SUBSURFACE TRESPASS BY HYDRAULIC FRACTURING: ESCAPING *COASTAL V. GARZA*'S DISPARATE JURISPRUDENCE THROUGH EQUITABLE COMPROMISE

Comment

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I. TRESPASS AND HYDRAULIC FRACTURING

> Drainage! Drainage, Eli, you boy. Drained dry. I'm so sorry. Here, if you have a milkshake, and I have a milkshake, and I have a straw. There it is, that's a straw, you see? You watching? And my straw reaches acroooooooss the room, and starts to drink your milkshake. . . I. . . drink. . . your. . . milkshake![1]

There Will be Blood, the 2007 film based on Upton Sinclair's novel *Oil!*, dramatically depicts a ruthless oil tycoon's insatiable quest for wealth during the late nineteenth century.[2] In the preceding excerpt, the old oilman—drunk on whiskey, power, and the bitterness of his own sins—indignantly explained to a young man the fruitlessness of his leasing desires.[3] Eli had postponed leasing for an extended period after oil was discovered on adjoining property, during which time the land surrounding his tract was leased and produced.[4] In the foregoing exchange, Eli learns the extent of his strategic blunder.[5] Much to his chagrin, the oil from beneath his property had been drained by the oil baron's nearby wells, thus rendering the mineral estate worthless.[6] Oil possesses fungible qualities, traveling along areas of low pressure much like a milkshake through a straw. Though the old oilman's acrimonious mannerisms are in no way representative of the modern petroleum industry, the essence of

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1. THERE WILL BE BLOOD (Paramount Vintage, Miramax Films 2007).
2. *There Will Be Blood*, WIKIPEDIA.COM, http://en.wikipedia.org/wiki/There_will_be_blood (last modified Sept. 23, 2012).
3. *See supra* text accompanying note 1.
4. *See* THERE WILL BE BLOOD, *supra* note 1.
5. *See id.*
6. *See id.*

the foregoing theatrical interaction implicates founding legal principles of the oil and gas industry, such as the rule of capture, trespass, and mineral ownership theories—legal principles still in use to this day.[7]

In *Coastal Oil and Gas Corporation v. Garza Energy Trust*, the Texas Supreme Court at last specifically considered whether hydraulically fracturing across property lines constitutes a subsurface trespass.[8] There, Salinas owned the mineral estate of a 748-acre tract called Share 13, which they had leased to Coastal.[9] Coastal was also the lessee and mineral estate owner of adjacent tracts Share 12 and Share 15.[10] All properties shared a common natural gas formation called the Vicksburg T, lying between 11,000 and 13,000 feet below the surface.[11] Coastal drilled four wells on Share 13, three of which were productive.[12] The dispute arose when, in 1996, Coastal drilled the well Coastal Fee No. 1 on Share 12, 467 feet from the boundary shared by the Salinas's Share 13.[13] Situating the Coastal Fee No. 1 as close as possible to the Salinas tract placed the well too near to one of Coastal's existing producers, the Pennzoil No. 1.[14] Because both wells would drain from Share 13, the Railroad Commission refused Coastal's application for an exception.[15] Electing to operate as proximate to Share 13 as permitted, Coastal kept the Coastal Fee No. 1 well and shut in Pennzoil Fee No. 1.[16]

Concerned that Coastal was using Coastal Fee No. 1 on Share 13 to drain gas from Share 12—thereby avoiding the Salinas's royalty obligation—Salinas brought suit for subsurface trespass, bad faith pooling, and breach of implied covenants to develop, market, and prevent drainage.[17] The Coastal Fee No. 1 well's fracing operation was designed to create fractures over 1,000 feet in length, well beyond the farthest distance from this well and Share 13.[18] While both parties agreed "the hydraulic and propped lengths exceeded this distance," whether the effective length of the fractures accomplished the same

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7. *See id.*

8. *See* Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 4 (Tex. 2008).

9. *Id.* at 6.

10. *Id.*

11. *Id.* "The Vicksburg T is a 'tight' sandstone formation, relatively imporous and impermeable, from which natural gas cannot be commercially produced without hydraulic fracturing stimulation . . . ." *Id.*

12. *Id.*

13. *Id.*; *see* 16 TEX. ADMIN. CODE § 3.37(a)(1) (West 2010) (R.R. Comm'n of Tex) ("(1) No well for oil, gas, or geothermal resource shall hereafter be drilled nearer than 1,200 feet to any well completed in or drilling to the same horizon on the same tract or farm, and no well shall be drilled nearer than 467 feet to any property line, lease line, or subdivision line; provided the commission, in order to prevent waste or to prevent the confiscation of property, may grant exceptions to permit drilling within shorter distances than prescribed in this paragraph when the commission shall determine that such exceptions are necessary either to prevent waste or to prevent the confiscation of property.").

14. *Coastal*, 268 S.W.3d at 6.

15. *Id.*

16. *Id.*

17. *Id.* at 6-9. Salinas's subsurface trespass claim alleged that Coastal's fracing operation on "Coastal Fee Well No. 1 invaded the reservoir beneath Share 12, causing substantial drainage of gas." *Id.* at 7.

18. *Id.*

remained in dispute.[19] An expert for Salinas testified that production from Coastal No. 1 consisted of 25% to 35% of gas drained from Share 13.[20] Coastal, however, provided an expert of its own who testified that no gas was drained from Share 13 as a result of the hydraulic fracturing operation.[21] Trial was to the jury, and a sizeable reward of approximately $14 million was ultimately entered in Salinas's favor.[22] The court of appeals affirmed in part, remanding for a redetermination of attorney's fees.[23] Thus, the stage was set for the Texas Supreme Court's long-awaited decision in *Coastal*.

In Part II, this Comment will provide a framework of oil and gas history, terms, and procedure. Next, Parts III and IV discuss theories of mineral ownership and subsurface trespass jurisprudence, each to their varying degrees and applicatory extent. Part V shifts away from the applicable background material and provides a summary of the Texas Supreme Court's decision in *Coastal*.[24] Finally, Part VI will analyze potentially problematic results associated with *Coastal* while discussing the ongoing discourse concerning the similitude of hydraulic fracturing to other hydrocarbon recovery operations. In Part VII, this Comment will ultimately conclude that although oil and gas recovery operations have significantly advanced over the past century, the Texas Supreme Court's decision in *Coastal* was arguably not in lock step with industry progression.[25] Such a determination will explore whether the decision in *Coastal* was a step backward or whether it created a type of jurisprudential purgatory in oil and gas law concerning subsurface trespass issues. Hydraulic fracture subsurface trespass issues are certainly not foreclosed. In order to make this area of oil and gas law more equitable, the Texas Legislature, courts, and regulatory authority should consider revising existing subsurface trespass law to more closely resemble pre-*Coastal* trespass jurisprudence—but subject to necessary modifications in accordance with the rights and interests of both the industry and individual interest holders.[26]

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19. *Id.*

20. *Id.* at 8.

21. *Id.*

22. *See id.*; Mission Res. Inc., v. Garza Energy Trust, 166 S.W.3d 301, 309 (Tex. App.—Corpus Christi 2005), *rev'd sub nom. Coastal*, 268 S.W.3d 1.

23. *Mission Res. Inc.*, 166 S.W.3d at 330-31.

24. *See infra* notes 219-46 and accompanying text.

25. *See Coastal*, 268 S.W.3d at 4-5.

26. *See infra* notes 291-319 and accompanying text.

II. AN OVERVIEW OF THE OIL AND GAS INDUSTRY

A. Beginnings: The Rise of Black Gold

Colonel Edwin Drake drilled the first successful oil well near Titusville, Pennsylvania, in 1889.[27] Unlike the dramatic gushers so iconic of the petroleum industry's early days, Colonel Drake's oil had to be manually pumped out of the earth.[28] The Titusville well utilized the cable tool drilling method, which punctured a hole through rock formations by repeatedly striking the ground with a large chisel-shaped weight.[29] Apart from the slow and methodical process, the dangers associated with cable tool drills became apparent in highly pressurized reservoirs that, once punctured, blew out in fantastic geysers of oil.[30] In 1901, a significant quantity of oil was discovered at Spindletop, the now famous landmark just outside Beaumont, Texas.[31] During the frenzied production of this historic play, the development of three technological advances—rotary drilling, drilling mud, and blowout preventers—revolutionized the petroleum industry.[32] A rotary drill enabled the operator to efficiently reach greater depths, while the drilling mud lubricated the bit and prevented wasteful blowouts.[33] Thus "began the mad rush for oil that would engulf the nation in a new era of industrial achievement," comparable only to the California Gold Rush.[34]

B. Industry Evolution: Waste and Associated Regulation

Spurred in large part by the rule of capture, oil and gas resources were vastly over exploited during the early days of the oil industry.[35] The promise of wealth and "the relatively open market allowed for just about anyone to set up their own production facility."[36] The lack of regulatory restrictions resulted in overproduction, causing frequent price fluctuations.[37] The proliferation of new oil-producing locations only partially accounted for the burgeoning surplus oil.[38] Flush production, "the true father of overproduction," involved

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27. *See* CHARLES F. CONAWAY, THE PETROLEUM INDUSTRY: A NONTECHNICAL GUIDE xi-xiv (1999); MARTIN S. RAYMOND & WILLIAM L. LEFFLER, OIL AND GAS PRODUCTION IN NONTECHNICAL LANGUAGE 1-4 (2006).

28. *See* CONAWAY, *supra* note 27, at xi-xiv; RAYMOND & LEFFLER, *supra* note 27, at 1-4.

29. RAYMOND & LEFFLER, *supra* note 27, at 82-85.

30. *See* CONAWAY, *supra* note 27, at 98; RAYMOND & LEFFLER, *supra* note 27, at 12.

31. *See* CONAWAY, *supra* note 27, at xiii.

32. *See* RAYMOND & LEFFLER, *supra* note 27, at 14.

33. *See id.* (observing that drilling mud and blowout preventers have contained "countless volumes of oil and gas . . . that would otherwise have been vented to the environment").

34. CONAWAY, *supra* note 27, at xii.

35. *See* RAYMOND & LEFFLER, *supra* note 27, at 14.

36. CONAWAY, *supra* note 27, at xii.

37. *See id.* at xii-xiii.

38. *Id.* at xiii.

franticly producing the greatest volume of oil from a well as possible, "due to the close competition of other producers pumping out of the same location."[39] This system was furthered by the pervasive lack of geological knowledge combined with the equally ubiquitous incomprehension of oil well dynamics.[40] Thus, oil producers of the time were compelled to endlessly draw hydrocarbons from their wells for fear that adjacent producers would extract more oil from the common reservoir.[41]

Early industry production practices manifested into a type of race causing rampant overproduction which, in turn, resulted in price instability and wasted resources.[42] In response, the federal and state governments issued regulations that eventually curtailed the oil frenzy.[43] Such regulations typically encouraged unitization and involved proration orders (mandatory production limits) and well-spacing limits.[44]

C. A Golden Era of Advancements: The Birth of Modern Petroleum

Just as regulations evolved to quell the days of hard and fast production, industry technological advances progressed to satisfy the growing demand for oil.[45] Notably, "in the 1930's, innovation and consolidation of intellectual and practical knowledge permeated the upstream industry in a production renaissance."[46] The fruits of industry progression during this era, many of which are still used today, solidified a foundation for the modern petroleum industry.[47]

1. The Development of Critical Drilling Technologies

Encouraged by a persistent application of the rule of capture, petroleum operators of the late nineteenth and early twentieth centuries customarily produced wells at maximum output levels.[48] The science of petroleum geology remained at its infancy, and "[l]ittle thought was given to the prevention of waste or the depletion of reservoir energy by this full-throttle approach to production."[49] As resources were extracted, production slowed

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39. *Id.*
40. *Id.*
41. *Id.*
42. *Id.*
43. RAYMOND & LEFFLER, *supra* note 27, at 14.
44. *Id.*
45. *See id.* at 14-17.
46. *Id.* at 17.
47. *See id.*
48. John W. Broomes, *Wrestling with a Downhole Dilemma: Subsurface Trespass, Correlative Rights, and the Need for Hydraulic Fracturing in Tight Reservoirs*, 53 ROCKY MTN. MIN. L. INST. §§ 20.01, .02, at 20-3 (2007); *see* RAYMOND & LEFFLER, *supra* note 27, at 14.
49. Broomes, *supra* note 48, § 20.02, at 20-3.

due to declining reservoir pressures.[50] Signs of an aging reservoir, drops in production were often accompanied with an influx of subterranean water.[51] Water loomed as the production operator's nemesis, gradually increasing until levels made the well uneconomical.[52] A creature of happenstance, the notion of using water to increase decaying production levels was discovered in 1865 atop Pennsylvania's Bradford Field.[53] There, operators realized production increased after surface water had been inadvertently introduced through contiguous dormant wells.[54] Inspired, they purposefully replicated the process using the perimeter wells of a nearby field, achieving the same desired results.[55] Now referred to as waterflooding, the method uses injection wells drilled along the edge of an aging reservoir to drive the remaining oil toward centrally located producing wells.[56] By the mid-twentieth century, this enhanced recovery method had become an indispensible industry component, increasing the amount of domestically recoverable oil.[57]

Utilizing vertical drilling methods to produce hydrocarbons from horizontally oriented reservoirs proved troublesome for production engineers.[58] The majority of reservoirs are wider than they are deep causing vertical wellbores to interface with the horizontal pay zone at an inefficient juncture.[59] Rotary drilling provided operators with the ability to drill directional wells.[60] Initially developed for the offshore industry, directional drilling allows an operator to curve or bend the pipe at a gradual angle beneath the earth in order to reach a reservoir.[61] To change the direction of the well, a device called a whipstock is placed at the bottom of the hole and angles the drill in the desired direction.[62]

Horizontal drilling, a relatively modern industry advancement, was not possible in the past because rotating the drill pipe during the turn from vertical to horizontal caused drillpipe failure, such as buckling.[63] Unlike rotary wells, which operate by turning the entire drill string, horizontal drilling incorporates a downhole motor, powering only the drill bit.[64] With the development of downhole motorized drill bits, this drilling technique has become viable and

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50. *Id.*
51. *Id.*
52. RAYMOND & LEFFLER, *supra* note 27, at 9-10.
53. *Id.* at 11.
54. *Id.*
55. *Id.*
56. PATRICK H. MARTIN & BRUCE M. KRAMER, THE LAW OF OIL AND GAS 13 (Patrick C. Clark et al. eds., 9th ed. 2011); RAYMOND & LEFFLER, *supra* note 27, at 11; Broomes, *supra* note 48, § 20.02, at 20-3 to 20-4.
57. *See* Broomes, *supra* note 48, § 20.02, at 20-3 to 20-4.
58. *See* RAYMOND & LEFFLER, *supra* note 27, at 16.
59. *See id.*
60. *Id.* at 109-10.
61. CONAWAY, *supra* note 27, at 118-19.
62. RAYMOND & LEFFLER, *supra* note 27, at 109.
63. *See id.* at 16.
64. *See id.*

increasingly popular.[65] Horizontal drills are typically employed in low-permeability reservoirs in order to maximize production by exposing the wellbore to a greater area of the formation.[66]

Geophysical mapping and seismic surveys have progressed significantly, along with the rest of the industry. During the industry's infancy, petroleum geology was unheard of as a science.[67] The pervasive belief was "that oil discovery was based on luck combined with a natural talent for 'sniffing out' oil."[68] This "natural talent" for sniffing out oil simply involved locating an oil seep, then drilling exploratory wells until they hit pay dirt.[69] "Modern drilling techniques now permit operators to accurately place a wellbore within a few inches of a predetermined subsurface location."[70]

2. Well Stimulation Processes Increase Amounts of Domestically Recoverable Oil

Some oil and gas reservoirs are highly permeable, achieving commercially viable production rates without the need for stimulation.[71] Many formations, however, have such limited porosity and permeability that viable production requires stimulation treatment.[72] Stimulation is accomplished by creating fractures in the formation through which hydrocarbons can more freely flow to reach the wellbore, thereby increasing production rates.[73] Modern well operators typically employ acidizing or hydraulic fracturing for well stimulation—the latter being the most common.[74] Hydraulic fracturing

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65. *See id.*; CONAWAY, *supra* note 27, at 120.

66. CONAWAY, *supra* note 27, at 120.

67. *Id.* at xiii.

68. *Id.*

69. *See id.* at 43. An oil seep is created when migrating oil fills up the underground reservoir beyond its geological potential. *Id.* The excess oil then spills over and travels to the surface. *Id.* "In the early days of the oil industry, very little was understood about geology, but wildcatters found that drilling near seeps sometimes discovered reservoirs of oil." *Id.*

70. Terry D. Ragsdale, *Hydraulic Fracturing: The Stealthy Subsurface Trespass*, 28 TULSA L.J. 311, 319 (1993).

71. CONAWAY, *supra* note 27, at 159; Laura H. Burney, *Hydraulic Fracturing: Stimulating Your Well or Trespassing?*, 44 ROCKY MTN. L. INST. §§ 19.01, 19.02(1)-.02(2)(b), at 19-4 to 19-8 (1998). "Permeability . . . is a measure of the ease in which fluid can flow through a rock. . . . The greater the permeability of the rock, the easier it is for the fluids to flow through the rock." *Id.* at 19-6.

72. CONAWAY, *supra* note 27, at 159. "Porosity . . . is a measure of the pore spaces in a rock. Pores are the holes or voids between the solid particles in a sedimentary rock . . . . Because fluids (water, gas, and oil) occur in pore spaces, porosity is a measure of that rock's storage capacity for fluid." Burney, *supra* note 71, § 19.02(2)(a), at 19-4.

73. CONAWAY, *supra* note 27, at 159; Burney, *supra* note 71, § 19.02(3), at 19-10.

74. CONAWAY, *supra* note 27, at 159; Burney, *supra* note 71, §§ 19.02(3)(a)-(c), at 19-10 to 19-11. Explosive fracturing, dating back to the 1860s, is precursor to acidizing and hydraulic fracturing. Burney, *supra* note 71, §§ 19.02(3)(a)-(c), at 19-10 to 19-11 ("The technique originally used nitroglycerine in a tin container called a torpedo. The torpedo was lowered down the well to reservoir level and then exploded. This produced a large cavity in the reservoir around the wellbore . . . . This method has declined since the 1940s with the introduction of acidizing and hydraulic fracturing and is very infrequently used today.").

has enabled operators to develop low permeability reservoirs once neglected in preference of better prospects.[75] In fact, a 2005 report to Congress revealed that greater than 90% of current wells in the United States were undergoing fracture treatments.[76]

Hydraulic fracturing "is most effective when applied to hard rock as opposed to soft sand. The producing formation must be solid enough to split, rather than to be squeezed like a sponge."[77] During hydraulic fracturing, fluid is pumped down the well and into the formation at tremendous pressure, creating large fissures emanating away from the wellbore.[78] Once fracturing is accomplished, proppants—typically sand or small plastic pellets—are forced into the reservoir to hold the newly formed fractures open.[79] Without proppants, "the frac fluid tends to bleed off into the formation, allowing the fracture to heal completely."[80] By increasing the wellbore's effect on the reservoir from less than one foot to several hundred feet, production rates may increase up to fifty times.[81]

Depending on formation type, unit size, well and wellbore location, and type of well, a fracing operation may create vertical or horizontal fractures within the reservoir.[82] Commonly used in conjunction with horizontal wells, vertical fractures are "largely limited by the rock formations that lie above and below the reservoir rock," making predictions concerning the extent and direction of these fractures relatively accurate.[83] In comparison, the extent of lateral fractures cannot generally be controlled or limited.[84] "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."[85] Thus, situations arise when a fracing operation pushes fluids, proppants, and the resulting fractures beyond unit boundary lines.[86] The influx of fracing fluid across boundary lines is temporary, as it withdraws after proppant introduction.[87] Proppants injected across unit lines, however, maintain a continuing presence, hold the fracture

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75. Broomes, *supra* note 48, § 20.01, at 20-2.

76. *Id.* (citing *The Energy Policy Act of 2005: Ensuring Jobs for Our Future with Secure and Reliable Energy: Hearing Before the H. Subcomm. on Energy and Air Quality*, 109th Cong. 111 (statement of Victor Carrillo, Chairman, Texas Railroad Commission representing the Interstate Oil and Gas Compact Commission)).

77. RAYMOND & LEFFLER, *supra* note 27, at 217.

78. *Id.* at 218-19.

79. *Id.* at 218.

80. *Id.* at 219.

81. *Id.* at 218.

82. *See* Owen L. Anderson, *Subsurface Trespass After* Coastal v. Garza, 60 INST. ON OIL & GAS L. & TAX'N 65, 75 (2009).

83. *Id.*

84. *See id.* at 75-76.

85. *Id.* at 75.

86. *See id.* at 74-75.

87. *See id.*

open, and facilitate the flow of hydrocarbons to the wellbore.[88] Once a fracing operation is completed, "the lateral extent of fractures, fluids, and proppants can only be estimated."[89] Methods of obtaining more precise measurements are quite uncommon and cost intensive.[90] From a legal perspective, hydraulic fracturing implicates theories of mineral ownership—set forth fundamentally via the rule of capture and its subsequent modifications—and the debate concerning the relative trespassory nature of such operations.[91]

III. THEORIES OF MINERAL OWNERSHIP

Understanding the basis of mineral ownership provides an integral backdrop for a proper understanding of the corresponding causes of action. While formerly absolute, property ownership has seen the removal of sticks from its bundle to accommodate modern societal needs.[92] In tracing an analysis of the mineral estate's evolution, an important point to recognize is the distinction between the ownership and nonownership theories and the relationship of these theories to the *ad coelum* doctrine.[93]

A. The Ad Coelum Doctrine

At common law, real property ownership was based upon Lord Coke's maxim: "[*C*]*ujus 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)."[94] Real property ownership was thus defined by the principle of absolute ownership.[95] Over time, the need for limitations to the *ad coelom* doctrine became an apparent necessity for modern society, most notably in accordance with commercial flight.[96] In context of the oil and gas industry, the courts utilized the rule of capture to limit the *ad coelum* doctrine, as subjecting operators to liability for drainage would have impeded industry development.[97] Thus, the only remedy available to a mineral owner who feared the drainage of the oil and gas beneath his land was to drill more wells.[98]

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88. *See* Anderson, *supra* note 82, at 74-75.

89. *See id.* at 75.

90. *See generally* Burney, *supra* note 71, § 19.02(3)(c)(v), at 19-15 to 19-16 (describing three methods that could be used to measure the length of induced fractures from the surface).

91. *See id.* § 19.03, at 19-17.

92. Ragsdale, *supra* note 70, at 313.

93. *Id.* at 313-15,

94. RESTATEMENT (SECOND) OF TORTS § 159 cmt. g (1965); JOHN S. LOWE, OWEN L. ANDERSON, ERNEST E. SMITH & DAVID E. PIERCE, CASES AND MATERIALS ON OIL AND GAS LAW 21 (5th ed. 2008).

95. *See* Anderson, *supra* note 82, at 68.

96. United States v. Causby, 328 U.S. 256, 260-61 (1946). In determining the upper air to be a public highway not susceptible to private rights, the Court noted that the *ad coelum* "doctrine has no place in the modern world." *Id.* at 261.

97. Ragsdale, *supra* note 70, at 313.

98. *See* CONAWAY, *supra* note 27, at xiii; *supra* Part II.B.

B. The Rule of Capture

The rule of capture defines the rights of a landowner or mineral owner to oil and gas in place.[99] Rooted in ancient Greek and Roman law, the rule of capture was originally applied to groundwater.[100] The Exchequer Chamber Court set forth what is thought to be the first judicial declaration of the rule in *Acton v. Blundell*.[101] There, the court held that an owner who extracted groundwater via a well was not liable to adjoining landowners if the extracted water migrated from beneath that adjoining property.[102] This decision resulted in the formation of the ownership-capture doctrine, a corollary to the *ad coelum* doctrine.[103] A landowner's property right still reached from the center of the earth to the heavens; however, if water drawn from that landowner's well migrated from his neighbor's, it was loss without injury.[104] Adopted from English common law and premised upon approximately 1600 years of property law, "[t]he rule of capture is one of the most well-developed areas of law of any kind in Texas."[105]

The rule states that a mineral owner acquires title to the hydrocarbons produced from wells on his land, regardless of whether part of the oil or gas migrated from beneath the lands of another.[106] Upon production, the mineral owner reduces the oil or gas to possession.[107] The rule of capture in "pure form" is universally accepted as a negative rule of liability.[108] This means a mineral owner on a common pool has no liability if hydrocarbons produced from his well happen to drain from beneath the land of another.[109] "[N]on-liability provided by the [r]ule of [c]apture influences property rights" in both ownership-in-place and nonownership jurisdictions and was originally applied regardless of whether hydrocarbons were analogized to subterranean water or wild animals.[110] Under an unlimited or unqualified approach to the rule of capture, "[e]very owner of a right to the common pool has a right to produce

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99. *See* 6 MARLA E. MANSFIELD, JAMES B. WADLEY, & DAVID A. THOMAS, THOMPSON ON REAL PROPERTY, THOMAS EDITIONS § 49.02(b) (2012).

100. Anderson, *supra* note 82, at 67; *see* 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, 41-52 (2004).

101. *See* Acton v. Blundell, 152 Eng. Rep. 1223, 1235 (1843); Drummond et al., *supra* note 100, at 37.

102. *See Acton*, 152 Eng. Rep. at 1235.

103. Anderson, *Subsurface Trespass*, *supra* note 82, at 67-69.

104. *See id.* at 68-71.

105. Drummond et al., *supra* note 100, at 15-16.

106. *See* Halbouty v. R.R. Comm'n of Tex., 357 S.W.2d 364, 375 (Tex. 1962); 6 MANSFIELD ET AL., *supra* note 99, § 49.02(a).

107. *See* Elliff v. Texon Drilling Co., 210 S.W.2d 558, 582 (Tex. 1948).

108. *See* 6 MANSFIELD ET AL., *supra* note 99, § 49.02(b); Anderson, *Subsurface Trespass*, *supra* note 82, at 71.

109. *See Elliff*, 210 S.W.2d at 582; 6 MANSFIELD ET AL., *supra* note 99.

110. Bruce M. Kramer & Owen L. Anderson, *The Rule of Capture – An Oil and Gas Perspective*, 35 ENVTL. L. 899, 906 (2005); 6 MANSFIELD ET AL., *supra* note 99, § 49.02(a).

the oil or gas and cannot prevent others from exercising similar rights."[111] As discussed in Part II, such an approach often creates economic and physical waste, which led to modifications of the rule.[112] Though relatively simple in definition, application of the rule of capture is often quite complex.[113]

Several principles limit the operation of the rule of capture.[114] First, a mineral estate owner's recovery operations must be reasonable and legitimate, as opposed to reckless, lawless, or irresponsible.[115] Second, one may reduce to possession only oil and gas legally recovered.[116] The relative legality of oil and gas recovery depends upon the recovery's compliance with controlling statutes, conservation regulations, and the Doctrine of Correlative Rights.[117]

C. The Doctrine of Correlative Rights

Correlative rights are a judicially created limit on the rule of capture recognizing that mineral owners sharing a "common reservoir have reciprocal rights and duties."[118] These rights are not statutory, but rather, "held to exist because of the peculiar physical facts of oil and gas."[119] The laws and regulations set forth by the Texas Railroad Commission and conservation statutes are designed to allow mineral owners of a common reservoir the opportunity to extract a proportionate share from the entire reservoir, while preventing "operating practices injurious to the common reservoir."[120] Thus each mineral owner shares a like interest that must be exercised with regard to the other common mineral owners.[121] This right to extract a fair share of the minerals is further qualified by reasonable and legitimate operations, and drainage resulting from such operations is not actionable.[122] In sum, the Doctrine of Correlative Rights—a common law right under the theory of ownership of minerals in place—qualifies the rule of capture in that a landowner's extraction of minerals must be lawful, proportionate, and not injurious to the source of supply.[123]

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111. 6 MANSFIELD ET AL., *supra* note 99, § 49.02(b).

112. *See id.* § 49.02(d)(2); *supra* Part II.

113. *See infra* Part IV.C-D.

114. *See* Theresa D. Poindexter, Comment, *Correlative Rights Doctrine, Not the Rule of Capture, Provides Correct Analysis for Resolving Hydraulic Fracturing Cases [*Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1 (Tex. 2008)]*, 48 WASHBURN L.J. 755, 765-66 (2009).

115. Elliff v. Texon Drilling Co., 210 S.W.2d 558, 582 (Tex. 1948).

116. *See* Halbouty v. R.R. Comm'n of Tex., 357 S.W.2d 364, 375 (Tex. 1962); Poindexter, *supra* note 114, at 765-66.

117. *See* Poindexter, *supra* note 114, at 765-66

118. *Id.* at 767.

119. *Elliff*, 210 S.W.2d at 562 (quoting 1 NANCY SAINT-PAUL, SUMMERS OIL AND GAS § 63 (3d ed. 2011)).

120. *Id.*

121. *See id.* at 562-63.

122. *See id.*

123. *See id.* at 582; *see* SAINT-PAUL, *supra* note 119, § 3:8.

D. The Ownership in Place Theory

Water law and wild animal law provide the two sources for the rule of capture's application.[124] Conceptually, "[t]his dual origin of the rule of capture helps explain the two basic oil-and-gas ownership theories": the non-ownership and ownership-in-place doctrines.[125] In *Houston and Texas Central Railway Co. v. East*, the Texas Supreme Court held that the ownership-capture doctrine applied to groundwater.[126] In 1915, less than ten years after its decision in *East* and during the height of the Texas oil boom, the court determined that the ownership-capture doctrine applied to oil and gas.[127] As a result, Texas law pertaining to mineral ownership retained some semblance of the *ad coelum* doctrine, construing oil and gas as a part of the real property estate.[128]

> According to the ownership-in-place theory, the landowner owns all substances, including oil and gas, which underlie his land. Such ownership is qualified, however, in the case of oil and gas, by the operation of the law of capture. If the oil and gas depart from beneath the owned land, ownership in such substances is lost.[129]

According to the ownership-in-place theory, the right to develop and reduce the oil and gas to possession rests exclusively with the mineral owner.[130] "Due to the fugacious nature of oil and gas, however," the rule of ownership is subject to the rule of capture.[131]

E. The Exclusive Right to Take Theory

In contrast, many states analogized oil and gas to wild animals in their formulation of the rule of capture.[132] The exclusive right to take theory, or nonownership theory, is strikingly similar to the rule of capture portrayed in *Pierson v. Post*.[133] Unlike the ownership-in-place theory that operates as a corollary to the *ad coelum* doctrine, the nonownership theory—by likening hydrocarbons to *ferae naturae*—stands as an exception.[134] According to the

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124. Anderson, *supra* note 82, at 68-69; *see, e.g.*, Pierson v. Post, 3 Cai. 175 (N.Y. Sup. Ct. 1805) (establishing the famous rule that the act of capturing a wild animal accords possessory ownership).

125. Anderson, *supra* note 82, at 68-71 (citations omitted).

126. See *id.* at 68; *see* Houston & Tex. Cent. Ry. Co. v. East, 81 S.W. 279, 280-82 (Tex. 1904).

127. Anderson, *supra* note 82, at 69; *see* Texas Co. v. Daugherty, 176 S.W. 717, 719-21 (Tex. 1915); *supra* Part II.A-B.

128. *See Elliff*, 210 S.W.2d at 561; Ragsdale, *supra* note 70, at 314-15.

129. LOWE ET AL., *supra* note 94, at 26.

130. *See* Bender v. Brooks, 127 S.W. 168, 170 (Tex. 1910); Ragsdale, *supra* note 70, at 314-15.

131. Ragsdale, *supra* note 70, at 315. *See Elliff*, 210 S.W.2d at 561-62.

132. Anderson, *supra* note 82, at 69.

133. *Id. See generally* Pierson v. Post, 3 Cai. 175 (N.Y. Sup. Ct. 1805) (discussing the rule of capture).

134. Anderson, *supra* note 82, at 69.

nonownership theory, a landowner does not own the minerals beneath the land.[135] Instead, an owner possesses an exclusive right—as a profit a prendre—to capture the hydrocarbons by operations on his land.[136] Once reduced to possession, the minerals "become the object of absolute ownership."[137] "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."[138] Although trespass liability has been diminished per public policy concerns, such a determination in terms of the subsurface estate stands in opposition to the ownership-in-place theory of mineral ownership in Texas.

IV. THE LAW OF TRESPASS AND THE DEVELOPMENT OF ITS SUBSURFACE COUNTERPART

During the early days of the petroleum industry, little care or attention was paid to subsurface trespass issues.[139] Encouraged by the rule of capture, a mineral owner was compelled to construct at least as many wells as his neighbor for fear of drainage.[140] At the Spindletop oil field, for example, wells were situated so densely that one could walk from oil derrick to oil derrick without ever stepping foot on the ground.[141] Certainly, though concededly inadvertent, subsurface trespass had occurred.[142] Not until the 1930s, with the development of whipstocks and surveying equipment, did the subsurface trespass conception begin to develop.[143]

The conceptual roots of subsurface trespass law developed from traditional surface trespass.[144] The discovery of oil in Texas and California during the early 1900s "caused a massive surge in the transfer of property rights that affected the ability to explore for oil," often leading to drilling rights disputes.[145] Applying ordinary trespass principles, courts typically found that "one who unlawfully entered the land of another to drill for and produce oil was a trespasser, and was therefore not entitled to the oil severed from the land."[146] The severity of this rule was mollified where the trespasser acted in

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135. LOWE ET AL., *supra* note 94, at 26.

136. *Id.*; Anderson, *supra* note 82, at 69; Ragsdale, *supra* note 70, at 314.

137. LOWE ET AL., *supra* note 94, at 26.

138. Anderson, *supra* note 82, at 69.

139. Ragsdale, *supra* note 70, at 317-18.

140. *See id.*

141. F.J.S. Sur, *The Petroleum Industry: Condition of the Spindletop Oil Field*, 111 ENG'G & MINING J. 273 (1921).

142. *See* Ragsdale, *supra* note 70, at 317-18.

143. *Id.* at 318-19. "[S]urveying instruments were developed which could measure the direction and angle of deviation of a wellbore from the vertical. This technological advance provided a defense mechanism to landowners suspicious of questionable drilling practices by neighboring operators." *Id.* at 319.

144. *See* Robert P. Thibault et al., *A Modern Look at the Law of Subsurface Trespass: Does it Need Review, Refinement, or Restatement?*, 54 ROCKY MTN. L. INST. § 24.01, § 24.02(1), at 24-4 (2008); Broomes, *supra* note 48, § 20.03, at 20-7.

145. Broomes, *supra* note 48, § 20.03, at 20-7.

146. *Id.* (citing Bender v. Brooks, 127 S.W. 168, 170 (Tex. 1910)).

good faith by permitting recovery of drilling and production costs.[147] On the other hand, an interloper acting in the absence of good faith recouped no expenses, leaving the lawful owner a free producing well.[148] The subsurface trespass tort logically extended from surface trespass law.[149] Generally, "an unlawful physical entry onto the mineral estate of another" constitutes subsurface trespass.[150] Trespassory intent need not be shown, except as a measure of damages, as long as the trespasser's breach of another's property boundary was direct and volitional.[151] While the application of subsurface trespass law during the early days of the oil and gas industry was relatively straightforward, technological advancements have complicated determinations of whether or not certain subsurface operations are a trespass.[152]

A. Subsurface Trespass: Deviated, Directional, and Horizontal Wells

Just as an interloper was restricted from openly drilling on the land of another, courts refused to permit clandestine invasions from below.[153] The most conclusive instance of actionable trespass manifests when an operator drills a directional well that unlawfully bottoms beneath another's property.[154] The Texas Supreme Court considered such a situation in *Hastings Oil Co. v. Texas Co.*, one of the earliest reported cases in Texas involving directional well subsurface trespass.[155] There, Hastings and Texas owned adjoining oil and gas leases.[156] Hastings drilled a well that deviated from its vertical path and bottomed beneath lands owned by Texas, which sought injunctive relief.[157] The court upheld the injunction, noting that in equity, courts are allowed greater latitude in instances of trespass to mining property than trespass to real property because "the injury goes to the immediate destruction of the minerals

147. *See* OWEN L. ANDERSON ET AL., HEMINGWAY OIL AND GAS LAW AND TAXATION § 4.2(B)(1), at 153 (4th ed. 2004); Broomes, *supra* note 48, § 20.03, at 20-7.

148. Broomes, *supra* note 48, § 20.03, at 20-7.

149. *Id.*

150. Thibault et al., *supra* note 144, § 24.02(1), at 24-4; Ragsdale, *supra* note 70, at 320-23.

151. *See* Thibault et al., *supra* note 144, § 24.02(1), at 24-4.

152. *See id.* § 24.02(1)(a)-(b), at 24-5 ("The earliest cases establishing the law of subsurface trespass arose from intentional or inadvertent slant wells (wells that do not have a perfectly vertical wellbore); these early slant wells often resulted in completion on and production from another party's mineral estate. Off-lease bottoming is the conceptually simplest type of subsurface trespass.").

153. Broomes, *supra* note 48, at 4.

154. *See* Ragsdale, *supra* note 70, at 320; Thibault et al., *supra* note 144, § 24.02(1), at 24-4*; see also* Owen L. Anderson, *Subsurface "Trespass": A Man's Subsurface Is Not His Castle*, 49 WASHBURN L.J. 247, 256 (2010) (noting that actionable trespass exists assuming that the neighboring property is not part of that well's lease pool or drilling unit).

155. *See* Hastings Oil Co. v. Tex. Co., 234 S.W.2d 389, 398 (Tex. 1950); Ragsdale, *supra* note 70, at 320 (noting that *Hastings* is one of the earliest reported cases of deviated "well subsurface trespass in an ownership in place jurisdiction").

156. *Hastings*, 234 S.W.2d at 390.

157. *See id.* at 390-91.

which constitute the chief value of this species of property."[158] As *Hastings* shows, courts are quite eager to apply a straightforward subsurface trespass analysis in cases involving a slant well completed without authorization beneath an adjoining parcel.[159] Such actions may occur by accident (good faith), or purposefully (bad faith).[160] While a court's relative determination of an alleged trespasser's intent is not a necessary element of the tort, it is required for damage calculations.[161] In contrast to other subsurface operations, like hydraulic fracturing, no beneficial public utility is derived from allowing deviated wells to occur without liability.[162]

Unlike deviated wells that unintentionally or nefariously bottom on another's mineral estate, modern directional wells purposefully target areas of the reservoir great lateral distances from the drilling pad.[163] In order to reach a predetermined pay zone or avoid certain obstacles, necessity may require the wellbore to pass through another owner's mineral estate.[164] In *Browning Oil Co. v. Luecke*, the Lueckes executed several leases containing pooling clauses restricted by anti-dilution provisions that required any pooled unit contain a minimum percentage of the Lueckes' land.[165] Utilizing their pooling power, the lessees formed two units—each in violation of the Lueckes' anti-dilution provisions—then commenced two horizontally drilled wells.[166] The first well, situated on the Lueckes' land, traversed through one Luecke tract and seven other separately owned tracts.[167] The second well was not installed on Luecke surface property, although the horizontal wellbore passed through two of their tracts.[168]

In response to the anti-dilution provision violation, the Lueckes filed suit, claiming royalties on all production from the first well and double royalties on all production from the second.[169] The court of appeals rejected the Lueckes' claim to royalties on all production, in part, due to "the geophysical

158. *Id.* at 398 (quoting 1 JAMES L. HIGH, A TREATISE ON THE LAW OF INJUNCTIONS § 730 (4th ed. 1905)); *see also* Ragsdale, *supra* note 70, at 321 ("Implicit in the court's holding is the notion that a directional well subsurface trespass, if proved, constitutes an actionable tort . . . .").

159. *See Hastings*, 234 S.W.2d at 396-97; Broomes, *supra* note 48, at 4 (citing Bender v. Brooks, 127 S.W. 168, 170 (Tex. 1910)); David E. Pierce, *Trespass Issues in a Shale Play*, 5 ROCKY MTN. MIN. L. INST. 7, 3-4 (2010); *see also* Ragsdale, *supra* note 70, at 321 (noting in ownership-in-place jurisdictions, like Texas, directional well subsurface trespass "raises few issues as to whether the elements of the [trespass] tort are satisfied").

160. *See* Ragsdale, *supra* note 70, at 321-23; Thibault et al., *supra* note 144, at 12.

161. *See* Ragsdale, *supra* note 70, at 321.

162. *See* Anderson, *supra* note 154, at 256 (noting that trespassory wells are "not necessary for the exploitation of oil and gas resources because a non-trespassing well could be drilled to exploit the same resources"); Pierce, *supra* note 159, at 5.

163. Thibault et al., *supra* note 144, § 24.02(1)(b), at 24-5 to 24-8.

164. *See id.*

165. Browning Oil Co. v. Luecke, 38 S.W.3d 625, 638-39 (Tex. App.—Austin 2000, pet. denied).

166. *Id.*

167. *Id.*

168. *Id.*

169. *Id.* at 639.

characteristics of the formation [that] actually inhibit the natural drainage underlying the rule of capture . . . ."[170] The Austin Chalk—the formation then at issue—possesses low porosity and low permeability, is highly fractured, and is suitable for only horizontal wells.[171] Because of these unique reservoir characteristics, the court concluded that "the migratory nature of oil and gas that supplies the rationale for the rule of capture and the Lueckes' claim to all production from neighboring tracts does not apply to horizontal wells drilled in highly fractured formations."[172] Therefore, each separate perforation point along the horizontal wellbore extracts hydrocarbons from isolated fractures, with no drill naturally draining minerals from all tracts.[173] The rule of capture would, however, permit the Lueckes claim to royalties on all production in the instance of a vertical well situated upon their land.[174]

B. Geophysical and Perforation Trespass

Hydrocarbon recovery operations not involving a physical invasion of the wellbore may also be trespassory. Obtaining geophysical information about another's mineral estate unlawfully is a form of subsurface trespass.[175] Generally, Texas courts deny recovery for geophysical trespass unless a physical invasion of some "thing" has occurred.[176] For example, in *Kennedy v. General Geophysical Co.*, the plaintiff alleged that vibrations—resulting from the defendant's adjacent geophysical blasting operations—that entered into his mineral estate were trespassory.[177] The court concluded no actionable trespass had occurred because the influx of vibrations into the plaintiff's mineral estate caused no physical damage and did not provide the defendant with information concerning the plaintiff's mineral estate.[178] In *Villarreal v. Grant Geophysical, Inc.*, the court of appeals considered similar circumstances raising the issue of geophysical trespass.[179] Specifically, the court considered whether three-dimensional mapping that collected information from non-consenting mineral owners constituted a trespass without the occurrence of a physical entry.[180] Denying the plaintiff recovery in trespass, the court

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170. *Id.* at 645.
171. *Id.*at 645-46.
172. *Id.* at 646.
173. *Id.*
174. *Id.*
175. *See* Thibault et al., *supra* note 144, § 24.02(1)(e)(ii), at 24-15.
176. *See id.* § 24.02(1)(e)(ii), at 24-15 to 24-16.
177. *See* Kennedy v. Gen. Geophysical Co., 213 S.W.2d 707, 708 (Tex. Civ. App.—Galveston 1948, writ ref'd n.r.e.); Thibault et al., *supra* note 144, at 6-7.
178. *See Kennedy*, 213 S.W.2d at 709, 712-13. The court noted, "Trespass may also be committed by shooting onto or over the land, by explosions, by throwing inflammable substances, by blasting operations, by discharging soot and carbon, but not by mere vibrations." *Id.* at 711.
179. *See* Villarreal v. Grant Geophysical, Inc., 136 S.W.3d 265, 267 (Tex. App.—San Antonio 2004, pet. denied).
180. *See id.* at 266-67.

reluctantly recognized that the physical entry requirement of trespass is settled Texas law.[181]

Subsurface trespass may also occur during the perforation of the well casing.[182] Perforation is the practice of puncturing holes in the steel and concrete liner of a well within the reservoir, facilitating the influx of hydrocarbons.[183] Often, different reservoirs exist atop one another separated by layers of impermeable rock.[184] Deeper lease operators must drill through the shallow leases in order to reach their area of the reservoir.[185] These deep lease operators hold a right of access, "allowing drilling through the mineral interest of another."[186] The operator does not possess the right to perforate the well casing in areas not within its lease.[187] Called "off-lease perforating," such actions are "a form of subsurface trespass because it allows an operator to unlawfully produce from a vertically neighboring mineral estate."[188] Off-lease perforating is rare in practice.[189] Usually, all perforation locations must be reported to the state regulatory authority and require a great amount of specialized technical expertise, making "unscrupulous perfing a difficult prospect, especially where the division between estates is a bright-line . . . between well-differentiated reservoir rock types."[190] The foregoing demonstrates instances of subsurface operations that may be trespassory, depending on the factual circumstances; however, not all hydrocarbon recovery operations involving physical invasions that transcend property lines are considered a trespass.[191]

C. Secondary Recovery Operations

Secondary or enhanced recovery operations are designed to maintain or increase production of an existing well once a reservoir's natural production energy has decreased.[192] These operations involve the injection of salt water, carbon dioxide, chemicals, natural gas, or other substances into a reservoir.[193] Unlike the unauthorized deviation of a well across ownership boundaries, which courts affirmatively recognize as trespassory, secondary recovery operations have "given pause to the courts in the evolution of this subsurface

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181. *See id.* at 270 ("Although it appears that Texas law regarding geophysical trespass has not kept pace with technology, as an intermediate court we must follow established precedent.").
182. *See* Thibault et al., *supra* note 144, § 24.02(1)(c), at 24-9 to 24-10.
183. *See id.* at 24-10.
184. *See id.*
185. *See id.*
186. *Id.* at 24-9.
187. *Id.* at 24-10.
188. *Id.* at 24-9.
189. *Id.*
190. *Id.* at 24-9 to 24-10.
191. *Id.*; *see* Broomes, *supra* note 48, § 20.03(2)(a), at 20-8.
192. *See* Thibault et al., *supra* note 144, § 24.02(1)(d), at 24-10.
193. *See id.*

tort."[194] In *Railroad Commission of Texas v. Manziel*, Manziel sought to set aside and cancel a waterflood permit issued by the Railroad Commission to Whelan, owners of an adjoining tract, arguing that the injected water would constitute a trespass and result in the destruction of their own well.[195] The Railroad Commission posited that permitting the location of injection wells was necessarily within its authority to prevent drainage and protect correlative rights.[196] The court upheld the Commission's order, finding persuasive the social utility derived from secondary recovery operations, despite the fact that such operations result in a physical invasion much greater than a wellbore.[197]

D. Trespass: Hydraulic Fracturing

Trespass issues concerning hydraulic fracturing are more convoluted than that of a deviated well. Unlike enhanced recovery operations and directional drilling, the Texas Railroad Commission does not regulate hydraulic fracturing through a permitting process.[198] Though the Texas Supreme Court now appears to favor a departure from the view that subsurface rights are synonymous with that of the surface, such was not always so.[199] In *Gregg v. Delhi-Taylor*, the court held that allegations of hydraulic fracture subsurface trespass are for the courts to decide, rather than the Texas Railroad Commission.[200] There, Gregg was the owner of an oil and gas lease, while Delhi-Taylor owned the surrounding mineral estate.[201] Gregg drilled and planned to fracture a well thirty-seven and a half feet from the boundary line with Delhi-Taylor, who subsequently brought suit to enjoin the impending subsurface trespass.[202] The court ultimately determined Delhi-Taylor's allegations sufficiently raised the issue of trespass.[203] Specifically, the court

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194. Broomes, *supra* note 48, § 20.03(2)(a), at 20-8.

195. *See* R.R. Comm'n of Tex. v. Manziel, 361 S.W.2d 560, 561 (Tex. 1962). Waterflooding is a secondary recovery method "in which water is injected into an oil reservoir for the purpose of washing the oil out of the reservoir rock and into the bore of a producing well." PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS & MEYERS MANUAL OF OIL AND GAS TERMS 1049 (14th ed. 2009).

196. *See Manziel*, 361 S.W.2d at 565.

197. *See id.* at 568-69 ("The technical rules of trespass have no place in the consideration of the validity of the orders of the Commission."); *see* Broomes, *supra* note 48, § 20.03(2)(a), at 20-8 to 20-9.

198. *See* Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 15 (Tex. 2008); Anderson, *supra* note 154, at 258.

199. *See Coastal*, 268 S.W.3d at 11, 17; Gregg v. Delhi-Taylor Oil Corp., 344 S.W.2d 411, 412 (Tex. 1961); Hastings Oil Co. v. Texas Co., 234 S.W.2d 389 (Tex. 1950); Elliff v. Texon Drilling Co., 210 S.W.2d 558, 561 (Tex. 1948).

200. *See Gregg*, 344 S.W.2d at 412-16; 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, writ granted). *Holmes* is a companion case to *Gregg*. *Gregg*, 344 S.W.2d at 420. Both cases involved nearly identical fact patterns concerning the judicial nature of subsurface trespass claims arising from hydraulic fracturing. *See id.* In *Holmes*, the Texas Supreme Court reinstated a temporary injunction issued by the trial court against the defendant Holmes, as evidence showed that sand fracing operations instituted by Holmes would be trespassory. *Id.* at 420-21.

201. *Gregg*, 344 S.W.2d at 412.

202. *Id.*

203. *Id.*

dictated that Gregg's actions were direct, intentional, and constituted a physical invasion.[204]

> While the drilling bit of Gregg's well is not alleged to have extended into Delhi-Taylor's land, the same result is reached if in fact the cracks or veins extend into its land and gas is produced therefrom by Gregg. To constitute a trespass, 'entry upon another's land need not be in person, but may be made by causing or permitting a thing to cross the boundary of the premises.'[205]

While the preceding commentary from the court in *Gregg* is merely dicta, it remained "the only reported judicial pronouncement on hydraulic fracture subsurface trespass" for three decades.[206]

Then, in 1991, the Texas Supreme Court encountered *Geo Viking, Inc. v. Tex-Lee Operating Co.* in which it specifically held for the first time that "fracing under the surface of another's land constitutes a subsurface trespass."[207] There, Tex-Lee sued Geo Viking for breach of contract, alleging an improperly performed fracture operation.[208] Evidence suggested that the hydraulic fractures extended beyond lease boundaries more that 2,500 feet from the wellbore.[209] These fractures failed to establish communication with the natural fractures of the formation, prompting Tex-Lee's breach of contract suit.[210] On appeal, Geo Viking contested the sizeable jury award, arguing that it should have been liable only for the recoverable oil within the lease boundaries.[211] As a result, Geo Viking complained, Tex-Lee did not have the recovery rights to some of the oil as a result of the hydraulic fractures.[212] The appellate court rejected this argument as "in direct opposition to the rule of capture."[213] Per the rule of capture, self-help—the drilling of offset wells—stood as the proper remedy.[214]

The Texas Supreme Court reversed, holding that "the rule of capture would not permit Tex-Lee to recover for a loss of oil and gas that might have been produced as the result of fracing beyond the boundaries of its tract."[215] The court specifically expressed criticism that the court of appeals, through

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204. *Id.*

205. *Id.* at 416 (quoting Glade v. Dietert, 295 S.W.2d 642, 645 (Tex. 1956)).

206. Ragsdale, *supra* note 70, at 340.

207. Geo Viking, Inc. v. Tex-Lee Operating Co., No. D-1678, 1992 WL 80263, at *2 (Tex. Apr. 22, 1992), *opinion withdrawn and superseded on overruling of reh'g*, 839 S.W.2d 797 (Tex. 1992) (citing Elliff v. Texon Drilling Co., 210 S.W.2d 558, 561 (1948); Amarillo Oil v. Energy-Agri Products, 794 S.W.2d 20, 27 (Tex. 1990)).

208. *Id.* at *1.

209. *Id.*

210. *Id.*

211. Geo Viking, Inc. v. Tex-Lee Operating Co., 817 S.W.2d 357, 363-64 (Tex. App.—Texarkana 1991), *writ denied*, 839 S.W.2d 797 (Tex. 1992) (per curiam).

212. *Id.*

213. *Id.* at 364 (citing Brown v. Humble Oil & Ref. Co., 83 S.W.2d 935, 940 (Tex. 1935)).

214. *Id.*

215. *Geo Viking*, 1992 WL 80263, at *2.

reliance on the rule of capture, held Geo-Viking liable for oil production losses from extra-lease reservoirs.[216] In an interesting wrinkle, the Texas Supreme Court withdrew its opinion as improvidently granted six months later in a memorandum opinion, letting stand the previously reversed court of appeals's decision.[217]

V. HYDRAULIC FRACTURING AND TRESPASS: THE COURT'S DECISION IN *COASTAL V. GARZA*

In *Coastal v. Garza*, the Texas Supreme Court finally considered the hydraulic fracture subsurface trespass issue directly on point.[218] The decision, with a single concurrence and three dissenting justices, was set to clarify a long-anticipated jurisprudential determination concerning hydraulic fracture subsurface trespass.[219] Indeed, at the case's outset an affirmative modern pronouncement toward trespassory concerns arising from fracturing operations had not been given.[220]

A. The Majority Concludes the Rule of Capture Precludes the Trespass Tort

Justice Hecht delivered the opinion of the Texas Supreme Court, addressing first Salinas's claim that the influx of "hydraulic fracturing fluid and proppants into another's land two miles below the surface constitutes a trespass for which the minerals owner can recover damages equal to the value of the royalty on the gas thereby drained from the land."[221] Coastal argued that Salinas, as lessor, had no possessory right to the minerals, and therefore, no standing in trespass.[222] The court disagreed, viewing Salinas's reversion interest as similar to the reversion interest of a landlord.[223] Combined with the allegations of actual concrete harm, the standing requirement was fulfilled.[224]

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216. *See id.*

217. *See Geo Viking*, 839 S.W.2d at 798 ("In denying petitioner's application for writ of error, 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 hydraulic fracturing."). *See generally* Ragsdale, *supra* note 70, at 340 (providing a thorough analysis of the *Geo Viking* cases).

218. *See* Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 4 (Tex. 2008).

219. *See, e.g.*, Respondents' Brief on the Merits at 10, Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1 (Tex. 2008) (No. 05-0466), 2005 WL 3775561 (commenting on the "wide notoriety" this case received from the industry).

220. *See supra* Part IV.D.

221. *Coastal*, 268 S.W.3d at 9.

222. *Id.*

223. *See id.* at 9-10.

224. *See id.* Justice Hecht noted that Salinas could recover nominal damages on this claim of trespass, but rather, "[h]e must prove actual injury." *Id.* at 11.

The court then turned to the hydraulic fracture subsurface trespass issue and ultimately concluded that the rule of capture precluded Salinas's claim.[225]

The majority gave four reasons for its holding.[226] First, an aggrieved mineral owner seeking recovery for drainage is already provided full recourse under the law.[227] An aggrieved property owner in such a situation may find recourse by drilling his own wells to offset the drainage, seeking drainage prevention regulation from the Texas Railroad Commission, suing the lessee for violating the implied covenant to prevent drainage, or seeking to pool.[228] Second, allowing recovery for drainage induced by hydraulic fracturing "usurps to courts and juries the lawful and preferable authority of the Railroad Commission to regulate oil and gas production."[229] Third, the court reasoned that the judicial system is ill equipped in making determinations of the value of the hydrocarbons drained.[230] Finally, the court found persuasive the numerous industry participants that strongly opposed hydraulic fracture liability.[231] Thus, the court decided—without deciding—that Salinas could not recover in trespass.

B. Justice Johnson Finds Holes in the Majority Opinion

Justice Johnson delivered a separate opinion, criticizing the majority's refusal to address the trespass issue.[232] Though the rule of capture finds its basis in the fugitive nature of oil and gas, the gas here migrated as a result of hydraulic fracturing, not because of naturally occurring reservoir pressure changes.[233] Had the drainage occurred as a consequence of natural hydrocarbon migration, the dissent observed, the rule of capture would undoubtedly operate to insulate Coastal from liability.[234] Furthermore, the jury found the fracing operation trespassory, a conclusion Coastal declined to contest and, instead, advocated that "subsurface trespass by hydraulic fracturing is not actionable."[235] Justice Johnson found dispositive the issue concerning the legality of Coastal's fracing operation.[236] If illegal, the rule of

225. *Id.* at 12-13, 17. "The rule of capture is a cornerstone of the oil and gas industry and is fundamental both to property rights and to state regulation." *Id.* at 13.
226. *Id.* at 14.
227. *Id.*
228. *Id.*; *see* Anderson, *supra* note 82, at 87.
229. *Coastal*, 268 S.W.3d at 14-15.
230. *Id.* at 16.
231. *See id.* at 16-17.
232. *See id.* at 42-44 (Johnson, J., concurring in part and dissenting in part).
233. *Id.* at 42-43.
234. *Id.* at 42.
235. *Id.* at 42-43.
236. *Id.* at 43-44.

capture was inapplicable.[237] The majority refused Salinas's subsurface trespass claims because Coastal's operations did not violate a statute or regulation, nor did Salinas allege Coastal's fracing operation caused damage to his wells or reservoir.[238] In effect, the majority surmised, Salinas failed to claim recoverable damages.[239] Despite these determinations, the issue whether hydraulic fracturing across lease lines constitutes a subsurface trespass was left unanswered.[240]

Limiting the rule of capture to legally recoverable hydrocarbons stands as established precedent.[241] For example, in *Elliff v. Texon Drilling Co.* the court noted that "each owner of land in a common source of supply of oil and gas has legal privileges as against other owners of land therein to take oil or gas therefrom by *lawful* operations conducted on his own land."[242] Over a decade later in *Gregg*, the court clarified that the issue became ultimately a "question of trespass and whether the law of capture includes the right to capture by artificial means or capture by trespass."[243] Without the lawful requirement, "the rule of capture becomes only a license to obtain minerals in any manner, including unauthorized deviated wells . . . and whatever other method oilfield operators can devise."[244] Therefore, by holding that the rule of capture precluded Salinas's trespass claims, the majority neglected this crucial element of the rule of capture.[245] As Justice Johnson aptly noted, the issue regarding subsurface trespass by hydraulic fracturing remains dubitable.[246]

VI. *COASTAL* USHERS IN DISPUTE CONCERNING SUBSURFACE RIGHTS AND PROTECTIONS

The majority opinion in *Coastal* was not persuaded that subsurface property rights should be equivalent to surface rights, a position that finds favor with many academics and commentators.[247] Indeed, there appears to be

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237. *Id.* at 43 (noting that, "[i]n the face of this record and an uncontested finding that Coastal trespassed on Share 13 by the manner in which it conducted operations on Share 12, I do not agree that the rule of capture applies").

238. *Id.* at 13 (majority opinion).

239. *See id.* at 12-13 (holding that "the gas [Salinas] claims to have lost simply does not belong to him").

240. *See id.* at 12-13, 17 (stating that the broader issue did not need to be decided here).

241. *See id.* at 43 (Johnson, J., concurring in part and dissenting in part).

242. *Id.* (quoting Elliff v. Texon Drilling Co. 210 S.W.2d 558, 561 (Tex. 1948)).

243. Gregg v. Delhi-Taylor Oil Corp., 344 S.W.2d 411, 418 (Tex. 1961). The dicta in *Gregg* concerning hydraulic fracture subsurface trespass remained the only judicial determination on this specific issue until *Coastal* as a result of the court's withdrawal of its opinion in *Geo Viking*. *See* Ragsdale, *supra* note 70, at 340-42.

244. *Coastal*, 268 S.W.3d at 43 (Johnson, J., concurring in part and dissenting in part).

245. *See id.* at 43-44.

246. *See id.* at 44.

247. *See id.* at 11 (majority opinion); Anderson, *supra* note 154, at 253-54. *See generally* Owen L. Anderson, *Lord Coke, The Restatement, and Modern Subsurface Trespass Law*, 6 TEX. J. OIL GAS &

a common thread among those who argue for diminished subsurface property rights.[248]

A. The Battle of Analogies—Searching for Applicable Jurisprudence Among Counterpart Recovery Operations

Hydraulic fracturing operations are often compared to other oil and gas recovery operations in the quest to find the most applicable existing legal principles. As the following discourse reveals, analogizing trespass jurisprudence among hydraulic fracturing and counterpart industry operations presents no simple endeavor.[249] Characteristically, fracing is an amalgam of its counterparts, sharing in the indispensability and popularity of waterfloods while incorporating physical and functional attributes that make deviated wells prohibitively trespassory.[250] In light of these disparities, equity may best be served by abandoning comparative reliance, forging more suitable hydraulic fracture trespass jurisprudence from the lessons gleaned from those concomitant operations.[251]

1. Enhanced Recovery Operations: Waterfloods and Social Utility

Hydraulic fracturing has been compared to enhanced recovery operations that maintain reservoir pressure, such as waterfloods.[252] While both recovery operations share the same general purpose, stark differences arise in both the treatment given by the courts and the repercussions to the mineral estate's viability.[253] For instance, "a waterflood inflicts catastrophic damage to mineral owners who are not included in the secondary recovery unit."[254] The injected water drives the hydrocarbons from the reservoir's periphery towards the producing wellbore, irreversibly destroying any production potential from the inundated mineral estates.[255] Mineral owners not participating in the unit are left with nothing.[256] Comparatively, hydraulic fracturing does not permanently devastate the adjoining mineral estate into which it invades, but rather facilitates unauthorized mineral extraction.[257] Though instances of extra-boundary fracturing may fundamentally satisfy all trespassory elements, an

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ENERGY L. 203 (2010) (presenting an argument that the Second Restatement of Torts should be amended whereby subsurface trespass is likened to airspace trespass law).

248. *See* Anderson, *supra* note 154, at 253-54; Anderson, *supra* note 247; Anderson, *supra* note 82, at 69.

249. *See infra* part VI.A.1.

250. *See infra* part VI.A.1-2.

251. *See infra* part VI.A.3.

252. *See* Broomes, *supra* note 48, §§ 20.01-.02, at 20-3 to 20-5.

253. *See id.* § 20.04, at 20-23 to 20-25.

254. *Id.* § 20.04, at 20-23.

255. *Id.* § 20.04, at 20-23 to 20-29.

256. *Id.* § 20.04, at 20-24.

257. *See id.* § 20.04, at 20-23.

aggrieved party possesses options to mitigate any damages not available to parties on the wrong side of a waterflood.[258] For all practical purposes, however, had a waterflood not occurred, the owner likely would not have been able to extract those hydrocarbons originally due to deteriorating reservoir pressure.[259] Unlike modern hydraulic fracturing, which operators commonly employ as a primary recovery operation to foster production from an otherwise nonviable formation, waterfloods are a secondary recovery method developed to rejuvenate production from aging reservoirs.[260]

Notwithstanding the glaring discrepancy between the purpose and damaging characteristics of waterfloods and hydraulic fracturing, the Texas judiciary historically has more readily embraced the inherent social utility of waterflooding.[261] Citing public policy concerns and the precedent set forth in *Manziel*, Justice Willett's concurrence in *Coastal* showed favor to the waterflood-fracturing analogy, writing that the court should reject trespass liability for hydraulic fracturing.[262] Indeed, hydraulic fracturing has become indispensable for recovery in low permeability reservoirs, like Texas's Barnett Shale, once considered uneconomical before fracing's development.[263]

If hydraulic fracturing is as necessary an industry component as waterflood operations, why did the court negate the opportunity to do the same in *Gregg* as it did in *Manziel*? The court's past disparate treatment of hydraulic fracturing and waterfloods may simply be explained by historical comparison. During the late 1950s and early 1960s, waterflood operations were wildly popular, rejuvenating aging reservoirs and effectively increasing domestically recoverable petroleum reserves.[264] Hydraulic fracturing, however, had yet to achieve such indispensable notoriety.[265] Today it seems that hydraulic fracturing has assumed a vital role in the petroleum industry, analogous to waterfloods during the days of the *Manziel* decision.[266]

2. Unauthorized Directional or Deviated Wells: Functional and Physical Perspectives

While hydraulic fracturing's indispensability to the petroleum industry may be synonymous with secondary recovery operations, construing the

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258. *See id.*; *see, e.g.*, Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 14-17 (Tex. 2008) (providing four remedies available for a drainage claimant in the hydraulic fracture subsurface trespass context).

259. *See* Broomes, *supra* note 48, § 20.02, at 20-3 to -4.

260. *See* Poindexter, *supra* note 114, at 774.

261. *See, e.g.*, R.R. Comm'n of Tex. v. Manziel, 361 S.W.2d 560, 568 (Tex. 1962) (noting that waterflood operations should be encouraged, as the reservoir pressure driving production declines, the public need for secondary recovery inversely increases); Burney, *supra* note 71, § 19.03(1)(c), at 19-29 to -30.

262. *See Coastal*, 268 S.W.3d at 30-33 (Willett, J., concurring).

263. *See id.*

264. *See* Broomes, *supra* note 48, §§ 20.02, .04, at 20-4, 20-24.

265. *See id.* § 20.04, at 20-24.

266. *See id.*

fractures in terms of their function—increasing formation permeability and providing an avenue for greater hydrocarbon capture—allows one to easily conclude that the wellbore and fractures are functionally synonymous.[267] Hydraulic fracturing generates artificially propped fissures within the formation, induced by an operator's intentional actions, protruding into an adjacent mineral estate, facilitating hydrocarbon capture, and thus, accomplishing the same results as a directionally drilled well.[268] In both instances, the unauthorized subsurface entry procures oil and gas from the neighboring mineral estate "in a manner not contemplated by the rule of capture."[269] But for the propped fractures or deviated well, the hydrocarbons within an adjacent mineral estate could not be captured.[270] In *Coastal*'s dissent, Justice Johnson elucidated the court's recognition of this similitude between deviated and fractured wells.[271] For instance, in *Gregg*, the court found sufficient subsurface trespass allegations to enjoin a sand fracing operation, utilizing the deviated well subsurface trespass set forth in *Hastings* in a comparative analysis.[272]

The *Coastal* majority, however, rejected the similarity between a deviated well and fracing operation exhibited in *Gregg*, giving two reasons why deviated wells are not subject to the rule of capture.[273] First, a complaining adjacent mineral owner cannot protect from drainage by drilling his own well, and second, "there is no uncertainty that the deviated well is producing another owner's gas."[274] Justice Johnson failed to find the court's logic persuasive, noting that the neighbor can protect against either a deviated well or an intruding fracture.[275] The two share the same function of drawing hydrocarbons through areas of low pressure to ultimate capture on the operator's property.[276] In such a situation, "[t]he only difference is the degree of drainage that can be prevented by offset wells, and a fracture's exposure to the reservoir may be greater than that of the deviated well and thus drain more gas."[277]

Justice Johnson also extended his critique to the majority's second reason for distinguishing deviated and hydraulically fractured wells.[278] Just like a deviated well, he observed, there also exists no uncertainty that the fractured

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267. *See Coastal*, 268 S.W.3d at 44-45 (Johnson, J., concurring in part and dissenting in part); Gregg v. Delhi-Taylor Oil Corp., 344 S.W.2d 411, 416 (Tex. 1961); Ragsdale, *supra* note 70, at 339.

268. *See Coastal*, 268 S.W.3d at 44; Ragsdale, *supra* note 70, at 339.

269. Ragsdale, *supra* note 70, at 339.

270. *See Coastal*, 268 S.W.3d at 42.

271. *See id.* at 44-45.

272. *See Gregg*, 344 S.W.2d at 416-17.

273. *See Coastal*, 268 S.W.3d at 14-15 (majority opinion).

274. *Id.* at 44 (Johnson, J., concurring in part and dissenting in part).

275. *See id.* at 44-45.

276. *Id.* at 44

277. *Id.*

278. *See id.* at 44-45.

well is draining another's gas, at least in the case at hand.[279] Both deviated and fraced wells are purpose-built to gather distant minerals, and in *Coastal*, the jury found that part of the gas captured by Coastal's well originated beneath Salinas's tract.[280]

3. Aircraft Trespass Law—Navigating Considerations of Blanket Subsurface Trespass Reform

Instead of attempting to analogize hydraulic fracturing with seemingly similar petroleum industry operations, one position suggests a complete reexamination of the trespass tort, associating subsurface trespass with that of the airspace.[281] In *Coastal*, the court found favor in the aircraft analogy and the corresponding limit to the *ad coelum* doctrine.[282] Lord Coke, father of the *ad coelum* doctrine, "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."[283] Such a position embraces the presumption that, because the trespass is occurring at substantial depth—like an aircraft traveling at thirty thousand feet—it negates the relative harmful effects of the trespass.[284] Subsuming subsurface trespass law with aircraft trespass jurisprudence would necessitate a showing of actual and substantial harm.[285] Industry activities exempted from "harmful" demarcation include instances of deep subsurface trespass: waste injection (carbon dioxide sequestration, saltwater injection, and injection of other nonhazardous materials), gas storage, enhanced recovery operations, and hydraulic fracturing.[286] In contrast, shallow subsurface impingements would likely remain oriented in accordance with surface trespass law.[287] Such a transformation is further predicated upon the societal necessity of "efficient and utilitarian use of the subsurface."[288]

Minimizing subsurface trespass liability to these ends fails to recognize the critical discrepancy in value between the two mediums. Very often the monetary gain derived from oil and gas greatly surpasses the value of the

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279. *Id.* at 44.

280. *See id.*

281. *See* Anderson, *supra* note 247, at 204-07.

282. *Coastal*, 268 S.W.3d at 11 (majority opinion); *see* Anderson, *supra* note 247, at 204 (noting that Lord Coke's *ad coelum* doctrine is essentially embraced by the Second Restatement of Torts).

283. *Coastal*, 268 S.W.3d at 11 (citation omitted).

284. *See* Anderson, *supra* note 247, at 209-10.

285. *Id.* at 205-07.

286. *See id.* at 209-10.

287. *See id.* Professor Anderson observed, "[M]any shallow subsurface intrusions directly affect the surface and are thus essentially surface trespasses." *Id.* at 209.

288. *Id.* at 206 (citing injunctive relief and ejectment as examples of serious threats to efficient subsurface usage).

surface.[289] Herein lies the problem the airplane analogy leaves unanswered. An aircraft traveling at thirty thousand feet takes no value from the "owner" of that airspace because there, nothing exists to convert for exchange.[290] In contrast, a mineral owner possesses a profoundly lucrative material, and drainage resulting from unauthorized subsurface encroachments, such as hydraulic fracturing, may cost in the millions of dollars.[291] If one bases the scope of one's property rights in the three zones—air, surface, and subsurface—on their respective monetary yield, then necessity negates limits on subsurface trespass claims in order to protect the mineral estate.[292] Despite the utility of more efficient hydrocarbon exploration and production to fuel this country's petroleum driven economy, dispatching subsurface trespass liability fashions problems of its own.[293]

*B. Pre-*Coastal *Trespass Law Combined with Equitable Principles, Not Trespass Preclusion, Provides a More Balanced Alternative to Public Necessity Hyperbole*

Concededly, *Coastal* presented the court with an onerous quandary implicating two contrasting extremes.[294] A determination that extra-lease hydraulic fracturing is always trespassory could inundate the petroleum industry with windfall litigation, stagnating necessary production.[295] Conversely, adjudging fracing never trespassory would conceivably destroy individual mineral rights by empowering uncompensated confiscation of property.[296] Reluctant to instigate perceived changes to the rule of capture, the court sought middle ground, confining its holding to drainage injuries.[297] In

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289. *See, e.g.*, Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.2d 1, 12-13 (Tex. 2008) (noting that Salinas's expert testified that the value of gas lost due to drainage caused by Coastal's hydraulic fracturing operation was approximately valued between $388,00 and $544,000; furthermore, the jury, as evidenced by its award, determined Salinas's compensation for lost royalties to be greater than $1 million).

290. *See* United States v. Causby, 328 U.S. 256, 260-61 (1946) (determining the upper air to be a public highway not susceptible to private rights, and noting that the *ad coelum* "doctrine has no place in the modern world"); RESTATEMENT (SECOND) OF TORTS § 159(2)(a)-(b) (1965); Anderson, *supra* note 154, at 253-54.

291. *See supra* note 289 and accompanying text.

292. The Texas Supreme Court in *Hastings*, and later *Gregg*, referred to James L. High's treatise on injunctions. Hastings Oil Co. v. Texas Co., 234 S.W.2d 389, 398 (Tex. 1930); Gregg v. Dehli-Taylor Oil Corp., 344 S.W.2d 411, 416 (Tex. 1961). "In the case of trespass to mining property greater latitude is allowed courts of equity than in restraining ordinary trespasses to realty, since the injury goes to the immediate destruction of the minerals which constitute the chief value of this species of property." HIGH, *supra* note 158, § 730; *accord Hastings*, 234 S.W.2d at 391-92; *Gregg*, 344 S.W.2d at 412.

293. *See Coastal*, 268 S.W.3d at 44-46 (Johnson, J., concurring in part and dissenting in part).

294. *See* Mark E. Vandermeulen, Casenote, *The Texas Supreme Court Holds Hydraulic Fracturing Trespass Claim Is Precluded by the Rule of Capture*, 62 SMU L. REV. 835, 840 (2009).

295. *See id.*

296. *See Coastal*, 268 S.W.3d at 45-46 (Johnson, J. concurring in part and dissenting in part); Vandermeulen, *supra* note 294, at 840.

297. *See Coastal*, 268 S.W.3d at 17 (majority opinion).

effect, these conclusions have adverse ramifications for individual mineral owners.[298]

Though the court delineated four remedies available to aggrieved property owners, a closer analysis reveals their insufficiencies.[299] Foremost, while these alternatives are generally available, all Texas property owners cannot feasibly possess the knowledge, experience, and resources to effectuate those remedial benefits.[300] More critically, the court's holding reduces an operator's incentive "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."[301] Further still, *Coastal* indubitably permits a lessee to forego contract negotiations with a lessor and expand existing lease boundaries unilaterally through hydraulic fracturing operations.[302] As Justice Johnson aptly noted, such circumstances now enabled by the majority are paradigmatic of the facts and circumstances encountered in *Gregg* half a decade ago.[303]

Granted, utilization of hydraulic fracturing has become preeminent in modern petroleum industry procedure since *Gregg*, making arguments concerning its necessary social utility persuasive.[304] The foregoing discussion, however, reveals that a blanket moratorium on hydraulic fracture subsurface trespass liability analogous to waterflood operations adversely impinges upon property rights due to disparate circumstances and characteristics existing between the two.[305] In essence, such an approach reverts oil and gas jurisprudence to the strict rule of capture era, "allowing operators to purposefully fracture onto adjacent property with impunity, thereby violating their neighbor's correlative rights and leaving the adjacent interest owner with little recourse."[306] Arguably, because of the unique functional and physical properties hydraulic fracturing shares with deviated wells, complete preclusion of trespass liability would empower an operator to conduct stimulation operations on both his land and the land of another.[307] A practice with such interloping properties has never been endorsed by the industry.[308] Likewise,

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298. *See id.* at 44-46 (Johnson, J., concurring in part and dissenting in part); Vandermeulen, *supra* note 294, at 840.

299. *See Coastal*, 268 S.W.2d at 45-46 (Johnson, J., concurring in part and dissenting in part).

300. *See id.* at 45.

301. *Id.*

302. *See id.*

303. *See id.*; Gregg v. Delhi-Taylor Oil Corp., 344 S.W.2d 411, 412 (Tex. 1961).

304. Broomes, *supra* note 48, § 20.05(1), at 20-25.

305. *Id.*

306. *Id.* § 20.05(1)(a), at 20-26.

307. *Id.*

308. *Id.*

holding all unauthorized subsurface intrusions due to hydraulic fracturing to be actionable trespass places an untenable burden on the industry.[309]

The majority erred in *Coastal* by unnecessarily inflating the issue before the court. While counsel for Coastal argued—and ultimately persuaded the court—that an affirmation of the court of appeals would result in rampant trespass litigation concerning fracing, Garza advocated for an unfettered application of existing subsurface trespass law, specifically declining an inquest into "whether fracture stimulation constitutes a *per se* subsurface trespass."[310] By buying into Coastal's grandiose persuasions, the court unfortunately generated enough bad facts to make bad law.[311] Pre-*Coastal* subsurface trespass jurisprudence provided more than adequate protections for operators and property owners alike, making reinstatement of such jurisprudence a more prudent articulation of institutional oil and gas legal principles.[312]

The stark similarity fracture simulation shares with waterfloods undoubtedly dictates modifications to the pre-*Coastal* tort.[313] Utilizing those established principles of subsurface trespass, judicial analysis would necessarily inquire into the relative legality or illegality of the alleged trespassory intrusion, comporting with established Texas law that limits the rule of capture to legally recovered minerals.[314] Further examination must also balance the goals of mineral lessors, lessee operators, and societal needs—giving due weight to the respective goals of mineral owners and society.[315] Courts would then turn to relevant equitable considerations as they pertain to the facts and circumstances between the parties.[316]

In consideration of industry apprehension toward debilitating litigation, judicious compromise should consider withholding punitive damages except in the most deplorable of circumstances.[317] Because a significant number of domestic wells incorporate fracture treatment, it would likely be imprudent to foster "a legal environment in which honest mistakes, oversights, and even neglect could expose an operator to punitive sanctions."[318] Although trespass

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309. *Id.* (observing that "returning the realm of fracture stimulation to the rule of capture may well invite operators to do as they please *on someone else's land*—a practice not condoned even in the early days of the industry" (emphasis in original)).

310. Respondents' Brief on the Merits at 8-10, Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1 (Tex. 2008) (No. 05-0466), 2005 WL 3775561.

311. *See Coastal*, 268 S.W.3d at 19-21.

312. *See* Broomes, *supra* note 48, § 20.05(1)(d), at 20-29.

313. *See id.*

314. *See Coastal*, 268 S.W.3d at 43 (Johnson, J., concurring in part and dissenting in part); Halbouty v. R.R. Comm'n of Tex., 357 S.W.2d 364, 375 (Tex. 1962).

315. *See Coastal*, 268 S.W.3d at 43 (Johnson, J., concurring in part and dissenting in part).

316. *See id.*; Owen L. Anderson et al., HEMINGWAY OIL AND GAS LAW AND TAXATION § 4.2(B)(1), at 401 (4th ed. 2004).

317. *See Coastal*, 268 S.W.3d at 43 (Johnson, J., concurring in part and dissenting in part); Broomes, *supra* note 48, § 20.04, at 20-25.

318. Broomes, *supra* note 48, § 20.04, at 20-25. The author suggested the following:

> In order to strike a proper balance between protecting the rights of aggrieved interest holders and

litigation arising from hydraulic fracturing operations is not a "new growth industry," exclusion of exemplary damages serves to ameliorate industry concerns and promote the continued advancement of modern hydrocarbon recovery operations while preserving the necessary safeguards of individual property owners.[319]

VII. CONCLUSION: COMPROMISE AND THE MYTH OF MUTUAL EXCLUSIVITY

The histories of Texas and the petroleum industry have been inextricably intertwined for the better part of a century.[320] Indeed, many states with developing petroleum economies rely on Texas law in the cultivation of their own oil and gas jurisprudence.[321] Hydraulic fracturing has become crucial to modern industry development, making viable many low permeability reservoirs that were once disregarded.[322] *Coastal*'s shortcomings, however, reveal that the issue of subsurface trespass by hydraulic fracturing is perhaps best resolved by the realization that the competing interests of lessee-operators and individual property owners are not mutually exclusive.[323] Limited judicial recognition of the subsurface tort would provide property owners with the ability to protect their mineral interests.[324] In addition, requiring substantial proof of a real and continuing trespass—coupled with a stringent preclusion of exemplary damages awards—would preserve and encourage the petroleum industry's continued use and development of advanced recovery techniques.[325] A compromise of this nature would more agreeably embody the long, favorable relationship between Texas citizens and the oil and gas industry.[326]

> preserving fracturing as an essential tool to the petroleum industry, if courts choose to allow plaintiffs to sue in tort over allegations of fracture trespass, they should require better proof that a fracture crossed a lease boundary and that it is actually draining hydrocarbons from the plaintiff's property.

Id. § 20.05(1)(d), at 20-29.

319. Respondents' Brief on the Merits at 10, Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1 (Tex. 2008) (No. 05-0466), 2005 WL 3775561.

320. *See supra* Part II.A.

321. Broomes, *supra* note 48, § 20.05, at 20-30.

322. *See supra* notes 63-81 and accompanying text.

323. *See supra* text accompanying notes 295-303.

324. *See* Broomes, *supra* note 48, § 20.05(1)(a), at 20-26.

325. *See id.*

326. *See id.*