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# Texas Exempt Wells: Where Does Fracking Fit?

## ABSTRACT

*In the midst of a record-setting drought and an unprecedented oil and gas boom, an important question has arisen under Texas water law. Where do the water wells that supply fresh groundwater for the fracking process fit under the current Texas Water Code? Are these wells “exempt” under Texas Water Code section 36.117(b)(2) as water wells used solely for oil and gas drilling and exploration, which would excuse the wells from many requirements imposed on most other water wells? Specifically, must groundwater wells drilled for fracking comply with the groundwater conservation districts’ (GCDs) permitting requirements prior to drilling and operation? It remains uncertain whether such wells fall within the scope of section 36.117(b)(2), because fracking was not commonly used when Texas passed the current statutory exemption for oil and gas rig water supply wells in 1971. Moreover, GCDs disagree on whether fracking should be classified as drilling, exploration, or production, and, consequently, whether such wells are exempt from GCD requirements. This paper focuses on the scope of Texas Water Code section 36.117(b)(2) and whether this exempt well provision applies to groundwater wells that are drilled solely for use in hydraulic fracturing.*

## I. INTRODUCTION

Over the last decade, oil and gas producers have increasingly used hydraulic fracturing to stimulate oil and gas wells across the U.S. and in the State of Texas.<sup>1</sup> As more hydraulic fracturing occurs across Texas, the demand for fresh water to use in fracking grows correspondingly.<sup>2</sup> The “shale plays” that are the focus of increased fracking activity are often located in semi-arid environments.<sup>3</sup> Fresh groundwater in these areas is the main source of fresh water for various industries, including agricul-

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1. *U.S. Oil & Gas Production on the Rise Thanks to Fracking*, INSTITUTE FOR ENERGY RESEARCH (September 19, 2014), <http://instituteforenergyresearch.org/analysis/u-s-oil-gas-production-continues-increase-due-hydraulic-fracturing/>.

2. Kate Galbraith, *As Fracking Increases, So Do Fears About Water Supply*, N.Y. TIMES, March 8, 2013, at A21A, available at <http://www.nytimes.com/2013/03/08/us/as-fracking-in-texas-increases-so-do-water-supply-fears.html?pagewanted=all>.

3. *Id.*

ture and oil and gas.<sup>4</sup> This has led to an interesting and important issue of Texas Water Law: Are wells drilled for hydraulic fracturing exempt from certain local groundwater conservation district requirements pursuant to the Texas Water Code?

Part II of this article provides a brief overview of the process of hydraulic fracturing. Next, in Part III, the article provides an overview of water use in fracking and the competition for freshwater where hydraulic fracturing is heavily occurring. In Part IV, the article discusses Texas Groundwater law, which is based upon the rule of capture and managed by local groundwater conservation districts (GCDs). Part V explains the provision in the Texas Water Code that exempts certain wells from most local regulations. Specifically, the article focuses on the statutory exemption for water wells used in “drilling or exploration operations for an oil or gas well.”<sup>5</sup> Part VI discusses whether fracking operations qualify as “drilling or exploration operations for an oil or gas well” or, rather, if fracking operations fall outside the scope of this description. Part VII discusses policy implications surrounding the current statutory exemption, including its impact on GCD attempts to comply with separate statutory mandates to manage groundwater use. Part VIII concludes that, despite legislative attempts to clarify the exemption, the statutory language conundrum remains unresolved. Given the legislature’s emphasis on water management, GCDs should, at a minimum, have authority to require that oil and gas producers monitor and report their groundwater usage to GCDs. Regardless of different opinions, every interest would benefit from legislative guidance and a clear explanation of whether water wells drilled solely for use in the hydraulic fracturing process are “exempt” under the Texas Water Code.

## II. HYDRAULIC FRACTURING

Hydraulic fracturing, more commonly known as fracking, “is now essential to economic production of oil and gas and commonly used throughout Texas, the United States, and the world.”<sup>6</sup> Hydraulic fracturing is a process used to stimulate oil and gas production that involves pumping pressurized fluids (called frac fluids) and proppants (substances, such as sand, that keep the fractures open) down a wellbore to create or restore fractures in a target geologic formation.<sup>7</sup> To begin the

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4. *Id.*

5. TEX. WATER CODE ANN. § 36.117(b)(2) (West 2008).

6. *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1, 7 (Tex. 2008).

7. Monika Ehrman, *The Next Great Compromise: A Comprehensive Response to Opposition Against Shale Gas Development Using Hydraulic Fracturing in the United States*, 46 TEX. TECH L. REV. 423, 432–33 (Winter 2014) (citations omitted).

fracking process, the operator drills a well and completes it with steel casing “to prevent fluids from escaping into the natural formation.”<sup>8</sup> Next, the operator pumps a wireline down the hole where a fracture is desired.<sup>9</sup> After the operator sets a plug to isolate the desired area for a fracture, the operator perforates the steel casing, which allows the fracturing fluid to enter the formation.<sup>10</sup> The operator then pulls out the wireline, and the well is ready to undergo fracturing.<sup>11</sup> The operator then pumps fresh water along with a friction reducer to break down the formation and create an area for the proppant to fill.<sup>12</sup> Many in the industry refer to fracking as a well-completion simulation technique.<sup>13</sup>

The high pressure injection of water and other materials creates a fracture in the shale formation, releasing oil or natural gas stored in small pockets.<sup>14</sup> The fractures create increased surface area within the reservoir, expanding the productive area of the formation. The result is a faster recovery of a larger volume of oil or gas-in-place at a lower cost.<sup>15</sup> Although fracking was first used commercially in the late 1940s,<sup>16</sup> oil and gas operators now use it extensively in oil and gas formations that were once considered inaccessible.<sup>17</sup>

### III. THE IMPACT OF GROUNDWATER USE FOR FRACKING

In the wake of increased oil and gas production, extensive use of groundwater in the fracking process, and a severe drought across Texas over the last several years, the issue of whether water wells for fracking are exempt from groundwater district permitting affects more than just the oil and gas sector. Increased competition for groundwater among industries and user groups has brought this issue to a head, and an increasing number of parties want to know where water wells drilled for

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8. Aaron Vera, *Texas Water Use, Mandatory Fluid Component Disclosures, and State Regulations on Hydraulic Fracturing*, 7 ENV'T'L & ENERGY L. & POL'Y J. 112, 116 (2012).

9. *Id.*

10. *Id.*

11. *Id.*

12. *Id.*

13. *See, e.g., id.*

14. Holly A. Vandrovec, *The Fight Over Fracking: Recent Hydraulic Fracturing Litigation in Texas*, 74 TEX. B.J. 390, 390 (2011).

15. *Water Use in Association with Oil and Gas Activities*, R.R. COMM'N OF TEX., <http://www.rrc.state.tx.us/about-us/resource-center/faqs/oil-gas-faqs/faq-water-use-in-association-with-oil-and-gas-activities/> (last updated Sep. 18, 2014).

16. *E.g., Coastal Oil & Gas Corp.* 268 S.W.3d at 7; Vera, *supra* note 8, at 116.

17. Taelor A. Allen, *The South Texas Drought and the Future of Groundwater Use for Hydraulic Fracturing in the Eagle Ford Shale*, 44 ST. MARY'S L. J. 487, 492 (2013) (citing FREEING UP ENERGY, HYDRAULIC FRACTURING: UNLOCKING AMERICA'S NATURAL GAS RESOURCES, API ENERGY, 3 (June 19, 2010)).

fracking fall under the Texas Water Code. This section will discuss the impact hydraulic fracturing is having on Texas' current oil and gas production; the quantity of groundwater used for frack wells; the interest of local GCDs in determining whether water wells for fracking have to be permitted; and the interest among other industries facing increasing competition for groundwater, based, at least in part, on continued drought and increased energy production.

### A. Texas Oil and Gas Production and Hydraulic Fracturing

Advances in hydraulic fracturing since the 1940s have led to a modern-day energy revolution. Since 1997, there has been exponential growth in the U.S. natural gas production and reserves from shale plays.<sup>18</sup> In 2000, shale gas production had started to increase, but it still represented only 2 percent of the natural gas produced domestically that year.<sup>19</sup> By 2012, shale gas production had grown to 29 percent of the total U.S. natural gas production.<sup>20</sup> Shale gas production is estimated to continue to increase at a rate of growth such that domestic natural gas production will outpace domestic consumption by 2020.<sup>21</sup> Even more promising are the estimates of oil shale reserves. The U.S. Geological Survey estimates that U.S. unconventional oil shale formations hold 2.6 trillion barrels of oil.<sup>22</sup>

The Texas oil and gas industry is a primary contributor to these national statistics. Texas is the nation's number one oil and gas producer, with more than 270,000 active oil and gas wells statewide.<sup>23</sup> The number of oil wells completed in 2013 reached its highest level in over 40 years, with 19,249 wells completed during the year.<sup>24</sup> Total crude oil and natural gas production in Texas is also increasing. In 2013, over 750 million

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18. John D. Furlow & Corinne V. Snow, *In the Wake of the Shale Revolution: A Primer on Hydraulic Fracturing Fluid Chemical Disclosure*, 8 TEX. J. OIL GAS & ENERGY L. 249, 251–52 (2013).

19. *Id.* at 252.

20. *Id.*

21. *Id.*

22. *Id.* at 253.

23. *Natural Gas Production and Well Counts (since 1935)*, R.R. COMM'N OF TEX., <http://www.rrc.state.tx.us/oil-gas/research-and-statistics/production-data/historical-production-data/natural-gas-production-and-well-counts-since-1935/> (last updated Oct. 20, 2014, 8:43 AM); *Crude Oil Production and Well Counts (since 1935)*, R.R. COMM'N OF TEX., <http://www.rrc.state.tx.us/oil-gas/research-and-statistics/production-data/historical-production-data/crude-oil-production-and-well-counts-since-1935/> (last updated Oct. 20, 2014, 9:02 AM).

24. *Texas Drilling Statistics*, R.R. COMM'N OF TEX., <http://www.rrc.state.tx.us/media/19846/txdrillingstats.pdf> (last updated June 4, 2014, 3:13 PM).

barrels of crude oil were produced in Texas,<sup>25</sup> compared to 397.2 million barrels in 2006.<sup>26</sup> An industry-funded economic analysis conducted by the University of Texas at San Antonio Institute for Economic Development estimates that by 2020, the shale production activities in Texas could account for almost 70,000 jobs and \$22 billion in overall revenues, about \$1 billion of which will go to the state and a half billion of which will go to local governments.<sup>27</sup>

South Texas is one of the most active regions for production. Underlying twenty-three counties and six million acres in South Texas is a shale oil and gas formation known as the Eagle Ford Shale. First discovered in 2008, drilling, exploration, and production activities have increased in the Eagle Ford Shale year after year, with an estimated 420,000 barrels per day produced in the spring of 2013.<sup>28</sup> The Eagle Ford Shale's popularity and increased production is due, in part, to its capability to produce both oil and gas—a unique characteristic among shale plays.<sup>29</sup>

## B. The Quantity of Water Used in Hydraulic Fracturing

Despite these advances, hydraulic fracturing is not without its critics. One criticism of the increased use of fracking in oil and gas production across Texas is that the process uses significant amounts of fresh groundwater, to the detriment of other fresh groundwater users. Water is the largest component of fracturing fluid.<sup>30</sup> Typically, 98–99 percent of the fracturing fluid is comprised of water.<sup>31</sup> The exact quantity of water used varies from well to well and across shale plays, but generally speaking, millions of gallons of water are used to frack a single well.<sup>32</sup> This rate of water use raises eyebrows when discussing the impact of fracking on fresh groundwater supplies.

25. *Texas Monthly Oil and Gas Production*, R.R. COMM'N OF TEX., <http://www.rrc.state.tx.us/oil-gas/research-and-statistics/production-data/texas-monthly-oil-gas-production/> (last updated Jan. 20, 2015, 9:26 AM).

26. TEX. COMPTROLLER OF PUB. ACCOUNTS, *THE ENERGY REPORT 40* (2008), available at <http://www.window.state.tx.us/specialrpt/energy/pdf/96-1266EnergyReport.pdf>.

27. Rick Spruill, *Water Availability, Not Contamination, Worries Residents Above Eagle Ford Shale*, CORPUS CHRISTI CALLER, Oct. 15, 2011, available at <http://www.caller.com/news/2011/oct/15/water-availability-not-contamination-worries/>.

28. R.T. Dukes, *Eagle Ford Oil Production Up 70% in January 2013*, EAGLE FORD SHALE (Mar. 28, 2013), <http://eaglefordshale.com/news/eagle-ford-oilproduction-january-2013/>.

29. *Eagle Ford Shale Information*, R.R. COMM'N OF TEX., <http://www.rrc.state.tx.us/oil-gas/major-oil-gas-formations/eagle-ford-shale/> (last updated Feb. 19, 2015, 5:34 PM).

30. Ehrman, *supra* note 7, at 432.

31. *Id.*

32. Kate Galbraith, *In Texas, Water Use for Fracking Stirs Concerns*, THE TEXAS TRIBUNE, Mar. 8, 2013, available at <https://www.texastribune.org/2013/03/08/texas-water-use-fracking-stirs-concerns/>.

Before fracking, a driller would use approximately 163,000 gallons per well in the drilling process.<sup>33</sup> Fracking, however, has greatly increased the amount of water necessary per well across the state. For example, wells within the Barnett Shale region used a minimum 1,000,000 gallons of water per well in 2011.<sup>34</sup> Within this same region, water use can escalate to over 8.25 million gallons of water per well.<sup>35</sup> By comparison, the quantity of water used for fracking in the Eagle Ford Shale can vary from between 2 million gallons of water per well to over 13 million gallons of water per well because of the unique geography of the region.<sup>36</sup> In both regions, water use for oil and gas production has significantly increased due to fracking.

The quantity of water used by the energy sector, and specifically by oil and gas operators in fracking wells, is substantial. However, when viewed in light of the total amount of water used by other major industries, the oil and gas sector is still responsible for only a small percentage of the total amount of groundwater consumed.<sup>37</sup> The 2012 State Water Plan, published by the Texas Water Development Board (TWDB), provides some insight into the relative demands placed on groundwater by various industries. According to the Plan, irrigation accounts for the largest share of the state's total current groundwater demand, using approximately 3.5 million acre feet per year.<sup>38</sup> Municipal water use is currently the second largest share of water demand in the state, accounting for approximately 3 million acre feet per year.<sup>39</sup> In comparison, based on the 2012 Water Plan data, total groundwater use for mining (including hydraulic fracturing) represents less than 1 percent of statewide groundwater demand.<sup>40</sup> Furthermore, some water use comparisons across in-

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33. *Hearing on S.B. 873 Before the S. Comm. on Nat. Res.*, 2013 Leg., 83rd Sess. at 1:31:38 (Tex. 2013) [hereinafter *Hearing on S.B. 873*] (testimony of Mike Mahoney, General Manager Evergreen Underground Water Conservation District), available at [http://tlcsenate.granicus.com/MediaPlayer.php?view\\_id=9&clip\\_id=389](http://tlcsenate.granicus.com/MediaPlayer.php?view_id=9&clip_id=389).

34. J. Daniel Arthur, President/Project Manager of All Consulting, *Water Management Planning in the Eagle Ford Shale Play*, Presentation at the Society of Petroleum Engineers for the Eagle Ford Shale Technical Workshop 11 (Aug. 24–26, 2011), available at <http://www.all-llc.com/publicdownloads/ALLEagleFordWMP082411.pdf>.

35. *Id.* at 11.

36. *Id.*; Michael Barajas, *Texas Fracking Critics Tour the Eagle Ford as Complaints of Contamination Surface*, SAN ANTONIO CURRENT, June 21, 2011, available at <http://sacurrent.com/texas-fracking-critics-tour-the-eagle-ford-as-complaints-of-contamination-surface-1.1165133?pgno=3>.

37. *Water Use in Association with Oil and Gas Activities*, *supra* note 14 (citing 2012 Texas State Water Plan, <http://www.twdb.state.tx.us/waterplanning/swp/2012/>).

38. 2012 STATE WATER PLAN, TEXAS WATER DEVELOPMENT BOARD 141, available at [http://www.twdb.state.tx.us/publications/state\\_water\\_plan/2012/06.pdf](http://www.twdb.state.tx.us/publications/state_water_plan/2012/06.pdf).

39. *Id.*

40. *Id.*

dustries estimate that the water needed to fracture one well, on average between three and five million gallons, equals the same amount needed to water one golf course every 22 days or to power one 1,000 megawatt coal-fired power plant for less than 11 hours.<sup>41</sup>

Despite the relatively small percentage of total water used for fracking compared to other industries and the differences in water used among various oil and gas formations subject to fracking, the use of fracking has significantly increased the total amount of water necessary for oil and gas production. The amount of water used by the oil and gas sector more than doubled from 2008 to 2011.<sup>42</sup> The total use of water for fracking in Texas rose by 125 percent from 2008 to 2011.<sup>43</sup> In 2011, Texas used more barrels of water for oil and natural gas fracking (about 632 million) than barrels of oil produced in Texas (about 441 million).<sup>44</sup> This increased use of water is due to both the significant increase in water used per frack well and the increase in overall oil and gas activity in Texas.<sup>45</sup> Projections regarding oil and gas production and groundwater use estimate the quantity of groundwater used in oil and gas production will nearly double again by 2060.<sup>46</sup> Therefore, this increased demand on water is having a state-wide impact, even though groundwater used for fracking is often dismissed as a “small percentage” of the overall groundwater use picture.

As the 2012 Water Plan acknowledged, in some localized areas, the demand from mining on groundwater can pose more of an issue to that region’s water supply. In GCDs with hydraulic fracturing occurring within their jurisdictions, nearly three-fourths report impacts to groundwater as a result of fracking activity.<sup>47</sup> As indicated above, in areas such as South Texas where the Eagle Ford Shale play is located, this increased demand is significant; many historical groundwater users report a noticeable effect on their ability to withdraw groundwater since oil and gas production activity increased in the area.<sup>48</sup> A 2011 study of Dimmitt, Webb, and LaSalle counties—all located in the Eagle Ford Shale—found that mining (primarily hydraulic fracturing) used more than 50 percent

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41. Ehrman, *supra* note 7, at 447.

42. Galbraith, *supra* note 32.

43. Kate Galbraith, *Texas Study Finds Increase in Water Used for Fracking*, THE TEXAS TRIBUNE (May 5, 2014).

44. Galbraith, *supra* note 32.

45. Galbraith, *supra* note 43.

46. 2012 STATE WATER PLAN, *supra* note 38 at, 179.

47. See Stacey A. Steinbach, *83rd Texas Legislative Wrap-Up*, 4 TEX. WATER J. 44, 44 (2013).

48. Galbraith, *supra* note 32.



of the counties' total water use.<sup>49</sup> In this same area, another study found that fracking reduces the amount of water in the major Carrizo-Wilcox Aquifer by the equivalent of one-third of the aquifer's recharge.<sup>50</sup>

Additionally, generally speaking, water used in connection with hydraulic fracturing is referred to as "consumptive use" of water. While some of the water used will return to the water supply, a significant portion of the water used will never return. Rather, this water remains either in the oil or gas well, or is injected into a disposal well. And, of the small amount returned, often times that water does not return to its basin of origin.<sup>51</sup> That is, consumptive use of water interferes with the normal recharge process associated with the groundwater production cycle.<sup>52</sup>

Therefore, in today's drought-stricken Texas,<sup>53</sup> with the substantial increase in the quantity of groundwater withdrawn by oil and gas operators for use in hydraulic fracturing coupled with the consumptive nature of this type of water use, it is no longer a viable solution to merely point at the low percentage of water that is used for oil and gas production compared to other industries. The increasing quantity of consumptive use is currently decreasing the total amount of available groundwater.<sup>54</sup> Thus, the determination of whether groundwater wells used for fracking are exempt under the Texas Water Code will impact all water users, not just those in the oil and gas industry.

#### IV. TEXAS GROUNDWATER LAW

In order to explore the issue of whether groundwater wells drilled for fracking purposes are exempt wells under Texas law, it is necessary to review Texas groundwater law.

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49. Galbraith, *supra* note 32.

50. Galbraith, *supra* note 32.

51. Jason Schumacher & Jennifer Morrissey, *The Legal Landscape of Fracking: The Oil and Gas Industry's Game Changing Technique is its Biggest Hurdle*, 17 TEX. REV. L. & POL. 239, 250-51 (Spring 2013).

52. See HEATHER COOLEY & KRISTINA DONNELLY, PACIFIC INSTITUTE, HYDRAULIC FRAC- TURING AND WATER RESOURCES: SEPARATING THE FRACK FROM THE FICTION, 15-16 (Nancy Ross & Paula Luu eds., 2012), available at <http://pacinst.org/wp-content/uploads/sites/21/2014/04/fracking-water-sources.pdf> ("[M]uch of the water injected underground is either not recovered or is unfit for further use once it is returned to the surface, usually requiring disposal in an underground injection well. This water use represents a 'consumptive' use if it is not available for subsequent use within the basin from which it was extracted.").

53. Allen, *supra* note 17, at 505 ("During August 2011, a devastating 96% of [Texas] experienced at least extreme drought conditions.").

54. See COOLEY & DONNELLY, *supra* note 52, at 16 (noting consumptive use when water is injected underground and conflicts created by water use in hydraulic fracturing).

### A. The Rule of Capture

Texas groundwater law is generally based upon the “rule of capture” arising from English Common Law. Under the basic rule of capture, outlined in *Houston & T.C. Ry. Co. v. East*, a landowner is entitled to reasonably capture and produce water from beneath his property, even if the effect of drilling a well harms his neighbor.<sup>55</sup> The Texas Supreme Court explained that adopting the rule of capture was appropriate in Texas jurisprudence “because the existence, origin, movement and course of [groundwater], and the causes which govern and direct [its movement], are so secret, occult, and concealed . . . [that] an attempt to administer any set of legal rules . . . would . . . be practically impossible.”<sup>56</sup>

Following *East*, under Texas groundwater law, a surface owner was able to use as much groundwater as he or she could capture and bring to the surface. The Texas Supreme Court has continually affirmed the application of the rule of capture, despite several challenges, attempts, and advocates in favor of adopting the alternative doctrine of reasonable use.<sup>57</sup>

### B. Exceptions to the Rule of Capture

Since the *East* opinion, a series of well-recognized exceptions to the absolute right of capture have been recognized and adopted by Texas case law and legislative measures. For example, a landowner may not maliciously take groundwater for the sole purpose of injuring his neigh-

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55. *East* 81 S.W. at 280. (“That the person who owns the surface may dig therein and apply all that is there found to his own purposes, at his free will and pleasure; and that if, in the exercise of such right, he intercepts or drains off the water collected from the underground springs in his neighbor’s well, this inconvenience to his neighbor falls within the description of *damnum absque injuria*, which cannot become the ground of an action.”). The legal maxim, “*damnum absque injuria*,” denotes a loss without an injury in the legal sense, i.e., without the invasion of a legal right or violation of a legal duty. *Friendswood Dev. Co. v. Smith-Southwest Industries*, 576 S.W.2d 21, 25 (Tex. 1978) (citations omitted). In *East*, the plaintiff landowner sued Houston & Texas Central Railroad Company for damages he sustained due to the railroad drilling a water well on property adjacent to the plaintiff’s property. The plaintiff alleged that the well on his own property “dried up” after the railroad began pumping 25,000 gallons of water per day from its well on the adjacent property, and as a result no longer provided plaintiff with adequate water for domestic and household uses. 81 S.W. at 280.

56. *East*, 81 S.W. at 281. As a result of the court’s adoption of the rule of capture in *East*, the court held that no cause of action for damages had been alleged by the plaintiff, and the railroad’s actions were “legitimate” and “reasonable.” 81 S.W. at 281–82.

57. See *Sipriano v. Great Spring Waters of America, Inc.*, 1 S.W.3d 75 (Tex. 1999); *Friendswood Dev. Co.*, 576 S.W.2d 21; Allen, *supra* note 17, at 500.

bor; nor may a landowner "wantonly or willfully" waste groundwater.<sup>58</sup> The absolute ownership of groundwater in Texas is further limited by the "subsidence exception,"<sup>59</sup> limiting capture where negligent withdrawals of groundwater cause the property of others to gradually sink, and the "underground river exception,"<sup>60</sup> which prevents a landowner from ownership of water in an underground stream.

Another major limitation to the rule of capture is found in article XVI, section 59 of the Texas Constitution. Following the statewide droughts of 1910 and 1917, the people of Texas adopted the "Conservation Amendment" to the Texas constitution, now article XVI, section 59 of the Texas Constitution.<sup>61</sup> The provision provides: "The conservation and development of all of the natural resources of this State . . . and the preservation and conservation of all such natural resources of the State are each and all hereby declared public rights and duties; and the Legislature shall pass all such laws as may be appropriate thereto."<sup>62</sup> By virtue of this constitutional amendment, the Texas legislature was given the right and the duty to pass all such laws necessary to manage the state's natural resources, including groundwater, and in effect, was authorized to enact limitations to the absolute rule of capture.<sup>63</sup>

The Texas Legislature's first exercise of this constitutional authority occurred in 1949 with the passage of the Groundwater Conservation District Act of 1949.<sup>64</sup> Among other provisions, the Act permitted land-

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58. See *Friendswood Dev. Co.*, 576 S.W.2d at 26 (indicating that when the Texas Supreme Court adopted the English common law rule of absolute capture it also adopted common law limitations, including that an owner may not maliciously take water for the sole purpose of injuring his neighbor or wantonly and willfully waste it); *City of Corpus Christi v. City of Pleasanton*, 276 S.W.2d 798, 801 (Tex. 1995).

59. See *Friendswood Dev. Co.*, 576 S.W.2d at 30 (announcing that the rule of capture would be limited in future cases, in those scenarios where negligent withdrawals of groundwater proximately cause subsidence to others' property).

60. *Texas Co. v. Burkett*, 296 S.W. 273, 278 (Tex. 1927); *Pecos County Water Control & Improvement Dist. No. 1 v. Williams*, 271 S.W.2d 503, 505 (Tex. Civ. App. 1954); *Denis v. Kickapoo Land Co.*, 771 S.W.2d 235, 237 (Tex. App. 1989) (explaining that the underground river exception applies if an underground stream has defined channels and the landowner does not have exclusive rights to the water in the stream).

61. TEX. CONST. art. XVI, § 59(a); *Sipriano*, 1 S.W.3d at 77; *Barshop v. Medina Co. Underground Water Conservation Dist.*, 925 S.W.2d 618, 626 (Tex. 1996).

62. TEX. CONST. art. XVI, § 59(a).

63. *Sipriano*, 1 S.W.3d at 75; see *City of Corpus Christi*, 276 S.W.2d at 803; see also *Friendswood Dev. Co.*, 576 S.W.2d at 30 (explaining that "[p]roviding policy and regulatory procedures" in the field of groundwater ownership and use law is a proper legislative function, because "courts are not equipped to regulate ground water uses and subsidence on a case-by-case basis").

64. Groundwater Conservation District Act of 1949, ch. 306, 1949 Tex. Gen. Laws 559; *Sipriano*, 1 S.W.3d at 79.

owners to petition to create local groundwater conservation districts that would exist and serve to, among other things, regulate groundwater production.<sup>65</sup>

It was later codified as Chapter 52 of the Texas Water Code.<sup>66</sup> Generally speaking, the provisions codified into Chapter 52 were “designed to limit the exercise of that portion of the English rule which has been interpreted as giving each landowner the right to take all the water he pleases without regard to the effect on other lands in the same area.”<sup>67</sup>

In 1995, the Texas Legislature amended and reorganized several provisions within the Texas Water Code, including the creation of Chapter 36 of the Texas Water Code, designed to specifically address GCDs.<sup>68</sup> In 1997, the Texas Legislature enacted Senate Bill 1, which provided more authority to GCDs across the state and clarified that groundwater conservation districts are “the state’s preferred method of groundwater management.”<sup>69</sup>

Today, groundwater use and ownership is a balance between the traditional rule of capture and the recognized exceptions to that rule, including the authority of GCDs under Chapter 36 of the Texas Water Code.<sup>70</sup>

### C. Texas Groundwater Conservation Districts

GCDs are Texas’ preferred method of groundwater management.<sup>71</sup> GCDs are political subdivisions of the state of Texas and may be confined to one county or, if approved by a majority of voters in a multi-county area, may span multiple counties or municipalities.<sup>72</sup> Currently,

65. *Edwards Aquifer Authority v. Day*, 369 S.W.3d 814, 833–34 (Tex. 2012).

66. TEX. WATER CODE ANN. §§ 52.001 to 52.548 (West 2011) (repealed 1995).

67. *Friendswood Dev. Co.*, 576 S.W.2d at 29–30.

68. Acts 1995, 74th Leg., ch. 933, § 6 (relating to the regulation of groundwater); Acts 1995, 74th Leg., ch. 933, § 6 (relating to the regulation of groundwater).

69. TEX. WATER CODE ANN. § 36.0015 (West 1997 as amended through 2001); see also Martin Hubert, *Senate Bill 1, The First Big and Bold Step Toward Meeting Texas’s Future Water Needs*, 30 TEX. TECH. L. REV. 53, 65 (1999) (stating that “[Senate Bill] 1 expressly recognizes that groundwater conservation districts are the state’s preferred method of groundwater management”).

70. TEX. WATER CODE § 36.002; TEX. WATER CODE § 36.0015.

71. TEX. WATER CODE § 36.0015; see *Sipriano*, 1 S.W.3d at 81 (J. Hecht, concurring) (noting that, at that time, “such districts are not just the preferred method of groundwater management, they are the only method presently available”).

72. TEX. WATER CODE § 36.012. The High Plains Underground Water Conservation District No. 1 is the oldest groundwater conservation district in Texas and is also the largest. Created in 1951, the district is now composed of 16 counties and serves an area of 11,850 square miles or 7,587,359 acres. *History*, HIGH PLAINS WATER DIST., <http://www.hpwd.org/about/> (last visited Apr. 27, 2015).

Texas has 98 established GCDs managing an estimated 90 percent of the groundwater produced in the state.<sup>73</sup> GCDs cover all or part of 177 of the 254 counties in Texas.<sup>74</sup>

A GCD's groundwater management and regulatory authority is broad. Chapter 36 sets out certain state statutory provisions that all GCDs are required to follow. For example, each district must develop a groundwater management plan every five years.<sup>75</sup> GCDs are also granted rule-making power<sup>76</sup> and regulatory authority over items including, but not limited to, requiring and setting groundwater well spacing distances,<sup>77</sup> setting groundwater production limits,<sup>78</sup> record keeping and reporting,<sup>79</sup> closing open or uncovered wells,<sup>80</sup> and preventing groundwater waste.<sup>81</sup>

In addition, by statute, GCDs must require that most parties seeking to drill wells first obtain a permit to do so.<sup>82</sup> There are exceptions to

73. *Groundwater Conservation District Facts*, TEXAS WATER DEVELOPMENT BOARD, [http://www.twdb.state.tx.us/groundwater/conservation\\_districts/facts.asp](http://www.twdb.state.tx.us/groundwater/conservation_districts/facts.asp) (last visited Feb. 14, 2015); MARY K. SAHS, *THE ROLE OF GROUNDWATER CONSERVATION DISTRICTS IN SALES AND EXPORTS* 1 (2004).

74. *Groundwater Conservation District Facts*, *supra* note 73.

75. TEX. WATER CODE § 36.1072(e); *see also* TEX. WATER CODE § 36.1071 (stating that a district's groundwater management plan should address water supply needs, the amount of water estimated to be used annually within the district, the amount of water estimated to be recharged annually within the district, and the district's groundwater management goals).

76. TEX. WATER CODE § 36.101(a).

77. TEX. WATER CODE §§ 36.101(a), 36.116(a)(1).

78. TEX. WATER CODE §§ 36.101(a), 36.116(a)(2).

79. TEX. WATER CODE § 36.111.

80. TEX. WATER CODE § 36.118.

81. TEX. WATER CODE § 36.101(a).

82. *See* TEX. WATER CODE § 36.113 (providing, in part, "[e]xcept as provided by Section 36.117, a district shall require a permit for the drilling, equipping, operating, or completing of wells or for substantially altering the size of wells or well pumps"); *see also* TEX. WATER CODE § 36.115(a) ("No person, firm, or corporation may drill a well without first obtaining a permit from the district."); TEX. WATER CODE § 36.119(a) ("Drilling or operating a well or wells without a required permit or producing groundwater in violation of a district rule adopted under Section 36.116(a)(2) is declared to be illegal, wasteful per se, and a nuisance.").

In acting on permit requests, a district is required to consider factors such as whether "the proposed use of water unreasonably affects existing groundwater and surface water resources or existing permit holders;" whether "the proposed use of water is dedicated to any beneficial use;" and whether "the proposed use of water is consistent with the district's approved management plan." TEX. WATER CODE § 36.113(d)(2)-(4); *see also* *Edwards Aquifer Auth. v. Day*, 369 S.W.3d 814, 835 (Tex. 2012) (quoting TEX. WATER CODE § 36.1132(b)) (stating that a groundwater conservation district must consider groundwater availability prior to making its determination to issue permits, in order to meet its statutory

the permitting for certain types of wells.<sup>83</sup>

## V. TEXAS EXEMPT WELL STATUTE

GCDs are precluded from requiring that a surface owner obtain a permit prior to drilling or operating certain groundwater wells. These wells are often referred to as “exempt wells.”<sup>84</sup> The exempt well statute appears to be based on the idea that these types of wells either withdraw small quantities of water (e.g., domestic and livestock wells) or are only in use for a temporary period of time (e.g., rig supply wells) and, therefore, should not be subject to the normal permitting process.<sup>85</sup> A GCD’s authority to exempt wells from the permitting requirement is found in Texas Water Code section 36.117.

Section 36.117(b) sets forth those types of wells that a district *shall* exempt from the permitting requirement.<sup>86</sup> Those “exempt wells” include:

- (1) a well used solely for domestic use, or for providing water for livestock or poultry if the well is:
  - (A) located or to be located on a tract of land larger than 10 acres; and

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obligation to “manage total groundwater production on a long-term basis to achieve an applicable desired future condition”).

83. TEX. WATER CODE § 36.117.

84. These types of exempt well statutes are common across the West. Currently, sixteen states provide for exempt wells: Alaska, Arizona, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Washington, and Wyoming. See Jesse J. Richardson, Jr., *Existing Regulation of Exempt Wells in the United States*, 148 J. CONTEMP. WATER RES. & EDUC. 3, 3 (Aug. 2012). Although the specific exemptions differ by state, these statutes generally allow a landowner to drill a well for certain types of uses—such as domestic use or livestock watering—without obtaining a permit. The justification for recognizing these exempt wells generally relates to the concept that where small quantities of water are to be withdrawn by a well, it is not efficient to require that well owner to go through an expensive and time consuming permitting process. See John C. Tracy et al., *Exempt Wells: An Introduction*, 148 J. CONTEMP. WATER RES. & EDUC. 1, 1 (Aug. 2012). This benefits both those seeking to drill wells as well as the governmental entities administering the permitting process by decreasing the number of permit applications that must be considered by the agency. See *Judge’s Ruling Could Impact Domestic Well Permits*, ALBUQUERQUE JOURNAL ONLINE (July 12, 2008), <http://www.abqjournal.com/news/state/apwell07-12-08.htm> (noting that without the domestic well exemption, the New Mexico State Engineer predicts “the task of reviewing applications for new domestic wells could bog down the state agency and slow down the permitting process”).

85. See, e.g., TEX. WATER CODE § 36.117.

86. TEX. WATER CODE § 36.117. GCDs are allowed to expand the exemptions in their jurisdiction to include more than the types of wells listed in § 36.117 if they so choose. See § 36.117(a).

(B) drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater a day;

(2) *a water well used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas well permitted by the Railroad Commission of Texas provided that the person holding the permit is responsible for drilling and operating the water well and the water well is located on the same lease or field associated with the drilling rig; or*

(3) a water well authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, Natural Resources Code, or for production from the well to the extent that withdrawals are required for mining activities regardless of any subsequent use of the water.<sup>87</sup>

In 1971, the Texas legislature passed the first law related to exempt water wells for use by the oil and gas industry. Then-section 52.118(d) of the Texas Water Code provided that GCDs could not require a permit to drill a well to supply water for drilling any oil, gas, sulfur, or brine well permitted by the Railroad Commission of Texas.<sup>88</sup>

In 1981, the Texas Legislature added a provision clarifying that a GCD could not require a permit for a water well to supply water for hydrocarbon production, regardless of whether the oil and gas well was actually producing, so long as the oil and gas well was permitted by the RRC before September 1, 1985.<sup>89</sup> In 1995, the Texas Water Code was re-codified into Chapter 36, but substantive changes were not made to the provisions of the law related to water wells used by the oil and gas industry.<sup>90</sup> The statute was amended in 1997 to require that all water wells drilled after September 1, 1997 to supply water for hydrocarbon production activities must meet the spacing requirements of GCDs unless no space was available within 300 feet of the production well or injection station.<sup>91</sup>

Major revisions to the statute were enacted in 2001, removing the permit exception for “water wells to supply water for hydrocarbon pro-

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87. TEX. WATER CODE § 36.117(b) (emphasis added).

88. See TEX. WATER CODE § 52.118(d) (repealed).

89. See TEX. WATER CODE § 52.170(a)(4) (West 1985) (repealed) (emphasis added).

90. See Benjamin W. Seebree, *Evolution of Texas Law Pertaining to Groundwater Conservation Districts and the Oil and Gas Exploration and Production Industry*, 31:3 OIL, GAS & ENERGY RESOURCES LAW SECTION REPORT (State Bar of Texas, Austin) March 2007, at 5 (on file with author).

91. Act of June 19, 1997, ch. 1010, § 4.32(e), General and Special Laws of Texas 3610, 3648 (relating to the development and management of the water resources of the state and providing penalties) (current version at TEX. WATER CODE ANN. § 36.117 (West 2011)).

duction.”<sup>92</sup> In its place, the revised oil and gas exemption applied to “the drilling of water well(s) used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas well.”<sup>93</sup> Thus, the 2001 amendments essentially prohibit GCDs from requiring permits for water wells that solely supply water for a rig “actively engaged in drilling or exploration” for oil or gas, but allow GCDs to require permits for drilling all other water wells used by the oil and gas industry.<sup>94</sup>

Today, the exempt well statute still provides that a GCD may not require a permit for

the drilling of a water well used solely to supply water for a rig that *is actively engaged in drilling or exploration operations* for an oil or gas well permitted by the Railroad Commission of Texas provided that the person holding the permit is responsible for drilling and operating the water well and the well is located on the same lease or field associated with the drilling rig. . . .<sup>95</sup>

Although these water wells do not require a drilling permit, they may still be required to comply with certain GCD rules including registering with the district; following spacing regulations; utilizing required casing, pipes, and fittings; filing a driller’s log; and paying export fees where appropriate.<sup>96</sup>

## VI. INCONSISTENT STATUTORY INTERPRETATION

Across Texas, GCD boards and managers are struggling to determine whether they can require permits for water wells used for frack-

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92. Act of June 15, 2001, ch. 966, § 2.51(a)(4), General and Special Laws of Texas 1991, 2016 (relating to the development and management of water resources of the state, including the ratification of the creation of GCDs, and providing penalties) (current version at TEX. WATER CODE ANN. § 36.117 (West 2011)).

93. See *id.* § 2.51(a)(2).

94. See Sebree, *supra* note 89, at 7 (emphasis added) (on file with author).

95. The other types of wells for which permits may not be required are:

“a well used solely for domestic use or for providing water for livestock or poultry on a tract of land larger than 10 acres that is either drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater a day . . . [and] the drilling of a water well authorized under a permit issued by the Railroad Commission of Texas under Chapter 134, Natural Resources Code, or for production from such a well to the extent the withdrawals are required for mining activities regardless of any subsequent use of the water.”

TEX. WATER CODE § 36.117(b).

96. See TEX. WATER CODE § 36.117(f), (h), (i), (k).



ing.<sup>97</sup> Can GCDs require permitting and limit production from wells pumping water used for fracking, or are these wells exempt from GCD control? According to one GCD manager, the answer to that question “depends on which lawyer you talk to.”<sup>98</sup> To date, disputes between oil and gas companies and GCDs have been resolved just shy of judicial intervention.<sup>99</sup>

An informal survey of 63 GCDs in oil and gas producing areas was conducted by the Texas Association of Groundwater Districts in March 2013.<sup>100</sup> The study showed that of the 63 districts surveyed, 38 percent required permits for water wells used for fracking.<sup>101</sup> The remaining 62 percent of the districts treated these wells as exempt.<sup>102</sup>

Historically, GCDs across Texas have taken a cautious approach to regulation of rig supply wells, reading the section 36.117 exemption as a “hands off” provision applicable broadly to the oil and gas industry.<sup>103</sup> In light of the record-setting drought and increased water use in oil and gas production, however, some districts are considering adopting a different approach, and are more aggressively asserting that water wells drilled for fracking operations are not exempt.<sup>104</sup> For example, the Wintergarden GCD’s district secretary stated that the district “had been under the impression that the water used for fracking is exempt” from

97. Galbraith, *supra* note 32.

98. See Kate Galbraith, *Fracking Groundwater Rules Reflect Legal Ambiguities*, THE TEXAS TRIBUNE (March 13, 2013), <http://www.texastribune.org/2013/03/13/fracking-groundwater-rules-reflect-legal-ambiguity/>.

99. Colleen Schreiber, *Attorney Discusses Emerging Fracking, Groundwater Issues*, LIVE-STOCK WEEKLY (April 21, 2011), [http://www.jimberryranchsales.com/about/whats\\_new/Groundwaterissues\\_article\\_.html](http://www.jimberryranchsales.com/about/whats_new/Groundwaterissues_article_.html).

100. See James P. Allison, *Groundwater: Groundwater Conservation District Perspective* (Aug. 28, 2013) (on file with the author).

101. See *id.*; e.g., *District Rules*, PINEYWOODS GROUNDWATER CONSERVATION DISTRICT, available at <http://www.pgcd.org/rules> (considers fracking wells non-exempt and requires drilling and operation permits, monthly production data reporting, and payment of monthly production fees); John McFarland, *Groundwater Districts’ Regulation of Water Supply Wells – What Landowners Should Know*, OIL & GAS LAWYER BLOG (May 8, 2012), <http://www.oilandgaslawyerblog.com/?page=11>.

102. Allison, *supra* note 100; e.g., Panola County Groundwater Conservation District Rules.

103. McFarland, *supra* note 101; Mary K. Sahs, *Frac Water-Regulation of Quantity and Quality, and Reporting by Texas Groundwater conservation District in*, 13 CHANGING FACE OF WATER RIGHTS ch. 8 at 4 (Feb. 23, 2012).

104. See Allen, *supra* note 17, at 514; Mike Lee, *Parched Texans Impose Water-Use Limits for Fracking Wells*, BLOOMBERG BUSINESSWEEK (Oct. 6, 2011), <http://www.businessweek.com/news/2011-10-06/parched-texans-impose-water-use-limits-for-fracking-gas-wells.html#p2>.

permitting, but is now evaluating the ability to apply permitting rules given the increased water use in the Eagle Ford.<sup>105</sup>

Across the Eagle Ford Shale play, GCDs take opposite positions on this issue. A company seeking to drill a water well for fracking in the Evergreen GCD (Wilson, Frio, Atascosa, and Karnes counties) must obtain a permit from the GCD before drilling such a well, and must comply with the district's 652,000 gallon per acre per year production limitation.<sup>106</sup> The Evergreen GCD also requires well owners to provide monthly pumping reports.<sup>107</sup> In nearby Dimmitt County, one of the four counties in the Wintergarden GCD, the District rules do not require a permit before a company may drill a water well for use in the fracking process because the district believes that frack wells fall within the section 36.117(b) exemption.<sup>108</sup> Under a third approach, McMullen County GCD, located just south of the Evergreen GCD, reaches a middle ground by requiring frack well owners to register the wells and report water production to the district but not requiring owners to obtain pre-drilling permits.<sup>109</sup>

Similarly, in the Texas Panhandle, the North Plains Groundwater Conservation District currently treats water wells for fracking as exempt.<sup>110</sup> The GCD, however, is considering revising their policies related to wells used in the fracking process and may require, at a minimum, production reports from these wells.<sup>111</sup>

Simply put, without any legislative or judicial decision on this issue, GCDs can only make the best determination possible, district by district. As discussed in greater detail below, in light of this uncertainty, advocates on both sides of the issue have strong opinions on just what the proper interpretation of section 36.117(b) really is.

#### **A. In Favor of Frack Well Exemption**

Not surprisingly, the oil and gas industry champions the argument that water wells drilled for use in the fracking process should be considered exempt under Texas law. For example, the Texas Oil and Gas

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105. See Galbraith, *supra* note 98.

106. See *id.*; *District Rules*, EVERGREEN UNDERGROUND WATER CONSERVATION DISTRICT, available at <http://www.evergreenuwcd.org/rules.php>.

107. See Galbraith, *supra* note 98.

108. See *id.*

109. See *id.*

110. See Kate Galbraith, *Danny Krienke: The TT Interview*, THE TEXAS TRIBUNE (Feb. 28, 2013), <https://www.texastribune.org/2013/02/28/danny-krienke-tt-interview/>.

111. *Id.*

Association (TXOGA)<sup>112</sup> believes that fracking water wells are exempt from GCD permitting.<sup>113</sup> Cory Pomeroy, general counsel for TXOGA, testified that his organization believes “exploration” used in section 36.117(b)(2) includes completion and, therefore, hydraulic fracturing.<sup>114</sup> Under that argument and reasoning, TXOGA asserts that production does not occur until fracking has been completed, and therefore water wells used for fracking should be exempt from the section 36.113 permitting requirement.<sup>115</sup>

Those favoring an exemption also point to the fact that the Railroad Commission of Texas agrees with this position. “The RRC interprets the phrase ‘a rig that is actively engaged in drilling or exploration operations for an oil or gas well permitted by the commission’ to mean a drilling rig or a workover rig and interprets ‘exploration operations’ to include well completion and workover, including hydraulic fracturing operations.”<sup>116</sup>

The language previously used by the Texas Supreme Court arguably further supports this position. In its 2008 decision, *Guitar Holding Company, L.P. v. Hudspeth County Underground Water Conservation District*, the Court made the following statement, “[t]he Water Code requires permits for most wells, although exception is made for certain exempt wells, which generally include wells used for domestic purposes, livestock, and oil and gas *production*.”<sup>117</sup> This description of the statute—seemingly overbroad based on the actual language—may provide support for those who believe fracking should fall within the current exemption in section 36.117(b).

Finally, supporters of treating the current statutory provision as an exemption often claim that an the exemption would not significantly impact the state’s total groundwater use given the small amount of

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112. TXOGA is a state-wide trade association with over 5,000 members from all facets of the oil and gas industry. TEXAS OIL & GAS ASSOCIATION, <http://www.txoga.org>.

113. See Galbraith, *supra* note 98 (quoting TXOGA Executive Vice President, Deb Hastings).

114. *Exemption of a Water Well From Certain Permitting by and Compliance With Rules of a Groundwater Conservation District: Hearing on H.B. 1377 Before the S. Comm. on Nat. Res.*, 2013 Leg., 83rd Sess. at 00:57:12 (Tex. 2013) (testimony of Corey Pomeroy, General Council for Texas Oil and Gas Association), available at [http://tlcsenate.granicus.com/MediaPlayer.php?view\\_id=9&clip\\_id=389](http://tlcsenate.granicus.com/MediaPlayer.php?view_id=9&clip_id=389).

115. See *id.* at 00:58:00.

116. *E.g. Eagle Ford: Water Use*, R.R. COMM’N OF TEX., <http://www.rrc.state.tx.us/oil-gas/major-oil-gas-formations/eagle-ford-shale/wateruse/> (last visited Feb. 14, 2015).

117. *Guitar Holding Co., L.P. v. Hudspeth Cnty. Underground Water Conservation Dist.*, 263 S.W.3d 910, 912, n.2 (Tex. 2008) (emphasis added).

water used by the oil and gas industry—a mere 2 percent of the state’s total water use.<sup>118</sup>

## B. Opposed to Frack Well Exemption

Those opposed to viewing the statutory language as an exemption include the Texas Association of Groundwater Districts (TAGD) and several attorneys representing GCDs. According to the argument that frack wells are not exempt from the permitting requirement, the plain language of the statute shows that the legislature did not intend for the exemption to be so broad as to include continuing oil and gas operations like hydraulic fracturing.<sup>119</sup> Advocates explain that the statute applies only to water used for “drilling or exploration” activities as opposed to water used in oil and gas production.<sup>120</sup> They argue that fracking falls under the latter, as defined by various sources including the Environmental Protection Agency, the national chemical registry, FracFocus, and even the Texas Administrative Code. The Texas Administrative Code notes that fracking is used to “enhance *production* of oil and/or natural gas.”<sup>121</sup> The EPA defines fracking as a technique used in “unconventional *gas production*.”<sup>122</sup> FracFocus defines fracking as “technology that is frequently used in the *completion* of gas wells” and reiterates that it is not a drilling process.<sup>123</sup> Rather, hydraulic fracturing is used after the drilled hole is completed.<sup>124</sup>

The opponents of a broad exemption interpretation put forth a policy argument that water wells used for fracking should not be so broadly exempted based upon notions of fundamental fairness. They believe that the oil and gas industry should not be exempt from permitting requirements and associated regulations that must be followed by other users, such as agriculture, municipalities, and industry.<sup>125</sup> As then Texas Senator Robert Duncan asked the general counsel for the TXOGA during testimony given to the Senate Natural Resources Committee in the 2013 legislative session, “[W]hy would we hold these guys who actually own

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118. *Water Use in Association with Oil and Gas Activities*, *supra* note 14.

119. Steinbach, *supra* note 47, at 44; Allison, *supra* note 100.

120. See Galbraith, *supra* note 98.

121. 16 TEX. ADMIN. CODE § 3.29(a)(16) (2012) (emphasis added).

122. Allison, *supra* note 100 (emphasis added).

123. *A Historic Perspective*, FRAC FOCUS, <https://fracfocus.org/hydraulic-fracturing-how-it-works/history-hydraulic-fracturing> (last visited Feb. 6, 2015) (emphasis added); *Hydraulic Fracturing: The Process*, FRAC FOCUS, <http://fracfocus.org/hydraulic-fracturing-how-it-works/hydraulic-fracturing-process> (last visited Feb. 6, 2015) (emphasis added); Sahs, *supra* note 103, at 4.

124. *Hydraulic Fracturing*, *supra* note 123 (emphasis added); Sahs, *supra* note 103, at 4.

125. Steinbach, *supra* note 47.

the land to groundwater district rules, but [at the same time] exempt oil and gas companies that are going to do fracking operations from the same rules that our agricultural producers, who are going to live there forever, have to abide by?"<sup>126</sup> Another policy concern, discussed further in Part VI, is the ability of GCDs to carry out their statutorily-mandated reporting and planning duties without adequate information regarding the volume of water pumped by the oil and gas industry for fracking or without the power to limit this production.<sup>127</sup>

Finally, some argue that oil and gas operators' compliance with permitting rules in those districts imposing such a requirement, serves as evidence that even the oil and gas industry understands and acknowledges that the section 36.117(b)(2) exemption is limited.<sup>128</sup>

## VII. GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLANS

GCDs in Texas are charged with monitoring groundwater levels and, along with surface-water management entities, must develop comprehensive management plans. Management plans are intended to facilitate effective management of groundwater resources.<sup>129</sup> Put another way, a management plan describes a GCD's goals. A management plan provides information to the district and the groundwater users within the district on groundwater use, prevention of groundwater waste, and conservation and management strategies to meet desired future conditions (DFC's) for the management area.<sup>130</sup> A district must review its management plan and make any necessary changes at least once every five years.<sup>131</sup>

A GCD must include estimates of the modeled available groundwater in the district and the amount of groundwater used within the district on an annual basis.<sup>132</sup> Once a GCD develops and approves a management plan, the GCD is responsible for adhering to the plan and taking actions that are in accordance with the plan's goals and desired

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126. *Hearing on S.B. 873, supra* note 33, at 1:10:40 (statement of Sen. Robert Duncan, member, Sen. Comm. on Nat. Res.).

127. *See Galbraith, supra* note 110.

128. *See, e.g., Hearing on S.B. 873, supra* note 33, at 1:05:30 (statement of Sen. Glenn Hegar, member, Sen. Comm. on Nat. Res.).

129. *Groundwater Conservation Districts*, TEXAS WATER DEVELOPMENT BOARD, [www.twdb.texas.gov/groundwater/conservation\\_districts/](http://www.twdb.texas.gov/groundwater/conservation_districts/) (last visited Feb. 6, 2015).

130. 31 TEX. ADMIN. CODE § 356.52 (West 2012); *see* TEX. WATER CODE ANN. § 36.071 (West 2011); Adrian Shelley, *Fair, Effective, and Comprehensive: The Future of Texas Water Law*, 41 TEX. ENVTL. L.J. 47, 63 (2010).

131. TEX. WATER CODE § 36.1072(e).

132. TEX. WATER CODE § 36.1071(e)(3)(A), (B).

future conditions.<sup>133</sup> For example, a district must issue permits in a manner that corresponds with the management plan's goals.<sup>134</sup> A GCD's decision whether or not to issue permits, and the amount of groundwater production allowed under a particular permit is a component of its overall management plan.

In the context of determining whether or not to issue a permit, then, a GCD needs to know the amount of available groundwater in the district and the amount of groundwater used within the district on an annual basis. Arguably, in the absence of a GCD's ability to obtain this information from all of its users, a GCD's management plan and its decisions to issue permits to certain users will be flawed. It is conceivable that a GCD could grant permits in excess of the true amount of available groundwater if a GCD does not know the total amount of groundwater used within the district on an annual basis. If a GCD does not require an operator to provide production data and obtain a permit for water wells used for fracking, the GCD's ability to adopt and implement an effective groundwater management plan is impaired. Similarly, without the ability to impose production limits on exempt wells, GCDs may be unable to prevent overuse of groundwater in their area. GCDs have, to date, taken a cautious approach to this issue,<sup>135</sup> in part because districts fear legal action from oil and gas companies that claim water wells used for fracking are exempt.<sup>136</sup>

### VIII. RECOMMENDATIONS AND POSSIBLE ALTERNATIVES

Given the legislature's increased concern about water management and its explicit charge that GCDs gather groundwater usage data and develop comprehensive groundwater management plan recommendations, all classes of water users—including water wells used for fracking—should have to monitor and report their groundwater usage to GCDs. Such a requirement would enable GCDs to accurately account for possible negative impacts to a district's groundwater supply. As one commentator noted, “[a]t the very least, there should be a concerted effort to monitor groundwater levels as they relate to hydraulic fracturing to determine accurately whether fracing operations are actually having a significant impact on groundwater depletion.”<sup>137</sup>

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133. See TEX. WATER CODE §§ 36.1071, 36.1132, 36.1085.

134. TEX. WATER CODE § 36.1132.

135. McFarland, *supra* note 101.

136. *Hearing on S.B. 3317 Before the H. Nat. Res. Comm.*, 2013 Leg., 83rd Sess. at 1:17:43 (Tex. 2013) (testimony of Ty Embrey), available at [http://tlchouse.granicus.com/MediaPlayer.php?view\\_id=28&clip\\_id=6630](http://tlchouse.granicus.com/MediaPlayer.php?view_id=28&clip_id=6630).

137. Allen, *supra* note 17, at 527.

Without question, competition for water resources has increased over the last several years due to the prolonged, severe drought impacting much of the country, including Texas, and due to traditional and new demand sources from the agricultural, residential, municipal, power generation, industrial, and energy sectors.<sup>138</sup> The current drought was initially compared to the drought of the 1950s, long considered the “drought[ ] of record.”<sup>139</sup> However, the current drought has recently been characterized as the worst drought on record statewide since the state started keeping statistics on rainfall and moisture, well over 100 years ago.<sup>140</sup>

As water supplies continue to dwindle across Texas in regions where groundwater is the primary source of water, irrigators, municipalities, and other water users are prepared to assert their rights to the limited resource and to require all users to play by the same set of rules.<sup>141</sup> For example, in the Eagle Ford region, groundwater makes up approximately 70 percent of the region’s total water supply.<sup>142</sup> Any additional demand for water will likely have a direct impact on groundwater resources in these areas—resources that are continuing to diminish in the face of the current, severe drought.

Again, in areas such as South Texas, all classes of water users are facing increased uncertainty regarding whether there is enough groundwater available for all users in the midst of the current drought. Indeed, within the Carrizo and Gulf Coast Aquifer regions, landowners and agri-

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138. See Ehrman, *supra* note 7, at 446–50 (citing Dana Bohan, *Hydraulic Fracturing and Water Use: Get the Facts*, ENERGY IN DEPTH (July 16, 2013), available at <http://www.energy-inddepth.org/national/hydraulic-fracturing-and-water-use-get-the-facts/>).

139. Allen, *supra* note 17, at 488–89 (citing John W. Nielsen-Gammon, Office of the State Climatologist, *The 2011 Texas Drought: A Briefing Packet for the Texas Legislature* 3 (Oct. 31, 2011), available at [http://climatexas.tamu.edu/files/2011\\_drought.pdf](http://climatexas.tamu.edu/files/2011_drought.pdf)); Farzad Mashhood, *Current Drought Pales in Comparison with 1950s “Drought of Record,”* AUSTIN AM.-STATESMAN (Aug. 4, 2011), <http://www.statesman.com/news/news/local/current-drought-pales-in-comparison-with-1950s-d-1/nRdC5/>.

140. See Marty Toohey, *Water Official: Drought is Worst Central Texas Has Experienced*, AUSTIN AM.-STATESMAN (Oct. 3, 2013), <http://www.statesman.com/news/news/local/water-official-drought-is-worst-central-texas-has-/nbFQD/>; see also Joe Carroll, *Worst Drought in More Than a Century Strikes Texas Oil Boom*, BLOOMBERG BUSINESS (June 13, 2011), <http://www.bloomberg.com/news/2011-06-13/worst-drought-in-more-than-a-century-threatens-texas-oil-natural-gas-boom.html>.

141. Sanford Nowlin, *Drought May Hamper Eagle Ford Shale Production*, HOUS. BUS. J. (July 1, 2011), available at <http://www.bizjournals.com/houston/print-edition/2011/07/01/drought-may-hamper-eagle-ford-shale.html>; *Hearing on S.B. 873*, *supra* note 33, at 1:10 (questioning why different industries should face different rules).

142. TEX. WATER DEV. BOARD, *WATER FOR TEXAS: SUMMARY OF THE 2011 REGIONAL WATER PLANS L-1* (2011), available at <http://www.twdb.texas.gov/waterplanning/rwp/regions/doc/2011RWPLegislativeSummary.pdf>.

cultural producers are concerned about their ability to continue to use the same amount of water they have used in the past. They have further concerns about the availability of groundwater generally because of the additional burden that increased energy production has placed on groundwater demand in the region.<sup>143</sup>

GCDs were not designed to pick between winners and losers. Rather, GCDs are the state's preferred method of groundwater management, in large part because of their local control and ability to adjust to and account for each region's unique circumstances and provide reasonable solutions and goals for all groundwater users within a district. However, due to the uncertainty of the current exempt well statute, oil and gas users are becoming the *de facto* winners in most districts; all other industries dependent on groundwater will become the losers unless a the statute is clarified. In the face of this increasing competition for groundwater, the rules governing the use of groundwater must be clear, including the scope and application of Texas Water Code section 36.117(b)(2).

#### A. Legislative Attempts at Resolving the Issue

In response to the contradictory treatment of groundwater wells used for fracking by GCDs across Texas, in 2013, two Texas legislators introduced bills to "clarify" the issue. Senator Glenn Hegar, R-Katy, introduced Senate Bill 873 in the Eighty-Third Texas Legislature, proposing that GCDs be given authority to require permits for all water wells and withdrawals that would be used in fracking.<sup>144</sup> As the Texas Senate Research Center bill analysis explained,

Current law clearly provides an exemption from groundwater permitting for a domestic and livestock well under certain circumstances, an exploration well used for oil and gas, and mining wells . . . [but] . . . Chapter 36 does not speak to the permitting requirement for [a water well that provides water for] oil and gas well[s] engaged in hydraulic fracturing or fracking and this water intensive practice was never contemplated when Chapter 36 was created.<sup>145</sup>

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143. Tracy Idell Hamilton, *Drought Spurring Fracking Concerns*, SAN ANTONIO EXPRESS-NEWS (July 2, 2011), <http://www.mysanantonio.com/news/energy/article/Droughtspurringfrackingconcerns-1450808.php#page-2>.

144. Kate Galbraith, *Texas Senators Discuss Fracking Groundwater Rules*, THE TEX. TRIB., Apr. 2, 2013, available at <http://www.texastribune.org/2013/04/02/texas-senators-discuss-fracking-groundwater-rules/5>; Senate Research Center, Bill Analysis, S.B. 873, Mar. 28, 2013.

145. Senate Research Center, Bill Analysis, S.B. 873, Mar. 28, 2013.



Therefore, Senate Bill 873 was introduced to expressly give GCDs the authority to require a permit for water wells used in fracking.<sup>146</sup> As introduced, this bill would not have obligated GCDs to require permits for these types of water wells.<sup>147</sup> In the absence of such mandatory language, the question remains whether such a legislative measure would “clarify” or “resolve” the issue at all. Since some GCDs are already requiring permits for groundwater wells used in fracking while other GCDs are treating those water wells as exempt and falling under the current section 36.117(b)(2) exemption, it appears that Senate Bill 873 would not necessarily have resulted in any different GCD treatment of groundwater wells for fracking. Concededly, GCDs that are currently treating these types of water wells as exempt would have been able to continue to do so without fear of litigation; however, Senate Bill 873 would not have required GCDs to treat these types of wells consistently state-wide. Senate Bill 873 passed the Texas Senate; however, Senate Bill 873 did not advance out of the Texas House committee that was assigned the bill.<sup>148</sup>

During the same legislative session, Representative James Keffer, R-Eastland, introduced a separate bill in the Texas House of Representatives. House Bill 3317 proposed to permanently exempt all oil or gas water wells from permitting, including those used for fracking. The bill, as introduced, would have amended current section 36.117(b)(2) to instead provide:

(b) Except as provided by this section, a district shall provide an exemption from the district requirement to obtain a permit for:

(2) drilling a water well to supply water for drilling or exploration operations, including completions, for an oil or gas well permitted by the Railroad Commission of Texas provided that the person holding the permit is responsible for filling and operating the water well;<sup>149</sup>

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146. *Id.*; An Act relating to the permitting authority of a groundwater conservation district for the drilling or operation of a water well used to supply water for the drilling, exploration, or production of oil or gas, S.B. 873, 83rd Leg. Session, (Tex. 2013).

147. Galbraith, *supra* note 144 (explaining that S.B. 873, as introduced, was merely designed to give GCDs the authority to require permits “if they want to”); An Act relating to the permitting authority of a groundwater conservation district for the drilling or operation of a water well used to supply water for the drilling, exploration, or production of oil or gas, S.B. 873, 83rd Leg. Sess. (Tex. 2013).

148. Texas Legislature Online History of SB 873, 83rd Leg. Sess., 2013, available at <http://www.capitol.state.tx.us/BillLookup/History.aspx?LegSess=83R&Bill=SB873>.

149. An Act relating to the exemption of a water well from certain permitting by and compliance with rules of a groundwater conservation district, H.R. 3317, 83rd Leg. Sess., 2013.

Operating under the characterization that hydraulic fracturing of an oil or gas well is a “completion” activity,<sup>150</sup> those water wells used for fracking or completion of an oil and gas well would *all* be exempt from a GCD’s permitting requirement, just as water wells currently used for drilling and exploration activities are exempt.<sup>151</sup>

Interestingly, House Bill 3317 would still have required those water well operators to comply with other requirements established by the GCDs, including limitations on the volume of water that could be produced, registration and reporting requirements, and the payment of production fees. Specifically, the bill provided:

(f-1) The owner or operator of a water well exempt under Subsection (b)(2) shall comply with rules of the district that have been adopted with general and uniform application to all wells, except wells described by Subsection (b)(1), including those rules that govern:

- (1) registration of wells;
- (2) production requirements as applied commensurately to all wells;
- (3) payment of production fees as assessed by the district based on the amount of groundwater actually withdrawn from the well; and
- (4) recordkeeping and reporting of groundwater withdrawals.<sup>152</sup>

While this approach represents an interesting compromise between the desire to not impede energy production and water well drilling progress and the need to provide GCDs with necessary information regarding groundwater production and location of groundwater wells,<sup>153</sup> it ultimately did not make it out of the House Natural Resources Committee, where it remained pending at the close of the session.<sup>154</sup>

Although neither bill was enacted into law, it is apparent that the Texas Legislature has recognized a need to address this issue of whether groundwater wells used for fracking fall within the scope of Texas Water Code section 36.117(b)(2). Both the Hegar and Keffer bills presented positive starting points to resolve this issue, and several commentators have

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150. See Part V, C, *supra*.

151. An Act relating to the exemption of a water well from certain permitting by and compliance with rules of a groundwater conservation district, H.R. 3317, 83rd Leg. Sess. (Tex. 2013).

152. *Id.*

153. See Part VI, C, *supra*.

154. Texas Legislature Online History of HB 3317, 83rd Leg. Sess., 2013, *available at* <http://www.legis.state.tx.us/BillLookup/history.aspx?LegSess=83R&Bill=HB3317>.

indicated that they expect similar legislative measures to be introduced during the Eighty-Fourth Legislative Session, which began in January 2015. Until then, the scope of section 36.117(b)(2) is still uncertain, and with no further legislative direction, GCDs continue to differ in their approach and treatment of groundwater wells used for fracking.

## B. Exploring Alternative Options for Frack Fluids

Perhaps realizing that the use of fresh groundwater is unsustainable long term, the oil and gas industry has begun to look at various alternative methods for fracking, including recycling frack water for reuse, using brackish groundwater, and even eliminating water use entirely. Although the use of recycled or brackish water is more expensive for the industry, in certain drought-stricken areas across Texas, drillers have had no alternatives.<sup>155</sup> For now, the fact remains that in most areas, it is cheaper to inject waste water underground than to recycle it, providing less incentive for the industry to quickly develop alternative practices.<sup>156</sup>

### 1. Recycling Frack Water

Some oil and gas companies are working to develop the technology necessary to reuse frack water and utilize produced water for more than one frack job. Apache Corp., for example, reports that it has been able to recycle 100 percent of the water produced at one oil well site in the Permian Basin, thus utilizing no fresh groundwater to frack the well.<sup>157</sup> Apache treats water produced from wells with chemicals and removes unwanted minerals and bacteria.<sup>158</sup> Apache then stores the water in above-ground tanks lined with waterproof plastic to prevent leaks.<sup>159</sup> According to Apache, this has proven lucrative for the company, at least at this well location. This is because it costs only \$.29 per barrel to treat the recycled water to the standard required for reuse, whereas it costs \$2.50 per barrel to dispose of wastewater with a third party disposal company.<sup>160</sup> Apache intends to develop a similar recycling system for

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155. Galbraith, *supra* note 43.

156. Emily Pickrell, *Measure Takes Aim at Oil Field Wastewater*, HOUS. CHRON. (Apr. 2, 2013), <http://www.chron.com/business/energy/article/Measure-takes-aim-at-oil-field-wastewater-4404763.php>; Galbraith, *supra* note 32.

157. Anna Driver & Terry Wade, *Fracking Without Freshwater at a West Texas Oilfield*, REUTERS (Nov. 13, 2013), <http://www.reuters.com/article/2013/11/21/apache-water-idUSL2N0J514J20131121>.

158. *Id.*

159. *Id.*

160. *Id.*

use in its other oil fields.<sup>161</sup> Other companies, including Exxon Mobil Corp., also report recycling fracking fluids to reduce the amount of water needed for future fracking jobs.<sup>162</sup> A new large-scale desalination plant was unveiled in Loving County, near the Permian Basin recently, and operators believe the plant may be able to treat frack water for reuse in the oil field.<sup>163</sup>

Another recycling option is for oil and gas companies to obtain wastewater from municipalities. Last year, a company called Alpha Reclaim Technology began purchasing and treating wastewater from various municipalities in the Eagle Ford Shale.<sup>164</sup> Once treated, the company sells the water to oil and gas companies for fracking, again eliminating the need for the use of fresh groundwater in the fracking process.<sup>165</sup> Currently, about one fifth of the total water use for fracking comes from recycled or brackish water.<sup>166</sup> Recycling water also decreases the costs necessary to purchase additional groundwater and transport ground water to the drilling site.<sup>167</sup>

Further, the Texas Legislature has recently considered bills that would provide a financial incentive to oil and gas companies to find ways to recycle and reuse water. In 2013, the Legislature sought to impose a \$.01 tax on each barrel of water disposed in an injection well.<sup>168</sup> As Conor Kenny, chief of staff for Rep. Lon Burnam, who carried the bill, explained, “[t]his penny-a-gallon fee is not enough to cover the difference between recycling and not recycling from fracking, but it does put a thumb slightly on the scale. Every time someone writes this check, it forces them to think about how they could have used a less-water-intensive method of fracking or how they could have recycled it and used it again.”<sup>169</sup> The bill, however, died pending in the House.<sup>170</sup>

Regulators are also working to increase water recycling in the industry. The Texas Railroad Commission recently amended its Rule 3.8,

161. *Id.*

162. Joe Carroll, *Worst Drought in More Than a Century Strikes Texas Oil Boom*, BLOOMBERG NEWS (June 13, 2011), <http://www.bloomberg.com/news/articles/2011-06-13/worst-drought-in-more-than-a-century-threatens-texas-oil-natural-gas-boom>.

163. Sara Jerome, *First-of-Its-Kind Desalination Plant Unveiled In Texas*, WATER ONLINE (June 30, 2014), <http://www.wateronline.com/doc/first-of-its-kind-desalination-plant-unveiled-in-texas-0001>.

164. Galbraith, *supra* note 32.

165. Galbraith, *supra* note 43.

166. *Id.*

167. Pickrell, *supra* note 156.

168. H.R. 379, 83rd Leg., Reg. Sess. (Tex. 2013).

169. Pickrell, *supra* note 156.

170. Texas Legislature Online History of HB 379, 83rd Leg. Sess., 2013, available at <http://www.legis.state.tx.us/BillLookup/history.aspx?LegSess=83R&Bill=HB379>.

Water Protection, in an effort to encourage oil and gas operators to recycle frack fluid and produced water during oil and gas production.<sup>171</sup> The amended rule allows producers to recycle water on-site without a Railroad Commission permit.<sup>172</sup> According to then-Texas Railroad Commission Chairman, Barry Smitherman, “[b]y removing regulatory hurdles, these new amendments will help foster the recycling efforts by oil and gas operators who continue to examine ways to reduce freshwater use.”<sup>173</sup>

## 2. Using Brackish Groundwater

Another potential alternative to the use of freshwater in fracking is to use brackish groundwater instead. Brackish water is water with a high salinity content. The Texas Water Development Board defines brackish water as water having more than 1,000 but less than 10,000 milligrams per liter of dissolved solids.<sup>174</sup>

While brackish groundwater is abundant in Texas,<sup>175</sup> it contains contaminants such as salt or boron that may harm the drilling process, thus requiring treatment before use in operations.<sup>176</sup> Additionally, because the brackish reservoirs are often deeper than fresh water aquifers, it is often more expensive to drill the wells.<sup>177</sup> Finally, realizing that fresh water supplies are dwindling, the industry will likely face competition from municipalities interested in tapping the brackish water sources for drinking water.<sup>178</sup>

Nevertheless, TXOGA states that there has been a significant increase in the use of brackish groundwater in recent years.<sup>179</sup> This option

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171. James Osborne, *State Rule Change Makes Recycling Fracking Wastewater Easier*, DAL. NEWS, (Mar. 26, 2013), <http://www.dallasnews.com/business/energy/20130326-state-rule-change-makes-recycling-fracking-wastewater-easier.ece>.

172. *Id.*

173. *Id.*

174. TEXAS WATER DEVELOPMENT BOARD, WATER FOR TEXAS, DESALINIZATION: BRACKISH GROUNDWATER (Rev. Feb. 2013), available at [http://www.twdb.state.tx.us/publications/shells/Desal\\_Brackish.pdf](http://www.twdb.state.tx.us/publications/shells/Desal_Brackish.pdf).

175. A study by the Texas Water Development Board in 2003 found that there is approximately 2.7 billion acre-feet of brackish groundwater in Texas aquifers. SANJEEV KALASWAD, ET AL., BRACKISH GROUNDWATER IN TEXAS 1 (2003), available at [http://www.twdb.texas.gov/publications/reports/numbered\\_reports/doc/R363/B2.pdf](http://www.twdb.texas.gov/publications/reports/numbered_reports/doc/R363/B2.pdf).

176. Galbraith, *supra* note 32.

177. *Id.* (citing testimony from ConocoPhillips engineer, Stephen Jester, that drilling a deep well in the Eagle Ford Shale could cost \$1 million versus \$70,000–\$80,000 for a shallower well).

178. Mose Buchele, *Brackish Water for Fracking Rising Amid Challenges*, THE TEX. TRIB., (Mar. 28, 2013), <http://www.texastribune.org/2013/03/28/brackish-water-fracking-rising-amid-challenges/>.

179. Osborne, *supra* note 171.

is especially important where there is no large supply of fresh water, but an abundance of brackish water is available.<sup>180</sup> A recent University of Texas study found that operators use brackish water in the major basins across Texas, including the Permian Basin, Eagle Ford Shale, and Barnett Shale.<sup>181</sup> A separate study found that approximately one-third of the water used in fracking in the Midland-Odessa area was brackish groundwater.<sup>182</sup> Fasken Oil & Ranch, a West Texas drilling company, has begun mixing brackish water with fresh water in drilling operations and, depending on necessary technological developments, hopes to eventually be able to use 100 percent brackish water in fracking operations.<sup>183</sup>

### 3. Using Alternative Liquids

Some oil and gas companies are exploring the ability to frack with no water at all, by using various liquids and gasses instead. BlackBrush Oil & Gas, LP, a San Antonio, Texas company, is using a mix of butane, propane and pentane for fracking.<sup>184</sup> The company developed the alternative after facing difficulty obtaining fresh groundwater from landowners in certain production areas.<sup>185</sup> The company who developed this technology, the Canadian-based GasFrac Energy Services, has recently opened up offices in Texas.<sup>186</sup> This technology is emerging and was used in fewer than 5 percent of frack jobs across the United States in 2012.<sup>187</sup>

## IX. CONCLUSION

Since the authors initially set out to address this issue, statewide rainfall levels have marginally increased and oil and gas prices have plummeted. Fracking activity continues in Texas; however, many industry analysts question whether the level of fracking will diminish in the face of lower oil and gas prices, lessening the pressure on Texas groundwater use. Other observers are confident that oil and gas production, including fracking, will remain robust and steady. Regardless, the unresolved question of whether water wells are drilled for fracking are exempt is of great concern to Texas' GCDs and to the agriculture and oil

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180. Galbraith, *supra* note 43.

181. Buchele, *supra* note 178.

182. Galbraith, *supra* note 43.

183. Buchele, *supra* note 178.

184. Ingrid Lobet, *Hold the Water: Some Firms Fracking Without It*, HOUS. CHRON. (Aug. 26, 2013), [http://www.mrt.com/top\\_stories/article\\_d9c5b9e4-0ebf-11e3-9373-001a4bcf887a.html](http://www.mrt.com/top_stories/article_d9c5b9e4-0ebf-11e3-9373-001a4bcf887a.html).

185. *Id.*

186. *Id.*

187. *Id.* (citing Mukui Sharma, a professor of petroleum engineering at the University of Texas Center for Petroleum and Geosystems Engineering).

and gas industries. The rules governing the use of groundwater must be clear. Without legislative direction, GCDs will be left to independently determine whether the exemption applies. Given the current situation of low oil and gas prices and relief from record-setting drought conditions, however, in all likelihood, the 2015 Texas legislature's work will not include a comprehensive solution to the exempt well question.

Even so, this short reprieve is unlikely to last because both drought and markets are cyclical. All of those interested—from oil and gas operators to landowners to GCDs— should take advantage of the additional time and advocate for guidance and a clear explanation of whether frack wells are considered “exempt” under Texas water law. At a minimum, GCDs should be able to require that oil and gas producers monitor and report their groundwater usage. Governments, as well as oil and gas producers, should also explore alternatives to fresh groundwater use in order to avoid the growing conflict for fresh water.