

## **Subsurface Trespass After *Coastal v. Garza***

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§ X.01 Introduction<sup>1</sup>

*[I]f a man digs a well in his own field, and thereby drains his neighbour's, he may do so, unless he does it maliciously.*<sup>2</sup>

On May 5, 2005, the Corpus Christi Court of Appeals held, *inter alia*, that hydraulic fracturing (“fracing”) across property lines constitutes actionable trespass.<sup>3</sup> Although this holding was not unexpected, it nevertheless sent shockwaves through the oil and gas industry. The defendant promptly appealed. The Texas Supreme Court heard oral arguments on September 28, 2006 and decided the case one month short of two years later on August 29, 2008. The court, *inter alia*, reversed the court of appeals, holding that fracing across property lines does not constitute actionable trespass because any resulting drainage is protected by the rule of capture.<sup>4</sup> The court denied rehearing on November 14, 2008.

The primary issue, and the one that I have been asked to address, is whether hydraulic fracturing constitutes actionable subsurface trespass<sup>5</sup> when the “frac” extends beyond the boundaries of the drilling unit where it originates. The court also addressed the implied covenant to prevent drainage, bad-faith pooling, the admissibility of evidence designed to prejudice the jury, and abatement of the proceeding on the ground that it was identical to prior litigation involving the same parties. These latter issues are beyond the scope of this paper.

Writing for the majority, Justice Hecht reversed the ruling of the court of appeals and rendered final judgment on the trespass issue, as well as on the issue of whether the defendants had breached the implied covenant to prevent drainage. The court also held that an internal memo referring to the plaintiffs’ predecessors “as mostly illiterate Mexicans” should not have been admitted into evidence because it was only marginally relevant and prejudicial. Additionally, the court held that the trial court had not abused its discretion in failing to abate the suit. The court remanded the case for a new trial on the remaining issue of bad-faith pooling. Justice Willett addressed the trespass issue in a concurring opinion. Justice Johnson, joined by Justice Medina and Chief Justice Jefferson, wrote an opinion dissenting in part and concurring in part.

Regarding the trespass issue, the majority held that no “actionable trespass” occurred because the drainage of gas from plaintiff’s property was protected by the rule of capture.<sup>6</sup> On a related issue, the court recognized that, because the mineral lessors held a reversionary interest in the property, they had standing to bring an action for subsurface trespass but must prove an

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<sup>1</sup> Professor Anderson thanks Jay Albert and Amanda Janssen. Second-Year Law Students at The University of Oklahoma College of Law, for their able research assistance in the preparation of this article.

<sup>2</sup> *Acton v. Blundell*, 152 Eng. Rep. 1223, 1228 (1843).

<sup>3</sup> *Mission Res., Inc. v. Garza Energy Trust*, 166 S.W.3d 301, 310-11 (Tex. App.—Corpus Christi 2005), *rev’d*, 268 S.W.3d 1 (Tex. 2008, reh’g denied).

<sup>4</sup> *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1 (Tex. 2008, reh’g denied).

<sup>5</sup> For a discussion of subsurface trespass in the context of a variety of oil and gas operations, see Robert T. Thibault, M.A. Shelby, et al., *A Modern Look at the Law of Subsurface Trespass: Does It Need Review, Refinement, or Restatement?*, 54 ROCKY Mtn. Min. L. INST. 24-1 (2008).

<sup>6</sup> *Garza*, 268 S.W.3d at 12-13.

actual injury.<sup>7</sup> Justice Willett would have held that no trespass of any kind occurred.<sup>8</sup> The dissenters would have first decided whether any trespass occurred before considering whether the rule of capture precluded the recovery of damages.<sup>9</sup> Although the dissenters do not expressly so state, they would have presumably held that an actionable trespass occurred because, in their view, the rule of capture would not protect Coastal from a drainage claim.<sup>10</sup>

The balance of this article is organized as follows: First, I will offer a brief history of the rule of capture. Second, I will briefly describe hydraulic fracturing. Third, I will summarize the trespass aspects of *Garza* and comment on the court's analysis of that issue. Fourth, I will comment on how this case may affect other subsurface trespass issues in Texas and elsewhere.

## § X.02 A Brief History of the Rule of Capture

*[T]he owner of a tract of land acquires title to the oil or gas which he produces from wells on his land, though part of the oil or gas may have migrated from adjoining lands. He may thus appropriate the oil and gas that have flowed from adjacent lands without the consent of the owner of those lands, and without incurring liability to him for drainage. The non-liability is based upon the theory that after the drainage the title or property interest of the former owner is gone.*<sup>11</sup>

What we now call the rule of capture first arose in water law and has been traced back to ancient Greek and Roman law.<sup>12</sup> An English court is often credited with first recognizing the rule as a bastion of common law in the seminal case of *Acton v. Blundell*.<sup>13</sup> There the court held:

[The right to exploit groundwater] falls within that principle, which gives to the owner of the soil all that lies beneath his surface; that the land immediately below is his property, whether it is solid rock, or porous ground, or venous earth, or part soil, part water; 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 underground springs in his neighbour's well, this inconvenience to his neighbour falls within the description of *damnum absque injuriâ*, which cannot become the ground of an action.<sup>14</sup>

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<sup>7</sup> *Id.* at 10-11.

<sup>8</sup> *Id.* at 29-30.

<sup>9</sup> *Id.* at 42.

<sup>10</sup> *Id.* at 42-47.

<sup>11</sup> *Elliff v. Texon Drilling Co.*, 210 S.W.2d 558, 561-62 (Tex. 1948).

<sup>12</sup> Dylan O. Drummond, Lynn Ray Sherman, & Edmond R. McCarthy, Jr., *The Rule of Capture in Texas—Still So Misunderstood After All These Years*, 37 TEX. TECH. L. REV. 1, 16-29 (2004).

<sup>13</sup> *Acton v. Blundell*, 152 Eng. Rep. 1223 (1843).

<sup>14</sup> *Id.* at 1235.

In fact, the rule was first articulated as common law by the Massachusetts Supreme Court, which held that, although the lawful digging of a well on one's own property may be "prejudicial to the plaintiff, [it was] *damnum absque injuriâ*."<sup>15</sup> In neither case, however, was the principal described as the rule of capture. Indeed, in water cases, this principal is generally referred to as "absolute ownership" or the "English Rule."<sup>16</sup> The rule is essentially a corollary to the maxim *cujus est solum, ejus est usque ad coelum et ad inferos* (to whomsoever the soil belongs, he owns also to the sky and to the depths).<sup>17</sup> Under the *ad coelum* doctrine, groundwater is part of the depths and is thus owned by the owner of the soil, who is entitled to fully exploit it. When exploiting groundwater from the depths, if some water is also drained from a neighbor's depths, the neighboring owner suffers no actionable injury. Thus, under this ownership-capture doctrine, a landowner is entitled to all groundwater produced from a well drilled on his own tract, including any water that is drained from a neighbor.

Application of the rule of capture to oil and gas<sup>18</sup> has two sources: water law and the law of wild animals. In Texas, the ownership-capture doctrine was applied to groundwater in *Houston & Texas Central Railway Co. v. East* in 1904.<sup>19</sup> Although not citing *East*, in 1915 the Texas Supreme Court, in *Texas Co. v. Daugherty*, recognized that oil and gas was subject to this ownership-capture doctrine.<sup>20</sup>

While not articulated as such, the wild-animal source of the oil-and-gas rule of capture is illustrated in *Back v. Ohio Fuel Gas Co.*<sup>21</sup> In contrast to soil and hard minerals, oil and gas are not owned in situ. Rather, the owner of the soil has the exclusive right to capture oil and gas—to reduce it to possession—from his land. Neighboring landowners may do likewise. Thus, the lawful exercise of this right to capture and actual capture confers possessory ownership to oil and gas as the personal property of the capturer. This rule is directly analogous to the rule of capture as applied to wild animals in the famous case of *Pierson v. Post*.<sup>22</sup> This nonownership-capture doctrine is not a corollary to the *ad coelum* doctrine. Rather, the rule stems from treating oil and gas as *ferae naturae* (of a wild nature).<sup>23</sup> Thus, this rule operates more as an exception than as a

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<sup>15</sup> *Greenleaf v. Francis*, 35 Mass. (18 Pick.) 117, 123 (1836).

<sup>16</sup> DAVID H. GETCHES, *WATER LAW IN A NUTSHELL* 268 (Thomson/Reuters 4th ed. 2009).

<sup>17</sup> In groundwater law context, see *Wheatley v. Baugh*, 25 Pa. 528, 530 (1855).

<sup>18</sup> Rudiments of the rule of capture regarding oil and gas can be found in *Hail v. Reed*, 54 Ky. (15 B.Mon.) 479 (1854) (dealing with ownership of produced oil). *Westmoreland & Cambria Natural Gas Co. v. DeWitt*, 18 A. 724, 725 (Pa. 1889), is one of the earliest cases to apply rule-of-capture principles in an oil and gas context.

<sup>19</sup> *Houston & Tex. Cen. Ry. Co. v. East*, 81 S.W. 279 (Tex. 1904). Texas remains the only American jurisdiction to so strictly apply this absolute-ownership principle to percolating groundwater. TEX. WATER CODE ANN. § 11.021 (2008).

<sup>20</sup> *Texas Co. v. Daugherty*, 176 S.W. 717, 719-21 (Tex. 1915). See also *Stephens County v. Mid-Kansas Oil & Gas Co.*, 254 S.W. 290, 292 (Tex. 1923). In a later oil and gas case, *Brown v. Humble Oil and Ref. Co.*, 83 S.W.2d 935, 940 (Tex. 1935), the court cited *East* as the origin of the rule of capture in Texas.

<sup>21</sup> *Back v. Ohio Fuel Gas Co.*, 113 N.E.2d 865, 867 (Ohio 1953) ("Possession of oil and gas, having as they do a migratory character, can be acquired only by severing them from the land under which they lie, and in effect the instrument of conveyance in the instant case is no more than a license to effect such a severance."). See also *Kelley v. Ohio Oil Co.*, 49 N.E. 399, 401 (Ohio 1897).

<sup>22</sup> *Pierson v. Post*, 3 Cai. 175, 2 Am. Dec. 264 (N.Y. Sup. Ct. 1805).

<sup>23</sup> See, e.g., *Ohio Oil Co. v. Indiana*, 177 U.S. 190, 204, 209 (1900). The U.S. Supreme Court spoke of oil and gas being owned in situ in *Brown v. Spilman*, 155 U.S. 665, 669-70 (1895).

corollary to the *ad coelum* doctrine. Texas flirted with this doctrine in *Bender v. Brooks*<sup>24</sup> but ultimately adopted the ownership-in-place doctrine.<sup>25</sup>

This dual origin of the rule of capture<sup>26</sup> helps explain the two basic oil-and-gas ownership theories. The ownership-in-place theory, followed in Texas,<sup>27</sup> stems from regarding oil and gas as akin to soil and thus falling within the *ad coelum* doctrine. The non-ownership theory, followed in Oklahoma,<sup>28</sup> stems from regarding oil and gas as akin to a wild animal—incapable of possessory ownership until captured or *fae naturae*. Some cases combine both origins without making a clear distinction.<sup>29</sup> Thus, because oil and gas are fugacious,<sup>30</sup> the rule

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<sup>24</sup> *Bender v. Brooks*, 127 S.W. 168, 170 (Tex. 1910) (“appellants, as owners of the land, had no specific title to the oil therein until it had been removed from the earth.”) (citing *Kelley*, 49 N.E. 399).

<sup>25</sup> *Stephens County*, 254 S.W.2d at 292.

<sup>26</sup> In *Wood County Petrol. Co. v. West Virginia Transp. Co.*, 28 W.Va. 210 (W. Va.1886), the court stated that oil is like percolating waters and like animals *ferae naturae*. In *Dark v. Johnston*, 55 Pa. 164 (1867), the court stated that oil was like water but found no ownership in situ right.

<sup>27</sup> *Stephens County*, 254 S.W.2d at 292.

<sup>28</sup> *Rich v. Doneghey*, 177 P. 86, 89 (Okla. 1918).

<sup>29</sup> Consider the following excerpt from *Westmoreland & Cambria Nat. Gas Co. v. De Witt*, 18 A. 724, 725 (Pa. 1889):

The learned master says gas is a mineral, and while *in situ* is part of the land, and therefore possession of the land is possession of the gas. But this deduction must be made with some qualifications. Gas, it is true, is a mineral; but it is a mineral with peculiar attributes, which require the application of precedents arising out of ordinary mineral rights, with much more careful consideration of the principles involved than of the mere decisions. Water also is a mineral; but the decisions in ordinary cases of mining rights, etc., have never been held as unqualified precedents in regard to flowing, or even to percolating, waters. Water and oil, and still more strongly gas, may be classed by themselves, if the analogy be not too fanciful, as minerals *feroe nature*. In common with animals, and unlike other minerals, they have the power and the tendency to escape without the volition of the owner. Their ‘fugitive and wandering existence within the limits of a particular tract was uncertain,’ as said by Chief Justice Agnew in *Brown v. Vandegrift*, 80 Pa. St. 147, 148. They belong to the owner of the land, and are part of it, so long as they are on or in it, and are subject to his control; but when they escape, and go into other land, or come under another's control, the title of the former owner is gone. Possession of the land, therefore, is not necessarily possession of the gas. If an adjoining, or even a distant, owner, drills his own land, and taps your gas, so that it comes into his well and under his control, it is no longer yours, but his.

In *Hamilton v. Foster*, 116 A. 50 (Pa. 1922), Pennsylvania adopted the ownership-in-place theory.

Consider the following excerpt from *Kelley*, 49 N.E. at 401.

Petroleum oil is a mineral, and while in the earth it is part of the realty, and, should it move from place to place by percolation or otherwise, it forms part of that tract of land in which it tarries for the time being, and, if it moves to the next adjoining tract, it becomes part and parcel of that tract; and it forms part of some tract until it reaches a well, and is raised to the surface, and then for the first time it becomes the subject of distinct ownership, separate from the realty, and becomes personal property,—the property of the person into whose well it came. And this is so whether the oil moves, percolates, or exists in pools or

of capture protects the capturing party from claims of drainage under either theory of ownership, and under either theory, the remedy for a neighbor who suffers drainage is self help—to drill an offset well.<sup>31</sup> Thus, the central and defining characteristic of the rule of capture is non-liability for drainage because drainage is non-actionable—*damnum absque injuriâ*.

Historically, the rule of capture was applied in its “pure form” in oil and gas cases.<sup>32</sup> Thus, the non-liability for drainage extended to flaring gas<sup>33</sup> as well as to shooting<sup>34</sup> or pumping<sup>35</sup> a well to increase its production. But as the rule of capture evolved, it was qualified by the doctrine of correlative rights.<sup>36</sup> Initially, the correlative-rights doctrine was invoked to validate conservation regulation,<sup>37</sup> but it was also invoked to support private actions to prevent injury to a reservoir.<sup>38</sup> Although the rule of capture protects a petroleum producer from liability for drainage, in particular circumstances a producer still may be liable for conversion,<sup>39</sup> waste,<sup>40</sup>

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deposits. In either event, it is the property of, and belongs to, the person who reaches it by means of a well, and severs it from the realty, and converts it into personalty. While it is generally supposed that oil is drained into wells for a distance of several hundred feet, the matter is somewhat uncertain, and no right of sufficient weight can be founded upon such uncertain supposition to overcome the well-known right which every man has to use his property as he pleases, so long as he does not interfere with the legal rights of others.

In *Back v. Ohio Fuel Gas Co.*, 113 N.E.2d 865 (Ohio 1953), Ohio adopted the non-ownership theory. However, in an earlier case, *Pure Oil Co. v. Kendall*, 156 N.E. 119 (Ohio 1927), the court appeared to adopt the ownership-in-place theory.

<sup>30</sup> See, e.g., *BP Am. Prod. Co. v. Dep’t of Revenue*, 130 P.3d 438, 443 n. 3 (Wyo. 2006) (defining fugacious as something that is not fixed in a certain place; wandering; fleeting) (quoting WEBSTER’S THIRD NEW INT’L DICTIONARY 918 (1986)).

<sup>31</sup> *Kelley*, 49 N.E. at 401.

<sup>32</sup> See generally Bruce M. Kramer & Owen L. Anderson, *The Rule of Capture—An Oil and Gas Perspective*, 35 ENVTL. L. 899, 906-11 (2005).

<sup>33</sup> *Hague v. Wheeler*, 27 A. 714 (Pa. 1893) (finding no action for waste, absent malice or negligence).

<sup>34</sup> *People’s Gas Co. v. Tyner*, 31 N.E. 59 (Ind. 1892) (recognizing shooting a well as within the rule but subject to the law of nuisance); *Texas Pac. Coal & Oil Co. v. Comanche Duke Oil Co.*, 274 S.W. 193 (Tex. Civ. App.—San Antonio 1925), *rev’d on other grounds*, 298 S.W. 554 (Tex. Comm’n. App. 1927) (allowing shooting a well as within the rule).

<sup>35</sup> *United Carbon Co. v. Campbellsville Gas Co.*, 18 S.W.2d 1110 (Ky. 1929) (using compressors to increase gas production was within the rule); *Higgins Oil & Fuel Co. v. Guar. Oil Co.*, 82 So. 206 (La. 1991) (using pumps to produce oil is within the rule); *Jones v. Forest Oil Co.*, 44 A. 1074 (Pa. 1900) (using gas pumps to increase oil production was within the rule).

<sup>36</sup> As commonly defined, the doctrine gives every owner of a common oil or gas pool a fair opportunity to capture a fair share of production. The doctrine is articulated in *Ohio Oil Co. v. Indiana*, 177 U.S. 190, 209-10 (1900). See generally Kramer & Anderson, *supra* note 32, at 911-20.

<sup>37</sup> See, e.g., *Ohio Oil Co.*, 177 U.S. at 190-91.

<sup>38</sup> See, e.g., *Manufacturers’ Gas & Oil Co. v. Indiana Natural Gas & Oil Co.*, 57 N.E. 912, 917 (Ind. 1900) (allowing a private action to prevent use of pumping equipment that would damage the integrity of a common reservoir by increasing the rate of salt-water incursion); *Louisville Gas Co. v. Kentucky Heating Co.*, 77 S.W. 368, 369-70 (Ky. 1903) (enjoining a wasteful end use of gas that was intended to injure other producers of a common reservoir).

<sup>39</sup> See, e.g., *Wronski v. Sun Oil Co.*, 279 N.W.2d 564 (Mich. Ct. App. 1979) (holding producer liable in conversion for producing oil in excess of the production limit established by the conservation agency); *Champlin Exploration, Inc. v. Western Bridge & Steel Co., Inc.*, 597 P.2d 1215 (Okla. 1979) (finding that a party converted oil after it had been extracted and refusing to apply the rule of capture to produced oil); *Lone Star Gas Co. v.*

negligence,<sup>41</sup> nuisance,<sup>42</sup> or trespass<sup>43</sup> to others having rights in a common reservoir. Moreover, the rule of capture can be limited by the lawful exercise of the police power.<sup>44</sup>

### §X.03 What is Fracing and What Raises the Trespass Concern?

Hydraulic fracturing or “fracing” is essentially a well-completion and stimulation technique. That is, fracing is usually done to facilitate primary recovery. Fracing increases the rate of production as well as ultimate recovery of hydrocarbons because many wells could not profitably be produced without fracing. Hydraulic fracturing is essential to the development of unconventional gas reservoirs,<sup>45</sup> particularly gas-shale production.<sup>46</sup>

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Murchison, 353 S.W.2d 870 (Tex. Civ. App.—Dallas 1962, writ ref'd n.r.e.) (refusing to apply the rule of capture to produced gas that was then stored underground).

<sup>40</sup> See, e.g., *Elliff v. Texon Drilling Co.*, 210 S.W.2d 558 (Tex. 1948) (holding a producer liable for a blowout that caused the waste of gas and distillate).

<sup>41</sup> See, e.g., *id.* (holding a producer liable for negligently causing a blowout that damaged the reservoir).

<sup>42</sup> See, e.g., *People's Gas Co. v. Tyner*, 31 N.E. 59 (Ind. 1892) (recognizing that, while the rule of capture allows shooting a well with nitroglycerin, such a practice may be enjoined on grounds of nuisance where the shooting was to take place in a residential area).

<sup>43</sup> See, e.g., *Alphonzo E. Bell Corp. v. Bell View Oil Syndicate*, 76 P.2d 167 (Cal. Dist. Ct. App. 1938) (dealing with a slant-hole well drilled so that it bottomed out beneath neighboring property); *Hastings Oil Co. v. Texas Co.*, 234 S.W.2d 389 (Tex. 1950) (authorizing an injunction against testing a slant-hole well that bottomed out beneath neighboring property).

Regarding groundwater exploitation, Texas came to recognize malice, *City of Corpus Christi v. City of Pleasanton*, 276 S.W.2d 798, 800-01 (Tex. 1955) (mentioning malice), waste, *id.* at 800-02 (finding no waste), and negligence, *Friendswood Dev. Co. v. Smith-Southwest Indus., Inc.*, 576 S.W.2d 21, 30 (Tex. 1978) (recognizing negligence prospectively), as exceptions to the rule of capture, but they have seldom been found to apply.

<sup>44</sup> See, e.g., *Trail Enter. Inc. v. City of Houston*, 957 S.W.2d 625 (Tex. App.—Houston [14th Dist] 1997, rev. den.).

<sup>45</sup> The term unconventional gas reservoir is commonly used to describe a low-permeability reservoir of typically dry natural gas. The reservoir rock may be sandstone, shale, carbonate (e.g., limestone or dolomite), shale, or coal. Stephen A. Holditch et al., *Topic Paper # 29, Unconventional Gas, Working Document of the NPC Global Oil and Gas Study* (July 18, 2007) [http://www.npc.org/Study\\_Topic\\_Papers/29-TTG-Unconventional-Gas.pdf](http://www.npc.org/Study_Topic_Papers/29-TTG-Unconventional-Gas.pdf). One way of defining unconventional gas is as follows: “[N]atural gas that cannot be produced at economic flow rates nor in economic volumes of natural gas unless the well is stimulated by a large hydraulic fracture treatment, a horizontal wellbore, or by using multilateral wellbores or some other technique to expose more of the reservoir to the wellbore.” *Id.* at 5.

<sup>46</sup> *Id.* at 20.

[S]timulation techniques, especially hydraulic fracturing, are almost always necessary for shale-gas production. Other important technology advances include application of horizontal and directional drilling and reservoir characterization. ... Prior to 1998, most Barnett Shale wells were completed with massive hydraulic fracture treatments using 100,000–1,000,000 pounds of propping agent, usually sand. This method was expensive and was often not effective due to fracture fluid clean-up problems. In 1998, light sand fracturing (water fracture treatment) was introduced and has been successful in many areas of the Barnett Shale. Water fracture treatments cost less than gel fracture treatments, and appear to improve productivity. Many operators consider water fracture treatments in vertical wells to be a more important advance in developing the Barnett Shale than any previously developed technology.

In general, a vertical well that has been drilled and completed in an unconventional gas reservoir must be successfully stimulated to produce at commercial gas flow rates and recover commercial gas volumes. Normally, a large hydraulic fracture treatment is used to achieve successful stimulation. In some naturally fractured unconventional gas reservoirs, horizontal wells can be drilled, but many of these wells also need to be stimulated with hydraulic fracturing methods.<sup>47</sup>

Hydraulic fracturing is a well-stimulation process in which fluids<sup>48</sup> under high pressure are pumped down the casing or temporary work string to fracture the reservoir rock, thereby increasing its permeability.<sup>49</sup> Increased permeability increases the rate at which fluids, such as oil and gas, will flow through the reservoir rock and into well bores.<sup>50</sup> After the injected fluids have fractured the reservoir rock, additional fluids<sup>51</sup> containing proppants—small, hard grains of sand or other hard substances<sup>52</sup>—are injected into the fractures to hold the fractures open after

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In areas with limited surface access and landowner restrictions, horizontal drilling has been applied. Horizontal wells provide greater wellbore contact within the reservoir rocks than do vertical wells. ... hydraulic fracturing in horizontal wells results in production increases of two to three times that in vertical wells for the first 180 days.

*Id.* Hydraulic fracturing of horizontal wells increases the production rate in the Barnett Shale by two to three times that of a vertical well. *Id.* at 22. See also Stephen A. Holditch, *Tight Gas Sands*, J. OF PETROLEUM TECH. 84 (June 2006); Stephen A. Holditch & Nicholas R. Tschirhart, *Optimal Stimulation Treatment in Tight Gas Sands*, Soc. Petroleum Engineers Paper No. 96104 (SPE Int'l 2005).

<sup>47</sup> Holditch et al., *supra* note 45, at 4.

<sup>48</sup> The first fracturing stimulation was performed in 1947, using gasoline gelled with napalm as the fracture fluid. Gelled oil was used in the 1950s, linear gelled water was used in the 1960s, and cross-linked gelled water was used in the 1970s. More advance fluids were developed in the 1980s and 1990s. Stephen A. Holditch, *Hydraulic fracturing: Overview, trends, issues*, DRILLING CONTRACTOR, July/August 2007 at 116, 117 available at [http://www.drillingcontractor.org/dcp/dc-julyaug07/DC\\_July07\\_SteveHolditch.pdf](http://www.drillingcontractor.org/dcp/dc-julyaug07/DC_July07_SteveHolditch.pdf). Water remains a key component of the fluid recipe. Diesel fuels are no longer used as a fracture fluid, in part because its use is an exception to the general exclusion of hydraulic fracturing from the underground-injection regulatory provisions of the Safe Drinking Water Act. 42 U.S.C.A. § 300h (d)(1)(B)(ii) (Supp. 2008). Nevertheless, industry trade groups remain alert to possible additional federally-mandated regulation of hydraulic fracturing in the future. See, e.g., INDEPENDENT PETROL. ASSOC. OF AM., BRING REAL INFORMATION ON ENERGY FORWARD (2008), [http://www.magnetmail.net/images/clients/IPAA\\_comm/attach/BRIEFDescription.pdf](http://www.magnetmail.net/images/clients/IPAA_comm/attach/BRIEFDescription.pdf).

<sup>49</sup> NORMAN J. HYNE, DICTIONARY OF PETROL. EXPLORATION, DRILLING, & PROD. 249 (PennWell 1991). Hydraulic fracturing is an improvement over “shooting”—fracturing reservoir rock adjacent to a well bore with an explosive, such as nitroglycerin. *Id.* at 461.

Another technique is “acidizing.” Like hydraulic fracturing, matrix acidizing and fracture acidizing are used to stimulate carbonate reservoirs. Both techniques involve injecting acid, under high pressure, into a reservoir. In matrix acidizing, acid is forced into the pores of reservoir rock to dissolve the rock. In hydraulic acidizing, acid is forced into the fractures to widen them. *Id.* at 5.

<sup>50</sup> *Id.* at 373.

<sup>51</sup> During this process, gelling agents are added to the fluids to make the fluid more viscous and thus better able to carry the proppants that will remain in the fractures to hold them open after the fluids have been removed. AMERICAN PETROL. INST., HYDRAULIC FRACTURING AT A GLANCE (API 2008).

<sup>52</sup> HYNE, *supra* note 49, at 399. A well-completion engineer selects the optimal proppant for a particular frac. The first proppant was river sand. Unsuccessful experimental proppants included walnut shells, aluminum pellets, and glass beads. In the late 1970s, Exxon patented the use of sintered bauxite, which pioneered the development of a

the injected fluids are withdrawn. The fractures, held open by the proppants, allow oil and gas to flow more readily into the well bore. In dense petroleum bearing limestones and tight sands (*e.g.*, siltstones, shales, and carbonates)<sup>53</sup> without natural fractures, fracing is necessary for commercial production of oil and gas.<sup>54</sup>

The vertical extent of a fracing operation is largely limited by the rock formations that lie above and below the reservoir rock. However, the lateral extent of the fractures, fluids, and proppants through the reservoir rock is not limited and cannot be controlled. While the pressure at which the fluids are injected can be measured and controlled, the effect of that pressure and injection on the reservoir rock at any particular location can only be estimated. Hence, the fractures and the fluids may go beyond unit boundary lines. While the proppants do not extend into the reservoir rock to the full extent of the fractures or the fluids, the proppants may extend beyond the unit boundary lines. Nearly all of the fluids that invade neighboring property do so only temporarily during the fracing operation because, to the extent possible, the fluids are withdrawn so that oil and gas may flow into the fractures and then into the well bore. However, proppants that invade neighboring property should remain because their purpose is to maintain the fractures to facilitate the flow of oil and gas.

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variety of ceramic proppants. Today, resin-coated proppant agents are also widely used. Holditch et al., *supra* note 45, at 117.

<sup>53</sup> Laura H. Burney & Norman J. Hyne, *Hydraulic Fracturing: Stimulating Your Well or Trespassing?*, 44 ROCKY MTN. MIN. L. INST. 19-1, 19-8 (1998). For a more thorough discussion of fracturing techniques, see *id.* at 19-4 to -16.

<sup>54</sup> Fracing is also used to repair "skin damage" to a well.

As a well is being drilled, drilling mud is constantly being circulated .... [S]olid particles in the drilling mud are clays, usually a type called bentonite, and chemicals called additives. The weight of the drilling mud and the height of the drilling mud column in the well exerts a pressure on the drilling mud on the bottom of the well. ... The pressure of the fluid (water, gas, and oil) in the pores of the subsurface rocks is called fluid or reservoir pressure. ... Most wells are drilled with overbalance in which the pressure is higher on drilling mud than on the fluid in the pores of the rock. This prevents any formation fluids from flowing out of the rocks and into the well. If formation fluids flowed into the well, ... the sides of the well could cave or sluff in or a blowout could occur. Because of overbalance, some of the drilling mud is forced into any permeable rock through which the well is drilled. The solid clay particles in the drilling mud are plastered onto the sides of the wellbore, building up a filter or mud cake. The liquid, called mud filtrate, flows back into the rock. The area of the reservoir adjacent to the wellbore that is flushed with mud filtrate is called the invade zone. ... The mud filtrate can cause changes in the reservoir rocks such as swelling of clays that severely reduce the permeability of the reservoir adjacent to the wellbore. This is called formation or skin damage and can also occur in a well during well completion or workover. ... Skin damage in a well is commonly alleviated by hydraulic fracturing.

*Id.* at 19-9 to -10.

Once accomplished, the lateral extent of fractures, fluids, and proppants can only be estimated.<sup>55</sup>

Engineers design a fracturing operation for a particular well, selecting the injection pressure, volumes of material injected, and type of proppant to achieve a desired result based on data regarding the porosity, permeability, and modulus (elasticity) of the rock, and the pressure and other aspects of the reservoir. The design projects the length of the fractures from the well measured three ways: the hydraulic length, which is the distance the fracturing fluid will travel, sometimes as far as 3,000 feet from the well; the propped length, which is the slightly shorter distance the proppant will reach; and the effective length, the still shorter distance within which the fracturing operation will actually improve production. Estimates of these distances are dependent on available data and are at best imprecise. Clues about the direction in which fractures are likely to run horizontally from the well may be derived from seismic and other data, but virtually nothing can be done to control that direction; the fractures will follow Mother Nature's fault lines in the formation.<sup>56</sup>

When deemed efficient, micro-seismic surveys, along with detailed core sampling and analyses, are used to monitor the frac operation and to determine the effect of particular frac operations on reservoirs being initially developed. These surveys and core analyses are also done to help design future fracs to make them more effective and efficient—to prevent underground and economic waste, not to protect correlative rights. Through the use of 3D<sup>57</sup> and 4D<sup>58</sup> micro-seismic techniques, the lateral extent of fracturing and the effective drainage could perhaps be measured more accurately, but the expense of conducting such surveys could not be justified solely to protect correlative rights. The seismic data would have to be migrated and processed, and the processed data would then have to be interpreted by a geophysicist who would render an opinion about (make an estimate of) the lateral extent and effectiveness of the frac.

There are “at least four different ways to measure the [lateral] distance.”<sup>59</sup>

The first, referred to in this opinion simply as the “fracture length,” is the “fracture half length,” which refers to the length of one

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<sup>55</sup> *Id.* at 19-4. For a discussion of three methods that could be used to theoretically measure fracture length, see *id.* at 19-15 to -16. Such methods are “very expensive and very uncommon.” *Id.* at 19-15.

<sup>56</sup> *Costal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1, 7 (Tex. 2008, reh’g denied).

<sup>57</sup> For a description of 3D seismic technology and surveys, see generally Owen L. Anderson & Dr. John D. Pigott, *3D Seismic Technology: Its Uses, Limits, & Legal Ramifications*, 42 ROCKY MTN. MIN. L. INST. 16-1, 16-40 (1996) (hereinafter Anderson & Pigott I). For 3D seismic to measure the lateral extent of fracturing, the data would need to be collected while the fracture operation was being conducted.

<sup>58</sup> 4D seismic is a series of 3D seismic surveys done over time. This technique provides information on how effectively a reservoir is being drained. See generally *id.*

<sup>59</sup> *Mission Res., Inc. v. Garza Energy Trust*, 166 S.W.3d 301, 314 n. 3. (Tex. App.—Corpus Christi 2005), *rev’d*, 268 S.W.3d 1 (Tex. 2008, reh’g denied).

fracture wing from the wellbore to the tip. The second distance is known as the “hydraulic length.” It is the portion of the “fracture half length” that is occupied by the liquid initially used to create the fracture. The third measure of distance is the “propped length,” which is the portion of the fracture containing “proppant,” the material (often a sand mixture) used to prop open the fracture. The fourth measure is the “effective length.” It is the portion of the fracture that actually contributes to the flow of oil and gas.<sup>60</sup>

Which of these measures should be used in assessing whether a trespass has occurred? Which should be used to determine damages for the trespass? The litigants in *Garza* relied on the testimony of experts who reached different conclusions regarding the question of lateral extent. Perhaps, not surprisingly, the jury resolved these differences in favor of the plaintiffs.<sup>61</sup>

#### § X.04 *Garza’s* Trespass Analysis

##### [1] The Facts<sup>62</sup>

The Texas Supreme Court referred to the plaintiff by the family name Salinas. The family owned the mineral rights to Share 13, a 748-acre tract of land in Hidalgo County. Coastal, the defendant, held an oil and gas lease to Share 13 as well as to adjacent Share 15. Coastal also held a lease to adjacent Share 12 but acquired the full mineral estate to this 163-acre tract in 1995. All three tracts overlie the Vicksburg T natural gas reservoir, which lies at a depth of approximately 12,000 feet.<sup>63</sup> The court used the following map to illustrate the placement of the tracts and of the gas wells:

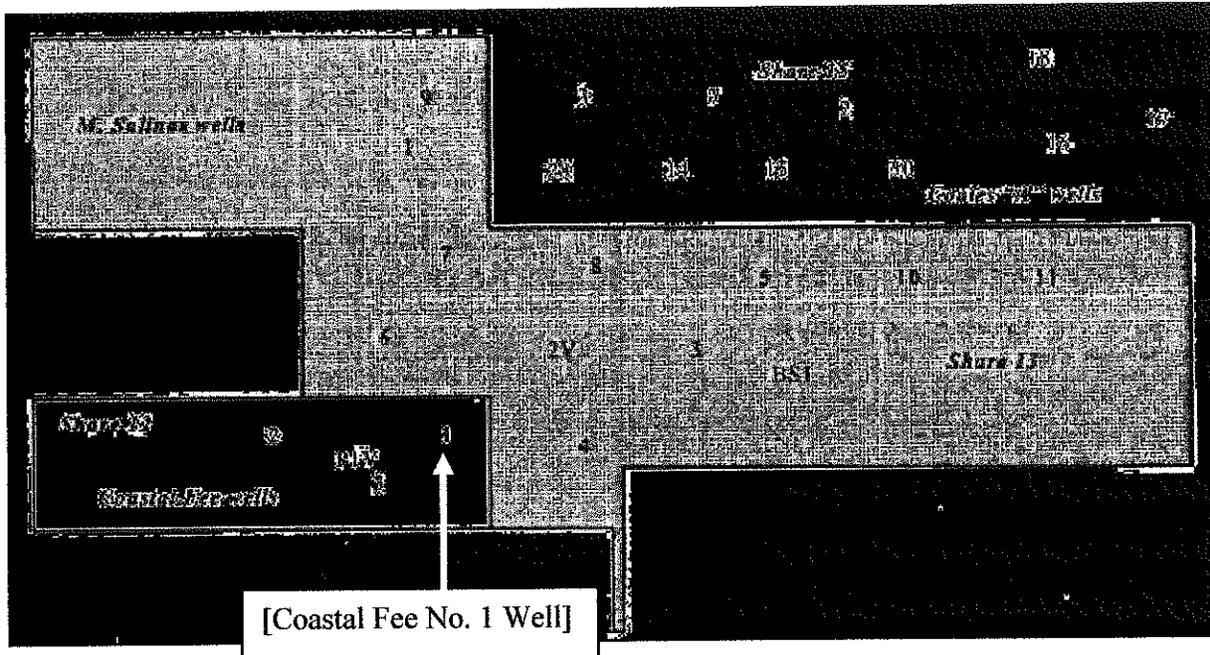
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<sup>60</sup> *Id.*

<sup>61</sup> *Garza*, 268 S.W.3d at 7.

<sup>62</sup> This section includes only the facts that are relevant to the trespass claim.

<sup>63</sup> *Garza*, 268 S.W.3d at 5.



“The Vicksburg T is a ‘tight’ sandstone formation, relatively imporous and impermeable, from which natural gas cannot be commercially produced without hydraulic fracturing ....”<sup>64</sup> The principal well that gave rise to the dispute<sup>65</sup> was the Coastal Fee No. 1 in Share 12, which was drilled as close to the Share 13 property line as permissible under statewide spacing regulations—467 feet from the north and east boundaries of Share 13.<sup>66</sup> This well was fraced, and the horizontal reach of the frac was designed to be over 1,000 feet—perhaps as much as 1,500 feet—from the well.<sup>67</sup> Whether the effective reach was that far was disputed by experts for the Salinas family and for Coastal.<sup>68</sup> The family’s expert concluded that 25-35% of the gas produced by the Coastal Fee No. 1 well came from Share 13.<sup>69</sup> Coastal’s expert opined that no gas came from Share 13.<sup>70</sup>

Although all of the wells on Shares 12 and 13 were fraced, the fracs of the Coastal Fee No. 1 and No. 2 wells on Share 12 were “massive” compared to the fracs of the wells in Share 13.<sup>71</sup> As a result of the frac job on the Coastal Fee No. 1, the Salinas family amended their complaint to include a trespass claim in addition to their claims for bad-faith pooling and for breach of the implied covenants to develop and to prevent drainage.

The jury, *inter alia*, found that Coastal had trespassed on Share 13 as a result of the frac, causing substantial drainage. As a consequence, the jury awarded both actual and punitive

<sup>64</sup> *Id.* at 6.

<sup>65</sup> The court briefly recounted a series of legal disputes involving Share 13. *Id.* at 5-6.

<sup>66</sup> *Id.* at 6.

<sup>67</sup> *Id.* at 7.

<sup>68</sup> *Id.*

<sup>69</sup> *Id.* at 8.

<sup>70</sup> *Id.*

<sup>71</sup> *Id.* at 7.

damages.<sup>72</sup> The trial judge reduced the actual damages but not the punitive damages, and<sup>73</sup> the court of appeals affirmed this portion of the trial court's decision.<sup>74</sup>

## [2] Standing

Because the Salinas family was an oil-and-gas lessor, the court first considered whether the family—as a royalty owner and holder of a possibility of reverter—had standing to sue in trespass. The court correctly noted that “trespass” was a term used to describe several tort actions involving different wrongs.<sup>75</sup> The court stated that “[t]respass *quare clausum fregit* was limited to physical invasions of plaintiff's possessory interest in land;<sup>76</sup> trespass on the case was not ...”<sup>77</sup> However, to maintain an action in trespass on the case, the court noted that the plaintiff must show “‘more’ than the trespass—namely, actual permanent harm to the property of such sort as to affect the value of his interest.”<sup>78</sup> The court then concluded:

Salinas's reversion interest in the minerals leased to Coastal is similar to a landlord's reversion interest in the surface estate. By his claim of trespass, Salinas seeks redress for a permanent injury to that interest—a loss of value because of wrongful drainage. His claim is not speculative; he has alleged actual, concrete harm whether his leases continue or not, either in reduced royalty revenues or in loss of value to the reversion. This gives him standing to sue for a form of trespass .... *It is important to note, however, that Salinas's claim of trespass does not entitle him to nominal damages (which he has not sought). He must prove actual injury.*<sup>79</sup>

Because the court ultimately holds that the rule of capture protects the practice of fracing across unit lines, does this portion of the opinion have any real importance? If a plaintiff suing in trespass on the case could not prove actual harm, would a Texas court also refuse injunctive relief? Presumably yes, and given the court's later characterization of *Gregg v. Delhi-Taylor Oil Corp.*<sup>80</sup> as addressing only trespass jurisdiction, Texas courts are not likely to allow a mineral owner to enjoin a frac operation whether suing in trespass on the case or in trespass *quare clausum fregit*.

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<sup>72</sup> *Id.* at 8.

<sup>73</sup> *Id.*

<sup>74</sup> *Mission Res., Inc. v. Garza Energy Trust*, 166 S.W.3d 301, 331 (Tex. App.—Corpus Christi 2005), *rev'd*, 268 S.W.3d 1 (Tex. 2008, reh'g denied).

<sup>75</sup> *Garza*, 268 S.W.3d at 9 (citing 1 FOWLER V. HARPER, FLEMING JAMES, JR., & OSCAR S. GRAY, HARPER, JAMES AND GRAY ON TORTS § 1.3 at 7 (3d ed. 2006)) (“‘Trespass’ was really a ‘family of writs’ that summoned the defendant to show why (‘ostensurus quare’) he had done certain wrongs.”).

<sup>76</sup> *Id.* (citing HARPER ET AL., *supra* note 75, § 1.3, at 8 and *Slye v. Guerdrum*, 29 App. D.C. 550 (D.C. 1907)).

<sup>77</sup> *Id.* (citing HARPER ET AL., *supra* note 75, § 1.3, at 9-10).

<sup>78</sup> *Id.* at 10 (quoting, W. PAGE KEETON, DAN B. DOBBS, ROBERT E. KEETON & DAVID G. OWEN, PROSSER AND KEETON ON THE LAW OF TORTS § 13, at 78 (5th ed. 1984)).

<sup>79</sup> *Id.* at 10-11 (footnote omitted) (emphasis added).

<sup>80</sup> *Gregg v. Delhi-Taylor Oil Corp.*, 344 S.W.2d 411, 415 (Tex. 1961). *Gregg* and its two companion cases are discussed in the next subsection, below.

But how might the court address a suit by an unleased mineral owner who suffered or was about to suffer a trespass by way of a frac operation? In this situation, the unleased mineral owner would have a possessory right and could thus bring suit in trespass *quare clausum fregit*. Arguably, an unleased mineral owner could obtain injunctive relief as well as at least nominal damages because proof of actual injury is not necessary.<sup>81</sup> However, making a distinction between leased and unleased mineral owners in these circumstances would undermine the court's public-policy rationale favoring fracing. Later in its opinion, the court reasons that the Salinas family suffered no injury because Coastal's drainage of the family's property was protected by the rule of capture. Thus, whether the Salinas family was a lessor or an unleased mineral owner should not matter. The rule of capture should serve as a shield from liability in either case.

### [3] The Primary Trespass Issue

Whether the Salinas family would recover on their trespass claim can be easily predicted from the court's opening discussion of this issue:

Had Coastal caused something like proppants to be deposited on the surface of Share 13, it would be liable for trespass, and from the ancient common law maxim that land ownership extends to the sky above and the earth's center below, one might extrapolate that the same rule should apply two miles below the surface. But that maxim—*cujus est solum ejus est usque ad coelum et ad inferos*—'has no place in the modern world.' [citing *U.S. v. Causby*, 328 U.S. 256, 261 (1946)] Wheeling an airplane across the surface of one's property without permission is a trespass; flying the plane through the airspace two miles above the property is not. Lord Coke, who pronounced the maxim, did not consider the possibility of airplanes. But neither did he imagine oil wells. The law of trespass need no more be the same two miles below the surface than two miles above.<sup>82</sup>

Immediately thereafter, the court, in one brief paragraph,<sup>83</sup> reviews and dismisses three prior opinions that were closely analogous. The court cited *Gregg v. Delhi-Taylor Oil Corp.* for the limited proposition that trespass was an issue for the courts and not the Railroad Commission.<sup>84</sup> The court then characterizes *Railroad Commission of Texas v. Manziel* as holding that salt water injected as part of a secondary-recovery operation approved by the

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<sup>81</sup> See, e.g., *Brown v. Ultramar Diamond Shamrock Corp.*, No. 13-02-535-CV, 2004 WL 1797580, at \*8 (Tex. App.—Corpus Christi 2004, no writ); *Plowman v. Dallas County*, 88 S.W. 252, 257 (Tex. Civ. App. 1905, no writ). See also *Cobai v. Young*, 679 P.2d 121, 122 (Colo. App. 1984); *Williams v. Harris*, 63 S.E.2d 386, 389-90 (Ga. 1951); *Burnham v. Beverly Airways*, 42 N.E.2d 575, 580 (Mass. 1942); *Currie v. Silvermale*, 171 N.W. 782 (Minn. 1919); *Lambert v. Holmberg*, 712 N.W.2d 268, 275 (Neb. 2006); *Suffness v. Dock Watch Quarry Pit*, 311 A.2d 377, 377-78 (N.J. 1973); *State v. Johnson*, 846 N.Y.S.2d 671, 675 (N.Y. App. Div. 2007); *John Larkin, Inc. v. Marceau*, 959 A.2d 551, 554 (Vt. 2008); *Hedlund v. White*, 836 P.2d 250, 253 (Wash. App. 1992); *Jacobs v. Major*, 407 N.W.2d 832 (Wis. 1987).

<sup>82</sup> *Garza*, 268 S.W.3d at 11 (footnotes omitted).

<sup>83</sup> *Id.* at 11-12.

<sup>84</sup> *Id.* at 12.

Railroad Commission did not result in a trespass when salt water migrated beyond property lines.<sup>85</sup> Finally, the court cites *Geo Viking, Inc. v. Tex-Lee Operating Company* for its holding that fracing beneath another's land was a trespass but also noting that the opinion had been withdrawn with an express statement that the trespass issue was not being decided.<sup>86</sup> While the Salinas family was undoubtedly disappointed with the court's ultimate decision, the court's quick dismissal of its past precedent, upon which the family heavily relied, added insult to injury.

The court accurately characterizes its holding in *Gregg*—that courts, not the Railroad Commission, have primary jurisdiction to determine whether a fracturing operation may result in a trespass.<sup>87</sup> However, the plaintiff in *Gregg* was seeking to enjoin a frac operation. The court in *Gregg* concluded that the plaintiff's allegations were sufficient to raise the issue of trespass—that the frac would extend into plaintiff's land, which the court likened to a drill bit penetrating the plaintiff's subsurface.<sup>88</sup> Thus, the court affirmed the court of appeals' decision reinstating the plaintiff's suit for trial after the trial court had dismissed it.

Moreover, on the same day that the court decided *Gregg*, it also decided two companion cases. In the first, also styled *Gregg v. Delhi-Taylor Oil Corp.*,<sup>89</sup> the trial court dismissed a suit to enjoin a frac operation. However, the Austin Court of Appeals reversed, and the Texas Supreme Court affirmed the court of appeals. In the second, *Delhi-Taylor Oil Corp. v. Holmes*,<sup>90</sup> the trial court temporarily enjoined a frac operation, but the San Antonio Court of Appeals reversed. The Texas Supreme court then reversed the court of appeals, reinstating the trial court's temporary injunction.<sup>91</sup> Thus, the Texas Supreme Court unanimously concluded in three companion cases that equitable relief against a frac trespass was appropriate. Accordingly, the *Garza* court's single-sentence description of the principle *Gregg* opinion as merely jurisdictional is a bit misleading. When *Gregg* is read with its companion cases, the court did more than decide jurisdiction.

The *Garza* court also mischaracterizes the precise holding in *Manziel*. In *Manziel*, plaintiff landowners sought to set aside a commission order authorizing the operator of an adjacent tract to drill an exception-location well close to their tract. The operator intended to use the exception well to inject water to facilitate enhanced oil recovery.<sup>92</sup> This exception injection well was authorized under the auspices of a commission-approved voluntary-unitization plan.<sup>93</sup> The landowners sought to set aside the order on the ground that water injected at that location would inevitably cross ownership lines, resulting in a trespass and the early watering out of one

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<sup>85</sup> *Id.*

<sup>86</sup> *Id.*

<sup>87</sup> *Gregg v. Delhi-Taylor Oil Corp.*, 344 S.W.2d 411, 415 (Tex. 1961), *aff'g* 337 S.W.2d 216 (Tex. Civ. App.—Austin 1960).

<sup>88</sup> *Id.* at 416. The court cited *Hastings Oil Co. v. Texas Co.*, 234 S.W.2d 389 (Tex. 1950), which enjoined testing a slant-hole well that bottomed out beneath neighboring property.

<sup>89</sup> *Gregg v. Delhi-Taylor Oil Corp.*, 344 S.W.2d 419 (Tex. 1961), *aff'g*, 337 S.W.2d 222 (Tex. Civ. App.—Austin 1960).

<sup>90</sup> *Delhi-Taylor Oil Corp. v. Holmes*, 344 S.W.2d 420 (Tex. 1961), *rev'g*, 337 S.W.2d 479 (Tex. Civ. App.—San Antonio 1960).

<sup>91</sup> *Id.* at 421.

<sup>92</sup> *Railroad Comm'n of Tex. v. Manziel*, 361 S.W.2d 561 (Tex. 1962).

<sup>93</sup> *Id.* at 566.

of their oil wells.<sup>94</sup> The *Manziel* court stated that it was presented with the issue of “whether a trespass is committed when secondary recovery waters from an authorized secondary recovery project cross lease lines.”<sup>95</sup> After discussing the utility of EOR operations the court stated:

We conclude that *if*, in the valid exercise of its authority to prevent waste, protect correlative rights, or in the exercise of other powers within its jurisdiction, *the Commission authorizes secondary recovery projects, a trespass does not occur when the injected, secondary recovery forces move across lease lines*, and the operations are not subject to an injunction on that basis. *The technical rules of trespass have no place in the consideration of the validity of the orders of the Commission.*<sup>96</sup>

*Manziel* would have been a straightforward trespass case had it been brought against the operator of the injection well;<sup>97</sup> however, the suit was brought against the Railroad Commission to set aside and cancel a commission order. The court indicated that trespass has “no place” in a proceeding to determine the validity of a commission order; however, trespass may well have a place in a private cause of action in tort. Indeed, the *Manziel* court recognized this distinction when it stated:

[W]e are not confronted with the tort aspects of such practices. Neither is the question raised as to whether the Commission’s authorization of such operations throws a protective cloak around the injecting operator who might otherwise be subjected to the risks of liability for actual damages to the adjoining property . . .

<sup>98</sup>

Nevertheless, the *Manziel* court did discuss trespass in some detail, and was strongly sympathetic to, the view that traditional rules of trespass may not be appropriate for subsurface invasions that are for the greater public good—such as for enhanced oil recovery and, by analogy, perhaps hydraulic fracturing. As the *Garza* court indicates, however, the *Manziel* court

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<sup>94</sup> *Id.*

<sup>95</sup> *Id.* at 567.

<sup>96</sup> *Id.* at 568–69 (emphasis added). In reaching this conclusion, the court quoted Professors Howard Williams and Charles Meyers:

What may be called a ‘negative rule of capture’ appears to be developing. Just as under the rule of capture a landowner may capture such oil or gas as will migrate from adjoining premises to a well bottomed on his own land, so also may he inject into a formation substances which may migrate through the structure to the land of others, even if it thus results in the displacement under such land of more valuable with less valuable substances . . .

*Id.* at 568 (quoting 1-2 HOWARD WILLIAMS & CHARLES MEYERS: OIL AND GAS LAW, § 204.5).

<sup>97</sup> See e.g., *California Co. v. Britt*, 154 So. 2d 144 (Miss. 1963) (holding that rule of capture protects against trespass liability for drainage caused by waterflooding conducted under an approved unitization where plaintiff refused to join in the unit operations).

<sup>98</sup> *Manziel*, 361 S.W.2d at 566.

heavily relied on the fact that the Railroad Commission had issued an order approving the waterflooding operation. Indeed, the *Manziel* court's discussion implies that the Railroad Commission must issue a regulatory order if traditional trespass rules are to be avoided.<sup>99</sup>

A case closely analogous to *Manziel* that the *Garza* court did not review is *Corzelius v. Railroad Commission*.<sup>100</sup> In *Corzelius*, the Railroad Commission issued an order authorizing a party, as its agent, to drill a directional well to help extinguish a fire resulting from a gas-well blowout that was threatening the surrounding area.<sup>101</sup> The party responsible for the blowout sought to set aside the order and enjoin the operation on the ground that the agent's well bore would directly invade the party's mineral estate.<sup>102</sup> In this emergency, the court concluded that the commission's order was valid and shielded the drilling party from being enjoined.<sup>103</sup> While *Corzelius* involves an emergency response, it illustrates the importance of a regulatory order authorizing an operation that would otherwise have constituted a subsurface trespass.

Nevertheless, an administrative order, even one that includes a finding of fact that no harm will result to neighboring properties, will not necessarily bar a private action in tort to redress actual injury,<sup>104</sup> but the existence of a regulatory order might bar injunctive relief and punitive damages. Perhaps an administrative order may avoid a traditional trespass analysis in favor of a nuisance analysis that would balance the utility of a particular operation with the gravity of the harm to the plaintiff landowner.

The *Garza* court correctly characterizes *Geo-Viking*, wherein the Texas Supreme Court ultimately retreated from its pronouncements in *Gregg*. In *Geo-Viking*, an operator recovered damages from a well-service company that had botched a frac operation. The damages were based on the amount of production that the operator would have recovered if the frac had been properly performed. The well-service company appealed, arguing, *inter alia*, that the jury should have been instructed when calculating damages to disregard the amount of production that would have been obtained from adjacent property as a result of a properly performed frac.<sup>105</sup> The court of appeals rejected this argument<sup>106</sup> asserting that the "argument is in direct opposition to the rule of capture."<sup>107</sup> The Texas Supreme Court initially reversed, finding that fracturing the subsurface of another's land is trespass and precluding application of the rule of capture.<sup>108</sup> However, at the request of the parties, the Texas Supreme Court subsequently withdrew its opinion and its writ of error, stating that the "application was improvidently granted."<sup>109</sup> Moreover, the court concluded, "we should not be understood as approving or disapproving the opinions of the court of appeals analyzing the rule of capture or trespass as they apply to

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<sup>99</sup> *Id.* at 568-69.

<sup>100</sup> *Corzelius v. Railroad Comm'n*, 182 S.W.2d 412 (Tex. Civ. App.—Austin 1944, no writ).

<sup>101</sup> *Id.* at 413-14.

<sup>102</sup> *Id.* at 414.

<sup>103</sup> *Id.* at 416-17.

<sup>104</sup> *Cf. Champlin Exploration, Inc., v. Railroad Comm'n*, 627 S.W.2d 250, 252-53 (Tex. App.—Austin 1982, writ ref'd n.r.e.) and *Muckelroy v. Richardson Indep. Sch. Dist.*, 884 S.W.2d 825, 830 (Tex. App.—Dallas 1994, writ denied) (distinguishing *Champlin*).

<sup>105</sup> *Geo-Viking, Inc. v. Tex-Lee Operating Co.*, 817 S.W.2d 357, 363-64 (Tex. App.—Texarkana 1991).

<sup>106</sup> *Id.* at 364.

<sup>107</sup> *Id.* (citing *Brown v. Humble Oil & Ref. Co.*, 83 S.W.2d 935, 940 (Tex. 1935)).

<sup>108</sup> *Geo-Viking, Inc.*, No. D-1678, 1992 WL 80263 (Tex. 1992 Apr. 22, 1992).

<sup>109</sup> *Geo-Viking, Inc.*, 839 S.W.2d 797, 798 (Tex. 1992).

hydraulic fracturing.”<sup>110</sup> Whether fracturing across property lines constituted a trespass or was protected by the rule of capture was not revisited by the Texas Supreme Court until *Garza*.

In its next paragraph, the court delivered the coup’ de grâce to the Salinas family. The court begins by stating that it need not decide the broader issue<sup>111</sup>—apparently whether fracing and other subsurface encroachments can ever be actionable in trespass. Instead the court concludes that the family’s trespass action was precluded by the rule of capture.<sup>112</sup> In other words, the family’s claim of actual injury was based upon the drainage resulting from Coastal’s frac operation, which the court concludes is protected by the rule of capture—that is, the rule protected Coastal from liability for drainage and gives Coastal title to the oil and gas produced from its lawful well. Thus, the Salinas family suffered no actual injury because “the gas he claims to have lost simply does not belong to him.”<sup>113</sup>

This same paragraph separates the majority opinion from Justice Willett’s concurring opinion. The majority opinion states that the Salinas family does not assert that the frac operation damaged his wells or damaged the Vicksburg T formation beneath his property. “In sum, Salinas does not claim damages that are recoverable.”<sup>114</sup> In its next paragraph, the court completed its rule-of-capture analysis by reminding parties who suffer drainage under the rule that they have their own self-help remedy—in this case, to frac their own wells.<sup>115</sup>

The court’s next paragraph is the weakest part of the majority opinion. Here, the court overstates the distinction between fracing and drilling a slant well beneath another’s property:

Salinas argues that stimulating production through hydraulic fracturing that extends beyond one’s property is no different from drilling a deviated or slant well—a well that departs from the vertical significantly—bottomed on another’s property, which is unlawful. Both produce oil and gas situated beneath another’s property. But the rule of capture determines title to gas that drains from property owned by one person onto property owned by another. It says nothing about the ownership of gas that has remained in place. The gas produced through a deviated well does not migrate to the wellbore from another’s property; it is already on another’s property. The rule of capture is justified because a landowner can protect himself from drainage by drilling his own well, thereby avoiding the uncertainties of determining how gas is migrating through a reservoir. It is a rule of expedience. One cannot protect against drainage from a deviated well by drilling his own well; the deviated well will continue to produce his gas. Nor is there any uncertainty that a deviated well is

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*Id.*

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Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 12 (Tex. 2008, reh’g denied).

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*Id.* at 13.

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*Id.*

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*Id.*

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*Id.*

producing another owner's gas. The justifications for the rule of capture do not support applying the rule to a deviated well.<sup>116</sup>

A slant well that bottoms out beneath another's property results in actionable trespass.<sup>117</sup> All oil or gas produced from such a well belongs to the owner of the mineral rights where the well is bottomed, because, under the rule of capture, the oil or gas is captured from that location by a well bore that physically encroaches on the rightful owner's subsurface.<sup>118</sup> Encroaching fluids injected to create fractures and encroaching proppants injected to hold open the fractures to facilitate the capture of hydrocarbons are not that physically different from an encroaching well bore that captures hydrocarbons. That the former is caused by a drill bit and that the latter is caused by injected fluids and proppants is not a meaningful distinction. That the former involves the continued presence of production tubing and that the latter involves the continuing presence of proppants is also not a meaningful distinction. That the former is controlled and that the latter is uncontrolled is not a meaningful distinction from a trespass perspective.<sup>119</sup> And contrary to what the majority states, if slant wells were not unlawful, a mineral owner who had suffered the incursion of a slant well could gain some protection by drilling beneath the trespasser's tract—at least where the reservoir was common to both tracts.

A more convincing justification for allowing fracing across property lines, while disallowing slant drilling, is practical necessity and common sense. Trespassing slant wells are not necessary for the exploitation of hydrocarbons. In the case of a slant hole, the trespassing party's land may not be capable of production, possibly resulting in the trespasser gaining access to hydrocarbons that are not common to his tract. On the other hand, as previously discussed,<sup>120</sup> fracing is often a necessary well-completion technique. Even where not strictly necessary, fracing generally increases ultimate recovery, thus preventing underground waste. Moreover, to maximize recovery—thereby preventing underground waste—the frac operation should effectively fracture the entire unit, inevitably resulting in some invasion of neighboring property. Giving neighboring landowners an action in trespass would greatly hinder, if not halt, this useful recovery technique because the horizontal reach of a frac operation cannot be fully controlled. In sum, the court should have drawn a practical distinction between slant drilling and fracing and then moved on to its other public-policy rationale.

The court offers four good reasons to protect fracing from trespass actions, although the court identifies them as reasons “not to change the rule of capture.”<sup>121</sup> First, the owner who suffers drainage from a frac operation has sufficient legal recourse: frac his own well, sue his lessee for failing to protect against drainage or for failure to reasonably develop, offer to pool

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<sup>116</sup> *Id.* at 13-14 (footnotes omitted).

<sup>117</sup> *See, e.g.,* *Hastings Oil Co. v. Texas Co.*, 234 S.W.2d 389, 398 (Tex. 1950).

<sup>118</sup> *See, e.g.,* *Alphonzo E. Bell Corp. v. Bell View Oil Syndicate*, 76 P.2d 167, 175-79 (Cal. Dist. Ct. App. 1938) and *Edwards v. Lachman*, 534 P.2d 670, 676 (Okla. 1974). *Cf. Browning Oil Co. v. Luecke*, 38 S.W.3d 625, 645-46 (Tex. App.—Austin 2000, rev. denied) (refusing to apply the slant-hole rule of capture to horizontal drilling in the context of an invalid pooling on grounds of public policy).

<sup>119</sup> *See, e.g.,* *Union Oil Co. of Cal. v. Mutual Oil Co.*, 65 P.2d 896, 898 (Cal. Dist. Ct. App. 1937) (observing that the defendants were charged with trespass and that “neither good nor bad faith, neither care nor negligence, neither knowledge nor ignorance, are of the gist of the action.” (quoting *Poggi v. Scott*, 139 P. 815 (Cal. 1914))).

<sup>120</sup> *See* discussion *supra* Part § X.03.

<sup>121</sup> *Garza*, 268 S.W.3d at 14.

and seek forced pooling, and ask the Railroad Commission to regulate production to prevent drainage. These are all good reasons; however, later in its opinion, the court lessens the utility of suing the lessee to prevent drainage by appearing to adopt a limited measure of damages based upon the value of the drainage that should have been prevented, rather than based upon the value of production from a timely and properly drilled offset well.<sup>122</sup> Although important and deserving of careful analysis, further discussion of this measure-of-damages issue is beyond the scope of this paper.<sup>123</sup>

Second, the court reasons that the Railroad Commission is best positioned to determine whether hydraulic fracturing should be regulated to protect correlative rights or to prevent waste. The court correctly observes that “[t]he rule of capture makes it possible for the Commission, through rules governing the spacing, density, and allowables of wells, to protect correlative rights of owners with interests in the same mineral deposits while securing ‘the state’s goals of preventing waste and conserving natural resources.’”<sup>124</sup> Of course, this begs the question of whether the Railroad Commission should regulate hydraulic fracturing to protect correlative rights. In my opinion, which I further amplify below,<sup>125</sup> regulating fracing to protect correlative rights would likely cause more problems, in terms of regulatory cost, time, and uncertainty, than regulation would solve. In the future, perhaps some minimal regulation of fracing may become necessary to prevent waste. For example, where well density is high, operators of wells may benefit from being notified of an impending frac operation so that they may take precautions against possible damage to their well-bores.<sup>126</sup>

Third, the court reasons that “determining the value of oil and gas drained by hydraulic fracturing is the kind of issue the litigation process is least equipped to handle.”<sup>127</sup> The court correctly observes that the difficulty in determining damages based upon “material facts ... hidden below miles of rock” was “one of the justifications for the rule of capture.”<sup>128</sup> Moreover,

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<sup>122</sup> *Id.* at 17-19.

<sup>123</sup> For general discussion, see generally, OWEN L. ANDERSON ET AL., HEMINGWAY OIL AND GAS LAW AND TAXATION § 8.7, p. 442 (West Group 4th ed. 2004); 5 EUGENE KUNTZ, OIL AND GAS § 61.5(d), p. 184-92 (1991); 5 PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS AND MEYERS OIL AND GAS LAW § 825.2, p. 165 (Matthew Bender & Co., Inc. 2007).

<sup>124</sup> *Garza*, 268 S.W.3d at 15 (quoting *Gulf Land Co. v. Atlantic Ref. Co.*, 131 S.W.2d 73, 80 (Tex. 1939)).

<sup>125</sup> See *infra* Part § X.05.

<sup>126</sup> The author of this paper is aware that frac operations may temporarily harm nearby wells and may, in some circumstances, cause a decline in the rate of production. Of course, a decline in the rate of production without some physical damage to a nearby well bore would not seem to be actionable if the decline was due solely to drainage, which, under *Garza*, would be protected by the rule of capture. The oil and gas industry has coined the term “well bashing” to describe harm to nearby wells resulting from fracing operations. Before fracing a well, some operators notify operators of neighboring wells so that the neighboring operators may take precautions—such as temporarily shutting in their wells during the frac operation. In appropriate circumstances, simultaneous frac operations may be conducted on adjacent wells. Simultaneous frac operations may allow for more effective fracing of the reservoir and may also minimize the chance of harm to neighboring well bores. Query whether these measures have or may become industry “custom and practice” and whether preventive measures may become the accepted practice of “reasonable and prudent operators.” *Cf.*, *Energistica, S.A. v. Mercury Petroleum, Inc.*, 2008 U.S. Dist. LEXIS 103474, 2008 WL 5381907 (W.D. Ky. Dec. 22, 2008) (unreported case alleging harm to neighboring well by hydraulic fracturing of well in an area developed on 4-acre well density and seeking relief on grounds of trespass and negligent trespass but dismissed because of insufficient pleadings).

<sup>127</sup> *Garza*, 268 S.W.3d at 16.

<sup>128</sup> *Id.*

in litigating a frac trespass, “trial judges and juries cannot take into account social policies, industry operations, and the greater good, which are all tremendously important in deciding whether fracing should or should not be against the law.”<sup>129</sup> The court notes that the experts for both parties agreed that fracing was essential to the recovery of hydrocarbons from many formations and that fracing cannot be performed both to achieve its maximum effectiveness and to prevent drainage.

Fourth, the court reasons, based on numerous amicus curiae briefs, that “every corner of the industry—regulators, landowners, royalty owners, operators, and hydraulic fracturing service providers—... oppose[s] liability for hydraulic fracturing.”<sup>130</sup> Moreover, although “hydraulic fracturing has been commonplace ... for over sixty years, neither the Legislature nor the Commission has ever seen fit to regulate it, though every other aspect of production has been thoroughly regulated. Into so settled a regime the common law need not thrust itself.”<sup>131</sup> While I agree with this reasoning, this is debatable. Some might argue that, because every other aspect of production has been thoroughly regulated, fracing should not be allowed to fall through the regulatory cracks—pun intended!

Had the court been convinced of the need for regulation, which it clearly was not, the court could have forced regulation as it effectively forced the legislature to enact the Mineral Interest Pooling Act with its *Normanna*<sup>132</sup> and *Port Acres*<sup>133</sup> decisions in the early 1960s. However, the need to force reform was not nearly as apparent in *Garza*. Moreover, forced pooling was an obvious solution to the correlative-rights issues addressed in the *Normanna* and *Port Acres* decisions. By the early 1960s, force pooling had been a long-established regulatory practice in many states. On the other hand, as I discuss below,<sup>134</sup> how regulation could meaningfully and fairly address the correlative-rights concerns raised by hydraulic fracturing and still allow fracturing to prevent underground waste, is not clear.<sup>135</sup>

#### [4] The Concurring and Dissenting Opinions Regarding the Primary Trespass Issue

Justice Willett’s concurring opinion<sup>136</sup> is in the nature of a “Brandeis Brief”—long on empirical data but short on law. Nevertheless, the data he summarizes on the importance of domestic hydrocarbon production and on the necessity and utility of hydraulic fracturing further support the majority opinion’s public-policy arguments. Based on these data and the concerns

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<sup>129</sup> *Id.* (citing *Texaco, Inc. v. Railroad Comm’n*, 583 S.W.2d 307, 310 (Tex. 1979)).

<sup>130</sup> *Id.* at 16-17.

<sup>131</sup> *Id.* at 17.

<sup>132</sup> *Atlantic Ref. Co. v. Railroad Comm’n*, 346 S.W.2d 801 (Tex. 1961).

<sup>133</sup> *Halbouty v. Railroad Comm’n*, 357 S.W.2d 364 (Tex. 1962).

<sup>134</sup> *See infra* Part § X.05.

<sup>135</sup> Preventing waste, especially underground waste, is the primary objective of conservation regulation. *See, e.g., Denver Producing & Ref. Co. v. State*, 184 P.2d 961, 964 (Okla. 1947) (“In striking a balance between conservation of natural resources and protection of correlative rights, the latter is secondary and must yield to a reasonable exercise of the former.”). *See also* *Application of Koch Exploration Co.*, 387 N.W.2d 530, 535 (S.D. 1986) (“We are faced with a delicate balancing problem between prevention of waste and correlative rights, but prevention of waste is of primary importance.”); *Gilmore v. Oil and Gas Conservation Comm’n*, 642 P.2d 773, 779 (Wyo. 1982) (“We are faced with a delicate balancing problem between prevention of waste and correlative rights, but prevention of waste is of primary importance.”).

<sup>136</sup> *Garza*, 268 S.W.3d at 26-42.

raised in amicus curiae briefs, Justice Willett would have gone one step beyond the majority. He would have ruled that drainage resulting from fracing across unit lines is not merely non-actionable trespass; it is not trespass at all.<sup>137</sup> He would have confronted the question of whether land ownership extends to the sky and to the depths or whether the *ad coelum* doctrine has a place in the modern world.<sup>138</sup> He supports his position by asserting that the court in *Manziel* held that waterflooding was not a trespass.<sup>139</sup>

As previously discussed,<sup>140</sup> *Manziel* was a suit to set aside a Railroad Commission order. It was not a tort action against the waterflooding party. While the court in *Manziel* discussed trespass at some length, it did not *hold* that no trespass occurred.

Justice Willett characterizes the majority opinion as recognizing that fracing constitutes a wrongful trespass without injury because the resulting drainage was protected by the rule of capture and thus non-actionable.<sup>141</sup> In contrast, Willett would hold that nothing wrongful occurred; thus, there was no trespass.<sup>142</sup> While Willett would allow a damage claim for fracing that damaged a common reservoir or a neighbor's "drilling equipment,"<sup>143</sup> he would consider that claim under negligence law,<sup>144</sup> not trespass law—a difference that could be legally significant.<sup>145</sup>

A negligence claim requires proof of a negligent act—a breach of duty that causes injury.<sup>146</sup> On the other hand, actionable trespass would presumably require only a showing of recoverable injury—an injury other than increased drainage toward the fraced well. If such an injury were shown, such as harm to the trapping integrity of a reservoir or the cratering of neighboring well, the result would be akin to strict liability. Moreover, a trespass claim might more easily support a punitive-damages claim. Willett is clearly concerned that trespass actions will impede hydraulic fracturing even though the rule of capture bars the recovery of damages for drainage. Given the tenor of Willett's opinion and the length of time it took the court to decide this case, one wonders whether Willett set out to write what was to be the majority opinion, only to lose support from justices who preferred a more cautious and measured approach.

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<sup>137</sup> *Id.* at 29, 35-37.

<sup>138</sup> *Id.* at 29.

<sup>139</sup> *Id.* at 35-37.

<sup>140</sup> *See supra* text accompanying notes 92-99.

<sup>141</sup> *Garza*, 268 S.W.3d at 29-30.

<sup>142</sup> *Id.*

<sup>143</sup> *Id.* at 30.

<sup>144</sup> Willett says nothing about whether he would allow a nuisance claim. *See, e.g.,* *People's Gas Co. v. Tyner*, 31 N.E. 59 (Ind. 1892) (enjoining the "shooting" of a well with nitroglycerin within a city on nuisance grounds).

<sup>145</sup> I say legally significant because there may be little practical significance. I have found only one reported case addressing negligent fracing. In *Irgens v. Mobil Oil Corp.*, 442 N.W.2d 223 (N.D. 1989), the facts indicate that an operator elected to frac a well, in lieu of a hard acid treatment. The frac operation apparently caused the well to water out for which the plaintiff lessors were awarded damages on the ground that the defendant had not acted as a reasonable and prudent operator in fracing the well. Note that, in this case, the well that was damaged was the fraced well, not a neighboring well.

<sup>146</sup> *See, e.g.,* *Elliff v. Texon Drilling Co.*, 210 S.W.2d 558 (Tex. 1948) (awarding damages for a negligently drilled well that caused a blowout that resulted in the drainage of a large amount of gas and distillate from plaintiff's property).

Willett saves his harshest criticism for the dissenters.<sup>147</sup> The following excerpt provides a summary:

The dissent's view would invite a nightmarish flood of litigation over unknowable facts. It would slow the spigot and make it far tougher to find that next barrel of crude, that next cubic foot of natural gas, particularly in less-desirable pockets. It would reward the free rider who would rather sue for trespass than drill his own well. And it would do all this at the worse possible time—one of falling production, surging demand, and near-record-high prices for both crude oil and gasoline. Under the dissent, the newest "enhanced-recovery technique" would be a wildcatting plaintiff who sues for multi-millions after his neighbor fracs a well. Why hire a drilling contractor and field geologist to drill an unsightly and unpredictable offset well when you can go for a gusher in the courtroom? Just hire a lawyer and retain a testifying expert who can summarize with mind-boggling precision the fluid dynamics and fracture geometry that transpired beneath millions of tons of earth.<sup>148</sup>

The thesis of the dissenting opinion is essentially that the majority addressed the rule of capture without first deciding the trespass issue. I submit that the majority did acknowledge that a fracture across property lines was a trespass but held that such an incursion was not actionable because the resulting drainage—the actual harm—was protected by the rule of capture. In contrast, the dissent would not extend the rule of capture's protection to a trespassing frac operator: "I would not apply the rule to a situation such as this in which a party effectively enters another's lease without consent, drains minerals by means of an artificially created channel or device, and then 'captures' the minerals on the trespasser's lease."<sup>149</sup> Indeed, the dissenters characterized the majority opinion as "changing the rule [of capture]," and they would not do so.<sup>150</sup> In other words, although they do not expressly so state, the dissenters would have held that an actionable trespass did occur, but, given the obvious utility of hydraulic fracturing, the dissenters appeared willing to bar the recovery of exemplary damages.<sup>151</sup> They do not say whether they would bar equitable relief.

The dissenters may overstate some of their correlative-rights concerns. Consider the following passage, raising concerns for the owners of small tracts:

Today's holding reduces incentives for operators to lease from small property owners because they can drill and hydraulically fracture to "capture" minerals from unleased and unpooled properties that would otherwise not be captured. Today's holding

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<sup>147</sup> *Garza*, 268 S.W.3d at 30, 37-42.

<sup>148</sup> *Id.* at 30.

<sup>149</sup> *Id.* at 43.

<sup>150</sup> *Id.* at 45.

<sup>151</sup> *Id.* at 47.

effectively allows a lessee to change and expand the boundary lines of its lease by unilateral decision and action—fracturing its wells—as opposed to contracting for new lease lines, offering to pool or utilizing forced pooling, or paying compensatory royalties.<sup>152</sup>

To some extent this statement may be true. Nevertheless, a small-tract owner who is not offered a fair and reasonable offer to pool could “muscle in” to a neighboring well, whether or not such a well was fraced.<sup>153</sup> The dissenters also complain that royalty owners may not have standing to seek a pooling order.<sup>154</sup> Even if that is the case, lessees may have a duty to pool or unitize when necessary to prevent drainage.<sup>155</sup>

From the vantage point of those who understand the practical necessity of hydraulic fracturing, the dissenting opinion is certainly alarming and even seems foolhardy. However, assuming that the dissenters were not trying to end hydraulic fracturing, perhaps they were trying to be courageous. Perhaps their intent was to force the Texas legislature or the Railroad Commission to regulate hydraulic fracturing in a manner that would protect correlative rights. As previously mentioned,<sup>156</sup> had the majority been convinced of the need for regulation, it could have forced regulation as it effectively forced the legislature to enact the Mineral Interest Pooling Act with its *Normanna* and *Port Acres* decisions in the early 1960s. This may have been the dissenters’ unstated intention as they did cite *Port Acres*.<sup>157</sup> If the Railroad Commission had been regulating fracing through a permitting process, perhaps the dissenters would have followed the reasoning of *Manziel*.

Historically, the self-help remedy implicit in the rule of capture gave landowners an opportunity to capture a fair share of hydrocarbons if they promptly exercised their right of self help. The problem was that the rule of capture caused much waste—both of hydrocarbons and money.<sup>158</sup> Eventually, the waste caused by excessive drilling was addressed by regulating the number of wells that could be drilled in a field. These spacing and density regulations limited the freedom of landowners to drill as many wells as they wished under the rule of capture. Spacing and density also served to protect correlative rights by giving landowners an equal opportunity to capture a fair share of hydrocarbons from a common reservoir. For a time in Texas, small-tract owners were given an unfair advantage by allowing them to drill one well to prevent confiscation and by giving them a disproportionately large production allowable. This practice was brought to an end, prospectively, with *Port Acres* and *Normanna*. In the case of small tracts, spacing and density regulations alone proved inadequate to protect correlative rights. The solution was more regulation, in the form of the Mineral Interest Pooling Act—“an Act to encourage voluntary

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<sup>152</sup> *Id.* at 45.

<sup>153</sup> TEX. NAT. RES. CODE § 102.014(b)(2007). For court discussion of the muscle-in provision, see *Carson v. Railroad Comm’n*, 669 S.W.2d 315, 317 (Tex. 1984) and *Broussard v. Texaco, Inc.*, 479 S.W.2d 270, 276 (Tex. 1972).

<sup>154</sup> *Garza*, 268 S.W.3d at 45-46 (citing *Railroad Comm’n v. Coleman*, 460 S.W.2d 404 (Tex. 1970)).

<sup>155</sup> See, e.g., *Amoco Prod. Co. v. Alexander*, 622 S.W.2d 563, 568 (Tex. 1981).

<sup>156</sup> See *supra* text accompanying notes 132-135.

<sup>157</sup> *Garza*, 268 S.W.3d at 43-44.

<sup>158</sup> The poster child for this waste is the Spindletop Field near Beaumont, Texas. See generally JOHN S. LOWE ET AL., *CASES AND MATERIALS ON OIL AND GAS LAW* 114-19 (Thomson/West 5th ed. 2008).

pooling—rather than an Act to provide for compulsory state action.”<sup>159</sup> Regarding small tracts, a non-regulatory solution was not feasible.

The trespass concerns raised by hydraulic fracturing are different from the correlative-rights concerns raised by the small-tract problem. Hydraulic fracturing is necessary to prevent underground and economic waste. In contrast, small-tract wells probably caused some underground and surface waste and certainly caused economic waste.

While it is unlikely that regulation would have ended hydraulic fracturing (Justice Willett’s concern), regulation certainly would have encumbered fracing, in terms of both increased time and money. Fracing would likely have been suspended for a time, while the Railroad Commission developed regulations. But to what end? Even suspension of fracing would have had adverse economic consequences. In 2008, one company performed an average of over 200 frac operations per month in the Barnett Shale alone. A permitting process would not necessarily protect correlative rights. For example, the Railroad Commission’s approval of unitized waterflooding in *Manziel* did not protect the plaintiffs’ correlative rights. A conservation agency’s order approving voluntary unitization primarily blesses the particular unitization plan as being preventive of underground waste.<sup>160</sup>

To maximize recovery of hydrocarbons to prevent underground waste, frac operations must extend throughout the unit—meaning that the fractures must extend beyond the property lines. The extent of the fractures cannot be controlled. Hydraulically-injected fluids will follow a path pre-ordained by nature through those portions of reservoir rock most susceptible to fracturing. Because the fractured reservoir rock is thousands of feet below the surface, the precise location and extent of the fractures cannot be accurately predicted beforehand and can only be indirectly estimated through micro-seismic surveying conducted during the frac. In such circumstances, correlative rights could only be meaningfully protected after the frac operation was completed.

The most accurate means of estimating the effect of a frac would be to conduct expensive, successive 3D micro-seismic surveys, which together might provide 4D (time-lapse) information about how the reservoir was being effectively drained. While these surveys could be used to estimate the lateral extent of the fractures, the lateral extent of the injected fluids, the lateral extent of the injected proppants, and the area of effective drainage, they are expensive. Generally these surveys are conducted to help design the most effective frac treatments for reservoirs undergoing initial development and to study the effectiveness of particular operations. Such survey data is far from perfect and has to be deciphered by experts.

Even assuming a reasonably accurate estimate regarding the half length, the hydraulic length, the propped length, and the effective length, how should the Railroad Commission protect correlative rights? If the goal is to more perfectly protect correlative rights by allowing all tracts affected by or drained by the fraced well to share in production, production would have to be allocated after the frac operation and thus after any “trespass.” In other words, proration

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<sup>159</sup> Ernest E. Smith, *The Texas Compulsory Pooling Act*, 43 TEX. L. REV. 1003, 1009 (1965).

<sup>160</sup> Historically, regulatory approval of voluntary unitization was sought by operators as insurance against running afoul of antitrust law.

units would have to be created post-fracture—perhaps including working interests that did not participate in the drilling of the well. Each unit would need to be sized and shaped to take into account the extent of a particular fracture, resulting in nonuniform units.

There are more regulatory issues. What extent of the fracture should be included in the unit? The half length? The hydraulic length? The propped length? The effective length? Once these questions are decided, how should production be allocated among the affected tract owners? Allocating production on a surface-acreage basis seems unfair on its face if the established unit boundaries extended beyond a fracture's effective length. Consider that some tracts may suffer fracturing from multiple wells and from multiple directions. Would overlapping fractures result in overlapping units? In other words, should the owners of tracts on the periphery of several units receive at least a small share of production from every fraced well that is estimated to be draining their acreage? On the other hand, if one likened fracing to waterflooding and other secondary-recovery injection techniques, fields would need to be unitized before they could be fraced.<sup>161</sup>

If pooling occurred after a frac operation, the resulting cost-allocation and production-allocation issues would be difficult to resolve in a fair manner. A conservation order that allocated production and costs after a frac had occurred would be little more than a “guesstimate” and doing so beforehand would require even more guesswork.<sup>162</sup> Perhaps the conservation agency would have to hold two hearings—one *ex ante* to allow the frac and one *ex post* to allocate production.

In short, any attempt at meaningful regulation would be expensive and time consuming and would not likely protect correlative rights any better than self help would do so under the rule of capture. Regulating fracing would not facilitate the prevention of waste. Indeed, the extra time and cost of such regulation would cause economic waste. Any half-baked regulations, such as regulations requiring notice to surrounding landowners and a fracing permit, seem like window dressing. Moreover, the correlative-rights doctrine protects one's “opportunity” to capture a fair share of hydrocarbons in a common reservoir. The doctrine does not allow a mineral owner to build a legal fence around a particular portion of a reservoir. Rather, the doctrine is intended to provide the mineral owner with a fair opportunity to exercise self help. Thus, I think the majority in *Garza* reached the right result.

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<sup>161</sup> Because fracing is essentially a well-completion technique, it is different from waterflooding, which is a secondary recovery technique. Conservation agencies regulate waterflooding, in part, to determine whether waterflooding would be effective and not injurious to a particular reservoir. In addition, effective waterflooding requires coordinated operations on a number of drilling units—ideally on all units in a field.

<sup>162</sup> For an example of case allowing guesswork in lieu of applying the rule of capture, see *Anderson v. Amoco Canada Oil and Gas*, [2004] 3 S.C.R. 3, 2004 SCC 49 (Can.), *aff'g* [2002] 214 D.L.R. 272, 2002 ABCA 162, *aff'g in part* [1998] Alta. L.R. 669. In this case, the Supreme Court of Canada refused to apply the rule of capture to a phase-severance dispute, holding that expert testimony could estimate the amount of gas originally in place in a gas-cap reservoir where the production of oil had caused some gas originally in solution to come out of solution and migrate into the gas cap. The owners of the gas-cap gas unsuccessfully argued that the rule of capture should determine ownership of all gas produced from the gas cap, regardless of its origin. *Cf.*, *NCNB Texas Nat'l Bank v. West*, 631 So. 2d 212 (Ala. 1993) (holding that the rule of capture determines ownership of coalbed methane based upon whether the methane is produced directly from the coal seam or from the gob of a coal mine or from non-coal strata). These two cases are compared in analyzed in Kramer & Anderson, *supra* note 32, at 941-49.

In my opinion, a conservation agency should generally refrain from regulation unless regulation is necessary to prevent waste.<sup>163</sup> Of course, when regulating to prevent waste a conservation agency should also protect correlative rights. However, absent a need to prevent waste, a conservation agency should let the self-help remedy, implicit in the rule of capture, protect correlative rights. Indeed, although the self-help (offset-drilling) remedy resulted in waste—the drilling of too many wells—it did protect correlative rights reasonably well.<sup>164</sup>

Although conservation law places regulatory limits on unfettered drilling and production under the rule of capture, the rule still applies beyond those regulatory limits and is actually important in terms of regulatory efficiency.<sup>165</sup> For purposes of both preventing waste and protecting correlative rights, I submit that fracing is already sufficiently regulated by traditional well spacing and by the filing of well-completion reports. Traditional well spacing creates units of uniform size and shape with standardized well-location rules. These units, coupled with the doctrines of radial drainage and compensatory drainage, adequately protect the correlative rights of operators who are diligent in drilling and fracing. Those lessee-operators who are not diligent in drilling and fracing may have to answer for breach of the implied covenant to prevent drainage or for failure to pool in good faith. The fact that a well is fraced should not require more precise regulatory protection of correlative rights protection. Well-completion reports, which require disclosure of the volumes of injected fluids and proppants, provide adequate notice of the fact that frac operations have been conducted. In addition, directional well surveys are required for horizontal wells.

#### § X.05 *Garza's Effect on Hydraulic Fracturing*

*To drill an oil well near the line of one's land cannot interfere with the legal rights of the owner of the adjoining lands, so long as all operations are confined to the lands upon which the well is drilled.*<sup>166</sup>

*Garza* may have far-reaching implications—pun intended. For starters, *Garza* represents a departure from the above limitation on the rule of capture because, regarding hydraulic fracturing, not “all operations are confined to the lands upon which the well is drilled.” This quotation comes from *Kelly v. Ohio Oil Co.*,<sup>167</sup> one of the early and seminal cases adopting the rule of capture. Thus, while I disagree with the result that Justice Johnson and his fellow dissenters wanted in *Garza*, I generally agree with the following observation by Justice Johnson: “[M]y fundamental disagreement is not with the reasons the Court gives. My fundamental disagreement is with the Court's premise that its decision is *not a change* of the rule of capture. I believe the Court is changing the rule....”<sup>168</sup> I part company with Justice Johnson at this point in

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<sup>163</sup> I say “generally” because there are valid exceptions, such as requiring a directional survey for slant wells. Directional surveys are accurate and can thus determine the location of a well bore. In any related trespass action, the rule of capture can then be used to award all production to the owner of the invaded property.

<sup>164</sup> See generally Kramer & Anderson, *supra* note 32, at 951-54 (2005).

<sup>165</sup> *Id.* at 928-32, 951-54.

<sup>166</sup> *Kelly v. Ohio Oil Co.*, 49 N.E. 399, 401 (Ohio 1897).

<sup>167</sup> *Id.*

<sup>168</sup> *Garza*, 268 S.W.3d at 45.

his opinion because he then states that he would not change the rule of capture.<sup>169</sup> I would change—really “extend”—the rule on grounds of public policy, practical necessity, and rights of ownership.

The primary public-policy reasons are that fracing results in greater recovery of hydrocarbons from domestic sources and results in more efficient and profitable recovery. In other words, fracing facilitates hydrocarbon recovery—prevents underground waste. Fracing also increases the productive efficiency of wells—prevents economic waste.

Fracing is a necessary step in the successful completion of wells drilled into tight formations and is necessary for efficient recovery from many other wells. Fracing, coupled with horizontal drilling, is responsible for many of the recent “discoveries” of producible reserves throughout the world, such as the Bakken play in North Dakota and Barnett Shale play in Texas. In reality, most of these new plays are not new discoveries. The presence of hydrocarbons in many of these formations was long known, but new technologies—particularly horizontal drilling, modern hydraulic fracturing, and micro-seismic surveying techniques—have made it possible to produce the hydrocarbons from these tight reservoirs.

Because these technologies are very expensive, low hydrocarbon prices, such as the prevailing prices when this was written in January 2009, greatly affect development economics. This has caused what will hopefully be a short-term cutback in development. When an unconventional reservoir, such as a shale reservoir, is initially developed, completion costs, including frac operations, often exceed drilling costs. This is generally true in the Barnett Shale in Texas where the vertical depth of wells is about 7,500 feet and the lateral legs of often 2,500’ or more. The lateral legs of horizontal wells in the Barnett are often drilled about 500’ apart and, in some cases, as close as 250’ apart, although the vertical locations may be somewhat different owing to the fact that Barnett Shale formation is about 300 feet thick. As development proceeds, fracing costs may decline because design costs tend to decline. For example, when the initial wells were drilled in the deeper Woodford Shale play in southwest Texas in 2005, completion costs for vertical wells (12,000+ feet) often exceeded \$4,000,000. By 2008 completion costs for one operator averaged about \$2,000,000 per vertical well and about \$3,000,000 for horizontal wells with laterals of 3,000-4,000 feet.

Under the rule of capture and under either the ownership-in-place or the nonownership theory, a mineral owner may fully exploit the oil and gas resources beneath her tract. Because full exploitation prevents both underground and economic waste, a mineral owner should be allowed to frac across unit and property lines to achieve the most “effective” frac and the greatest hydrocarbon recovery. That some fractures and perhaps some proppants may extend into a neighbor’s property are unavoidable consequences of a mineral owner’s full enjoyment of her property. The fact that a neighbor may suffer additional drainage as a result of fractures and proppants extending beneath neighboring property should be *damnum absque injuriâ*. In other words, the rule of capture should govern this drainage.

My only disappointment with the court’s decision is that I was not cited! Law professors like to be favorably and accurately cited—especially in majority opinions. In two articles, I have

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<sup>169</sup> *Id.*

suggested that the rule of capture should protect hydraulic fracturing from trespass. In the first, dealing with seismic trespass, I argued that “both the rule of capture and an operator’s obligation to prevent underground waste should protect an operator who conducts prudent fracturing operations against a suit in trespass ....”<sup>170</sup> In the second, I was joined by my friend and colleague, Professor Bruce Kramer, in stating: “Fracing could be protected either by adopting the negative rule of capture and by treating fracing as within the negative rule or by simply shielding frac jobs from trespass on public policy grounds.”<sup>171</sup>

Whether Justice Hecht’s majority opinion or Justice Willett’s concurring opinion reflects the best long-term rule is the real question. Because I am conservative by nature, I agree with Justice Hecht’s approach for now. Justice Hecht reasoned that fracing across property lines is not an actionable trespass. This more cautious approach is in keeping with the two earliest groundwater cases, both holding that the drainage of groundwater from neighboring property was *damnum absque injuriā*.<sup>172</sup> As Justice Hecht observed: “We need not decide the broader [trespass] issue here.”<sup>173</sup> He then goes on to hold that fracing is not an actionable trespass because of the rule of capture.<sup>174</sup> This holding is adequate for this case.

Justice Hecht expressly reserves judgment on whether trespass can ever be the basis for a cause of action arising from hydraulic fracturing. He notes that the plaintiff “does not claim that the hydraulic fracturing operation damaged his wells or the Vicksburg T formation beneath his property.”<sup>175</sup> On the other hand, Justice Willett would have foreclosed any action in trespass arising from fracing, arguing that negligence was an adequate remedy.<sup>176</sup> The question is whether the tort of negligence<sup>177</sup> or other tort actions, such as common-law waste,<sup>178</sup> nuisance,<sup>179</sup> or strict liability,<sup>180</sup> are adequate to address well<sup>181</sup> or formation damage caused by fracing.

Unless Justice Willett is willing to view fracing that caused reservoir or well damage as negligence per se, which seems highly unlikely, negligence requires proof of several elements. A negligence action requires proof of a duty of care, which, in oil and gas law, arises from the doctrine of correlative rights—a common-law limitation on the rule of capture.<sup>182</sup> A negligence

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<sup>170</sup> Owen L. Anderson & Dr. John D. Pigott, *Seismic Technology and Law: Partners or Adversaries*, 24 ENERGY & MIN. L. INST. 285, 400 n. 319 (2003) (hereinafter Anderson & Pigott II).

<sup>171</sup> Kramer & Anderson, *supra* note 32, at 935.

<sup>172</sup> Acton v. Blundell, 152 Eng. Rep. 1223, 1235 (1843) and Greenleaf v. Francis, 35 Mass. (18 Pick.) 117, 123 (1836).

<sup>173</sup> *Garza*, 268 S.W.3d at 12.

<sup>174</sup> *Id.* at 12-13.

<sup>175</sup> *Id.* at 13.

<sup>176</sup> *Id.* at 30.

<sup>177</sup> See, e.g., Elliff v. Texon Drilling Co., 210 S.W.2d 558 (Tex. 1948) (addressing a blowout in terms of negligence).

<sup>178</sup> See, e.g., Bargsley v. Pryor Petrol. Co., 196 S.W.3d 823 (Tex. App.—Eastland 2006, rev. denied) (prohibiting lessee of an expired lease from removing well casing from producing wells).

<sup>179</sup> See, e.g., People’s Gas Co. v. Tyner, 31 N.E. 59 (Ind. 1892) (addressing shooting a well in terms of nuisance).

<sup>180</sup> See, e.g., Rylands v. Fletcher, L.R. 3 H.L. 30 (1868).

<sup>181</sup> Cf. Tidewater Oil Co. v. Jackson, 320 F.2d 157, 163 (10th Cir. 1963) (awarding damages when injected water injected for secondary recovery flooded plaintiff’s oil wells).

<sup>182</sup> See generally Kramer & Anderson, *supra* note 32, at 914-25.

action also requires proof of a breach of the duty of care—actual negligence—in this case, fracing in a circumstance where a reasonable and prudent operator would not have fraced.<sup>183</sup> And finally, a negligence action requires proof of actual damages.

Common law actions for waste are often tied to negligence<sup>184</sup> or willful misconduct.<sup>185</sup> Given the result in *Garza*, it seems unlikely that fracing would be deemed willful misconduct. Thus, if a well or reservoir were damaged by a frac operation, bringing a common-law waste action seems no different from a common-law negligence action—at least in terms of proof of the claim.

“There is perhaps no more impenetrable jungle in the entire law than that which surrounds the word ‘nuisance.’”<sup>186</sup> Apart from actions relating to hazardous activities,<sup>187</sup> nuisance is often pleaded in cases alleging pollution. Nuisance, more specifically private nuisance, requires a showing of substantial and unreasonable interference with another’s use and enjoyment of land.<sup>188</sup> To separate nuisance from what might otherwise be the basis of a negligence action, the interference must have been intentional<sup>189</sup>—that is, the wrongdoer must have acted with intent to interfere with another’s use and enjoyment of land, but this intent could arise from continuing an interference that was initially not intended to cause harm.<sup>190</sup> Even in the latter situation, if there is no negligence and the activity is of a temporary nature, relief on grounds of nuisance will be denied.<sup>191</sup> Although a plaintiff may suffer injury when a defendant allows noxious substances to invade the plaintiff’s property, no nuisance action will lie unless

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<sup>183</sup> See, e.g., *Irgens v. Mobil Oil Corp.*, 442 N.W.2d 223 (N.D. 1989).

<sup>184</sup> See, e.g., *Elliff v. Texon Drilling Co.*, 210 S.W.2d 558, 560 (Tex. 1948) (addressing “negligent waste” of gas resulting from a blowout); *Megargel Oil & Ref. Co. v. West*, 8 S.W.2d 694, 695 (Tex. Civ. App.—Fort Worth 1928, no writ) (alleging negligent waste of oil).

<sup>185</sup> See, e.g., *Emerald Oil and Gas, L.C. ex rel. Saglio P’ship Ltd. v. Exxon Corp.*, 228 S.W.3d 166 (Tex. App.—Corpus Christi 2005, rev. granted) (alleging negligence and intentional sabotage of wells).

In addition, a court on grounds of waste may enjoin a lessee whose lease has expired from removing well casing from a well that is still capable of production. *Id.* See also *Patton v. Rogers*, 417 S.W.2d 470, 478 (Tex. Civ. App.—San Antonio 1967, writ ref’d n.r.e.); *Eubank v. Twin Mountain Oil Corp.*, 406 S.W.2d 789, 791 (Tex. Civ. App.—Eastland 1966, writ ref’d n.r.e.); *Woodson Oil Co. v. Pruett*, 298 S.W.2d 856, 857 (Tex. Civ. App.—San Antonio 1957, writ ref’d n.r.e.); *Wisconsin-Texas Oil Co. v. Clutter*, 258 S.W. 265, 267 (Tex. Civ. App.—San Antonio 1925, rev’d on other grounds, 268 S.W. 921 (Tex. Comm’n App. 1925)).

<sup>186</sup> W. PAGE KEETON ET AL., *PROSSER & KEETON ON THE LAW OF TORTS* § 86, at 616 (West 5th ed. 1984). See, e.g., *Holubec v. Branderberger*, 111 S.W.3d 32, 37 (Tex. 2003) (defining nuisance); *Comminge v. Stevenson*, 13 S.W. 556 (Tex. 1890) (dealing with a powder magazine constructed close to the plaintiff’s residence).

<sup>187</sup> This was the real basis for enjoining the shooting of a well in residential area in *Tyner*. *People’s Gas Co. v. Tyner*, 31 N.E. 59 (Ind. 1892).

<sup>188</sup> KEETON ET AL., *supra* note 186, § 88, at 626-30.

<sup>189</sup> See, e.g., *Soap Corp. of Am. v. Balis*, 223 S.W.2d 957, 961 (Tex. Civ. App.—Fort Worth 1949, writ ref’d n.r.e.) (private nuisance suit involving obnoxious odors not predicated on negligence). *Cf.* *City of Tyler v. Likes*, 962 S.W.2d 489, 503 (Tex. 1997) (classifying nuisance as “negligent invasion of another’s interests; intentional invasion of another’s interests; or other conduct, culpable because abnormal and out of place in its surroundings, that invades another’s interests.” (quoting *Bible Baptist Church v. City of Cleburne*, 848 S.W.2d 826, 829 (Tex. App.—Waco 1993, writ denied))); *Humble Pipe Line Co. v. Anderson*, 339 S.W.2d 259, 265 (Tex. Civ. App.—Waco 1960, writ ref’d n.r.e.) (operation of pipeline is not a nuisance per se; thus, pipe line could not be liable for water pollution resulting from leaking crude oil absent proof of negligence).

<sup>190</sup> KEETON ET AL., *supra* note 186, § 87, at 624-25.

<sup>191</sup> See, e.g., *Wales Trucking Co. v. Stallcup*, 474 S.W.2d 184 (Tex. 1971).

such substances are carried onto the plaintiff's property in substantial quantities.<sup>192</sup> Moreover, a plaintiff may not recover for a diminution in the value of property without proof of actual nuisance.<sup>193</sup> A claim of nuisance is fact specific<sup>194</sup> and subject to balancing the utility of the offending conduct against the gravity of the harm to the injured party. If the former outweighs the latter, the court will deny relief.<sup>195</sup> Injunctive relief is inappropriate where the expected injury is doubtful.<sup>196</sup> When a party engages in hydraulic fracturing to facilitate the production of hydrocarbons, it does not do so with the intent to substantially and unreasonably interfere with a neighbor's use and enjoyment of land. If such interference becomes apparent in the course of conducting a frac and the fracing party fails to suspend operations, then the injured neighbor may have a continuing private nuisance claim.<sup>197</sup> In the typical situation, however, such interference may not manifest itself until after the frac operation has been fully accomplished.

Under the seminal case of *Rylands v. Fletcher*,<sup>198</sup> a party who makes an "un-natural use" of his land, such as by allowing water to escape from a man-made reservoir to the injury of a neighbor, acts at his "own peril."<sup>199</sup> Liability arises regardless of "however careful he may have been, and whatever precautions he may have taken to prevent the damage."<sup>200</sup> In some American courts, this strict-liability concept may be limited to so-called "ultra-hazardous"<sup>201</sup> or "abnormally dangerous"<sup>202</sup> activities. Hydraulic fracturing is not likely to be classified as ultra-hazardous, and to be abnormally dangerous, fracing would have to be uncommon or inappropriate under the circumstances.<sup>203</sup> Texas has rejected the doctrine of abnormally dangerous activities as a basis for strict liability.<sup>204</sup> While the Texas Supreme Court has cited *Rylands v. Fletcher*, the court's citation followed language about "an unusual hazard or risk."<sup>205</sup> In an earlier case, the court indicated that it had "long since repudiated the general rule announced in *Rylands v. Fletcher*."<sup>206</sup>

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<sup>192</sup> See, e.g., *Bay Petrol. Corp. v. Crumpler*, 372 S.W.2d 318 (Tex. 1963).

<sup>193</sup> See, e.g., *Sherman Gas & Elec. Co. v. Belden*, 123 S.W.2d 119, 120 (Tex. 1909).

<sup>194</sup> See, e.g., *Smith v. Columbian Carbon Co.*, 196 S.W. 660, 663-64 (Tex. Civ. App.—Beaumont-1946), *rev'd on other grounds*, 198 S.W.2d 727 (Tex. 1947).

<sup>195</sup> See, e.g., *Storey v. Central Hide & Rendering Co.*, 226 S.W.2d 615, 619 (Tex. 1950); *Gulf, C. & S.F. Ry. Co. v. Oakes*, 58 S.W. 999, 1001 (Tex. 1900); *Hall v. Muckleroy*, 411 S.W.2d 390, 394 (Tex. Civ. App.—Beaumont 1967, writ denied n.r.e.).

<sup>196</sup> See, e.g., *O'Daniel v. Libal*, 196 S.W.2d 211, 213 (Tex. Civ. App.—Waco 1946, no writ).

<sup>197</sup> See, e.g., *Shuttles v. Butcher*, 1 S.W.2d 661, 665 (Tex. Civ. App.—El Paso 1927, writ ref'd) (enjoining a continuing trespass for rainwater discharge and calling such a private nuisance); *Dallas Land & Loan Co. v. Garrett*, 276 S.W. 471 (Tex. Civ. App. —Dallas 1925, no writ) (dealing with encroachment by eaves that would discharge rainwater onto neighbor's land).

<sup>198</sup> *Rylands v. Fletcher*, L.R. 3 H.L. 30 (1868).

<sup>199</sup> *Id.* at 339-40.

<sup>200</sup> *Id.* at 340.

<sup>201</sup> RESTATEMENT OF TORTS §§ 519-20 (1938).

<sup>202</sup> RESTATEMENT (SECOND) OF TORTS §§ 519-520 (1977). Texas has not adopted THE RESTATEMENT (SECOND) OF TORTS §§ 519-20 (1977). See *Hicks v. Humble Oil and Ref. Co.*, 970 S.W.2d 90, 97 (Tex. App. Ct.—Houston [14th Dist.] 1998, rev. denied) (stating that Texas does not accept the doctrine of strict liability for abnormally dangerous activities).

<sup>203</sup> *Id.* at § 520(d)-(e).

<sup>204</sup> *Barras v. Monsanto Co.*, 831 S.W.2d 859, 865 (Tex. App. Ct.—Houston [14th Dist.] 1992, writ denied).

<sup>205</sup> See e.g., *City of Tyler v. Likes*, 962 S.W.2d 489, 504 (Tex. 1997).

<sup>206</sup> *Turner v. Big Lake Oil Co.*, 96 S.W.2d 221, 222 (Tex. 1936).

In contrast to negligence and nuisance, presumably a trespass by fracing would require only a showing of a wrongful entry and of actual harm—in this case, fracing that crosses a property line and causes injury beyond mere drainage. In addition, a trespass that threatens imminent and actionable harm may be more easily enjoined. In appropriate circumstances, a plaintiff may waive the trespass and sue for conversion or bring an action in assumpsit. Finally, an actionable trespass is more susceptible to a recovery of punitive damages.

I will let the reader determine whether a trespass action should be allowed if a frac operation damages the reservoir or a neighbor's well. Other than an action in negligence, which requires proof of all elements of negligence, including fault, the above analysis suggests that, other than trespass, no other cause of action seems particularly viable in Texas.

In a future and appropriate case, the court may need to consider the wisdom of Justice Willett's view more carefully.<sup>207</sup> Being conservative and generally believing that courts should also be conservative when either recognizing new or limiting established causes of action, I think the majority opinion has it right for now. The majority opinion recognizes the current utility and necessity of hydraulic fracturing—a relatively new technology compared to conventional well completions. But suppose, however, that future technology makes hydraulic fracturing obsolete. Since the *Garza* court did not need to foreclose trespass to protect the fracing party, perhaps the majority was wise not to completely bar a trespass action in a future case.

#### § X.06 *Garza's Broader Effect*

Although *Garza* dealt with the issue of trespass, in some trespass-related cases dealing with petroleum production, the plaintiff may elect to sue for conversion<sup>208</sup> or in assumpsit.<sup>209</sup> Because the court in *Garza* held that the drainage of gas is protected by the rule of capture, an alternative suit for conversion or in assumpsit arising from hydraulic fracturing should also fail.

*Garza* should remove any lingering doubts about whether a trespass action will lie for secondary-recovery operations that are approved by the Railroad Commission and that result in the increased drainage of oil or gas from neighboring lands. Although, as previously discussed,<sup>210</sup> the *Garza* court mischaracterized the precise holding in *Manziel*, it is hard to imagine how a Commission-approved secondary-recovery operation could be deemed a trespass—absent actual damage to the formation or to a neighboring well.

In the seminal case of *Lone Star Gas Co. v. Murchison*, the court held that a producer does not lose title to gas that is injected into an underground reservoir for storage even though

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<sup>207</sup> See *supra* n. 126.

Although Justice Willett fails to make the argument, perhaps a frac operator should have a limited license to invade neighboring property to facilitate the full and efficient exploitation of any minerals beneath its own property. Such a license would be somewhat analogous to the rancher who has a license to recover her bull when it escapes her pasture for a neighbor's greener one. Under these circumstances, the rancher would be liable for any actual harm caused by the act of retrieving her bull.

<sup>208</sup> See, e.g., *Bender v. Brooks*, 127 S.W. 168 (Tex. 1910).

<sup>209</sup> See, e.g., *Villarreal v. Grant Geophysical, Inc.*, 136 S.W.3d 265 (Tex. App.—San Antonio 2004, rev. denied).

<sup>210</sup> See *supra* Part § X.04[3].

the reservoir may extend into neighboring lands.<sup>211</sup> The *Murchison* court did not discuss trespass, and the *Garza* court did not discuss injections for storage. Nevertheless, when *Murchison* and *Garza* are read together, one can argue that a trespass action should not lie for gas storage, absent a claim for actual damages.

If an operator can claim protection under the rule of capture for any oil and gas drained as a result of fracturing across property or unit lines, then an operator should be able to capture seismic information from neighboring lands provided there is no physical entry on such lands other than through seismic vibrations.<sup>212</sup> The fact that the seismic information directly relating to neighboring tracts can be identified and deleted before the information is shared is certainly a distinction, but having to delete such information is economic waste. Thus, deleting seismic information should not be required as a matter of public policy.<sup>213</sup> While *Garza* is persuasive of a rule-of-capture approach to acquiring seismic information, dicta in *Kennedy v. General Geophysical Co.* suggests that the intentional gathering of geophysical information from neighboring land without physical entry onto to that land may be a trespass.<sup>214</sup>

The following language from *Garza* is destined to be cited in nearly all future cases dealing with emerging subsurface-trespass issues:

[F]rom the ancient common law maxim that land ownership extends to the sky above and the earth's center below, one might extrapolate that the same rule should apply two miles below the surface. But that maxim—*cujus est solum ejus est usque ad coelum et ad inferos*—'has no place in the modern world.' Wheeling an airplane across the surface of one's property without permission is a trespass; flying the plane through the airspace two miles above the property is not. Lord Coke, who pronounced the maxim, did not consider the possibility of airplanes. But neither did he imagine oil wells. The law of trespass need no more be the same two miles below the surface than two miles above.<sup>215</sup>

This paragraph signals the Texas Supreme Court's willingness to treat claims of subsurface trespass differently from claims of surface trespass. In a future case, if the court is willing to go beyond its rule-of-capture reasoning in favor of a broader holding that plaintiffs alleging subsurface trespass must show actual injury, then many commercial subsurface enterprises could be encouraged.

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<sup>211</sup> Lone Star Gas Co. v. Murchison, 353 S.W.2d 870 (Tex. Civ. App.—Dallas 1962, writ ref'd n.r.e.).

<sup>212</sup> See generally Anderson & Pigott I, *supra* note 57, at 16-111 to -117 and Anderson & Pigott II, *supra* note 170, at 394-404.

<sup>213</sup> In Villarreal v. Grant Geophysical, Inc., 136 S.W.3d 265 (Tex. App. Ct.—San Antonio 2004, rev. denied), the court affirmed the grant of summary judgment in favor of the geophysical surveyor who inadvertently failed to delete 3D seismic information indirectly acquired from neighboring lands; however, the surveyor recalled the distributed data and deleted the information about neighboring lands.

<sup>214</sup> Kennedy v. General Geophysical Co., 213 S.W.2d 707, 713 (Tex. Civ. App.—Galveston 1948, writ ref'd n.r.e.).

<sup>215</sup> Coastal Oil and Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 11 (Tex. 2008, reh'g denied) (footnotes omitted).

For example, consider geologic CO<sub>2</sub> sequestration to address climate change. Shielding a sequestering party from trespass liability when carbon migrates beneath neighboring property would greatly enhance the utility of this activity.<sup>216</sup> “There are no technical or physical barriers to [geologic carbon sequestration] . . . . The only thing that stands in the way of progress at the moment is policy.”<sup>217</sup>

Of course, CO<sub>2</sub> sequestration must also be commercially viable, and commercial viability may, in part, depend on how the property-rights issues are resolved.

As geologic CO<sub>2</sub> sequestration projects gain momentum, property rights and related liability issues will be important concerns, as Texas courts have yet to sort out ownership and liability issues pertaining to the use of subsurface pore spaces for CO<sub>2</sub> sequestration and other uses—regarding both directly targeted tracts and tracts that may suffer CO<sub>2</sub> migration.<sup>218</sup>

Texas courts must directly address the issue of pore-space ownership<sup>219</sup> and whether an injector’s neighbors may sue in trespass for subsurface migration of injected substances.<sup>220</sup> Because carbon sequestration will almost certainly be subject to a rigorous regulatory permitting process, the reasoning of *Manziel*, with the help of *Garza*, should serve to protect injectors from trespass claims—absent a showing of actual injury.

The Texas Supreme Court has yet to rule whether subsurface waste disposal can give rise to a cause of action for subsurface trespass. In general, although the Texas Railroad Commission regulates waste disposal from oil and gas operations,<sup>221</sup> the Texas Commission on Environmental Quality regulates most subsurface waste disposal.<sup>222</sup> In an unreported case, *FPL Farming, Ltd. v. Texas Natural Resources Conservation Commission*, the court stated in dicta that a landowner who suffers encroachment of wastewater may seek damage if she suffers actual intrusion and actual harm.<sup>223</sup> The court noted the legal trend that “property owners do not have

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<sup>216</sup> See generally, Owen L. Anderson, *Geologic CO<sub>2</sub> Sequestration: Who Owns the Pore Space?*, 9 WYO. L. REV. 97 (2009) (forthcoming 2009) (in press when this article was written). “Geologic sequestration as a permanent waste-storage possibility involves injecting CO<sub>2</sub>, in either gas or liquid form, into deep subterranean strata or caverns.” *Id.* at 98.

<sup>217</sup> THE PETROLEUM ECONOMIST, LTD., FUNDAMENTALS OF CARBON CAPTURE AND STORAGE TECHNOLOGY 16 (Tom Nicholls ed. 2007).

<sup>218</sup> Anderson, *supra* note 216, at 98.

<sup>219</sup> In Anderson, *supra* note 216, at 99-109, I argue that, under most severance instruments, surface owners own the pore spaces, but mineral owners have a right to use the pore spaces as necessary to facilitate mineral exploitation from that tract.

<sup>220</sup> In Anderson, *supra* note 216, at 110-20, I argue that, absent a showing of actual injury, neighbors should have no suit in trespass for subsurface CO<sub>2</sub> migration.

<sup>221</sup> TEX. WATER CODE ANN. §§ 27.031–.038.

<sup>222</sup> *Id.* at §§ 27.001–.024 (2008).

<sup>223</sup> *FPL Farming, Ltd. v. Texas Natural Res. Conservation Comm’n*, No. 03-02-00477-CV, 2003 WL 247183, at \*5 (Tex. App. Ct.—Austin 2003 Feb. 6, 2003, rev. denied).

the right to exclude deep subsurface migration of fluids.”<sup>224</sup> “[B]ecause of [the agency’s] . . . expertise in the geological effects of subsurface migration of injectates,” the court deferred to the agency’s finding that no existing rights would be impaired by the injection.<sup>225</sup> Nevertheless, the court indicated that, if the waste migrated and caused some measure of harm to neighboring landowners, then they could seek damages.<sup>226</sup> *Manziel*, together with the above quoted paragraph from *Garza*, provides support for the court’s decision in *FPL*.

The court in *Garza* was careful to distinguish hydraulic fracturing from slant-hole directional trespass. Thus, directional drilling for the purpose of directly producing minerals through a well bore bottomed on neighboring lands will remain a trespass. But what if an operator, acting with permission of the surface owner, drills a horizontal well bore beneath a neighboring tract solely to facilitate securing production directly from the operator’s subsurface?<sup>227</sup> If the well bore is not perforated beneath the neighboring tract, will the neighboring mineral owner have a cause of action for trespass?<sup>228</sup> This issue is of particular importance in the case of horizontal wells—especially in areas of intense surface development where suitable drill sights are hard to find, such as in the Barnett Shale play in the Fort Worth area. In addition, locating a horizontal well off of a unit allows the well bore to more fully penetrate the producing strata throughout the length of the unit. The public-policy reasoning of *Garza* could be used to support an argument that the use of subsurface strata with permission of the surface owner to gain access to minerals beneath neighboring lands is not a trespass to the mineral owner so long as the well bore is not perforated in the mineral owner’s tract or within the regulatory-prescribed distance from such tract and so long as the mineral owner suffers no actual damages beyond drainage.<sup>229</sup> Absent a broad surface-use right in the mineral owner beyond that typically found in severance instruments, permission from the surface owner would be needed anyway. In many circumstances, having to also obtain permission from what may be numerous fractional mineral owners beneath the surface-location tract and perhaps from competing lessees or from all mineral owners holding interests in tracts invaded by the subsurface well bore may prove to be too burdensome and thus lead to underground waste.

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<sup>224</sup> *Id.* at \*3 (citing *United States v. Causby*, 328 U.S. 256, 260–61 (1946)); *Raymond v. Union Tex. Petrol. Corp.*, 697 F. Supp. 270, 274–75 (E.D. La. 1988); *Chance v. BP Chems., Inc.*, 670 N.E.2d 985, 991–92 (Ohio 1996); *Railroad Comm’n v. Manziel*, 361 S.W.2d 560, 568–69 (Tex. 1962).

<sup>225</sup> *FPL Farming*, 2003 WL 247183, at \*3.

<sup>226</sup> *Id.* at \*5.

<sup>227</sup> Under the typical severance document, a mineral-interest owner may use the surface, subsurface, and airspace of the surface owner to facilitate the production of minerals from that tract, *Getty Oil Co. v. Jones*, 470 S.W.2d 618, 621 (Tex. 1971), but may not do so to gain access to minerals located beneath other tracts. *Cf. Robinson v. Robbins Petrol. Corp., Inc.*, 501 S.W.2d 865, 867–68 (Tex. 1973) (barring mineral owner from using salt water on one tract to facilitate oil operations on another tract on the ground that such use is beyond the scope of the mineral owner’s rights).

<sup>228</sup> *Cf. Chevron Co. v. Howell*, 407 S.W.2d 525 (Tex. Civ. App.—Dallas 1996, writ ref’d n.r.e.) (authorizing injunction relief for mineral owner in such a circumstance) and *Humble Oil & Ref. Co. v. L. & G Oil Co.*, 259 S.W.2d 933, 936 (Tex. Civ. App.—Austin 1953, writ ref’d n.r.e.) (denying injunctive relief to mineral owner in such a circumstance).

<sup>229</sup> In *Anderson*, *supra* note 216, at 99–109, I argue that, under most severance instruments, surface owners own the pore spaces, including the right to authorize geologic CO<sub>2</sub> sequestration, subject to the right of the mineral owner to use the pore spaces as necessary to facilitate mineral exploitation from that tract. This argument could extend to authorizing a surface owner to permit neighboring mineral owners the right to access their minerals from the surface owner’s surface and subsurface provided such access does not substantially interfere with the subjacent mineral owner’s rights of use.

## § X.07 Conclusion

Had the dissenters prevailed in *Garza*, a wave of trespass actions would likely have followed. However, if the dissenters had been willing to make their ruling prospective only, perhaps this potential wave would have been avoided, and the practical effect of such a decision would have been to force the Railroad Commission to regulate hydraulic fracturing through a permitting process. This tactic would have replicated the approach of the Texas Supreme Court in the *Port Acres*<sup>230</sup> and *Normanna*<sup>231</sup> decisions of in the early 1960s, which essentially forced small-tract owners to back passage of what became the Mineral Interest Pooling Act.<sup>232</sup> However, as I previously discussed,<sup>233</sup> I do not believe that forcing the Railroad Commission to regulate hydraulic fracturing to protect correlative rights would be either justified or useful.

In closing, *Garza*, together with analogous case law from other states, will likely be and should be influential beyond Texas in a variety of subsurface trespass cases. Other cases include the airspace case of *United States v. Causby*, wherein the United States Supreme Court observed:

It is ancient doctrine that at common law ownership of the land extended to the periphery of the universe—*Cujus est solum ejus est usque ad coelum*. But that doctrine has no place in the modern world. The air is a public highway, as Congress has declared. Were that not true, every transcontinental flight would subject the operator to countless trespass suits. Common sense revolts at the idea. To recognize such private claims to the airspace would clog these highways, seriously interfere with their control and development in the public interest, and transfer into private ownership that to which only the public has a just claim.<sup>234</sup>

Another influential case is *Chance v. BP Chemicals, Inc.*, a class action wherein the plaintiffs asserted that the defendant had trespassed on subsurface property rights by injecting waste fluids that had migrated across property lines.<sup>235</sup> Relying on *Willoughby Hills v. Corrigan*,<sup>236</sup> the court in *Chance* found that “ownership rights in today’s world are not as clear-

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<sup>230</sup> Halbouty v. Railroad Comm’n, 357 S.W.2d 364 (Tex. 1962).

<sup>231</sup> Atlantic Ref. Co. v. Railroad Comm’n, 346 S.W.2d 801 (Tex. 1961).

<sup>232</sup> TEX. NAT. RES. CODE ANN. § 102.001 (2007) et seq.

<sup>233</sup> See *supra* Part § X.05.

<sup>234</sup> U.S. v. Causby, 328 U.S. 256, 260–61 (1946) (footnote omitted) (dealing with ham to a chicken ranch caused by low-altitude flying). See also *Ratliff v. Beard*, 416 So. 2d 307, 309 (La.Ct. App. 1982, writ denied) (holding that aerial photography and viewing is not a trespass). But see *Gulf Coast Real Estate Auction Co. v. Chevron Indus.*, 665 F.2d 574, 577 (5th Cir. 1982) (holding that plaintiff failed to prove the value of an exploration right but implicitly recognizing a cause of action for unauthorized aerial surveying). Cf. *E. I. DuPont de Nemours & Co. v. Christopher*, 431 F.2d 1012 (5th Cir. 1970) (holding that aerial photography of a plant construction sight resulted in the wrongful acquisition of a trade secret).

<sup>235</sup> *Chance v. BP Chem., Inc.*, 670 N.E.2d 985 (Ohio 1996).

<sup>236</sup> *Willoughby Hills v. Corrigan*, 278 N.E.2d 658, 664 (Ohio 1972) (“[T]he doctrine of the common law, that the ownership of land extends to the periphery of the universe . . . has no place in the modern world.”) (citing *Causby*, 328 U.S. at 260–61).

cut as they were before the advent of airplanes and injection wells.<sup>237</sup> Though landowner may assert ownership of land from the heavens to the depths, their subsurface rights are limited.<sup>238</sup>

Just as a property owner must accept some limitations on the ownership rights extending above the surface of the property, we find that there are also limitations on property owners' subsurface rights. We therefore extend the reasoning of *Willoughby Hills*, that absolute ownership of air rights is a doctrine which "has no place in the modern world," to apply as well to ownership of subsurface rights.<sup>239</sup>

The court found that a landowner's subsurface right to exclude others extends only to invasions that "actually interfere with the [landowner's] ... reasonable and foreseeable use of the subsurface."<sup>240</sup> Although the class claims were deemed too speculative, the court did indicate that one class member might have a valid claim because the subsurface migration waste forced that member to abandon drilling plans.<sup>241</sup>

Oklahoma recognizes a cause of action for private nuisance when injected water actually injures a neighbor, even though the injection was authorized by the Corporation Commission for secondary hydrocarbon recovery.<sup>242</sup> In *West Edmond Salt Water Disposal Ass'n v. Rosecrans*, the defendant injected salt water into a stratum already containing salt water.<sup>243</sup> The Oklahoma Supreme Court found that a neighboring landowner had no cause of action for trespass because the owner had suffered no actual damages. The court found that underground disposal is the most practical solution for dealing with wastewater and reasoned "[i]f such disposal of salt water is forbidden unless oil producers first obtain the consent of all persons under whose lands it may migrate or percolate, underground disposal would be practically prohibited."<sup>244</sup> However, Oklahoma recognizes a cause of action if there is an actual injury. In *West Edmond Hunton Lime Unit v. Lillard*, salt water injected into a formation migrated onto adjacent land and interfered with the plaintiff's oil and gas operations. In affirming an award for the plaintiff, the court characterized the action as a trespass.<sup>245</sup>

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<sup>237</sup> *Chance*, 670 N.E.2d at 992.

<sup>238</sup> *Id.*

<sup>239</sup> *Id.*

<sup>240</sup> *Id.*

<sup>241</sup> *Id.* at 993.

<sup>242</sup> See *Greyhound Leasing & Fin. Corp. v. Joiner City Unit*, 444 F.2d 439 (10th Cir. 1971); *Gulf Oil Corp. v. Hughes*, 371 P.2d 81 (Okla. 1962); *Boyce v. Dundee Healdton Sand Unit*, 560 P.2d 234 (Okla. Civ. App. 1975). In *Mowrer v. Ashland Oil & Ref. Co., Inc.*, 518 F.2d 659 (7th Cir. 1975), a case involving lands in Indiana, the court affirmed an award of actual damages on nuisance and negligence grounds when oil seeped out of the ground around the plaintiff's capped well bores after a neighbor commenced waterflooding operations.

<sup>243</sup> *West Edmond Salt Water Disposal Ass'n v. Rosecrans*, 226 P.2d 965, 970 (Okla. 1950).

<sup>244</sup> *Id.* at 969.

<sup>245</sup> *West Edmond Hunton Lime Unit v. Lillard*, 265 P.2d 730, 731 (Okla. 1954). In *Tidewater Oil Co. v. Jackson*, 320 F.2d 157 (10th Cir. 1963), the court affirmed an award of actual damages and reversed an award of punitive damages for the watering out of wells caused by a waterflooding operation that had been approved by the Kansas Corporation Commission, but the court did not characterize the action as either trespass or nuisance.

In *Board of County Commissioners v. Park County Sportmen's Ranch, LLP*, the Colorado Supreme Court held that the storage of water in an aquifer does not constitute a trespass against neighboring landowners absent a physical invasion of neighboring lands by directional drilling or occupancy by recharge structures or extraction wells.<sup>246</sup> In *Raymond v. Union Texas Petroleum Corp.*, the court held that, because the state regulatory agency had issued a permit for salt-water injection, migration of salt water "is not unlawful and does not constitute a legally actionable trespass."<sup>247</sup> In dicta, however, the court noted that a permit does not preclude recovery for actual damages and for inconvenience.<sup>248</sup>

Although, as is illustrated by the above examples, *Garza* represents a judicial trend to treat subsurface migratory trespass differently from surface trespass, a few courts have been sympathetic to a plaintiff's claim of migratory subsurface trespass. In *Snyder Ranches, Inc. v. Oil Conservation Commission*, the New Mexico Supreme Court affirmed a finding of the conservation agency that a salt-water-disposal operation would not result in salt-water migration to a neighboring tract.<sup>249</sup> However, the court stated in dicta:

The State of New Mexico may be said to have licensed the injection of salt water into the disposal well; however, such license does not authorize trespass. The issuance of a license by the State does not authorize trespass or other tortious conduct by the licensee, nor does such license immunize the licensee from liability for negligence or nuisance which flows from the licensed activity. . . . In the event that an actual trespass occurs by Mobil in its injection operation, neither the Commission's decision, the district court's decision, nor this opinion would in any way prevent Snyder Ranches from seeking redress for such trespass.<sup>250</sup>

This dicta does not contain any qualifying language requiring proof of actual injury. Later, in *Hartman v. Texaco Inc.*, the New Mexico Court of Appeals held that an oil and gas operator who suffered a blowout from subsurface flooding caused by neighboring waterflooding operations had a cause of action for trespass, but the court denied the statutory remedy of double damages.<sup>251</sup>

In *Jameson v. Ethyl Corp.*,<sup>252</sup> the Arkansas Supreme Court reviewed prior decisions regarding waterflooding operations and held that the rule of capture did not protect a defendant from liability for damages for excess drainage of a tract caused by waterflooding operations that

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<sup>246</sup> Board of County Comm'rs v. Park County Sportsmen's Ranch, LLP, 45 P.3d 693, 710 (Colo. 2002).

<sup>247</sup> Raymond v. Union Tex. Petrol. Corp., 697 F. Supp. 270, 274 (E.D. La. 1988). Cf. Mongrue v. Monsanto Co., 249 F.3d 422 (5th Cir. 2001); Boudreaux v. Jefferson Island Storage & Hub, LLC, 255 F.3d 271, 274 (5th Cir. 2001) (both dealing with migrating wastewater).

<sup>248</sup> Raymond, 697 F. Supp. at 274.

<sup>249</sup> Snyder Ranches, Inc. v. Oil Conservation Comm'n, 798 P.2d 587 (N.M. 1990).

<sup>250</sup> Id. at 590.

<sup>251</sup> Hartman v. Texaco Inc., 937 P.2d 979 (N.M. App. 1997) (construing N. MEX. STAT. § 30-14-1.1).

<sup>252</sup> Jameson v. Ethyl Corp., 609 S.W.2d 346 (Ark. 1980).

surrounded that tract.<sup>253</sup> However, the court was careful not to characterize its ruling as arising in either common-law trespass or nuisance<sup>254</sup> and instead characterized it as arising in equity.<sup>255</sup>

In *Baumgartner v. Gulf Oil Corp.*,<sup>256</sup> the court held the rule of capture protects a party engaged in waterflooding authorized under a unitization order of the conservation agency from liability for “willful trespass” to a neighbor who refused an opportunity to join in the waterflooding operations on a fair-share basis.<sup>257</sup> However, the court did remand the case to allow the plaintiff an opportunity to recover damages measured by the profits the plaintiff would have realized had he developed his acreage on his own through primary recovery outside of unitization “as if no unitization had occurred.”<sup>258</sup>

In *Grynberg v. City of Northglenn*, the Colorado Supreme Court held that the surface owner’s licensee, desirous of determining whether the property was suitable for a reservoir, committed trespass when it collected subsurface core samples without permission of the mineral owner.<sup>259</sup> In *ANR Pipeline Co. v. 60 Acres of Land*, the court held that the migration of non-native gas to neighboring property does not give rise to an action for inverse condemnation.<sup>260</sup> However, in dicta, the court stated that “if injected gas moves across boundaries there may be a trespass.”<sup>261</sup>

Hopefully, *Garza* will convince courts in other jurisdictions to not apply traditional common-law trespass doctrine to various types of subsurface injection, disposal, storage, and sequestration activities. If *Garza* is influential in this regard, then, in addition to already being an important oil and gas case, it is destined to become one of the most important property cases of the 21<sup>st</sup> Century.

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<sup>253</sup> However, in *Budd v. Ethyl Corp.*, 474 S.W.2d 411 (Ark. 1971), the court held that the rule of capture did protect a party from liability for drainage caused to an adjacent tract by waterflooding operations on property that lied along, but did not surround, the drained tract.

<sup>254</sup> *Jameson*, 600 S.W.2d at 349-51.

<sup>255</sup> *Id.* at 652.

<sup>256</sup> *Baumgartner v. Gulf Oil Corp.*, 168 N.W.2d 510 (Neb. 1969). *See also* *Tide Water Assoc. Oil Co. v. Stott*, 159 F.2d 174 (5th Cir. 1946) (regarding Texas lands and denying liability for gas recycling operations on nearby lands that displaced wet gas from plaintiffs’ lands where plaintiffs refused to participate in the recycling operations on a fair-share basis); *California Co. v. Britt*, 154 So. 2d 144 (Miss. 1963) (holding that rule of capture protects against trespass liability for drainage caused by waterflooding conducted under an approved unitization where plaintiff refused to join in the unit operations); *Syverson v. North Dakota Indus. Comm’n*, 111 N.W.2d 128 (N.D. 1961) (denying injunctive relief on a trespass theory).

<sup>257</sup> *Id.* at 516-18.

<sup>258</sup> *Id.* at 519.

<sup>259</sup> *Grynberg v. City of Northglenn*, 739 P.2d 230 (Colo. 1987). I strongly criticized *Grynberg* in *Anderson & Pigott I*, *supra* note 57, at 16-81 to -86, and in *Anderson & Pigott II*, *supra* note 170, at 357-62.

<sup>260</sup> *ANR Pipeline v. 60 Acres of Land*, 418 F.Supp.2d 933, 941 (W.D. Mich. 2006).

<sup>261</sup> *Id.* at 940.