://lawreview.law.lsu.edu/2015/10/29/who-owns-all-this-fracking-water/
- 3. Gabriel Collins. "Oilfield Produced Water Ownership in Texas: Balancing Surface Owners' Rights and Mineral Owners' Commercial Objectives." February 2017. James A. Baker III Institute for Public Policy of Rice University: http://www.bakerinstitute.org/research/oilfield-produced-water-ownership-texas-balancing-surface-owners-rights-and-mineral-owners-commercia/

Top Legal Advisors Recognize Surface Estate Ownership of Produced Water







"Case law strongly suggests that produced water is part of the groundwater estate and thus the property of the surface owner."

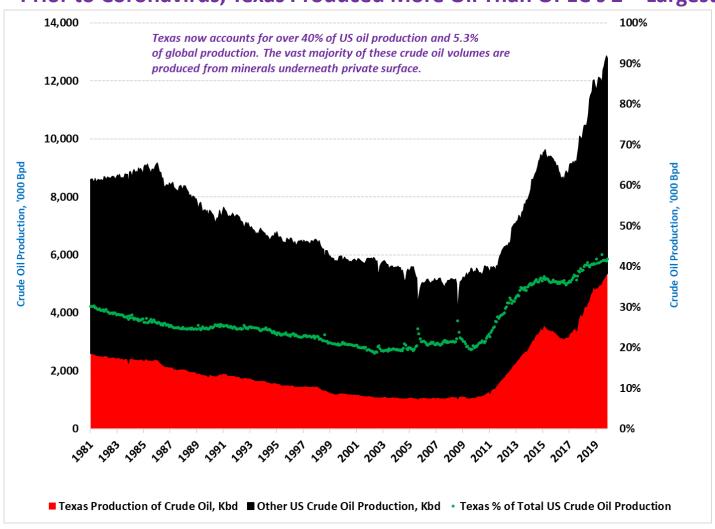
How will E&Ps selling water assets and dedications respond to this broad and growing legal consensus?



"For example, under Texas law, groundwater is defined as "water percolating below the surface of the earth." Like oil and gas, this water is real property when owned in place but becomes personal property at the wellhead (or when produced from the estate). Unless the mineral leases state otherwise, however, produced water is owned by the surface estate owner, and not the mineral estate owner...Given this bifurcated ownership framework in many oil and gas producing states, even if the groundwater in place is dedicated by the mineral estate owner, it most likely was not the mineral estate owner's to dedicate because it was not the mineral estate owner's real property to dedicate."

Protecting Water Owner Rights Supports Long-Term US Oil and Gas Development

Prior to Coronavirus, Texas Produced More Oil Than OPEC's 2nd Largest Member



- With few exceptions, Texas oil & gas production occurs on private surface.
- In the Permian Basin and other active play areas property owners are concerned about water rights issues and want to ensure that (1) their property is not being taken without appropriate compensation and (2) private ownership rights in underground water are not confiscated for the economic convenience of powerful interests.
- Maintaining landowner buy-in is critical to the industry's long-term social license to operate.
- Reasonable compensation to water owners for produced water monetization helps maintain this license.

Texas energy dynamism is completely compatible with compensating landowners when economic benefits are realized from produced water.

Thank you!