

THE RULE OF CAPTURE – AN OIL AND GAS PERSPECTIVE

BY

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The rule of capture has been an integral part of oil and gas law since the completion of the first commercial oil well in Pennsylvania in the 1840s. The early development of the rule was subsumed within the larger question of whether oil and gas was a possessory or non-possessory interest or whether it was real property or personal property. Many early cases relied on the ferae naturae or percolating waters analogy as they developed the rule of capture, which recognizes ownership of oil and gas in the party that brings it to the surface regardless of where the oil and gas lay in its natural state.

As the rule of capture moved on to more complex issues, other than pure ownership, it was modified in a number of significant ways. A series of Indiana and Kentucky cases limited the rule by recognizing the correlative rights of others to capture oil or gas from the common source of supply. Thus, owners who employed artificial methods to produce the hydrocarbons, owners who negligently drilled into the common source of supply, and owners who wasted the hydrocarbons were not insulated from liability by the rule of capture.

Modern oil and gas cases typically involve more complex issues than ownership of oil and gas. Thus, where an oil and gas operator directionally drills a well that is bottomed on the land of another, he may not assert a rule of capture defense to limit liability to the amount of oil and gas originally located under the neighbor's land. Oil and gas conservation statutes have had the greatest impact on the rule of capture by limiting the ability of oil and gas owners to drill wells. Where an oil and gas operator violates conservation regulations by appropriating more oil and gas than was authorized by the state regulations, the operator may not plead the rule of capture to defend his actions. Nevertheless, the rule of capture continues to apply to the extent conservation law or orders do not preempt it. Indeed, continued recognition of the rule, together with recognition of correlative rights, is essential to the efficient administration of conservation laws.

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Finally, the authors opine that the rule of capture should not be applied to restrict the owner of a mineral estate from engaging in geophysical operations even where such operations emit seismic waves that enter onto the lands of others. As long as the geophysical operations are located on lands where the mineral estate owner has given permission, the fact that information is gained regarding other owner's lands should not give the non-consenting owner a cause of action for trespass based on the rule of capture. The authors likewise argue that hydraulic fracturing should be protected from trespass actions.

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I. INTRODUCTION

The rule of capture and its evil twin the "offset drilling" rule have informed oil and gas extraction since Colonel E.L. Drake drilled the first commercial well in Pennsylvania in 1859.¹ The rule's definition is deceptively simple. Robert E. Hardwicke, a noted oil and gas attorney, gave one of the most straightforward formulations of the rule when he stated, "The owner of a tract of land acquires title to the oil and gas which he produces from wells drilled thereon, though it may be proved that part of such oil or gas migrated from adjoining lands."² While there has been much debate over the rule of

¹ See J. E. BRANTLY, HISTORY OF OIL WELL DRILLING 153 (1971) ("The first well drilled purposely for oil in the United States, in so far as known or recognized, was the Drake well."); PAUL H. GIDDENS, THE BIRTH OF THE OIL INDUSTRY 46-61 (1938) (describing operations at the Drake well). There is some evidence of an oil well being drilled in Washington County, Ohio as early as 1833. 1 EUGENE O. KUNTZ, OIL AND GAS 7-8 (1987).

² Robert E. Hardwicke, *The Rule of Capture and Its Implications as Applied to Oil and Gas*, 13 TEX. L. REV. 391, 393 (1935). This language was quoted verbatim in *Elliff v. Texon Drilling*

capture and its “social costs,”³ this article will explore the common law development of the rule as it has been applied in oil and gas cases. The first part of this article will explore the early case law developments adopting the rule of capture. The second part will explore the rule’s application in a more “modern” context to resolve issues that arise in the development of oil and gas.

Early development of case law on the rule of capture does not universally adhere to the “pure” form as reflected in Robert E. Hardwicke’s definition given above. Some of the older cases are more nuanced than given credit for and reflect a concern about the ramifications of applying the “pure” form of the rule of capture to issues other than ownership of the resource. As modern cases indicate, the rule of capture is more expansive than just controlling the description of who owns oil and gas produced from a well. Although the rule of capture is constrained by conservation legislation aimed at minimizing, if not eliminating, many of the “social costs” of the rule, the rule is actually at the heart of much conservation legislation—making it possible to further the goals of preventing waste, protecting correlative rights, and conserving oil and gas. Early cases reflect such concerns, but the jurisprudence never fully developed, which encouraged enactment of conservation legislation to accomplish the objectives that courts could not, or would not, achieve.

While the rule of capture doctrine has its origins in the latter part of the 19th century, criticisms of the doctrine became widespread in the early part of the 20th century. One man in particular, Henry L. Doherty, a petroleum engineer by trade, was instrumental in raising concerns about the social costs created by continued adherence to the rule of capture.⁴ A number of

Co., 210 S.W.2d 558, 562 (Tex. 1948), to which the court added: “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 nonliability is based upon the theory that after the drainage the title or property interest of the former owner is gone.” *Id.*

³ For authorities supporting the evolution of legal doctrines that modified the often wasteful and confusing results of a strict application of the rule of capture to oil and gas development, see, for example, Jared C. Bennett, *Ownership of Transmigratory Minerals, Utah and Zebras: Proof that Oil and Gas Ownership Law Needs Reform*, 21 J. LAND RESOURCES & ENVTL. L. 349, 357–58 (2001); Dean Lueck, *The Rule of First Possession and the Design of the Law*, 38 J.L. & ECON. 393, 394–95 (1995); Rance L. Craft, *Of Reservoir Hogs and Pelt Fiction: Defending the Ferae Naturae Analogy Between Petroleum and Wildlife*, 44 EMORY L.J. 697, 732–33 (1995); David E. Pierce, *Coordinated Reservoir Development—An Alternative to the Rule of Capture for the Ownership and Development of Oil and Gas*, 4 J. ENERGY L. & POL’Y 1, 29–30 (1983); M.K. Woodward, *Ownership of Interests in Oil and Gas*, 26 OHIO ST. L.J. 353, 357 (1965); Eugene Kuntz, *Correlative Rights in Oil and Gas*, 30 MISS. L.J. 1, 8 (1958); Ralph B. Shank, *Present Status of the Law of Capture*, 6 INST. ON OIL & GAS L. & TAX’N 257, 258 (1955); Lewis M. Andrews, *The Correlative Rights Doctrine in the Law of Oil and Gas*, 13 S. CAL. L. REV. 185, 193–95 (1940); Northcutt Ely, *The Conservation of Oil*, 51 HARV. L. REV. 1209, 1220–22 (1938); J. Howard Marshall & Norman L. Meyers, *Legal Planning of Petroleum Production*, 41 YALE L.J. 33, 42–43, 48–49 (1931).

⁴ Much of the history involving Mr. Doherty and his campaign for public awareness regarding the dangers of the rule of capture are memorialized in ROBERT E. HARDWICKE, ANTI-TRUST LAWS, ET AL. V. UNIT OPERATION OF OIL OR GAS POOLS (rev. ed. 1961). The Hardwicke volume, as well as a companion volume dealing with engineering concepts, STUART E. BUCKLEY, PETROLEUM CONSERVATION (1951), were prepared with the financial assistance of the Henry L.

lawyers also brought attention to the two major problems associated with a rule of capture ownership regime—overdrilling and the dissipation of the reservoir's natural energy.⁵ Doherty was a leading proponent of a federal compulsory unitization statute.⁶ That initial effort undertaken in the late 1920s and early 1930s did not lead to any federal legislation; it was not until 1945 that Oklahoma enacted the first comprehensive compulsory unitization statute.⁷

The rule of capture doctrine, while somewhat easy to define, is not so easily applied to a variety of factual situations. As the cases show, when the sole issue is the right of the mineral owner to produce or capture hydrocarbons from a well bottomed on the owner's lands, the courts have no problem applying the rule of capture in what the authors call its "pure" form.⁸ When the issues relate, however, to such matters as the method or

Doherty Memorial Fund that was created by the American Institute of Mining and Metallurgical Engineers.

⁵ See, e.g., Hardwicke, *supra* note 2, at 391 n.1:

The outstanding evils commonly in mind are: Production in excess of requirements, unnecessary storage, untimely drilling of wells, the drilling of many unnecessary wells, wasteful and disorderly production practices, instability of markets, feasts and famine with respect to reserves, and particularly the unsound and burdensome drill-and-produce-as-you-please method to protect property lines against drainage.

The same author estimated that for the period 1947–1952 more than \$100 million/year was expended for the drilling of unnecessary wells. Robert E. Hardwicke, *Oil Well Spacing Regulations and Protection of Property Rights in Texas*, 31 TEX. L. REV. 99, 111 (1952). Professor Northcutt Ely made the following observations:

An oil pool is an engine; it represents an equilibrium of rock pressure, gas pressure, and underlying water pressure. Pierced by a well, these forces propel oil or gas or water, or all three to the surface Under ideal conditions, those natural underground forces, *i.e.*, 'water drive,' gas pressure, and so on, may be so harnessed and controlled as to lift to the surface 90–95 percent of the oil contained in the reservoir, by flowing, over a long period of years. But when oil is produced without restriction, the engine figuratively races itself to pieces

Ely, *supra* note 3, at 1219–1220 (1938) (footnotes omitted).

⁶ Mr. Doherty's efforts to enact a federal compulsory unitization statute to avoid the problems of over-drilling, waste of natural gas, and over-supply are reported in HARDWICKE, *supra* note 4, at 1–7, 33, 52–58, 60–62. Unitization is the joint operation of all or some portion of a producing reservoir. BRUCE KRAMER & PAT MARTIN, *THE LAW OF POOLING AND UNITIZATION* § 1.02 (3d ed. 2004). Compulsory unitization involves a governmental body forcing mineral owners, royalty owners and working interest owners to jointly operate all or some portion of a producing reservoir. *Id.* at ch. 18.

⁷ OKLA. STAT. tit. 52, §§ 287.1–287.15 (2004).

⁸ The early treatise writers in oil and gas law usually did not treat the rule of capture as anything but a corollary to the major jurisprudential issue of the nature of the interest in oil and gas. Initial issues revolved around whether oil and gas were to be treated as corporeal hereditaments like coal and other hard-rock minerals, or treated as either incorporeal hereditaments or licenses. See, e.g., GEORGE BRYAN, *THE LAW OF PETROLEUM AND NATURAL GAS* 68 (1898) (hereinafter BRYAN TREATISE) (discussing the basic rule of capture, the ability of landowners to allow gas to escape from their land, and the effect of this on the landowner's neighbors); W.W. THORNTON, *THE LAW RELATING TO OIL AND GAS* 31, 66 (2d ed. 1912) (discussing incorporal hereditaments, oil and gas leases, the legal status of oil and gas, and the classification of oil and gas as a mineral); V.B. ARCHER, *ARCHER'S LAW AND PRACTICE IN OIL AND GAS CASES* 1–42, 558–601 (1911) (hereinafter ARCHER TREATISE) (analyzing cases in the oil and

technology used to remove the hydrocarbons, the use of the hydrocarbons once produced, or the damage to the common source of supply through intentional or negligent behavior, the rule of capture's common law application becomes less clear. This article will refer to the extent to which courts modify the "pure" rule of capture as "correlative rights" although the specific holding may not entail what would pass for correlative rights in the context of water law.⁹

Legislative modifications to the Hardwicke definition that tended to place constraints on the owner's ability to capture clearly influenced the common law development of the rule.¹⁰ The obvious types of conservation regulation so imposed include well spacing, proration or allowable regulation, and pooling and unitization.¹¹ But this article focuses largely on the common law developments of the rule of capture and leaves to others the study of how and why legislatures modified the rule.

It is interesting to note that the nature of ownership of oil and gas in the ground, perceived today as the more nettlesome issue, at the outset largely subsumed the rule of capture. The key issue was what is now widely viewed as the ownership/non-ownership dichotomy.¹² Did one have a possessory or corporeal interest in the oil and gas in the ground, or did one only have a non-possessory or incorporeal interest? That question had substantial

gas field focusing on the significance and ramifications of oil and gas leases and licenses); LAWRENCE MILLS & J.C. WILLINGHAM, *THE LAW OF OIL AND GAS* 2-8 (1926) (discussing the distinction between incorporeal hereditaments and products thereof and applying this distinction to oil and coal); WALTER L. SUMMERS, *A TREATISE ON THE LAW OF OIL AND GAS* 13-20 (1927) (applying the Hohfeldian jural relationship theories to oil and gas ownership in an attempt to define the nature of the ownership interest in oil and gas).

⁹ The term "correlative rights" has meant different things to different people at different times. For example, in *Stephens County v. Mid-Kansas Oil & Gas Co.*, 254 S.W. 290 (Tex. 1923), the Texas Supreme Court used the term merely to describe the offset drilling rule. See A.W. Walker, Jr., *Property Rights in Oil and Gas and Their Effect Upon Police Regulation of Production*, 16 TEX. L. REV. 370, 373-74 (1938) ("The 'correlative right' to which the court here refers is simply the remedy of self-help, to wit, the right to drill offset wells which will counteract and equalize the drainage between the two tracts."). Self-help protection, however, is not generally understood to be an element of the correlative rights doctrine. For purposes of this article, "correlative rights" will be used to describe judicial and legislative revisions to the pure rule of capture.

¹⁰ These regulations modify the common law rule but do not necessarily abrogate it. As the Oklahoma Supreme Court has held:

The law of capture under which oil and gas is owned by the one lawfully reducing it to possession, still obtains in Oklahoma, except as it has been or may be regulated or restricted under laws passed in the exercise of the police power, such as the proration and spacing statutes and city zoning ordinances. Those laws do not abrogate the law of capture. They are not self-executing. They simply authorize administrative boards to issue orders that have the effect of regulating or abrogating in a measure the law of capture.

Gruger v. Phillips Petroleum Co., 135 P.2d 485, 488 (Okla. 1943).

¹¹ KRAMER & MARTIN, *supra* note 6, §§ 5.01-5.03.

¹² See MARTIN & KRAMER, WILLIAMS & MEYERS *OIL AND GAS LAW* § 204 (2004) (discussing legal consequences based on the nature of a landowner's interest in oil and gas); KRAMER & MARTIN, *supra* note 6, §§ 2.01-2.02 (3d ed. 2004) (discussing the rule of capture and its economic and legal ramifications when applied to the ownership of oil and gas).

ramifications on how courts treated the principal document used to exploit the oil and gas resources, namely the oil and gas lease. Nonetheless, the conceptualization of the ownership of oil and gas in the ground is inextricably bound up with the rule of capture.

State courts knew well the rule of capture as an ownership concept at the time of the nascent development of oil and gas.¹³ The English groundwater case, *Acton v. Blundell*,¹⁴ that applied the rule of capture doctrine to percolating groundwater, had been widely cited in various state court decisions dealing with ownership of groundwater.¹⁵ These state court decisions all agreed that the rule of capture insulated from liability an owner of groundwater who drilled a well on her side of the property line even where it damaged an adjacent landowner. One of the earliest oil and gas cases, *Dark v. Johnston*,¹⁶ while not citing *Acton*, clearly relied on *Acton*'s basic premise when holding that one does not own the oil and gas beneath the ground. Referring to Coke on Littleton,¹⁷ the court says:

Oil is a fluid, like water, it is not the subject of property except while in actual occupancy. A grant of water has long been considered not to be a grant of anything for which an ejectment will lie. It is not a grant of the soil upon which the water rests: Coke Lit. 4 . . . The nature of the subject has much to do with the rights that are given over it, and to us it appears that a right to take all the oil that may be found in a tract of land, cannot be a corporeal right.¹⁸

While labeling the agreement between the parties a mere license, the court's analysis is a precursor to the later cases that struggled with ownership of oil and gas.¹⁹

The fugacious nature of oil and gas, as well as the applicability of the rule of capture doctrine, was apparently well known to the parties engaging in oil and gas development. In *Allison and Evans' Appeal*,²⁰ the issue involved the interpretation of an oil and gas lease that provided for a "protection zone" abutting the north and east boundaries of the area

¹³ For an analysis of the history of the rule of capture from early Greek and Roman times through the present, see Dylan Drummond, Lynn Sherman & Edmond McCarthy, Jr., *The Rule of Capture in Texas—Still So Misunderstood After All These Years*, 37 TEX. TECH L. REV. 1 (2004).

¹⁴ 152 Eng. Rep. 1223 (1840).

¹⁵ See, e.g., *Frazier v. Brown*, 12 Ohio St. 294, 310 (Ohio 1861), *overruled by* *Cline v. American Aggregates*, 474 N.E.2d 324, 327 (Ohio 1984); *Roath v. Driscoll*, 20 Conn. 533, 542 (1850); *Chatfield v. Wilson*, 28 Vt. 49, 55 (1855).

¹⁶ 55 Pa. 164 (1867).

¹⁷ EDWARD COKE, *THE FIRST PART OF THE INSTITUTES OF THE LAWS OF ENGLAND; OR, A COMMENTARY UPON LITTLETON: NOT THE NAME OF THE AUTHOR ONLY, BUT OF THE LAW ITSELF* (Charles Butler ed., Professional Books 1985) (1832).

¹⁸ *Dark*, 55 Pa. at 168. See also *Brown v. Vandergrift*, 80 Pa. 142, 147 (1875) ("The discovery of petroleum led to new forms of leasing land. Its fugitive and wandering existence within the limits of a particular tract was uncertain, and assumed certainty only by actual development founded upon experiment.").

¹⁹ The notion that a deed or a lease of the oil and gas is merely a license was rejected by the Pennsylvania courts within a matter of years. *Appeal of Stoughton*, 88 Pa. 198, 201 (1879).

²⁰ 77 Pa. 221 (1875).

leased.²¹ As described, there was a small portion of land abutting the leased tract that did not lie within the protection zone. The same lessor who leased the first tract then leased again to a third party who drilled a well on that omitted portion. The appointed master found that: “The chief object of this protection appeared to be to secure to the lessees the exclusive chance for oil under their lease, or at least in so far as 8 rods additional north and 10 rods on the east would do that.”²² The court then interpreted the first lease as not omitting that portion of the tract because it would defeat the purpose of the provision—the protection of the first lessee from the effects of the rule of capture. The court not only upheld the lower court’s injunction preventing continued production from the offending well but also awarded damages based on one half of the value of the production from the offending well.²³

In *Wood County Petroleum Co. v. West Virginia Transportation Co.*,²⁴ the court not only used the percolating waters analogy, but also the *ferae naturae* analogy to resolve what in modern jargon would be called a phased severance problem. An assignee of a lease covering only “rock or carbon oil” drilled a well whereupon large amounts of natural gas were found. The lessor asserted that the lessee was not entitled to “capture” the natural gas and sell it. The court disagreed, however, and concluded that not only could the lessee capture the natural gas, but also would not have to compensate the lessor under the terms of the lease. After referring to the “eternal fires” of Baku and a nearby Ohio natural gas well that appeared to be inexhaustible, the court concluded that natural gas is more like air or water than commodities such as oil or coal.²⁵ The court analogized the assignee’s use of the natural gas to a trespasser’s use of the air and water. Both would be *damnum absque injuria*.²⁶ *Kier v. Peterson*,²⁷ a Pennsylvania decision, reached a similar result, even though the opinion adopts an absolute ownership theory for oil and gas in place.²⁸ The West Virginia Supreme Court of Appeals, however, in *Williamson v. Jones*,²⁹ rejected a broad reading of the holding in *Kier* to suggest that gas could not be the subject of property ownership.

²¹ *Id.* at 226.

²² *Id.* at 224–25.

²³ *Id.* at 227–28.

²⁴ 28 W.Va. 210 (1886). The case is analyzed in Woodward, *supra* note 3, at 354–55.

²⁵ *Wood County Petroleum Co.*, 28 W.Va. at 217. The analogy to percolating groundwater appears to have arisen in the earliest cases whereby oil or gas had to be classified as being part of the realty. See, e.g., *Hail v. Reed*, 54 Ky. (1 B. Mon.) 479, 479 (1854).

²⁶ *Wood County Petroleum Co.*, 28 W.Va. at 217–20.

²⁷ 41 Pa. 357 (1861).

²⁸ *Id.* at 363.

²⁹ 19 S.E. 436, 441–42 (W. Va. 1894) (stating that natural gas in the ground is subject to ownership by the owner of the surface and may be conveyed or leased to a third party).

II. THE LEADING CASES

A. The "Pure" Form of the Rule of Capture

In the twenty-year period following the 1889 decision of the Pennsylvania Supreme Court in *Westmoreland & Cambria Natural Gas Co. v. De Witt*,³⁰ courts resolving the ownership issue all basically applied the rule of capture doctrine regardless of the analogy used (percolating waters or *ferae naturae* or both) or the result (ownership or non-ownership). *De Witt* was one of the more influential cases for exposition of the rule of capture doctrine as it applied to oil and gas law. For example, *De Witt* is cited and quoted from extensively in one of the earliest oil and gas treatises published in 1898.³¹ The case also reflected the longstanding practice of top leasing and the competition to drill. Brown leased the oil and gas to the plaintiffs who drilled a well but apparently shut the well in. Shutting the well in brought gas to the top of the well bore but did not allow production of gas by closing the valves at the surface. Brown then leased the same lands for oil and gas production purposes to the defendants. The underlying dispute is whether the first lease terminated because no gas was ever produced, thereby rendering valid the second, or top lease.

The *De Witt* court's discussion of the ownership issue is basically dicta, but because of its wide following it is often cited as the first or leading case pronouncing the rule of capture doctrine as the prevailing rule for dealing with the ownership of oil and gas. The court stated:

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 *ferae naturae*. 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,' . . . 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.³²

³⁰ 18 A. 724 (Pa. 1889).

³¹ BRYAN TREATISE, *supra* note 8, at 33, 590, 89, 151, 358 (1898). In VACHEL B. ARCHER, ARCHER'S LAW AND PRACTICE IN OIL AND GAS (1911), *De Witt* is cited twenty-eight different times, more than any other case citation.

³² 18 A. at 725. This excerpt is cited verbatim in § 43 of the BRYAN TREATISE.

While providing the two most widely accepted rationales for the rule of capture doctrine, the *De Witt* opinion also goes on to suggest that the gas is captured not when it is brought to the surface but when the well is completed in the target formation and then shut-in.³³ This part of the decision has largely been ignored but would clearly expand the rule of capture beyond that which it became, namely that until the oil or gas was physically extracted from the ground it would be subject to the rule of capture. The real underlying issue the court avoided was whether the lease to the plaintiff had been forfeited, not whether the lessor owned the gas after the lease to the plaintiff. The court referred to the fact that the lessee is in possession of the well giving him sole control over the gas. Fortunately, as oil and gas leases and the rule of capture matured, the issue of whether one can “control” and therefore “capture” the gas merely by drilling a well largely disappeared. It is also clear that the offset drilling³⁴ aspect of the rule of capture is not mentioned in *De Witt* because that issue was not before the court.

De Witt was also cited by the Supreme Court of the United States when it accepted the rule of capture as the appropriate ownership doctrine governing oil and gas. In *Brown v. Spilman*,³⁵ a case arising in West Virginia, the Court, in dicta, had the following to say about ownership of oil and gas:

Petroleum gas and oil are substances of a peculiar character, and decisions in ordinary cases of mining, for coal and other minerals which have a fixed *situs*, cannot be applied to contracts concerning them without some qualifications. They belong to the owner of the land, and are part of it, so long as they are on it or in it, or 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. If an adjoining owner drills his own land and taps a deposit of oil or gas, extending under his neighbor's field, so that it comes into his well, it becomes his property.³⁶

Although the facts in *Brown* did not require a finding that the rule of capture applied, the Supreme Court's discussion of the rule indicates its importance during this period.³⁷

This “pure” form of the rule of capture reached its peak in 1893 in *Hague v. Wheeler*.³⁸ *Hague* dealt directly with the rule of capture issue rather than treating it as part of the ownership debate relating to the adoption of

³³ *Id.*

³⁴ For a description of offset drilling, see *infra* notes 44–51 and accompanying text.

³⁵ 155 U.S. 665 (1895).

³⁶ 155 U.S. at 669–70. The court also cites *Brown v. Vandergrift*, 80 Pa. 142, 148 (1875) to support applying the rule of capture doctrine to the ownership of oil and gas.

³⁷ The facts in *Brown* did not require an exposition of the rule of capture because the issue involved a 40-acre oil and gas lease that created a 10-acre no-drill zone. Whether or not the 10 acres was subject to the lease did not require a finding that the rule of capture applied. The Supreme Court's holding was that the no-drill zone did not reserve to the lessor the right to drill in the zone, but instead gave to the lessee the minerals underlying the entire 40 acres, subject to the prohibition against drilling on that 10-acre portion. 155 U.S. at 672.

³⁸ 27 A. 714 (Pa. 1893).

the ownership versus non-ownership theories for oil and gas.³⁹ Three nearby mineral owners over a common source of supply had drilled wells and secured production. Only two, however, had a market for the gas. The producer who did not have a market did not plug or shut-in the well.⁴⁰ The two producers who had a market for the gas sued to enjoin the third producer's continued flaring of the natural gas, asserting that it was depleting the common source of supply to which they had an ownership interest.⁴¹ After finding that the flaring gas producer was not acting maliciously or negligently,⁴² the court observed the rule of capture and held that the person who brought it to the surface owned the gas.⁴³

All the parties agreed that, had the flaring producer used the gas, the rule of capture would apply even though the gas might have come from under either of the plaintiffs' lands. The court could find no distinction where the capturer makes a choice to flare the captured gas. Once captured at the surface, the capturer owns the gas and the neighboring owners cannot seek an injunction against what the court readily admits is wasteful, but not malicious or negligent, conduct.⁴⁴

Rather than impose a common law limitation on the rule of capture to prevent wasteful use or dissipation of the common source of supply, the court deferred to the legislative body and its exclusive authority to prevent this type of wasteful activity.⁴⁵ While admitting that the behavior of the flaring owner may not be moral, "the moral obligation so arising is not enforceable by civil process."⁴⁶ After denying the plaintiffs any relief, however, the court opened the door somewhat to the notion that the rule of capture is not "absolute" or "pure" when it described what the owner of gas may do with it once captured:

In the disposition he may make of it he is subject to two limitations: he must not disregard his obligations to the public, he must not disregard his neighbor's rights. If he uses his product in such a manner as to violate any rule of public policy or any positive provision of the written law, he brings himself within the reach of the courts. If the use he makes of his own, or its waste, is injurious to the property or the health of others, such use or waste may be restrained, or damages recovered therefor; but, subject to these limitations, his power as an owner is absolute, until the legislature shall, in the interest of the public as consumers, restrict and regulate it by statute.⁴⁷

³⁹ *Id.* at 720.

⁴⁰ *Id.* at 718.

⁴¹ *Id.*

⁴² The basis for the finding of non-malicious intent was the fact that apparently one of the two producers and marketers of natural gas had urged the third producer to drill the well. *Id.*

⁴³ *Id.* at 720.

⁴⁴ *Id.* at 719.

⁴⁵ *Id.* at 720.

⁴⁶ *Id.* at 719.

⁴⁷ *Id.* at 720.

The court had evidence that the gas flaring would injure the common source of supply, but nonetheless refused to treat it as the type of injury that would limit the capturer's power to waste.⁴⁸

Hague followed the *Acton* notion that the gas, once captured, was solely within the control of the capturer. The property interest so gained was not subject to a common law restriction on post-capture use or disposition. It would have been anomalous for the court to restrict what the capturer could do with the gas based on the *ferae naturae* analogy since it would have been inconceivable for a court to restrict the capturer of wildlife from doing whatever he wanted with the carcass or the live animal. At that time, the common law was not in a position to restrict the owner's post-ownership property rights, even though by so doing the court would have been protecting the rights of the other owners in the common source of supply. By refusing to look at post-capture events, the court removed itself from the sometimes nettlesome task of judging individual conduct against an unknown or potentially changing norm of socially-acceptable behavior.

It took the Ohio Supreme Court, in *Kelley v. Ohio Oil Co.*,⁴⁹ to make clear that the rule of capture entailed the "offset drilling" rule as the means for protecting one's interest in oil and gas.⁵⁰ Plaintiff was a lessee who sought to enjoin the defendant from drilling twenty-five feet from a property line separating the two. Plaintiff asserted that the particular oil bearing sand would allow for the movement of oil for a distance of at least 200–250 feet from the wellbore.⁵¹ Plaintiff further asserted that defendant placed its well with the malicious intent to injure by draining oil from underneath the plaintiff's land.⁵²

The court first dismissed the notion that the exercise of one's valid rights can be thwarted because of an alleged malicious intent. The court stated: "The right to acquire, enjoy, and own property carries with it the right to use it as the owner pleases, so long as such use does not interfere with the legal rights of others."⁵³ By defining the legal rights of others to the oil located in a common source of supply, the court held that the "right to drill and produce oil on one's own land is absolute, and cannot be supervised or controlled by a court or an adjoining landowner."⁵⁴

The issue was not one of the reasonableness or the maliciousness of the defendant's action, but the legality of that action. The legality of the defendant's actions was measured by the rule of capture, namely that the act of drilling a well on one's own land and severing the oil from the ground vests ownership with the capturer. The sole remedy afforded to neighboring owners over the common source of supply was stated to be the "drilling of wells on both sides of such lines."⁵⁵ Being able to drill that offset well

⁴⁸ *Id.* at 719.

⁴⁹ 49 N.E. 399 (Ohio 1897).

⁵⁰ *Id.* at 401.

⁵¹ *Id.* at 400.

⁵² *Id.*

⁵³ *Id.* at 401.

⁵⁴ *Id.*

⁵⁵ *Id.*

provides an “ample and sufficient remedy” and precludes either injunctive or accounting relief.⁵⁶ Again the court avoided judging the scope or extent of a property interest in oil and gas by determining the motives or intent of the mineral owner.

In *De Witt, Hague*, and *Kelley*, the courts were dealing with the basic ownership issue, namely at what point did oil and gas become “property” of the mineral estate owner. In *People’s Gas Co. v. Tyner*,⁵⁷ a complicating factor was added—whether artificial means could be used to increase, stimulate, or create the production of hydrocarbons. The suit was initiated by an adjacent landowner seeking to enjoin his neighbor from “shooting” nitroglycerine in a well located across the street in order to increase production of natural gas.⁵⁸ While the Indiana Supreme Court first granted the preliminary injunction and then refused to grant the defendant’s demurrer, it did so not on the basis of the defendant’s inability to use nitroglycerine in order to boost production but on the basis that use of explosives in a residential area may constitute a nuisance.⁵⁹

Relying on the percolating water cases, the court found that an owner of natural gas may lawfully dig on his own lands, even though he may draw the natural gas that lies under the lands of his neighbors.⁶⁰ The plaintiff argued that under a rule of capture ownership regime, an owner may not explode nitroglycerin in order to increase the natural flow. The court disagreed and stated:

When it is once conceded that the owner of the surface has the right to sink a well and draw gas from the lands of an adjoining owner, no valid reason can be given why he may not enlarge his well by the explosion of nitroglycerin therein for the purpose of increasing the flow. The question is not as to the quantity of gas he may take, but it is a question of his right to take the gas at all.⁶¹

Thus, in its earliest form, the rule of capture showed a lack of concern for the rights of other owners over a common source of supply. The rule was interpreted to allow one owner to capture oil or natural gas using whatever lawful means were at his disposal.⁶²

Somewhat cryptically, the court added: “The rule that the owner has the right to do as he pleases with or upon his own property is subject to many limitations and restrictions, one of which is that he must have due regard for the rights of others.”⁶³ But this exception is seemingly limited to the owner’s inability to engage in actions that constitute a nuisance; given the facts and result in *Tyner*; the due regard language should not be read too broadly to adopt some type of correlative rights doctrine. It was also clear that the owner must only use lawful means to extract the oil or gas, thus rendering

⁵⁶ *Id.*

⁵⁷ 31 N.E. 59 (Ind. 1892).

⁵⁸ *Id.* at 59.

⁵⁹ *Id.* at 60.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.*

⁶³ *Id.*

subsurface trespass situations as outside of the rule of capture. Likewise, the court's limitation on the rule to exclude circumstances where the mineral owner was creating a common law nuisance made sense and restricted the owner's ability to capture oil and gas.

In *Jones v. Forest Oil Co.*,⁶⁴ the Pennsylvania Supreme Court had to determine whether the rule of capture gave the owner the power to use a "gas pump" to artificially increase production and cause oil to drain from underneath the adjacent owner's land. The adjacent owner sought an injunction to prevent use of the pump.⁶⁵ The court used a percolating water case to support the proposition that a person may capture water, and by analogy gas, by the "exercise of all the skill and invention of which man is capable."⁶⁶ The use of the gas pump was standard oilfield operating procedure. The court used an analogy to the offset drilling rule by concluding that, since all oil operators can afford gas pump technology,⁶⁷ the remedy does not lie in the courts but in the self-help of getting one's own gas pump to counter the alleged drainage.⁶⁸ The use of artificial means to increase production, and thereby increase drainage from across property lines, was held to be a lawful act under the rule of capture.⁶⁹

Jones and *Tyner* were consistent with the pure form of the rule of capture espoused in *De Witt*, *Hague*, and *Kelley*. While there is some language in both cases suggesting limits on the pure form of the rule of capture, the results in both cases belie a substantial movement away from the basic rule. While percolating groundwater jurisprudence was slowly moving away from the pure rule of capture, and surface water case law was considering "correlative rights" factors, these early oil and gas cases declined to consider such modifications.

B. The Indiana/Kentucky Approach: Correlative Rights

Judicial discussion of "correlative rights" arose from a series of Indiana Supreme Court decisions that validated several Indiana conservation statutes designed to lessen some of the evils that arose from the adoption of the rule of capture doctrine.⁷⁰ As noted earlier,⁷¹ the term "correlative

⁶⁴ 44 A. 1074 (Pa. 1900).

⁶⁵ *Id.*

⁶⁶ *Id.* at 1075.

⁶⁷ *Id.* at 1075–76.

⁶⁸ *Id.* at 1075.

⁶⁹ *Id.* at 1076.

⁷⁰ Professor Summers noted in 1938 that Indiana's enforcement of its statutes presented a controversy between "the policy of conservation and the policy of production." Walter L. Summers, *The Modern Theory and Practical Application of Statutes for the Conservation of Oil and Gas*, in LEGAL HISTORY OF CONSERVATION OF OIL AND GAS 1, 7 (1938). Safety legislation preceded conservation or waste prevention legislation and was uniformly upheld against substantive due process challenges. See, e.g., *Jamieson v. Indiana Natural Gas & Oil Co.*, 28 N.E. 76 (Ind. 1891) (upholding 1891 statute prohibiting transportation of natural gas through pipelines at a greater pressure than 300 pounds per square inch (psi)); *Manufacturers' Gas & Oil Co. v. Indiana Natural Gas & Oil Co.*, 58 N.E. 851 (Ind. 1900) (stating that the 1891 statute at issue in *Jamieson* "was sustained upon the ground that natural gas is an inflammable, explosive, and dangerous substance, and that the enactment of the statute in question was a reasonable

rights,” when used in this article, describes limits to, or modifications of, the pure form of the rule of capture, be they imposed by courts or by legislative bodies. While regulation of various oil field activities—specifically plugging abandoned wells—had antedated other forms of conservation statutes, it was the Indiana statutes that attempted to conserve natural gas which gave rise to the notion that the state may limit a mineral owner’s right under the rule of capture to produce oil or gas where such production would be wasteful.

The fact that the ownership theories are involved in statutory cases reflects in part the prevailing constitutional review theories of the era, namely that the due process clause acted as a constraint on the government’s power to regulate private property and contractual rights.⁷² While the origins of the correlative rights doctrine initially appeared in legislative and police power scenarios, a sea change arose, initially in Indiana and then in Kentucky, whereby the common law rights established under the rule of capture doctrine were modified to include a correlative rights component.

The earliest case, *Townsend v. State*,⁷³ challenged the validity of an 1894 statute⁷⁴ making it unlawful to use or burn natural gas in flambeau lights.⁷⁵ The court readily admitted that the natural gas, once brought to the surface, is the property of the person so capturing. After citing the lengthy excerpt from *De Witt* relating to the rule of capture quoted above,⁷⁶ and expanding on the *ferae naturae* analogy, the court ultimately concluded that the state’s police power clearly encompassed the authority to restrain an owner from “wasting the gas to the injury of others or to the injury of the public.”⁷⁷

One form of injury caused by wasteful use of gas drawn from a “general reservoir” is that the reservoir is likely to be exhausted. Without specifically holding that the exhaustion of the reservoir constitutes a private or public injury, the court presumed that the regulation of natural gas was clearly more important to the public interest than the regulation of wildlife hunting, which was regularly upheld against similar due process challenges. The court also referred to *Tyner*’s cryptic reference to the fact that one must use

exercise of the police power of the State for the protection of the persons and property of its inhabitants”). *But cf.* *Corwin v. Indiana & Ohio Oil, Gas & Mineral Co.*, 22 N.E. 778 (Ind. 1889) (invalidating legislation prohibiting transportation of gas beyond state boundaries on Dormant Commerce Clause grounds).

⁷¹ See *supra* note 9 and accompanying text.

⁷² See *Munn v. Illinois*, 94 U.S. 113, 125 (1877) (stating that statutes regulating use of private property may violate the Fourteenth Amendment to the United States Constitution); *Scott v. McNeal*, 154 U.S. 34, 50–51 (1894) (stating that Fourteenth Amendment due process is violated by state court judgment taking property without notice).

⁷³ 47 N.E. 19 (Ind. 1897).

⁷⁴ IND. CODE § 2316 (1894). Portions of the statute are reproduced verbatim in *Townsend*, 47 N.E. at 20.

⁷⁵ A flambeau light or torch is used to dispose of casinghead gas in the field through the flaring or burning of the gas. PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS AND MEYERS MANUAL OF OIL AND GAS TERMS 422 (12th ed. 2003).

⁷⁶ See *supra* note 32 and accompanying text.

⁷⁷ *Townsend*, 47 N.E. at 21.

one's property interests with due regard to the rights of others,⁷⁸ but again limits that reference to the nuisance analogy.⁷⁹ The court's ultimate conclusion is based not on a broadened definition of an owner's property interest in oil and gas, but on a reasonably expansive view of the police power to regulate private property interests to protect the public safety, health, and welfare.

This approach to the notion that the rule of capture ownership theory may include a "due regard" or correlative rights component was reaffirmed in the Indiana Supreme Court's decision in *State v. Ohio Oil Co.*⁸⁰ The conservation statute at issue prohibited the escape of either natural gas or oil from a well.⁸¹ The State sought to enjoin the Ohio Oil Company from wasting natural gas by allowing it to escape into the air in violation of the conservation statute. Relying upon the rule of capture, Ohio Oil argued that it owned the natural gas as it was produced with the oil and, therefore, could do with the gas as it pleased unless its use endangered persons or property.⁸² According to Ohio Oil, the natural gas flaring did not create a public or a private nuisance, and, therefore, the Indiana conservation regulation violated their due process rights.⁸³

Rejecting that argument, the Indiana Supreme Court broadened the "due regard" language of *Tyner* which was cited as the basis for justifying the conservation regulation. Although the court recited several important facts, including the loss of pressure that might lead to the exhaustion of the natural gas resource found in the reservoir, the apparent rationale for upholding the validity of the regulation was not the deleterious impact that wasting natural gas would have on the other mineral owners. Instead, the court focused on the deleterious impact that wasting natural gas would have on the public in the vicinity who had developed public utilities to use the natural gas for lighting and other purposes. The court concluded:

In the light of these facts [loss of reservoir pressure], one who recklessly, defiantly, persistently, and continuously wastes natural gas . . . ought not to complain of being branded as the enemy of mankind The object and policy of that inhibition is to prevent, if possible, the exhaustion of the store house of nature, wherein is deposited an element that ministers more to the comfort, happiness and well-being of society than any other of the bounties of the earth The continued waste and exhaustion of the natural gas of Indiana through appellee's wells would not only deny to the inhabitants the many valuable uses of the gas, but the state, whose many quasi public corporations have many millions of dollars invested in supplying gas to the state and its inhabitants, will suffer the destruction of such corporations, the loss of such investments and a source of large revenues.⁸⁴

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ 49 N.E. 809 (Ind. 1898).

⁸¹ IND. CODE ANN. § 46-306 (1894).

⁸² 49 N.E. at 811-12.

⁸³ *Id.* at 811.

⁸⁴ *Id.* at 816-17.

This approach still retained the “pure form” of the rule of capture as it affected the common law property interests of those owning the oil and gas in the common source of supply, but clearly justified the state regulating those property interests under its police power.

The Supreme Court of the United States, when it decided *Ohio Oil Co. v. Indiana*,⁸⁵ started from the position that the common law ownership doctrine of the rule of capture would clearly allow each party owning an interest in a common source of supply “to waste the entire contents of the reservoir by allowing the gas to be drawn off and to be dispersed in the atmospheric air, and by permitting the oil to flow without use or benefit to anyone.”⁸⁶ This initial position was supported in large part by the state supreme court decisions discussed earlier that adopted the rule of capture as the prevailing ownership doctrine.⁸⁷

The Supreme Court also stated that the analogy to *ferae naturae* that was first suggested in *De Witt* is not perfect because when wildlife are not captured they are considered publicly owned, while natural gas in the ground is considered privately owned. The Court also noted that under Indiana law, in the absence of regulation, “every owner of the surface within a gas field may prosecute his efforts and may reduce to possession all or every part, if possible, of the deposits without violating the rights of the other surface owners.”⁸⁸ The Supreme Court initially appeared to be taking the “pure” view of the rule of capture and holding that without state regulation, such as the Indiana statute at issue, the common law would be powerless to prevent the kind of wasteful activities that the statute prohibited.

But juxtaposed upon the common law rule of capture was language that clearly tempered those common law property concepts with the correlative rights doctrine. Noting that Ohio Oil was asserting takings and substantive due process claims regarding the unconstitutionality of the statutory limits on its common law property interests, the Court’s analysis was less than clear in separating what made up those common law property interests and what were the limits of governmental regulation. In justifying the regulation, not as a taking of private property, but as a protection of private property, albeit private property held in common with others, the Supreme Court stated:

[A]s to gas and oil, the surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property. But there is a co-equal right in them all to take from a common source of supply the two substances which in the nature of things are united, though separate [T]he use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right, to the detriment of the others,

⁸⁵ 177 U.S. 190 (1900).

⁸⁶ *Id.* at 201.

⁸⁷ *See supra* Part II.A.

⁸⁸ *Ohio Oil Co.*, 177 U.S. at 208.

or by waste by one or more to the annihilation of the rights of the remainder. Hence it is that the legislative power . . . can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment, by them, of their privilege to reduce to possession, and to reach the like end by preventing waste.⁸⁹

The language giving each of the owners a “coequal right” appears to limit the individual property rights of those owning a portion of the common source of supply, but later in the same paragraph the Court referred to the legislative power, clearly suggesting that the common law property interests can be modified, but not entirely taken, by legislative action.⁹⁰

While *Ohio Oil* is often seen as the starting point for those who assert that the rule of capture includes a correlative rights component, the Supreme Court only concluded that a legislative modification of the rule of capture did not amount to a taking of the entirety of one’s common law property rights granted under a rule of capture ownership regime. It appears the Court took the position that common law property interests allow for wasteful and potentially egregious behavior by the individual owners, but that the legislative body may modify those aspects of the common law and impose some type of correlative rights limitations on those interests. The following excerpt supports the view that the Supreme Court justified the conservation regulation as a modification of common law property interests rather than, as alleged by the Ohio Oil Company, a taking of those property interests:

Viewed, then, as a statute to protect or to prevent the waste of the common property of the surface owners, the law of the State of Indiana which is here attacked because it is asserted that it divested private property without due compensation, in substance, is a statute protecting private property and preventing it from being taken by one of the common owners without regard to the enjoyment of the others.⁹¹

The legislation was required because the courts—in defining the rights of the oil and gas owners over a common source of supply—had adopted the rule of capture allowing one owner to capture oil and gas to the detriment and loss of the other common owners.

Notwithstanding this limited reading of *Ohio Oil*, within ninety days of the publication of the decision the Indiana Supreme Court applied *Ohio Oil* and its language relating to correlative rights in a common law action. In *Manufacturers’ Gas & Oil Co. v. Indiana Natural Gas & Oil Co. (Manufacturers’ Gas)*,⁹² an adjacent mineral owner sought to enjoin the use of “artificial” pumping devices that would allow the defendant operator to

⁸⁹ *Id.* at 209–10.

⁹⁰ *Id.* at 210 (stating that, in keeping with the analogy to *ferae naturae*, “the legislature has the authority to forbid all from taking, in order to protect them from undue destruction, so that the right of the common owners, the public, to reduce the possession may be ultimately efficaciously enjoyed”).

⁹¹ *Id.*

⁹² 57 N.E. 912 (Ind. 1900).

allegedly capture disproportionately more of the natural gas in the common source of supply. While the case at times referred to the 1891 Indiana statute that regulated the pressure that could be used in a natural gas pipeline, the gravamen of the court's decision related to the respective common law property rights of adjacent owners under the rule of capture.⁹³ The Indiana Supreme Court criticized the *ferae naturae* analogy previously used to support the application of the rule of capture doctrine. The *ferae naturae* analogy was dismissed because natural gas, unlike wildlife, was not the subject of public rights.⁹⁴ The right of the owner of the unified surface and mineral estate to exclude others from drilling a well on her land to capture the natural gas distinguished wild animals from natural gas.⁹⁵

Since the ownership of natural gas does not possess the same type of quasi-public quality as navigable waters and wild animals, the resolution of disputes between competing owners must necessarily rely on the common law.⁹⁶ The right to protect the natural gas in the ground from destruction, according to the court, must be held by the owners of the land as well as by the state.⁹⁷ The court borrowed not from the law of percolating groundwater, but from the reasonable use doctrine for surface waters to create, conclusively, a correlative rights component to the ownership of natural gas.⁹⁸ The court's test to determine the scope of the ownership rights was stated as follows:

Natural gas in the ground is so far the subject of property rights in the owners of the superincumbent lands, that while each of them has the right to bore or mine for it on his own land, and to use such portion of it as, when left to the *natural laws of flowage*, may rise in the wells of such owner and into his pipes, no one of the owners of such lands has the right, without the consent of all the other owners, to induce an *unnatural* flow into or through his own wells, or to do any act with reference to the common reservoir, and the body of gas therein, injurious to, or calculated to destroy, it But the limitation is upon the manner of taking. So in the case of natural gas, the manner of taking must be reasonable, and not injurious to, or destructive of the common source from which the gas is drawn.⁹⁹

Thus, the court has added at least four limitations on the rule of capture: 1) one only has the right to capture the natural flowage of gas; 2) one must only use reasonable means to capture the gas; 3) one must not cause injury to the common source of supply; and 4) one cannot destroy the common source of supply.¹⁰⁰ Curiously, the support for these limitations on the rule of capture was provided by the Supreme Court's *Ohio Oil* decision, which, as analyzed earlier, dealt with the police power and not the common law rule of capture.

⁹³ *Id.* at 914.

⁹⁴ *Id.* at 915–16.

⁹⁵ *Id.* at 915.

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.* (emphasis added).

¹⁰⁰ *Id.* at 915–16.

An Indiana Court of Appeals decision rendered three years later confirmed that the common law rule of capture was limited by the notion of correlative rights. In *Richmond Natural Gas Co. v. Enterprise Natural Gas Co.*,¹⁰¹ the court was faced with a fact pattern similar to that in *Manufacturers' Gas*, namely the use of compressors and other "appliances" by an adjacent mineral owner to increase the flow of gas into the well bore.¹⁰² There were additional allegations and findings that the use of the equipment would cause injury to the common source of supply, principally through saltwater encroachment.

The court clearly confirmed that the rule of capture does not authorize an owner to produce or capture gas using any means capable.¹⁰³ In this case, the court found that each owner is limited to the "natural flow" of natural gas into their well bore.¹⁰⁴ Natural flow is defined to include only that amount of gas that would flow into the well bore when "retarded only by the atmospheric pressure."¹⁰⁵ The evidence in this case showed that the use of the compressors increased the natural flow and thus could be the subject of injunctive relief because such operations did not come within Indiana's modified rule of capture.

While the Indiana courts were engaging in some minor modifications to the rule of capture, influenced in good part by state statutory developments, the common law developments in Kentucky were much more significant. In 1903, the Kentucky Court of Appeals in *Louisville Gas Co. v. Kentucky Heating Co. (Louisville Gas)*¹⁰⁶ was attempting to settle a dispute between two fierce competitors for the natural gas heating market in Louisville.¹⁰⁷ After Louisville Gas lost what it thought was the exclusive franchise to sell natural gas for illumination purposes within the city in litigation with Kentucky Heating,¹⁰⁸ it created a subsidiary corporation, Calor, which targeted and secured several oil and gas leases in the same field where Kentucky Heating was producing gas. Calor drilled several wells and delivered the gas to a "lampblack factory" that, while consuming 90,000 million cubic feet (MCF) of gas, apparently produced about 300 pounds of lampblack worth about \$12.00.¹⁰⁹ The operation obviously caused a lower level of production and pressure in the Kentucky Heating wells. Kentucky Heating brought this suit alleging that Calor's "use" of the gas in the secret lampblack factory constituted waste of the common source of supply.

¹⁰¹ 66 N.E. 782 (Ind. App. 1903).

¹⁰² There was also an issue relating to the Indiana statutory prohibition against having pressure in a natural gas pipeline exceeding 300 pounds per square inch, but the court found no statutory breach. *Id.* at 785.

¹⁰³ *Id.*

¹⁰⁴ *Id.* at 786.

¹⁰⁵ *Id.*

¹⁰⁶ 77 S.W. 368 (Ky. 1903).

¹⁰⁷ The same two competitors, Louisville Gas and Kentucky Heating, along with Louisville Gas subsidiary Calor Oil & Gas, were opposing parties in a series of lawsuits spanning nearly a decade. *See, e.g.*, *Ky. Heating Co. v. Louisville Gas Co.*, 59 S.W. 490 (1900); *Louisville Gas Co. v. Ky. Heating Co.*, 111 S.W. 374 (1908); *Louisville Gas Co. v. Ky. Heating Co.*, 134 S.W. 205 (1911).

¹⁰⁸ *Ky. Heating Co. v. Louisville Gas Co.*, 63 S.W. 751 (Ky. 1901).

¹⁰⁹ *Louisville Gas*, 77 S.W. at 369.

The court specifically eschewed relying on any statutory basis to resolve whether Kentucky Heating was entitled to enjoin Calor's continued production of gas that was going to the lampblack factory. The court emphatically answered that while the rule of capture governed the ownership of the natural gas, each owner of the common source of supply must "use his own property with due regard to the rights of his neighbor. He cannot be allowed deliberately to waste the supply for the purpose of injuring his neighbor."¹¹⁰ Relying on a host of groundwater cases from several different jurisdictions, the court tempered the rule of capture with its "due regard" standard triggered by intentional acts that are designed to do nothing but injure the other owners over the common source of supply.¹¹¹

The evidence in this case was clear: There was no motivation for wasting gas through the sham lampblack facility other than to deprive Kentucky Heating of the natural gas it would otherwise produce and deliver to Louisville residents. Such activities did not fall within the common law rule of capture that governed the ownership of natural gas and could be enjoined.¹¹² No mineral owner could engage in the exercise of its rights under the rule of capture that "unnecessarily" injured the other owner's rights.¹¹³ Had Calor Gas produced gas and transported it to Louisville for sale or use, it appears that the court would not have allowed the injunction. While such production would clearly injure the rights of Kentucky Heating, it would not unnecessarily or intentionally injure or waste the natural gas and could not be enjoined.

This last point was confirmed a few years later when, in subsequent litigation between the same parties, the court said "each has the legal right to the legitimate use of the gas underlying its own property, and neither can complain of such use by the owner."¹¹⁴ Natural gas depletion and lessened pressure are not determinative. The actions are judged on the basis of post-production use. If legitimate, the injury to the other owners is *damnum absque injuria*; if wasteful or intentionally destructive, the injury to the other owners may be enjoined. *Louisville Gas* raises the specter of a court having to judge the motivation of the oil and gas producer to determine whether the producer can capture the natural gas. While the evidence in this case showed the well was drilled in order to deprive a competitor of a source of natural gas, is that an evil that must be prevented? In addition, the court must make a value judgment on the relative uses of the natural gas. Courts regularly perform that task in conjunction with the ownership doctrines as

¹¹⁰ *Id.*

¹¹¹ *Id.* at 369-70. The court also cites to *Manufacturers' Gas* and the United States Supreme Court decision in *Ohio Oil* for the proposition that no party may, by waste, destroy the rights of another. *Id.* at 370.

¹¹² The court also relies on a lengthy excerpt from *The American & English Encyclopedia of Law* that accepts the analogy between percolating groundwater, *ferae naturae*, and natural gas. *Id.* at 370 (citing 21 AMERICAN AND ENGLISH ENCYCLOPEDIA OF LAW 417 (David S. Garland & Lucius P. McGehee eds., 2d ed. 1902)).

¹¹³ *Id.* at 371.

¹¹⁴ *Calor Oil & Gas Co. v. Franzell*, 109 S.W. 328 (Ky. App. 1908); *see also* *Calor Oil & Gas Co. v. Withers Adm'r*, 133 S.W. 210, 211 (Ky. App. 1911) (holding that Calor Oil & Gas Co. could not interfere with pipes owned by Kentucky Heating Co.).

applied to percolating ground water and surface water under a riparian ownership regime, but should the court make those allocation decisions under fact patterns that are slightly less tilted in favor of one owner?

Even in Kentucky, the courts were not willing to take the due regard or correlative rights doctrine too far. In *United Carbon Co. v. Campbellsville Gas Co. (United Carbon)*,¹¹⁵ the court faced the same issue that had earlier divided the Pennsylvania and Indiana Supreme Courts, namely whether the mineral owner could use artificial means, such as a compressor or vacuum pump to increase production. The Pennsylvania Supreme Court, when it came to oil, had held previously that the rule of capture encompassed the use of any production technique available to increase production.¹¹⁶ The Indiana Supreme Court, on the other hand, had not allowed a mineral owner to use a compressor to stimulate the flow of natural gas, restricting application of the rule of capture to the “natural flow” of the gas.¹¹⁷ In *United Carbon*, the defendant installed compressors after the plaintiff drilled a number of wells in the same field as the defendant, which led to a substantial decline in the amount of gas that could be produced by the plaintiff.¹¹⁸ Notwithstanding the “due regard” language from its earlier cases, the court found that the rule of capture allows the mineral owner to use any lawful means available to remove the oil or the natural gas, even though the result would be fewer hydrocarbons available to other owners in the common source of supply. Without a statutory prohibition against a particular production technique, the *United Carbon* court held the only means of protection is the offset drilling rule.¹¹⁹

Other contemporaneous cases agree with this rejection of a correlative rights limitation on the rule of capture that would encompass the natural flow theory sometimes used in either the riparian system for surface waters or underground streams.¹²⁰ The court noted there were no allegations that the natural gas being produced violated either the waste or unnecessary injury standard contained in the earlier Kentucky cases.

Kentucky, more so than Indiana, clearly modified the pure rule of capture even as it dealt with the basic ownership issue. One would think that later courts would have a choice between the pure rule of capture and the correlative rights modification approach when they applied the rule to oil and gas in their jurisdictions. However, this choice does not appear to have

¹¹⁵ 18 S.W.2d 1110 (Ky. App. 1929).

¹¹⁶ See *Jones v. Forest Oil Co.*, 44 A. 1074, 1074–75 (Pa. 1900) (holding that an oil and gas operator may use any appliances known to the trade to make well production as large as possible). See *supra* notes 64–69 and accompanying text.

¹¹⁷ *Manufacturers' Gas*, 57 N.E. 912, 915, 917 (Ind. 1900). See *supra* notes 92–100 and accompanying text.

¹¹⁸ 18 S.W.2d at 1110–11.

¹¹⁹ *Id.* at 1113. The court notes that as to oil, the leading treatise admits that the rule of capture should allow artificial production techniques, but as to natural gas, the leading treatise argues in favor of the *Manufacturer's Gas* holding. *Id.* at 1112 (citing W.W. THORNTON, THE LAW RELATING TO OIL AND GAS § 32 (3rd ed. 1918)).

¹²⁰ See, e.g., *Texas Pacific Coal & Oil Co. v. Comanche Duke Oil Co.*, 274 S.W. 193 (Tex. Civ. App. 1925), *rev'd on other grounds*, 298 S.W. 554 (Tex. Comm. App. 1927) (holding that use of nitroglycerine to increase production of oil is allowed); *Higgins Oil & Fuel Co. v. Guaranty Oil Co.*, 82 So. 206 (La. 1919) (holding that use of pump to produce oil is allowed).

occurred consciously, as neither the courts nor the commentators presented the issues in such a direct and clear manner.

C. The Choice Between Correlative Rights and the Pure Rule of Capture

At about the same time that the Indiana and Kentucky courts were placing limits on the ability of a mineral owner to capture oil and gas, the Pennsylvania Supreme Court reaffirmed its commitment to the pure rule of capture in a case involving the classic offset drilling situation. In *Barnard v. Monongahela Natural Gas Co.*,¹²¹ the court had an opportunity to better define the rights of oil and gas lessees who drill wells near property lines and thereby drain the oil and gas from underneath neighboring lands.

Monongahela was a common lessee of two adjacent tracts.¹²² This case involved a straightforward ownership issue since it did not entail either waste, artificial means of production, or negligent operations. Monongahela located a well approximately thirty-five feet from a property line. The evidence showed that the well would likely drain from a ten-acre area, of which 7.5 acres underlay the neighbor's tract. The court clearly identified the issue as whether "a landowner in gas territory [could] drill a well on his farm close to the line of his adjoining landowner and draw from the land of the latter three-fourths of the gas that his well may produce without so invading the property rights of the adjoining landowner so as to be legally accountable therefore?"¹²³

The court could have relied upon language in *Ohio Oil and Manufacturers' Gas* to find that the well location was unreasonable or that the location injured the common source of supply. Instead, the Pennsylvania Supreme Court clearly rejected the inclusion of a correlative rights limitation on the common law rule of capture. Each mineral owner could place their wells wherever they so chose without fear of interference from other landowners. The mineral owner's response to that well location reflects the offset drilling rule *par excellence*. The court stated:

The right of the landowner to drill a well on his own land at whatever spot he may see fit certainly must be conceded. If, then, the landowner drills on his own land at such a spot as best subserves his purposes, what is the standing of the adjoining landowner whose oil or gas may be drained by this well? He certainly ought not to be allowed to stop his neighbor from developing his own farm What then can the neighbor do? Nothing; only go and do likewise. He must protect his own oil and gas. He knows it is wild and will run away if it finds an opening and it is his business to keep it at home. This may not be the best rule; but neither the Legislature nor our highest court has given us any better.¹²⁴

¹²¹ 65 A. 801 (Pa. 1907).

¹²² Monongahela also happened to be the lessee of the tract they were draining that was owned by another party with the same last name, Barnard. Whether the Barnards were related is not clear in the opinion. *Id.* at 801.

¹²³ *Id.* at 802.

¹²⁴ *Id.* (internal quotations omitted). For other cases clearly adopting the offset drilling rule

Barnard could have imposed some type of correlative rights limitation on the rule of capture but did not. The reference to the “highest court” reflected the pre-*Erie*¹²⁵ federal common law position as had been stated in *Brown v. Spilman*¹²⁶ and *Ohio Oil*.¹²⁷ The Pennsylvania Supreme Court could have used the language in *Ohio Oil*, as had the Indiana Supreme Court, to modify the rule of capture and limit the ability of a mineral owner to produce oil and gas by drilling close to the property line. Instead, the Pennsylvania Supreme Court re-affirmed its prior position that mineral owners were free to drill anywhere on their lands and produce oil and gas regardless of the amount of oil that originated under the lands of other mineral owners.

As the other states adopted the rule of capture, few states modified the pure form of the rule even as the evils of the rule became more apparent and the scientific understanding of oil and gas reservoirs became clearer. In New York, a decision rendered in 1942 adopted the following definition of the rule of capture:

Gas is produced under the law of capture so that in a competitive field it belongs to the producer who first gets it out of the ground. Every producer in a competitive field seeks to withdraw gas as fast as possible, before a competing producer gets it.¹²⁸

There is no mention of any of the correlative rights limitations on the pure rule of capture. It must be added that the underlying issues in the case related to a contract to buy, sell and store gas, but nonetheless the court’s definition reflects the common law’s antipathy toward change.

One of the correlative rights mentioned in *Manufacturers’ Gas* that acted as a constraint on the pure rule of capture was negligence. In *Atkinson v. Virginia Oil & Gas Co.*,¹²⁹ the West Virginia Supreme Court of Appeals embraced the notion that a party may not engage in negligent acts that injure the common source of supply.¹³⁰ The defendant had drilled and then abandoned, but not plugged, a well located some 100 feet from the plaintiff’s preexisting gas well. The plaintiff alleged that failure to plug the well allowed water and other substances to enter the hydrocarbon-bearing reservoir causing the plaintiff’s production to fall. Applying general principles of tort liability, the court analogized this situation to that of negligent injury to a water well, which would constitute a tort. The court held that wanton or negligent injury is subject to judicial redress, especially

as the sole remedy in boundary line drilling cases, see *Brown v. Humble Oil & Refining Co.*, 83 S.W.2d 935 (Tex. 1935) and *Prairie Oil & Gas Co. v. State*, 231 S.W. 1088 (Tex. Comm. App. 1921).

¹²⁵ *Erie R. R. Co. v. Tompkins*, 304 U.S. 64 (1938).

¹²⁶ See *supra* notes 35–37 and accompanying text.

¹²⁷ See *supra* notes 85–91 and accompanying text.

¹²⁸ *In the Matter of Republic Light, Heat & Power Co. against Pub. Serv. Comm’n*, 38 N.Y.S.2d 302, 307 (N.Y. 1942).

¹²⁹ 79 S.E. 647 (W. Va. 1913). *Accord* *Simms v. Reisner*, 134 S.W. 278 (Tex. Civ. App. 1911) (refusing to grant temporary injunction to remove the defendant from land where the evidence did not indicate the defendant was so unskilled as to cause saltwater to enter and destroy oil wells).

¹³⁰ *Atkinson*, 79 S.E. at 648.

where there are allegations that the resource has been destroyed by such actions.¹³¹

In a series of cases decided in Louisiana, it was unclear whether the correlative rights doctrine would be expanded to include recovery for damage caused to the common source of supply by the negligent operations of one of the owners. In *Higgins Oil & Fuel Co. v. Guaranty Oil Co.*,¹³² the defendant failed to properly plug an abandoned well. This resulted in the admission of air into the reservoir from which the plaintiff was producing oil with the benefit of a vacuum pump.¹³³ The defendant intentionally refused to plug the well that allowed air to be admitted into the reservoir. That, in turn, reduced the effectiveness of the plaintiff's pumping operations.¹³⁴ Relying on civil code principles as interpreted by several encyclopedists, the court analogized this case to the percolating waters situation to state that a malicious intent to harm the owner of a common source of supply may violate a duty of care under the civil code.¹³⁵

On the issue of whether the plaintiff has the right under the rule of capture to use artificial production techniques, the court had no difficulty finding that such a right clearly existed.¹³⁶ Regarding the defendant's liability for failing to plug the well, the court made a distinction between a defendant who merely sits by passively and a defendant who takes an affirmative step that causes injury to the plaintiff.¹³⁷

The ultimate decision to remand for a trial, however, turned on whether or not the defendant's actions were taken with the motivation of preventing the plaintiff from producing oil located underneath its land or from producing oil located underneath the defendant's land.¹³⁸ The court held that if the motivation was to protect his own land from drainage there would be no cause of action, but if the motivation was to damage the production of oil from underneath the plaintiff's land, then liability would follow.¹³⁹ In an era prior to plugging requirements, the actions by the adjacent owner could not constitute negligence per se, so the court had to fall back upon the malice or bad faith prong of the correlative rights doctrine that was a critical part of the decision in *Manufacturers' Gas*.

In *Louisiana Gas & Fuel Co. v. White Bros.*,¹⁴⁰ the issue of negligent drilling leading to the loss of natural gas was firmly before the court. The plaintiff alleged that the defendant's negligence caused a well blowout that

¹³¹ *Id.* at 648. The court also found that a statutory cause of action was not intended to be the exclusive remedy made available in this type of case. *Id.* at 648-49.

¹³² 82 So. 206 (La. 1919).

¹³³ *Id.* at 206.

¹³⁴ *Id.* at 206-07.

¹³⁵ *Id.* at 207-12.

¹³⁶ *Id.* at 211. The court relies on several percolating water cases as well as W.W. THORNTON, *THE LAW RELATING TO OIL AND GAS* 49 (2d ed. 1912). *Id.*

¹³⁷ *Id.* at 211-12.

¹³⁸ *Id.* at 212.

¹³⁹ *Id.* The court analogizes the situation to a landowner who builds a fence in order to keep *ferae naturae* in. Even though that would prevent the wildlife from being captured by neighbors, there would be no cause of action against the fence building landowner. *Id.*

¹⁴⁰ 103 So. 23 (La. 1925).

drained some 10,000 MCF/day from underneath the plaintiff's land that could have been captured in the plaintiff's well.¹⁴¹ The court, relying on *Higgins*, first confirmed the rule of capture doctrine, as well as the non-ownership rule, by stating that had the 10,000 MCF/day been drawn off by a well, no cause of action would lie.¹⁴² The court then rejected the notion that the plaintiff could recover a money judgment against the defendant for the wasted gas because the gas was never owned by the plaintiff.¹⁴³ However, the court cited *Higgins* for the proposition that the civil law provides for an injunction to prevent wasteful or other injurious conduct on the part of others overlying a common source of supply.¹⁴⁴ It denied actual relief because the well had since been plugged.¹⁴⁵ The only indication that the court would enjoin negligent actions that caused injury to the common source of supply is a parenthetical reference to "other injurious practices" that would, in addition to waste, be subject to injunctive relief.¹⁴⁶

In *McCoy v. Arkansas Natural Gas Co.*,¹⁴⁷ several adjacent landowners first sued the defendant seeking money damages for allowing natural gas to escape into the air due to a well blowout. After this claim was rejected—but remanded to determine whether, under *White Bros.*, an injunction could be issued based on waste and nuisance—a second suit was filed in which the plaintiffs added an additional allegation relating to negligence and intentional wrongdoing.¹⁴⁸ Specifically, the plaintiffs claimed that the defendant had used inferior casing, knowingly employed incompetent drillers, and allowed drilling to continue with an inebriated crew. The change in allegations did not change the result, however, as the court dismissed the complaint. The court indicated that there might be a circumstance where adjacent mineral owners might be able to assert a negligence-based claim for lost hydrocarbons or damage to the common source of supply but, as in the first case, the evidence was much too speculative as to the amount of lost hydrocarbons to sustain the cause of action.

While Louisiana was apparently rejecting the expansion of the Kentucky correlative rights jurisprudence to cover negligent injury to a common source of supply,¹⁴⁹ the Texas Supreme Court in *Elliff v. Texon*

¹⁴¹ *Id.* at 23.

¹⁴² *Id.* at 23–24.

¹⁴³ *Id.* at 24.

¹⁴⁴ *Id.* at 24. The court also cites to the *Ohio Oil* decision in support of injunctive relief. *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ *Id.* (“[T]he owner of lands in an oil or gas field may enjoin waste (or other injurious practices) on the part of others in the same field.”).

¹⁴⁷ 143 So. 383 (La. 1932).

¹⁴⁸ 165 So. 632 (La. 1936).

¹⁴⁹ There is dicta in *Breaux v. Pan American Petroleum Corp.*, 163 So.2d 406, 411–12 (La. App. 1964), *writ denied*, 165 So. 2d 481 (La. 1964), that interprets *White Bros.* and *McCoy* to allow an adjacent owner to recover damages for negligent loss of hydrocarbons under certain circumstances. The facts in *Breaux*, however, relate to the implied covenant to prevent drainage and not to the rule of capture. In *Mobil Exploration & Producing, U.S., Inc. v. Certain Underwriters*, 837 So. 2d 11 (La. App. 2002), *writs denied*, 841 So. 2d 805, 805 (La. 2003), 843 So. 2d 1129, 1130 (La. 2003), the court cited *Breaux* to support a damage recovery for negligent injury to the common source of supply as governed by LA. REV. STAT. § 31:10 (2000).

*Drilling Co.*¹⁵⁰ reached a different result. The defendants drilled an offset well in a producing field. Due to allegedly negligent drilling techniques involving the use of an inadequately-weighted mud, the well blew out. Attempts to control the well were unsuccessful, and huge quantities of gas, distillate, and some oil were blown into the air. Expert witnesses testified to the amount of natural gas, distillate, and oil forever lost to production located under the plaintiff's land.

The court made clear that had the well not blown out and still produced hydrocarbons that could be traced to the plaintiff's tract, the rule of capture would prevent any recovery.¹⁵¹ It also clearly stated that: "The only qualification of that rule of ownership is that it must be considered in connection with the law of capture and is subject to police regulation . . ." ¹⁵² But the court tempered the pure rule of capture with the imposition of a duty of "due care" to the other owners of the common source of supply. The court stated:

¹⁵⁰ 210 S.W.2d 558 (Tex. 1948). An earlier case, *Comanche Duke Oil Co. v. Texas Pacific Coal & Oil Co.*, 298 S.W. 554 (Tex. Comm. App. 1927), indicated that Texas would allow a party to recover for negligently imposed injuries to the common source of supply. In *Comanche Duke*, the adjacent owner's well was damaged by the use of nitroglycerine in the defendant's well. The court's main focus was on the elements of a classic tort action in negligence, including proximate causation, but not the rule of capture since there was no apparent loss of natural gas into the air as had occurred in *Elliff. Id.* at 564. See also *Talbott v. Southern Oil Co.*, 55 S.E. 1009, 1011 (W. Va. 1906) (explaining that the escape of gas from a lessee's failure to cap a well constitutes injury to the owner-lessor of the land).

¹⁵¹ *Elliff*, 210 S.W.2d at 561-62.

¹⁵² *Id.* at 561. The court relies in large part on *Brown v. Humble Oil & Refining Co. (Humble Oil)*, 83 S.W.2d 935 (Tex. 1935) to uphold the legislature's power to modify the rule of capture. *Humble Oil* challenged the issuance of a well spacing exception permit. The *Humble Oil* court offered the following justification for the exercise of the police power to prohibit waste:

The common law recognizes no well spacing regulations. At common law the landowner can drill an unlimited number of wells for oil and gas upon his land The adjoining landowner cannot complain if wells are drilled near his boundary line. Under this rule the only way the landowner can protect himself is to drill offset wells

Owing to the peculiar characteristics of oil and gas, the foregoing rule of ownership of oil and gas in place should be considered in connection with the law of capture. This rule gives the right to produce all of the oil and gas that will flow out of the well on one's land; and this is a property right. And it is limited only by the physical possibility of the adjoining landowner diminishing the oil and gas under one's land by the exercise of the same right of capture Both rules are subject to regulation under the police power of a state.

It is impossible to measure the exact quantity of oil and gas beneath each tract of land. It is equally impossible to fix a standard which will give exact justice to all landowners. Some landowners wish to produce oil and gas to the limit, while others desire to keep their oil and gas in the ground and develop it in less quantities. Hence arises the conflict of interests. It is now, however, recognized that when an oil field has been fairly tested and developed, experts can determine approximately the amount of oil and gas in place in a common pool, and can also equitably determine the amount of oil and gas recoverable by the owner of each tract of land under certain operating conditions.

Id. (citations omitted).

[T]he negligent waste and destruction of petitioner's gas and distillate was neither a legitimate drainage of the minerals from beneath their lands nor a lawful or reasonable appropriation of them. Consequently, the petitioners did not lose their right, title and interest in them under the law of capture. At the time of their removal they belonged to petitioners, and their wrongful dissipation deprived these owners of the right and opportunity to produce them [U]nder the common law, and independent of the conservation statutes, the respondents were legally bound to use due care to avoid the negligent waste or destruction of the minerals imbedded in petitioners' oil and gas-bearing strata. This common-law duty the respondents failed to discharge. For that omission they should be required to respond in such damages as will reasonably compensate the injured parties for the loss sustained as the proximate result of the negligent conduct.¹⁵³

The court's analysis, however, of why such a duty exists is based in part on a misreading of *Hague*. The court cites *Hague* for the proposition that the rule of capture does not allow the capturer to waste the gas, but *Hague* held directly to the contrary.¹⁵⁴

Nonetheless, the court's rationale is consistent with the Indiana and Kentucky view that not all actions taken by the owner of the mineral estate that cause injury to the common source of supply are validated by the rule of capture. The court in *Elliff* denied a mineral owner the power to divest his neighboring owners of their opportunity to recover their fair share of the oil and gas. While couched in trespass terms, the real injury is to the common source of supply and the owners thereof. The court adopted a type of due regard duty that is breached by the negligent actions of one owner that cause an injury to the common source of supply.

III. THE MODERN APPLICATION, MISAPPLICATION, AND NON-APPLICATION OF THE RULE OF CAPTURE IN OIL AND GAS CASES

In Part Two of this essay, we discussed the historical cases that first applied the rule of capture to oil and gas recovery. In this part, we will

¹⁵³ *Elliff*, 210 S.W.2d at 563.

¹⁵⁴ *Id.* at 562–63. *But see Hague*, 27 A. 714, 714 (Pa. 1893). The court also quotes 1 W. L. SUMMERS, THE LAW OF OIL AND GAS 142 (perm. ed. 1938) for that mistaken proposition:

These existing property relations, called the correlative rights of the owners of land in the common source of supply, were not created by the statute, but held to exist because of the peculiar physical facts of oil and gas. The term 'correlative rights' is merely a convenient method of indicating 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; that each such owner has duties to the other owners not to exercise his privilege of taking so as to injure the common source of supply; and that each such owner has rights that other owners not exercise their privileges of taking so as to injure the common source of supply.

Elliff, 210 S.W.2d at 562. Professor Summers was a strong advocate of the correlative rights modification to the rule of capture, but his excerpt suggests that the rule recognizes co-equal rights of the parties overlying a common source of supply to the hydrocarbons. While we have seen a number of common law modifications to the rule, they clearly did not go as far as Professor Summers suggested.

discuss a few modern oil and gas cases that properly apply, misapply, or simply ignore the rule of capture. Our discussion does not include an analysis of all issues raised in each of the cases, but rather focuses on the rule-of-capture aspects of each case—whether or not recognized and discussed by the court.

A. Proper Application of the Rule: Edwards v. Lachman

*Edwards v. Lachman*¹⁵⁵ is a directional trespass case. Simplified, Lachman drilled and completed a producing well on one spacing unit that deviated from vertical, with the result that the well bottomed out beneath Edwards's land, which comprised another spacing unit.¹⁵⁶ At first, Lachman did not realize that this trespass had occurred.¹⁵⁷ When Lachman later discovered the trespass, he remained silent and continued to produce the well. The well was completed in two productive sands, but both completions occurred beneath Edwards's land. Edwards already had a well on his tract that produced hydrocarbons from the shallower sand. Litigation ensued when Edwards discovered the trespass. The trial court ordered the well plugged back to the property line—effectively eliminating its productive capacity—and assessed conversion damages measured by the gross value of the converted production, plus interest, less only Lachman's day-to-day lifting costs and production taxes Lachman had paid.¹⁵⁸ Lachman appealed.¹⁵⁹

An award of damages based upon the gross value of production at the wellhead is ordinarily based upon a finding that the trespassing well was drilled in bad faith—that the trespasser knew of or at least acted in reckless disregard of a probable trespass. Although the Oklahoma Supreme Court accepted the trial court's finding that Lachman had negligently drilled the well, the court reasoned that negligence does not constitute bad faith, which requires a showing of fraud, malice, oppression, or evil intent.¹⁶⁰

Rather, the Oklahoma Supreme Court found that the trial court's award of gross value was based upon the fact that the well provided no benefit to

¹⁵⁵ 534 P.2d 670 (Okla. 1975).

¹⁵⁶ *Id.* at 676.

¹⁵⁷ Directional or slant drilling that results in a well being bottomed out beneath a neighbor's land (not included in a unit for that well) is regarded as trespass in both ownership and non-ownership jurisdictions. Historically, this was sometimes done intentionally, and is thus usually regarded as an intentional trespass. If production occurs and if the trespass is discovered, injured parties will usually seek damages for conversion, measured in the case of bad-faith intentional trespass and conversion as the value of the hydrocarbons at the wellhead. In other words, the trespassing defendant is not allowed to recoup his costs of drilling, completing, and operating the well. *See, e.g.,* Alphonzo E. Bell Corp. v. Bell View Oil Syndicate, 76 P.2d 167, 179 (Cal. App. 1938) (concluding that a surface owner has the exclusive right to "explore for and capture the oils, gases, and other hydrocarbons that may be found within the exterior lines of his surface premises extended vertically downward").

¹⁵⁸ *Edwards*, 534 P.2d at 672.

¹⁵⁹ *Id.* at 672–73.

¹⁶⁰ *Id.* at 673. Later, in adopting the reasoning of *Dilworth v. Fortier*, 405 P.2d 38 (Okla. 1964), the court also acknowledged that bad faith can result from gross negligence. *Edwards*, 534 P.2d. at 674.

Edwards because Edwards already had a well on his tract, which under established spacing regulations was the only well that Edwards was entitled to have. The court accepted this reasoning and held that Lachman would be entitled to a credit for the costs of drilling and completion only to the extent his well conferred a benefit on Lachman.¹⁶¹ Since Edwards's well only produced from the shallower of the two sands, the court found that Edwards benefited from the trespassing well's production from the deeper sand. Accordingly, the case was remanded to determine the extent of the benefit.¹⁶²

Edwards also argued for a finding of "bad faith" on the ground that Lachman had done a directional survey on his well and did not disclose the trespass to Edwards before Edwards had drilled his well. The court found that this conduct, even if in bad faith, did not apply retroactively to the time of drilling and completion.¹⁶³ However, the appellate court did conclude that, once Lachman discovered the trespass and continued production, he became a bad-faith trespasser.¹⁶⁴

Of particular interest to this essay is Lachman's argument that Edwards should not be entitled to compensation for the value of any hydrocarbons produced from the trespassing well but drained from Lachman's property—at least up to the time that Lachman became a bad-faith trespasser. Some evidence showed that fifty-three percent of the hydrocarbons produced by the trespassing well originated from beneath Lachman's tract.¹⁶⁵ The court properly rejected this assertion, citing the rule of capture. Since the well was producing from locations beneath Edwards' tract, all production is properly attributed to Edwards' tract under the rule of capture and none to Lachman's tract.¹⁶⁶

Edwards illustrates that the rule of capture is in large part a rule of convenience. Inquiring into the percentage of production actually attributable to particular tracts is likely to be costly and time consuming. Moreover, absent wasteful expenditures to determine reliable allocations, any allocation is likely to be based upon little more than an estimate and subject to challenge by competing evidence. This holds true when allocating production to the various tracts that may comprise a forced pooling unit as well. Thus, in the case of pooled units, production is ordinarily allocated on the basis of the surface acreage of each tract or portion included in a unit, rather than on the basis of recoverable reserves beneath each tract in the unit.¹⁶⁷ In a trespass situation, production is allocated to the actual owners

¹⁶¹ *Id.* at 675 (citing with approval *Carter Oil Co. v. McCasland*, 207 F.2d 728 (10th Cir. 1953)).

¹⁶² *Id.* at 678. The court alluded to several factors for consideration of this issue, including the percentage of total production of the trespassing well that originated from the deeper sand (approximately 30%), *id.* at 676, and the cost to Edwards of deepening his well to the deeper sand. *Id.* at 678.

¹⁶³ *Id.* at 674.

¹⁶⁴ *Id.* at 677.

¹⁶⁵ *Id.* at 676.

¹⁶⁶ *Id.* at 677.

¹⁶⁷ *See, e.g.,* *Pickens v. Railroad Comm'n*, 387 S.W.2d 35, 38 (Tex. 1965) (allocating by proration based on number of surface acres and number of acre-feet of productive sand on

of the land beneath which the well bore is perforated.¹⁶⁸ In both cases, the rule of capture supplies an efficient answer. Proving the actual productive capacity of particular acreage may be more technically feasible today, especially with the advent of tools such as three dimensional seismic, but it is not practically feasible considering the costs of acquiring the data and is not foolproof because the results obtained will remain only estimates.

B. Proper Rejection of the Rule: Wronski v. Sun Oil Co.

*Wronski v. Sun Oil Co.*¹⁶⁹ illustrates the proper rejection of the rule of capture. In this case, the Michigan conservation agency had issued an order limiting production from each well within a field to seventy-five barrels of oil per day. This order was for the apparent purpose of protecting correlative rights—to further the opportunity of each interest owner to capture a fair share of the oil in the common reservoir. Sun Oil Company, operator of three wells in the field, violated this conservation order and overproduced its wells by more than 150,000 barrels of oil. Evidence indicated that one-third of this oil was drained from the Wronskis' property.

Under the common law rule of capture, Sun would have been free to drain as much oil from neighboring properties as its wells were able.¹⁷⁰ However, like many rules of property law, the rule of capture is subject to the lawful exercise of the police power.¹⁷¹ Since Sun had overproduced its well in violation of a lawful conservation order, it was found to have converted all 150,000 barrels from nearby tracts.¹⁷² Thus, the court declined to protect Sun's overproduction under the rule of capture. Although the case rejects the rule of capture, it is analogous to *Edwards* in that all of the overproduction, which could be accurately determined and which was in violation of the conservation order, was essentially attributed to neighboring properties and not to the productive well. By comparison, in *Edwards*, all of the production was unlawful due to trespass, while in *Wronski* a measurable portion (seventy-five barrels per day) was lawful.

C. Improper Application of the Rule: Caflisch v. Crotty

The above two cases stand in sharp contrast to *Caflisch v. Crotty*,¹⁷³ a case that erroneously applies the rule of capture to justify a taking of private property for the benefit of other private properties and owners. Roper, the fee simple owner, and Caflisch, the assignee of an oil and gas lease covering Roper's property, appealed a forced-pooling order that denied them anything greater than a 1/8th royalty—effectively denying Caflisch any interest—in

which there is a well).

¹⁶⁸ See, e.g., *Alphonzo E. Bell Corp. v. Bell View Oil Syndicate*, 76 P.2d 167, 175 (Cal. App. 1938) (holding that the damage to owner was the total oil, gas, and other hydrocarbon taken by the trespasser).

¹⁶⁹ 279 N.W.2d 564 (Mich. Ct. App. 1979).

¹⁷⁰ *Id.* at 567.

¹⁷¹ See *supra* notes 85–91 and accompanying text.

¹⁷² *Wronski*, 279 N.W.2d at 567.

¹⁷³ 774 N.Y.S.2d 653 (N.Y. Sup. Ct. 2003).

the production from the spacing unit that was attributable to the Roper tract on an acreage basis.¹⁷⁴ The Roper tract consisted of 1.9 acres and 0.30% interest in a spacing unit. The unit was not established or pooled until after the well was drilled and completed.¹⁷⁵ In the pooling portion of the proceeding, the Roper-Cafilisch tract was included in the unit but denied any interest other than a 1/8th royalty. There is no indication that the working interest owner, possibly Cafilisch,¹⁷⁶ had been given an opportunity to participate in drilling the well. Nevertheless, the Roper-Cafilisch's interest was reduced and converted to a 1/8th royalty. Roper and Cafilisch challenged this portion of the pooling order, arguing that they should have been entitled to their 0.30% share of all production after the operator had recovered 200% of Cafilisch's share of the costs of the well.¹⁷⁷

The court seems to have properly dismissed the Roper and Cafilisch action on the ground that they failed to properly exhaust administrative remedies.¹⁷⁸ However, the court went on to deny relief on the alternative ground of the rule of capture, which is clearly erroneous. Although the opinion is not a model of clarity, it is apparent that the court believed that the operator of the well was protected by the rule of capture. The court first construed the term "owner" as defined by the state conservation act. Although not expressly stated, the state conservation law apparently allows only owners to seek relief under the pooling law,¹⁷⁹ which is a common requirement in conservation acts.

Moreover, "owner" is defined as a party having the right to drill a well, also a common definition in conservation acts.¹⁸⁰ The court reasoned that, because the Roper lease was a "non-development" lease (*i.e.*, it prohibited locating a well on the 1.9 acres), Cafilisch could not qualify as an "owner" under the conservation act. The court then summarily concluded that Roper, the underlying landowner, also had no right to drill a well¹⁸¹—apparently

¹⁷⁴ *Id.* at 657.

¹⁷⁵ Until recently, this was common practice in New York because the conservation agency requires evidence of the drainage pattern for each well. E-mail from Bradley Field, Dir., Div. of Mineral Res., N.Y. Dep't of Env'tl. Conservation to Owen L. Anderson, Eugene Kuntz Chair in Oil, Gas & Natural Res., The Univ. of Okla. Coll. of Law (Oct. 11, 2005, 08:49 a.m. CDT) (on file with author). Mr. Bradley advises that this is no longer common practice as of summer 2005 due to statutory and rule changes affecting compulsory pooling. Telephone interview with Bradley Field, Dir., Div. of Mineral Res., N.Y. Dep't of Env'tl. Conservation (Oct. 11, 2005). For more information on this development, see New York State Department of Environmental Conservation, What's New in the Division of Mineral Resources?, <http://www.dec.state.ny.us/website/dmn/new.htm> (last visited November 20, 2005).

¹⁷⁶ The record does not indicate the date of the Roper lease or the date that the well was drilled. If the well was drilled prior to issuance of the Roper lease, then Roper would have held the working interest at that time. If the lease was issued prior to the drilling of the well, but before the lease assignment to Cafilisch, then Cafilisch's predecessor would have held the working interest.

¹⁷⁷ Apparently, this proposed risk penalty was voluntarily offered by Cafilisch. At common law, Cafilisch would have been entitled to his 0.30% share of net profits, subject to the royalty reserved by Roper.

¹⁷⁸ *Cafilisch*, 774 N.Y.S.2d at 656.

¹⁷⁹ MCKINNEY'S ENVIRONMENTAL CONSERVATION LAW § 23-0901 (2005).

¹⁸⁰ *Id.* § 23-0101(11).

¹⁸¹ *Cafilisch*, 774 N.Y.S.2d at 656-57.

because he had issued an oil and gas lease covering the property, which was now held by Calfisch. Of course, this reasoning ignores the fact that the parties together certainly had the right to drill, as Roper could have waived the non-development clause at any time.

After concluding that neither Calfisch nor Roper had the right to drill a well, the court then found that the conservation act does not address the entitlement of an owner of unleased land in the event of pooling. The need for this finding is curious in view of the fact that the Roper tract was clearly leased. The court must have implicitly reasoned that, because the lease was a non-development lease, that the tract would be considered unleased. The pooling order, however, gave Roper only a 1/8th royalty in the production attributable to his 1.9-acre tract. Although the court failed to fully explain its reasoning, the court justified its holding on the ground that the operator of the unit is protected by the rule of capture in the drainage of the Roper tract.¹⁸² While this would be true if the Roper tract were not part of the unit, it certainly is not true respecting tracts within a unit given that ordinarily only one unit well may be drilled.

The rule of capture was a rule of self-help that arose long before the concept of pooling—whether voluntary or otherwise. Under the rule of capture, parties suffering drainage were not given a share in a neighboring well because they had the ability to prevent any drainage by drilling their own well. Thus, correlative rights were protected through this self-help remedy, albeit in a manner that resulted in waste. Here neither Roper nor Calfisch could drill a well because the conservation rules for the field allowed only one unit well. Their tract was too small to qualify for a drilling permit, and their tract had already been included in a drilling unit that had a well. Thus, they were unable to exercise the self-help provided by the rule of capture.

The problem with New York conservation practice runs deeper than this particular holding. Under New York practice, spacing units are not created until after a well is drilled, and the shape of each unit must be separately justified on the basis of geology and reservoir characteristics.¹⁸³ This can result in a non-uniform pattern of spacing units. Of course, pooling cannot occur until the spacing unit for a well has been established. This means that parties like Roper and Calfisch are pooled after the well is drilled, and they may not be given a prior opportunity to participate in the drilling of the unit well.

This New York practice turns spacing and pooling policy on its head, and actually serves to limit the rule of capture more than is customarily the case under the conservation practices of other states. While following survey lines might not be workable in New York, owing to metes-and-bounds land descriptions, units could still be formed on a largely uniform pattern as is customary in many states. In addition, owing to the New York practice of having to geologically justify each unit, pooling prior to drilling is not practically possible.

¹⁸² *Id.* at 657.

¹⁸³ MCKINNEY'S ENVIRONMENTAL CONSERVATION LAW § 23-0501 (2005).

In most other states, whether spacing is determined for the entire reservoir immediately after its discovery, as in North Dakota,¹⁸⁴ or is determined on a unit-by-unit basis, as in Oklahoma,¹⁸⁵ spacing units follow a uniform pattern—generally defined by survey lines. Moreover, spacing—and usually pooling—occurs prior to drilling development wells. More importantly, if an operator wishes to deprive working interest owners of a “free ride” on the well, the operator must seek pooling prior to drilling.¹⁸⁶

The solution to this New York situation lies, in part, with the rule of capture. New York conservation officials should establish spacing units prior to the drilling of development wells, and also allow pooling prior to development. Although the spacing and pooled units would not be individually geologically justified, the rule of capture would address these deficiencies by allowing affected neighbors the opportunity to drill offsetting wells. Spacing units are not designed to prevent drainage, but are designed to prevent the waste that results from drilling more wells than are necessary to effectively and efficiently drain a reservoir. Pooling is designed to protect the correlative rights of the interest owners holding rights within the unit, but is not designed to protect the correlative rights of every interest owner in a common reservoir. If spacing units were established prior to drilling and without the need to justify each unit geologically,¹⁸⁷ spacing units could be formed on a largely uniform and consistent pattern so that no small tracts would be deprived of an opportunity to be included in a normal size unit. Under this approach, working interest owners (i.e., lessees and unleased mineral owners) could be given an opportunity to participate up front in the risk of drilling a well. If they chose not to participate, then participating parties could acquire their working interest in the well upon payment of compensation or carry them, subject to the recovery of an appropriate risk penalty by the participating parties, depending upon which pooling practice is adopted.¹⁸⁸ As things now stand in New York, parties such as Roper and Caflisch essentially forfeit their interests to participating parties without due

¹⁸⁴ N.D. CENT. CODE § 38-08-07 (2004).

¹⁸⁵ OKLA. STAT. tit. 52, § 87.1 (2000).

¹⁸⁶ If pooling is accomplished prior to drilling, the pooled working interest owners will be given the opportunity to participate in the risk of drilling the well. If they choose not to participate, in many states (e.g., North Dakota), they will be “carried” (i.e., they will not participate in the risk of drilling), but will be subject to a risk penalty (e.g., 300% of drilling and completion costs and perhaps operating costs, recoverable from the carried parties’ share of production) to compensate the operator or participating parties for assuming the risk. In other states (e.g., Oklahoma), a pooled party will be given several elections, which range from participating up front to being compensated with money, overriding royalty or both for essentially assigning its interest in the well to the operator and participating parties. See *supra* notes 184–85 and accompanying text.

¹⁸⁷ The only limitation would be that the tracts are likely to overlie the common pool—a matter that is ordinarily presumed, absent convincing evidence to the contrary.

¹⁸⁸ See *supra* note 186. In either case, small tracts burdened with excessive royalties—royalties that may have been carved out to take advantage of a bona fide operations—could be excluded from a unit if the royalty owners are not willing to reduce their interests to a reasonable level. For cases illustrating the difficulty of dealing with excess royalties in spacing and pooling, see *Youngblood v. Seewald*, 299 F.2d 680 (10th Cir. 1961); *Mulsow v. Gerber Energy Corp.*, 697 P.2d 1269 (Kan. 1985); and *O’Neill v. American Quasar Petroleum Co.*, 617 P.2d 181 (Okla. 1980). For a statutory resolution, see ALA. CODE § 9-17-13 (2005).

process and without an opportunity to participate. This hardly seems constitutional, notwithstanding the court's ruling in *Cafilisch*.

D. Improper Reasoning Regarding the Rule: Hammonds v. Central Kentucky Natural Gas Co.

In the unfortunate case of *Hammonds v. Central Kentucky Natural Gas Co.*,¹⁸⁹ the Kentucky Court of Appeals held that gas injected into a previously exhausted natural gas reservoir for storage had been returned to nature and thus became subject to the rule of capture.¹⁹⁰ Although captured gas, like a captured wild animal, would become the personal property of the captor,¹⁹¹ the court reasoned that injecting gas into the ground was similar to releasing a wild animal back to nature, where it would become quasi-public property, once again subject to capture, and no longer the personal property of an individual.¹⁹² In other words, the act of injecting the gas into the exhausted reservoir constituted the abandonment¹⁹³ of the gas even though the injecting party intended to later retrieve the gas and viewed it as having been placed in storage rather than returned to nature.

Hammonds illustrates the danger of reasoning by analogy. If the analogy is poor, the reasoning is likely to be poor as well. Specifically, the *Hammonds* court compared the injection of gas to capturing a live fox in a forest or catching a fish in a stream and then releasing it back to nature.¹⁹⁴ A more proper analogy would be to compare the injection of gas for storage to the confinement of a wild animal within a fenced enclosure. If the fenced-in area happened to cross a property boundary, the wild animal would nevertheless remain the personal property of the captor, subject only to possible liability for trespass. Another appropriate analogy would be to treat the injected gas as a domesticated animal. If Farmer Brown's cow escaped from its pasture and wandered onto a neighbor's land, Farmer Brown would retain ownership of the cow and be liable to the neighbor for any actual damage done by the trespassing cow.¹⁹⁵

Indeed, the dispute in *Hammonds* only indirectly involved the issue of ownership of and the right to capture the injected gas. *Hammonds* brought suit for trespass to recover damages for the injector's use and the injected gas's occupation of that portion of the exhausted gas reservoir beneath her property.¹⁹⁶ The court found that the injector had released the gas back to

¹⁸⁹ 75 S.W.2d 204 (Ky. App. 1934).

¹⁹⁰ *Id.* at 206.

¹⁹¹ *Id.* at 205.

¹⁹² *Id.* at 206.

¹⁹³ The court ignores that, at common law, abandonment required a showing of intent to abandon, which was clearly absent in *Hammonds*. See, e.g., *Gerhard v. Stephens*, 442 P.2d 692, 712-13 (Cal. 1968) (explaining evidence of both non-use and intent to abandon properly required to prove abandonment).

¹⁹⁴ 75 S.W.2d at 206.

¹⁹⁵ For an analogous oil and gas case, see *Champlin Exploration, Inc. v. W. Bridge & Steel Co.*, 597 P.2d 1215, 1218 (Okla. 1979) (holding that crude oil that leaked from owner's storage facility was not subject to the rule of capture when it flowed onto neighboring property).

¹⁹⁶ *Hammonds*, 75 S.W.2d at 204.

nature, and, therefore, concluded that no trespass had occurred because gas in nature would behave like a wild animal and migrate of its own volition into other property, for which the injector (now a non-owner) could not be held responsible.¹⁹⁷ Certainly, if the court had decided that the injector retained ownership of the gas, a technical trespass would have occurred; however, in similar cases, courts have found that no real damage results from the act of storage and declined to redress the trespass.¹⁹⁸ Fortunately, *Hammonds* was overruled,¹⁹⁹ thereby protecting the utility of underground gas storage in Kentucky.

IV. SOME DIFFICULT CASES IMPLICATING THE RULE OF CAPTURE

A. *Geo Viking, Inc. v. Tex-Lee Operating Co.*

In *Geo Viking, Inc. v. Tex-Lee Operating Co.*,²⁰⁰ the Supreme Court of Texas ruled that fracing a well so that the resulting fractures cross property lines constitutes a subsurface trespass.²⁰¹ The case involved damages for a failed frac job, which resulted in the plugging of the well. The trespass ruling served to reduce consequential damages because the plaintiff could not recover for lost production that would have been attributable to additional drainage from nearby lands had the frac job succeeded.²⁰² The Court of Appeals for the Sixth District had allowed these additional damages on the ground that the additional drainage was protected by the rule of capture.²⁰³ Although the Supreme Court's opinion was withdrawn, the case looms large over the common practice of fracing, which is done to increase and enhance

¹⁹⁷ Of course, this does not mean that the injector could not be held liable in negligence or nuisance in the proper case. On January 17, 2001, an underground gas storage reservoir exploded, destroying large portions of the business district of Hutchinson, Kansas. Associated Press, *Gas Geyser Erupts in Kansas Town, Injuring 3*, ARIZONA REPUBLIC, Jan. 19, 2001, at B12, available at 2001 WLNR 481597.

¹⁹⁸ See, e.g., *Chance v. BP Chemicals, Inc.*, 670 N.E.2d 985, 993-94 (Ohio 1996); *Lone Star Gas Co. v. Murchison*, 353 S.W.2d 870, 875 (Tex. App. 1962).

¹⁹⁹ *Texas Am. Energy Corp. v. Citizens Fid. Bank & Trust Co.*, 736 S.W.2d 25, 28 (Ky. 1987).

²⁰⁰ No. D-1678, 1992 WL 80263 (Tex. Apr. 22, 1992) (per curiam), withdrawn at the request of the parties. See also *ANR Production Co. v. Kerr-McGee*, 893 P.2d 698, 701-04 (Wyo. 1995) (addressing damages for trespass by fracing); *Gregg v. Delhi-Taylor Oil Corp.*, 344 S.W.2d 411, 419 (Tex. 1961) (stating in what appear to be dicta that fracing across property lines would be a trespass); *Delhi-Taylor Oil Corp. v. Holmes*, 344 S.W.2d 420, 420 (Tex. 1961) (enjoining a frac where the court was convinced that the fractures would cross property lines); *Zinke & Trumbo Ltd. v. State Corp. Comm'n. of Kan.*, 749 P.2d 21, 28 (Kan. 1988) (holding that in establishing well allowables, the conservation agency needed to take into consideration fracing that crossed lease lines, which could discourage fracing since a primary purpose is to increase production rates). In a more recent Texas case, *Mission Resources, Inc. v. Garza Energy Trust*, 166 S.W.3d 301 (Tex. App. 2005), the court concluded that hydraulic fracturing constitutes trespass. Citing the apparent dicta in *Gregg*, the court concluded that it "cannot be discounted entirely as dictum, if it is dictum at all" and was thus unwilling to declare *Gregg* to be "devoid" of value as precedent. *Id.* at 310-11. The court affirmed the trial court's findings of malice and intentional trespass and felony theft and affirmed the jury's award of punitive damages. *Id.* at 315-16, 317-20.

²⁰¹ *Geo Viking*, 1992 WL 80263 at *2.

²⁰² *Id.*

²⁰³ *Geo Viking, Inc. v. Tex-Lee Operating Co.*, 817 S.W.2d 357, 364 (Tex. App. 1992).

the recovery of oil. In withdrawing its opinion, the court stated that “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.”²⁰⁴

Fracing, often done in the form of hydraulic fracturing, is a process whereby liquid is pumped under pressure into a well bore and forced into the producing formation to fracture the reservoir rock, thereby increasing permeability.²⁰⁵ If successful, the increased permeability allows hydrocarbons to flow at an increased rate through the reservoir rock and also increases ultimate recovery.²⁰⁶ Following an initial injection of liquid, additional liquid is pumped into the well along with “proppants” that deepen the fractures and hold them apart.²⁰⁷ The liquid is then removed, leaving the proppants to support the fractures.²⁰⁸ The trespass problem arises because it is difficult to control the lateral extent of the fractures,²⁰⁹ which may be several thousand feet long and which may result in the fracturing of and the injection of proppants into neighboring property.²¹⁰ Unlike the gas storage, obvious damage is done to the neighboring property in the form of physical fractures to the underground strata and increased drainage. This trespass issue is not a small matter, for about half of all gas wells and nearly a third of all oil wells are fraced in the United States.²¹¹ The Texas Supreme Court likened this fracturing across property lines to directional drilling across property lines, thus resulting in actionable trespass.

Professors Charles Meyers and Howard Williams have convincingly argued that activities, such as hydraulic fracturing, should be protected by what they call the “negative rule of capture”:

Just as under the rule of capture a landowner may capture such oil or gas as will migrate from adjoining premises . . . so also may he inject into a formation substances which may migrate through the structure to the land of others, even if this results in the displacement . . . of more valuable with less valuable substances.²¹²

²⁰⁴ *Geo Viking, Inc. v. Tex-Lee Operating Co.*, 839 S.W.2d 797, 798 (Tex. 1992).

²⁰⁵ Laura H. Burney & Norman J. Hyne, *Hydraulic Fracturing: Stimulating Your Well or Trespassing?*, 44 ROCKY MTN. MIN. L. INST. 19-1, 19-11 (1998).

²⁰⁶ *Id.*

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ The concern over the lateral extent of fractures is illustrated in *Columbia Gas Transmission v. Smail*, No. C86-1196A, 1986 WL 20906, at *9 (N.D. Ohio July 18, 1986), where the court placed limits on fracing by the operator of a well that was drilled in the proximity of an underground gas storage reservoir. The operator of the storage reservoir was concerned that fracing might result in production of stored gas from the fraced well. *Id.* at *1.

²¹⁰ Burney & Hyne, *supra* note 205, at 19-14. The actual extent of a fracture ordinarily cannot be accurately determined due to cost and timing. *Id.* at 19-15 to 19-16.

²¹¹ *Id.* at 19-16.

²¹² PATRICK H. MARTIN & BRUCE M. KRAMER, *WILLIAMS AND MEYERS OIL AND GAS LAW* § 204.5 (Matthew Bender & Co., Inc. 2003).

Although their argument was embraced in an earlier Texas case dealing with secondary recovery operations in the course of a voluntary unitization,²¹³ the court in *Geo Viking* did not bother to cite the prior case. Moreover, proppants are distinguishable from the precise language used by Professors Williams and Meyers in that the proppants remain in the reservoir to hold open the fractures rather than “migrate through [a] structure.”²¹⁴ Thus, courts may be unwilling to consider fracing to be within the negative rule of capture even if the rule were to be embraced in other situations, such as unitization.

On balance, because fracing can greatly increase production rates and ultimate recovery, making operations more profitable and providing more domestic oil and gas resources, we believe fracing should be protected from trespass actions. In the proper case, a frac that damages a reservoir or directly damages nearby wells could be addressed by the torts of negligence, nuisance, or waste. 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 actions on public policy grounds. The public policy argument is simple: fracing should be encouraged as a means of increasing domestic production and decreasing our dependence on foreign oil.²¹⁵ The rule of capture or negative rule of capture

²¹³ *R.R. Comm'n of Tex. v. Manziel*, 361 S.W.2d 560, 568 (Tex. 1962), embraces the negative rule in the specific situation where injection operations are conducted with the express approval of a conservation order approving a voluntary unitization. This is the only case to have squarely adopted the negative rule of capture. Significantly, the court stated in dicta that its holding should not be construed as “authority for the proposition that the type of deliberate action involved in sand frac[ing] would not be a trespass.” *Id.* at 569 n.6. Other cases, however, although not adopting the negative rule, are consistent with it in upholding secondary recovery injection operations under a plan of unitization where the affected landowner was given an opportunity to participate in the operations but declined to do so. *See, e.g.*, *Tide Water Associated Oil Co. v. Stott*, 159 F.2d 174, 179 (5th Cir. 1946) (holding that, because lessors refused to participate in lessees’ plan for recycling operations on same basis as other participants, they could not recover damages); *The Cal. Co. v. Britt*, 154 So. 2d 144, 150 (Miss. 1963) (holding that appellees were not entitled to the benefits of a unitization program because they refused to enter contract); *Baumgartner v. Gulf Oil Corp.*, 168 N.W.2d 510, 519 (Neb. 1969) (holding that where secondary recovery project was authorized and interested parties had opportunity to participate, the operator was liable to those refusing participation); *Syerson v. N.D. State Indus. Comm’n*, 111 N.W.2d 128, 134 (N.D. 1961) (holding that adjoining landowners could not refuse to participate in unitization program and prevent other interests from developing adjoining tracts). These cases are not helpful in that fracing is done to stimulate production from a single well. Accordingly, unitization is not necessary. Moreover, neighboring landowners are not given the opportunity to participate. And at least one court has determined that affected landowners should be entitled to damages for the value of hydrocarbons displaced by injected substances (in lieu of an injunction provided compensation is paid). *Jameson v. Ethyl Corp.*, 609 S.W.2d 346, 351 (Ark. 1980). Finally, other courts have found that a party who displaced hydrocarbons from neighboring property by injection liable on a variety of tort theories. *See, e.g.*, *Greyhound Leasing & Financial Corp. v. Joiner City Unit*, 444 F.2d 439, 442 (10th Cir. 1971) (holding operator liable in nuisance for permanent damage to wells on adjacent land caused by encroaching saltwater from secondary recovery operations).

²¹⁴ MARTIN & KRAMER, *supra* note 212, § 204.5.

²¹⁵ Professors Laura H. Burney and Jacqueline L. Weaver have recognized these public policy arguments as implicit in the Supreme Court’s withdrawal of its opinion in *Geo Viking*. Laura H. Burney, *A Pragmatic Approach to Decision Making in the Next Era of Oil and Gas Jurisprudence*, 16 J. ENERGY NAT. RESOURCES & ENVTL. L. 1, 39 (1996); Jacqueline Lang Weaver,

can be used to underpin this desirable public policy. From an oil and gas policy standpoint, about the only public policy argument in favor of holding that fracing across property lines should be actionable in trespass is that state legislators might then be forced into taking action to make unitization easier to achieve early in the life of a field.

B. Kennedy v. General Geophysical Co.

The issue in *Kennedy v. General Geophysical Co.*²¹⁶ was trespass and alleged wrongful acquisition of seismic data.²¹⁷ A geophysical operator conducted a seismic survey encompassing many tracts. The facts indicated that the operator did not enter upon the plaintiff's tract,

but that it did "shoot" land near plaintiff's land, one of such "shots" being within 10 or 15 feet of the boundaries thereof, but that on no occasion of such "shooting" did a straight line running from such "shot-point" to a "receiving set" or "jug" cross any part of plaintiff's land; that the shots and receiving sets were placed along or on a public road or highway adjoining the land at distances of 150 feet apart;

The court found that the vibrations received by these receiving instruments or "jugs" go down from the "shot-point" vertically and then back up to such receiving sets or "jugs," and that by the interpretation of these vibrations so received and recorded, information is gotten relative to the depth points under such receiving sets and that no interpretation or geophysical information as to plaintiff's land was given Skelly Oil Company [the purchaser of the seismic information] by either the General Geophysical Company or its agents; and that no receiving sets were placed on said land; that the appellees got no reliable information as to the sub-surface structure under appellant's land by reason of the "shooting" and that any information that appellees may have gotten as to sub-surface structure under plaintiff's land would be based on assumption or supposition that the sub-surface structure under plaintiff's land, was the same as that along the road adjacent to the land on which the receiving sets were placed²¹⁸

The court held that plaintiff had failed to sustain their burden of proof concerning wrongful acquisition of valuable information and held that no trespass had occurred.²¹⁹

The Politics of Oil and Gas Jurisprudence: The Eighty-Six Percent Factor, 33 WASHBURN L.J. 492, 524 (1994).

²¹⁶ 213 S.W.2d 707 (Tex. Civ. App. 1948).

²¹⁷ The discussion of *Kennedy* is an abbreviated discussion from prior articles by Professor Anderson. See Owen L. Anderson, *3D Seismic and Geophysical "Trespass"*, 29 OIL, GAS AND ENERGY RESOURCES 3 (2004); Owen L. Anderson & John Pigott, *Seismic Technology and Law: Partners or Adversaries*, 24 ENERGY & MIN. L. INST. 285 (2004); Owen L. Anderson, *Geophysical "Trespass" Revisited*, 5 TEX. WESLEYAN L. REV. 137 (1999); Owen L. Anderson & John Pigott, *3-D Seismic Technology: Its Uses, Limits, & Legal Ramifications*, 42 ROCKY MTN. MIN. L. INST. 16-1 (1996).

²¹⁸ *Kennedy*, 213 S.W.2d at 709.

²¹⁹ *Id.* at 710-11.

Moreover, the plaintiff's land was not physically injured in any way by the resulting vibrations or concussion.²²⁰ Nevertheless, dictum in *Kennedy* suggests that, if valuable and useful information had been intentionally gathered from beneath the plaintiff's acreage, the plaintiff might have prevailed. The court supported its decision by noting "that on no occasion did [the geophysical operator] . . . set up a receiving set so near appellant's land that a straight line drawn on the surface of the ground from the one shot-point from which waves were to be received by the receiving set crossed any part of plaintiff's land."²²¹ This suggests the possibility that an intentional, as opposed to incidental, gathering of information from the plaintiff's land may have been actionable.

The dictum in *Kennedy* has taken on new importance with the increasing use of 3D seismic, which can more accurately image a structure than conventional seismic; however, accurate assessment of structures like anticlines and domes requires the gathering of seismic data from locations that are lateral and adjacent to the structure, as opposed to conventional seismic surveying, which is done above a structure. In these situations, if either the surface or mineral ownership for the acreage alongside the structure differs from the acreage above the structure, special trespass concerns are encountered.

For example, assume that the targeted area for 3D seismic operations is a geologic dome located largely beneath Blackacre, and that the best way to image this dome is to conduct the geophysical operations from adjacent Whiteacre. Assume that Baxter owns the mineral estate of Blackacre, and assume that Wilson owns the mineral estate of Whiteacre.²²² From whom

²²⁰ *Id.* at 711.

²²¹ *Id.* at 713. A similar view can be surmised from dicta in *Ohio Oil Co. v. Sharp*, 135 F.2d 303, 306-309 (10th Cir. 1943) (involving an allegation of geophysical trespass, but mineral owners were not parties to the suit). However, in *Villarreal v. Grant Geophysical, Inc.*, 136 S.W.3d 265 (Tex. App. 2004), plaintiff mineral owners brought suit for geophysical trespass, assumpsit in lieu of trespass, and unjust enrichment and sought damages against a geophysical operator who had collected 3D seismic data on lands surrounding the plaintiffs' tracts but made no physical entry onto the plaintiffs' property. The San Antonio Court of Appeals rejected the plaintiffs' claim. *Id.* at 270. In construing *Kennedy* and related case law, the *Villarreal* court held that Texas law requires an actual physical entry to sustain a claim for geophysical trespass and related torts where no physical damage is done to a plaintiff's property. *Id.* at 270. Support for an actual physical entry requirement can also be gleaned from a Louisiana case involving aerial surveying. *Ratliff v. Beard*, 416 So. 2d 307, 309 (La. App. 1982).

²²² The problem becomes more complex if we further assume that Blake owns the surface of Blackacre and that Wright owns the surface of Whiteacre. If obtaining information about Whiteacre is not an objective of the survey (e.g., because the operator already knows, from a 2D seismic survey, that the dome is not beneath Whiteacre), then permission must also be obtained from Wright because Wilson's right to use the surface of Whiteacre is most likely limited to exploring for and developing minerals beneath Whiteacre (not Blackacre). Although it is well established that the surface estate is burdened by the mineral owner's right of reasonable and necessary use of the surface, see, for example, *Hunt Oil Co. v. Kerbaugh*, 283 N.W.2d 131, 135 (N.D. 1979) (dealing with seismic operations), a mineral owner's right of surface use is limited to uses that directly relate to the exploration and development of minerals beneath the burdened tract. This right does not include the use of the surface in furtherance of exploration and development of minerals on other tracts, unless the severance instrument specifically confers such right. See, e.g., *Mountain Fuel Supply Co. v. Smith*, 471 F.2d 594, 597 (10th Cir. 1973) ("[P]laintiffs could not use defendants' surface for development on the lands or to haul

must permission to engage in geophysical operations be obtained? Out of concern for the dictum in *Kennedy*, conventional wisdom suggests that permission should be obtained from both Baxter and Wilson. Baxter is the owner of the targeted minerals. Thus, to recover data on the dome beneath Blackacre, a prudent geophysical operator would secure Baxter's consent. Further, because geophysical equipment will be placed directly above Wilson's mineral rights in Whiteacre, permission should also be secured from Wilson.

Although the right to explore for minerals is a valuable property right belonging to the mineral owner, we respectfully submit that this aspect of the mineral interest should be subject to the rule of capture in the same manner as the right of production. In other words, we argue that a mineral owner should be privileged to use his own tract to gather seismic data from another targeted parcel without having to obtain permission from a mineral owner of the targeted parcel so long as there is no physical entry onto the targeted tract. We submit that the mineral owner of a targeted parcel should have no cause of action when seismic data are gathered from the targeted parcel solely through the use and occupancy of nearby parcels. This is an application of the non-liability prong of the rule of capture to seismic surveying in the same way that the rule is applied to production that causes drainage. Thus, we reject the argument that the intentional gathering of seismic data from a targeted parcel solely by geophysical operations conducted from nearby lands and without permission of the owner of the targeted parcel constitutes some form of "geophysical trespass."

Our argument is supported by *Villarreal v. Grant Geophysical, Inc.*²²³ In *Villarreal*, the geophysical operator conceded that the collection of information from unpermitted tracts within a 3D seismic survey area was unavoidable or could only be avoided at the cost of losing information from adjacent permitted tracts. Moreover, although the data obtained from unpermitted tracts ultimately could be excluded from data licensed to third parties, the seismic operator admitted that two licensees had inadvertently received data without the exclusion of data from unpermitted tracts. However, when the mistake was discovered, the licensees returned the data and new data—apparently purged—was provided to the licensees. Although the court noted these facts in its opinion, it did not directly address their consequences, and it held that geophysical trespass and related torts require

over such surface the production from land of others.").

²²³ 136 S.W.3d 265 (Tex. App. 2004). Support for our argument can also be found in the concurring opinion of Justice Phillips in *Ohio Oil Co. v. Sharp*, 135 F.2d 303, 310 (10th Cir. 1943) (Phillips concurring):

I do not think that a geological investigation of a substantial area, conducted upon lands rightfully entered, constitutes a trespass upon adjoining land or a wrong against the owner thereof, or of the oil and gas rights therein, where there is no actual entry upon such adjoining land, although it may disclose geological information with respect thereto. To hold otherwise would greatly impede geological investigations which are essential to the discovery and development of oil and gas.

Id.

a physical entry onto the plaintiff's tract.²²⁴ Nevertheless, the court did observe that Texas geophysical trespass legal precedent had failed to keep pace with technology²²⁵—perhaps suggesting that the dictum in *Kennedy* may have vitality.

The rule of capture implicitly governs situations where substances injected into formations for enhanced recovery displace oil and gas from beneath neighboring lands—at least where the neighbor was given a reasonable opportunity to participate in the enhanced recovery operations, but refused.²²⁶ While the law could require a geophysical operator to first make a reasonable effort to obtain permission to conduct seismic operations from mineral owners of all targeted parcels, we see no basis for this burdensome and inefficient requirement in the context of geophysical operations given that this same operator, after obtaining an oil and gas lease on nearby property, could proceed to freely capture oil and gas from beneath neighboring parcels through drainage, so long as the operator's well bore does not physically trespass onto the neighboring parcels. Moreover, for injected substances, such as water, a physical substance intrudes into neighboring parcels and may remain there indefinitely. With seismic, only vibrations and sound waves momentarily enter neighboring parcels.

Applying the rule of capture to our hypothetical example above would yield the following answer. Because Wilson may drill a producing well on Whiteacre and capture oil and gas from beneath Blackacre without liability to Baxter, and because Wilson may drill a dry hole on Whiteacre without liability to Baxter for loss of speculative value, Wilson should be privileged to “capture” information about the possible presence of oil and gas beneath Blackacre through geophysical operations on Whiteacre.²²⁷

²²⁴ *Villarreal*, 136 S.W.3d at 268.

²²⁵ *Id.* at 270.

²²⁶ *See, e.g.,* *Syverson v. N.D. State Indus. Comm'n*, 111 N.W.2d 128, 133 (N.D. 1961) (holding that refusing to sign a unitization agreement left neighbors with no opportunity to participate).

²²⁷ A similar problem arises respecting mineral co-tenants. The issue is whether one co-tenant can conduct or authorize a third party to conduct seismic surveys without the permission of other co-tenants. Under the majority view that one co-tenant may develop minerals without permission of other co-tenants, the answer would appear to be yes. Regarding seismic surveying, this was the holding in *Enron Oil & Gas Co. v. Worth*, 947 P.2d 610, 614 (Okla. Civ. App. 1997) (owner of undivided unleased mineral interest can authorize a third party to conduct seismic exploration activities without the consent of the surface owner or other mineral owner cotenants).

This view may also hold true in minority view states, where the actual development of minerals by less than all co-tenants is viewed as waste. In *Smith v. United Fuel Gas Co.*, 166 S.E. 533 (W. Va. 1932), the court offers the following dicta:

Each cotenant had the right to enter on the land himself or by lessee and explore for gas and market the gas if found. But when *that right* was exercised and *the common property was taken*, the other cotenants or tenants in common are entitled to an accounting as for a waste committed.

Id. at 534 (emphasis added). In this case, the plaintiffs sought an accounting for production, not an injunction. Thus, the statement about each cotenant having a right to explore is dictum and its contextual meaning is unclear. The second sentence in the above quotation fails to add clarity. Is “that right” a reference only to extraction and marketing, or is it a reference to exploration as well? Is “the common property . . . taken” a reference to extraction, which would

A rule-of-capture approach to the gathering of seismic data would be efficient and would provide some encouragement for the further development of domestic oil and gas resources²²⁸ at a time when major, and many independent, oil and gas companies are spending the lion's share of their exploration and development budgets overseas.²²⁹ Acquiring permits from multiple mineral owners, lessees, and surface owners for all lands affected by a seismic survey is costly in both time and money. A rule-of-capture approach would greatly reduce transaction costs by reducing the number of seismic permits needed to conduct a survey, and by discouraging "hold-out" bargaining by mineral owners bent on collecting large fees from geophysical operators.

Moreover, by not having to purge its database of information concerning nonpermitted parcels, the geophysical operator would be able to maintain seismic data that would be more useful, more reliable, more complete, and hence, more valuable. In short, a rule-of-capture approach

seem to be its plain meaning, or is it a reference to the taking of a right, including the right to explore, that may only be exercised jointly by all cotenants? If the dictum is intended to recognize an exploration right in less than all cotenants, then the basis must be, as between development and exploration, that exploration does not involve the permanent extraction and actual depletion of minerals. In other words, no "waste" occurs. Although seismic surveying could result in the "depletion" of the speculative value of the property for oil and gas development, we nevertheless submit that the minority view should protect exploring cotenants from claims for loss of speculative value by non-exploring cotenants. This exploration may be necessary to convince fellow co-tenants of the wisdom of mineral development, and a co-tenant who invests in exploration is necessarily doing so—particularly under the minority view—for the potential benefit of all co-tenants.

²²⁸ The principle that one may use land to gain economically valuable information about a neighbor's land has been recognized in other contexts. See, e.g., *Victoria Park Racing & Recreation Grounds Co. Ltd. v. Taylor*, (1937) 58 C.L.R. 479 (Austl.) (holding that no action arises where neighbor erected platform on his property to facilitate the broadcast of horse races conducted on plaintiff's tract). Cf. *Pittsburgh Athletic Co. v. KQV Broadcasting Co.*, 24 F. Supp. 490, 492 (W.D. Pa. 1938) (holding that the defendant, who made unauthorized broadcasts of baseball games with the aid of observers stationed outside of the ballpark, engaged in unfair competition and interfered with advertisers who had contracted with the owner of the baseball franchise for exclusive broadcasting rights). Note that this last case is distinguishable from the first and, by analogy, is comparable to the situation where a landowner gives exclusive geophysical exploration rights to one geophysical operator who then suffers an invasion by a competing geophysical operator. In the geophysical context, we would not permit a direct invasion of one's exclusive exploration right by a competing geophysical operator, but we would allow the rule of capture to govern where the competing geophysical operator obtained the information through activity conducted from nearby parcels.

In *Rock and Roll Hall of Fame and Museum, Inc. v. Gentile Productions*, 134 F.3d 749, 754 (6th Cir. 1998), the Court of Appeals for the Sixth Circuit vacated a preliminary injunction barring defendant from selling a poster depicting and identifying the Rock and Roll Hall of Fame building. The defendant had taken pictures of the building from public property. In dissolving the injunction and remanding the case, the court concluded that the plaintiff failed to establish the likelihood of an intellectual property right in the building as a trademark. In *R.M.S. Titanic, Inc. v. Haver*, 171 F.3d 943, 970–71 (4th Cir. 1999), the court reversed the trial court's order enjoining a photographer from taking pictures of the Titanic wreckage, thereby rejecting the salvor's argument that a photographic expedition would unlawfully infringe on the salvor's exclusive salvage rights.

²²⁹ To further encourage geophysical exploration, Congress should amend the tax code so that geological and geophysical costs could be uniformly treated as an ordinary business expense, rather than as a capital expenditure in the event prospects are developed.

would encourage more 3D seismic surveying, which in turn should optimize orderly and efficient development of remaining domestic oil and gas resources. In the oil and gas conservation sense, a rule-of-capture approach to geophysical exploration would serve to prevent economic waste.

C. Anderson v. Amoco Canada Oil and Gas and NCNB Texas National Bank v. West

The Canadian Pacific Railway (CPR), like many railroad companies in the United States, received substantial land grants. CPR sold much of this land to settlers to promote development of Western Canada. Initially, CPR conveyed lands without reservation, but it began reserving coal in about 1904. By 1912, CPR reserved all minerals. Between 1907 and 1912, CPR reserved coal and petroleum, and sometimes also valuable stone.²³⁰

In *Borys v. Canadian Pacific Railway*,²³¹ the Judicial Committee of the Privy Council²³² held that the word “petroleum” under this reservation included liquid, but not gaseous, hydrocarbons in a reservoir, with ownership governed by the phase of the hydrocarbons in the ground.²³³ The Privy Council reasoned that the term “petroleum” should be determined based upon its vernacular, not scientific,²³⁴ usage at the time of the contract for sale of the land at issue; however, the Privy Council failed to clarify precisely “when” the physical nature of hydrocarbons, as liquid or as gas, was to be determined for the purpose of establishing ownership. This was the issue in *Anderson v. Amoco Canada Oil and Gas*.²³⁵

This rather narrow issue arises when there has been a “phase severance” such as what was decreed to have occurred with a reservation of “petroleum” in *Borys*, and where a reservoir contains both oil and gas. At natural reservoir conditions, prior to human intervention, reservoirs are stable. Any gas in solution²³⁶ with oil is in a liquid phase in the reservoir, while any gas in the gas cap is in a gas phase. However, as a combined oil

²³⁰ *Anderson v. Amoco Canada Oil and Gas*, [2004] 3 S.C.R. 3, ¶¶ 3–7 (Can.), *aff’g* *Anderson v. Amoco Canada Oil and Gas*, [2002] 214 D.L.R. 272, *aff’g in part* *Anderson v. Amoco Canada Oil and Gas*, [1998] Alta. L.R. 669.

²³¹ [1953] 2 D.L.R. 65 (P.C.), *aff’g* [1952] 3 D.L.R. 218 (Alta. C.A.), *rev’g in part* [1951] 4 D.L.R. 427 (Alta. T.D.).

²³² The Judicial Committee of the Privy Council, which sat in London, served as the highest appellate judicial body for cases arising within the British Empire and Commonwealth, including Canada, but outside of the United Kingdom. Today, the highest appellate judicial body for Canada is the Supreme Court of Canada.

²³³ 2 D.L.R. at 78. The Privy Council also ruled that the petroleum reservation included the implied right to use the surface to explore for and to produce petroleum. *Id.* at 74.

²³⁴ *Id.* at 70. Science regards oil and gas as similar hydrocarbons that exist in liquid or gaseous phase depending upon temperature and pressure. The liquid or gaseous phase of these hydrocarbons is measured from “Standard Temperature and Pressure” (STP) (15° Centigrade and 101.325 kPa, respectively). At higher pressure reservoir conditions, some hydrocarbons that would be gaseous at STP would be in liquid form or in solution.

²³⁵ [2004] 3 S.C.R. 3 (Can.), *aff’g* *Anderson v. Amoco Canada Oil and Gas*, [2002] 214 D.L.R. 272, *aff’g in part* *Anderson v. Amoco Canada Oil and Gas*, [1998] Alta. L.R. 669.

²³⁶ As explained *supra* note 234, this gas refers to hydrocarbons that would become gaseous at lower temperature and pressure.

and gas reservoir is produced, reservoir pressures usually decrease, causing some of the gas that was originally in a liquid phase to come out of solution with the oil and to migrate as gas into the gas cap.²³⁷ Thus, the volume of gas in the gas cap may increase as a reservoir is produced. Nevertheless, some of the gas in solution with oil is produced along with oil. Gas produced along with oil from an oil well and which may come out of solution at the wellhead is called "casinghead gas." Under *Borys*, because casinghead gas is in solution in the reservoir, it belongs to the petroleum owner.

At issue in *Anderson* is gas that comes out of solution and migrates into the gas cap. The *Anderson* courts called this gas "evolved gas."²³⁸ The petroleum owners claimed ownership of this evolved gas on the ground that it was gas under original reservoir conditions prior to human intervention (i.e., gas in solution).²³⁹ Furthermore, the gas owners claimed ownership of this evolved gas because once the gas comes out of solution and migrates into the gas cap, the gas is indistinguishable from original gas-cap gas and will be captured in the well bore as gas and not as gas in solution with oil.²⁴⁰ The *Anderson* courts agreed with and held for the petroleum owners.²⁴¹

Because the Supreme Court of Canada was considering an issue relating to property ownership, the Supreme Court of Canada couched its opinion as construing *Borys*. In other words, the Court decided or clarified what the Privy Council implicitly decided in *Borys*. Accordingly, the Court's opinion discusses *Borys* at length, including the lower appellate decision in *Borys*.²⁴² In essence, the Supreme Court of Canada construed *Borys* to hold that ownership of evolved gas was to be determined at natural reservoir conditions, prior to human intervention.²⁴³ Thus gas in solution at natural reservoir conditions belongs to the oil owner, including any gas that thereafter may come out of solution (i.e., "evolved gas") and migrate into the gas cap.

The end result is that the ownership of liquid and gaseous hydrocarbons must be determined based upon estimates of the volumes of each phase in a reservoir prior to human intervention. Necessarily, these estimates must be based upon information gathered at and during the course of recovery and must be based upon expert determinations. The Court offers no specific guidance as to how these estimates are to be made, but does express confidence in the ability of experts to make this determination.²⁴⁴

²³⁷ Gas may also be in solution with connate water. The Alberta Court of Appeal held that the petroleum owner did not own gas in solution with connate water. *Anderson*, [2002] D.L.R. ¶ 53. This issue was not appealed; however, the Supreme Court of Canada commented that it did not regard the court of appeal as having held that the gas owner owned this gas because, under Alberta law, the province of Alberta would own the ground water. Thus, ownership of gas in connate water was not finally determined. *Anderson*, [2004] S.C.R. ¶ 13.

²³⁸ *Anderson*, [2004] S.C.R. ¶ 9.

²³⁹ *Id.* ¶ 28.

²⁴⁰ *Id.* ¶ 27.

²⁴¹ *Id.* ¶ 44. In the interest of candor, Professor Anderson testified at trial at the request of the gas owners on phase severance case law in the United States.

²⁴² *Id.* ¶¶ 20–34.

²⁴³ *Id.* ¶ 34.

²⁴⁴ *Id.* ¶¶ 40–41.

In particular, the Court supported its opinion by quoting from the *Borys* opinion of Lord Porter of the Privy Council. Lord Porter described the task of the Privy Council as determining “purely as a matter of construction [of the reservation] . . . the meaning which the word “petroleum” bears when the substance referred to is *in situ* in a container below ground.”²⁴⁵ The Court, agreeing with the arguments of the petroleum owners, concluded that Lord Porter was referring to the phase of hydrocarbons *in situ* in a reservoir prior to human intervention.²⁴⁶

The gas owners attacked this reasoning by arguing that Canada did not adhere to the ownership-in-place (*in situ*) theory of ownership, but rather followed the non-ownership theory.²⁴⁷ In other words, in Canada, an oil and gas owner does not own the oil and gas in place in a reservoir, but rather owns the right to explore for, produce, and reduce oil and gas to actual possession. In addition, the gas owners argued that Canada adhered to the rule of capture. Thus, the gas owners argued that ownership of hydrocarbons should be determined by their phase, whether liquid or gas, at the time of capture in the well bore. Under this approach, the gas owners would be entitled to the evolved gas because it would be captured in the well bore as gas.

The Court approached these arguments about applying traditional ownership categories of property law to oil and gas with skepticism.²⁴⁸ The Court rejected the ownership theory argument by noting that the parties had contracted to divide their interest in the hydrocarbons on the basis of their state in the ground: “When the substance, which was not in their possession at the time of the contract, is reduced to possession, the date and terms of the contract govern their relative entitlement.”²⁴⁹

The Court concluded that the rule of capture was “a rule of non-liability between owners of separate tracts of land.”²⁵⁰ After explaining the operation of the rule at common law and commenting that the rule had been “subsumed” by conservation law,²⁵¹ the Court reasoned that “[i]f the rule were applied to defeat the original ownership division based on phase, it follows that all ownership based on phase could be defeated.”²⁵² The Court added that the rule of capture “does not apply to the division of ownership by phase as it does to divisions of ownership based upon surface land ownership”²⁵³ and that applying the rule of capture to parties who have divided their interest in a single tract “would defeat the purpose of the contract.”²⁵⁴ The Court then nonsensically explains:

²⁴⁵ *Id.* ¶ 32 (quoting Lord Porter in *Borys v. Canadian Pacific Railway*, [1953] 2 D.L.R. 65 (Alberta P.C.), *aff'g* [1952] 3 D.L.R. 218 (Alta. C.A.), *rev'g in part* [1951] 4 D.L.R. 427 (Alta T.D.)).

²⁴⁶ *Id.* ¶¶ 32–34.

²⁴⁷ *Id.* ¶¶ 35–39.

²⁴⁸ *Id.* ¶ 35.

²⁴⁹ *Id.* ¶ 36.

²⁵⁰ *Id.* ¶ 37.

²⁵¹ *Id.*

²⁵² *Id.* ¶ 38.

²⁵³ *Id.* ¶ 39.

²⁵⁴ *Id.*

This is because if it applied, the party who reduced the substance to possession by drilling the well and producing the hydrocarbons would be entitled to all of them, and the other party would have no claim. At the time the CPR sold the land to the settler they agreed to divide the property on certain terms. To hold that either party could later take the other's property with impunity would defeat the purpose of the reservation.²⁵⁵

The gas owners were not asking the Court to apply the rule of capture with this type of impunity. Rather, they argued that the entitlement to hydrocarbons should be determined based upon their phase, either liquid or gas, at the instant of capture in the well bore. This result, they argued, is what the parties most likely intended, or would have intended had they understood evolved gas in the early 1900s when they made their contract.

The Court's conclusions, which are purportedly based upon what the parties vernacularly intended in the early 1900s, presumed that the parties expected their entitlements to oil and gas to be determined based upon expert estimates of the liquid and gaseous hydrocarbons originally in place—prior to human intervention. This intention seems questionable at best and fanciful at worst. The gas owners had argued that such an approach would invite uncertainty,²⁵⁶ no doubt arising from the inevitable battle of experts regarding the amount of gas, if any, originally in place in the gas cap of a reservoir.

Given the limited state of knowledge of petroleum in the early 1900s, the gas owners' intent argument seems more plausible as well as more efficient and certain. However, the Court dismissed the gas owners' uncertainty argument by citing the trial court's conclusion that "the entire industry relies on [these] estimates . . . and these estimates have to suffice for dividing up ownership as well . . . [and] that modern estimation techniques are more advanced and more accurate . . ." ²⁵⁷ The Court acknowledged that these estimates will "for the foreseeable future . . . lack perfection" ²⁵⁸ and "will no doubt be the subject of some debate, [but] no system is flawless and a determination made at the time of recovery could be subject to manipulation by a dishonest producer." ²⁵⁹

Regarding this last concern, although not cited in the opinion, the Court may have had in mind the infamous "white oil" debacle in the Texas Panhandle. Texas oil owners in a phase-severance situation used wellhead refrigeration units so that gas in the reservoir was produced as a liquid at the wellhead, which they called "white oil." ²⁶⁰ While the Court may have had

²⁵⁵ *Id.*

²⁵⁶ *Id.* ¶ 40.

²⁵⁷ *Id.* ¶ 40.

²⁵⁸ *Id.* ¶ 40.

²⁵⁹ *Id.* ¶ 40.

²⁶⁰ *See, e.g.,* Colo. Interstate Gas Co. v. HUFO Oils, 802 F.2d 133, 141 (Tex. 1986) (holding that "white oil" produced in gas well was "natural gas" rather than "crude petroleum oil" for well classification purposes); Amarillo Oil Co. v. Energy-Agri Prods., Inc., 794 S.W.2d 20, 27 (Tex. 1990) (referring to precedential determinations that "white oil" does not count as oil for well classification purposes, citing *HUFO Oils v. R. R. Comm'n of Tex.*, 717 S.W.2d 405 (Tex. App. 1986)).

“white oil” in mind when evaluating the gas owners’ argument, the Court could not have known about the overstatement of oil reserves by Shell and other major producers that made headlines in late 2004. In any event, the parties to the original phase-severance contracts in the early 1900s most certainly could not have known or assumed that their ownership rights would be determined on the basis of estimates of oil and gas originally in place prior to human intervention. Given the limits in the sciences of oil and gas geology and engineering, this idea would likely have been considered preposterous, especially among railroad land agents and pioneer settlers.

Vernacularly speaking, which is how the Court construed the reservation of petroleum in *Borys*, the parties most probably would not have understood that the phase of hydrocarbons in a reservoir depended upon reservoir temperature and pressure. While they *might* have regarded “petroleum” as liquid oil, they may not have considered gas at all since gas had little value at that time without a nearby use or market,²⁶¹ and it was otherwise generally considered a nuisance by-product of oil production. Thus, our criticism of *Anderson* could have been answered by a holding in *Borys* that would have determined that the parties intended “petroleum” to be both oil and gas.²⁶²

There is also nothing certain about the Court’s decision in *Anderson*. Indeed, although the issue was *when* to determine evolved gas entitlement, the Court does not expressly state *when* to make the oil and gas reserve estimates. Implicitly, the Court’s quote from the trial court mentions “modern estimation techniques.”²⁶³ This implies that estimates of the state of a reservoir prior to human intervention should not only be based on modern techniques, but may be revised from time to time as modern estimation techniques evolve. Nevertheless, does an expert determination confirmed by a court become *res judicata* for the subject reservoir, no matter how erroneous it may turn out to be, even when future and more reliable estimation techniques show otherwise?

While reasonable minds can differ on the proper approach, we believe the Court’s decision is inefficient, less certain, and less likely to reflect what the parties vernacularly intended in the early 1900s. To be sure, the parties probably did not contemplate that petroleum would be limited to hydrocarbons in liquid phase. However, even if they had intended to split ownership based upon phase, we think that they would have done so on the basis of the phase of the hydrocarbons in the reservoir as the Court opines,

²⁶¹ Regional and national markets for gas first developed in the late 1920s, following development of seamless pipe, which allowed gas to be transported long distances under high pressure. INSTITUTE OF GAS TECHNOLOGY, NATURAL GAS IN NONTECHNICAL LANGUAGE 11 (Rebecca L. Busby ed., 1999).

²⁶² See, e.g., *Natural Gas and Oil Corp. v. Hamby*, No. CA 80-27, 1981 WL 6185, at *4 (Ohio Ct. App. Mar. 20, 1981) (construing the term “petroleum” in a 1919 right-of-way instrument and concluding “[t]he term ‘petroleum’ shall be given a reasonable, nonrestrictive interpretation We conclude as a matter of law that natural gas is a natural derivative of petroleum and is included within the reasonable expectations of the parties to the 1919 right-of-way”).

Apparently the parties to this 1919 Ohio right-of-way instrument had a significantly different vernacular intent than the parties had regarding the 1904–07 Alberta deeds!

²⁶³ *Anderson*, [2004] S.C.R. ¶ 40.

but we further submit that the parties would have assumed that the phase in the reservoir would be determined by the phase *when* they entered the well bore. Why? Because the parties most likely would have assumed in the vernacular, albeit incorrectly, that oil is oil and gas is gas, whether in the reservoir, in the well bore, or at the surface.

Although the *Anderson* court purports to base its decision on vernacular meanings and intent like the *Borys* court, in reality the *Anderson* court mixes the vernacular with the scientific. The result is a strange marriage of early 1900s vernacular and contemporary science. Under *Anderson*, the parties vernacularly intended to define “petroleum” as encompassing liquid hydrocarbons, including gas in solution prior to human intervention, but further intended that the volumes of any gas in solution be based upon evolving modern scientific estimation techniques. Would it not be more likely that the parties had in mind early 1900s vernacular in total? If the gas entitlements are to be based upon the parties’ vernacular intent as of the early 1900s, should not the techniques of that time period be used to make the estimates? At that time, the sciences of oil and gas geology and engineering were in their infancy and were often overshadowed by other “experts,” including oil witchers, clairvoyants, and fortune tellers who advised wildcatters about where to drill. It seems improbable that the parties had any modern estimation techniques in mind.

Moreover, oil and gas lessees that made such estimates were likely to be influenced by the fact that, in many of the leases taken from the railroads, the lessees promised to pay royalties on all production to the oil owner, regardless of the classification or ownership of the hydrocarbons. This makes it more unlikely that developing lessees, who were best able to estimate the volume of gas in the gas cap, would make these estimates on a scientifically objective basis, as gas cap gas would subject them to double royalties.

The court in *Anderson* accepted this scientific approach without seeming to realize the folly of estimating gas cap gas for every affected title for every reservoir, whether previously or subsequently discovered, regarding all strata beneath each railroad tract subject to this type of phase severance. The intimation is that this issue can be revisited from time to time to more accurately determine ownership rights. This seeming uncertainty is implicitly justified on the ground that determining ownership by application of the rule of capture would be unworkable and subject to manipulation. How so? Determining entitlements at the time of capture seems more workable and less subject to undiscoverable manipulation than do expert estimates of the state and volume of hydrocarbons in the ground prior to human intervention. Moreover, property law often determines ownership based upon events other than purely voluntary transfers. Consider the law of fixtures, commingling, accessions, abandonment, adverse possession, accretion, erosion, reliction, and increase. Also, consider avulsion under civil law. Using the law of capture to determine ownership in *Anderson* would be no less certain and no less unfair than these other property law doctrines—especially if that was what the parties, dealing in the vernacular, would likely have intended.

A case that stands in stark contrast with *Anderson* is *NCNB Texas National Bank v. West (NCNB)*²⁶⁴—a case not cited by the *Anderson* Court. In this case, the Alabama Supreme Court held that ownership of coalbed methane gas was to be determined by the rule of capture. Cases dealing with the ownership of coalbed methane have most commonly arisen where coal has been severed from the surface and from the rest of the mineral interest by reservation or conveyance.²⁶⁵ Although coal often contains methane reserves, methane was historically regarded as a nuisance and safety hazard. Prior to actual coal mining, the methane embedded in the coal was often vented so that coal mining could safely proceed. Gradually, however, coalbed methane came to be considered a valuable by-product of coal mining and today is often the principle objective. Thus, since the 1970s, several courts have had to determine the ownership of coalbed methane gas.

The earliest decisions, emanating from the eastern United States, held that coalbed methane gas, which is embedded in coal, was implicitly and necessarily owned by the coal owner.²⁶⁶ More recently, courts in the Western United States, and the United States Supreme Court in a case involving Indian owned coal, have decided that coalbed methane is owned by the oil and gas owner.²⁶⁷

The trial court in *NCNB* construed conveyances of “all coal and mining rights” that expressly reserved “all of the oil, gas, petroleum, and sulphur.”²⁶⁸ In ruling for the coal owners, the trial court held that the reservation of all gas did not include coalbed methane gas. In reversing, the Supreme Court of Alabama found, based upon the “plain language of the deed”²⁶⁹ that coalbed methane gas was included in the express reservation of “all” gas.²⁷⁰ Nevertheless, the court determined that the ultimate ownership of coalbed methane gas should be determined on the basis of its location at the time of capture.²⁷¹ The court reasoned that if coalbed methane gas is captured directly from the coal seam itself, the coal owner is entitled to the gas; however, if the coalbed methane gas migrates out of the coal and into the

²⁶⁴ 631 So. 2d 212 (Ala. 1993).

²⁶⁵ For other cases dealing with the issue of who owns the coalbed methane based on deeds that do not specifically mention that term, see *Amoco Production Co. v. Southern Ute Indian Tribe*, 526 U.S. 865 (1999); *United States Steel Corp. v. Hoge*, 468 A.2d 1380 (Pa. 1983); *Vines v. McKenzie Methane Corp.*, 619 So. 2d 1305 (Ala. 1993); *Caballo Coal Co. v. Fidelity Exploration & Production Co.*, 84 P.3d 311 (Wyo. 2004); *Hickman v. Groves*, 71 P.3d 256 (Wyo. 2003); *McGee v. Caballo Coal Co.*, 69 P.3d 908 (Wyo. 2003); *Newman v. RAG Wyoming Land Co.*, 53 P.3d 540 (Wyo. 2002); *Rayburn v. USX Corp.*, No. 85-G-2261-W, 1987 U.S. Dist. LEXIS (N.D. Ala. July 28, 1987), *aff'd* 844 F.2d 796 (11th Cir. 1988); *Carbon County v. Union Reserve Coal Co.*, 898 P.2d 680 (Mont. 1995); *Harrison-Wyatt, LLC v. Ratliff*, 593 S.E.2d 234 (Va. 2002); and *Energy Development Corp. v. Moss*, 591 S.E.2d 135 (W. Va. 2003).

²⁶⁶ See, e.g., *United States Steel Corp. v. Hoge*, 468 A.2d 1380, 1383 (Pa. 1983) (“[S]uch gas as is present in coal must necessarily belong to the owner of the coal, so long as it remains within his property and subject to his exclusive dominion and control.”).

²⁶⁷ See *supra* text accompanying note 265.

²⁶⁸ *NCNB*, 631 So. 2d at 216.

²⁶⁹ *Id.* at 222.

²⁷⁰ *Id.* at 222–23.

²⁷¹ *Id.*

gob of a coal mine²⁷² or into non-coal strata, the gas owner is entitled to the gas.²⁷³ In coalbed methane operations, methane may be captured directly from the coal seam by completing wells, including horizontal wells, into the coal seam, by wells drilled into the gob of a mine, and by wells drilled into strata overlying the coal seam or gob.²⁷⁴ Out of concern that coalbed methane gas and natural gas may become commingled, gas entitlements under the court's decision depend upon the location from which gas is captured.

Although the court does not draw this analogy, the decision seems comparable to the following: *O*, the fee simple owner of Blackacre, conveys the west half to *X* in fee simple. *X* then drills a well on the west half, which produces oil and gas, some of which is drained from beneath the east half. Due to this vertical division of Blackacre into halves, the oil and gas produced from *X*'s west half is solely *X*'s personal property under the rule of capture. Based upon the court's decision in *NCNB*, the parties horizontally divided Blackacre into coal strata and non-coal strata.

Recognizing the practical necessity of coal owners to be able to produce gas from their coal seams, the gas produced and captured directly from the coal seam could be claimed by the coal owner, just as casinghead gas could be claimed by the oil owners under *Borys*. However, once the coal strata disappeared through mining, no gas could be produced directly from the coal, and any gas that migrated out of the coal into other strata or into the gob could also no longer be produced and captured from the coal strata. Under *NCNB*, the gas owner would have the exclusive right to capture migrated gas, which may, in some cases, commingle with and become indistinguishable from natural gas. Thus, the rule of capture operates in the case of a horizontal division in much the same way as it operates in a vertical division. A similar decision could have been reached in *Anderson*, in which case any gas captured with the production of oil (i.e., casinghead gas) could be claimed by the oil owner; however, once the gas has migrated out of the oil into the gas cap (akin to the gob and overlying strata), the gas owners could claim that gas. Thus, entitlements to evolved gas would be determined at both the time and place of capture.

Regarding coalbed methane gas, the court in *NCNB* essentially adopted what the Supreme Court of Canada rejected in *Anderson* regarding solution gas. In *Anderson*, the gas owners argued that once solution gas, which was part of the oil owner's entitlement under *Borys*, came out of solution and migrated into the gas cap where it would be indistinguishable from any original gas cap gas (just as coalbed methane gas that has migrated out of

²⁷² The gob of a coal mine is what is left of what was once a seam of coal after the coal has been extracted by a longwall mining process. A longwall mining process leaves no vacant "rooms" or "pillars" after mining. Rather the overlying strata is allowed to collapse into the void left by mining the coal. Gas not directly captured from the coal seam often migrates into the gob and into the overlying strata and into fractures created when the overlying strata collapses into the gob. *Id.* at 215.

²⁷³ *Id.* at 229.

²⁷⁴ *Id.* at 215-16.

coal is indistinguishable from other methane), the gas owner should then be entitled to the gas since it would be captured in the well bore as gas.

Indeed, there are scientific distinctions between gas in solution with oil and coalbed methane gas. Coalbed methane gas is not in solution with the coal. Rather, the coal serves as a reservoir to hold the methane, which is a by-product of the process by which peat becomes coal.²⁷⁵ Nevertheless, if one assumes that parties to the deeds in both *NCNB* and *Anderson* intended to deal in the vernacular, these scientific distinctions do not seem significant or important. Moreover, the capture rule would appear to be more in line with what the parties would likely have intended in the early 1900s.

V. CONCLUSION

The rule of capture developed in oil and gas law by analogy: The movement of oil and gas beneath the surface of the earth was unpredictable and thus analogous to the unpredictability of wild animals that were constantly on the move and did not honor property boundaries.²⁷⁶ Thus, the analogy to the basic law of wild animals, as set forth in *Pierson v. Post*²⁷⁷ and its progeny, seemed logical and appropriate. Although undisturbed oil and gas move great distances only over geologic time, it certainly is true that oil and gas do not honor property boundaries. Moreover, since the underlying public policy objective in *Pierson* was the elimination of fox, described by both parties as a “wild and noxious beast,”²⁷⁸ perhaps the rule of capture is even more appropriate in the oil and gas context given that oil and gas reserves must be captured and ultimately exhausted to be of real value.

Of course, one important distinction, not overtly recognized in the earliest of oil and gas capture cases, is that, unlike a wild animal, oil and gas are inanimate. This distinction may help explain the polar views of oil and gas ownership in the ground. By full analogy to wild animals, the non-ownership theory—that no one may own oil and gas naturally in place, but only a right to capture it—is readily understandable. On the other hand, the inanimate nature of oil and gas may explain why some courts determined that a landowner owns the oil and gas in place beneath her land, but her

²⁷⁵ Jeff L. Lewin, *Unlocking the Fire: A Proposal for Judicial or Legislative Determination of the Ownership of Coalbed Methane*, 94 W. VA. L. REV. 563, 566–67, 572 (1992).

²⁷⁶ See, e.g., *State v. Ohio Oil Co.*, 49 N.E. 809, 812 (Ind. 1898). In *Ohio Oil*, the court stated:

To say that the title to natural gas vests in the owner of the land in or under which it exists to-day, and that to-morrow, having passed into or under the land of an adjoining owner, it thereby becomes his property, is no less absurd, and contrary to all the analogies of the law, than to say that wild animals or fowls, in “their fugitive and wandering existence,” in passing over the land, become the property of the owner of such land, or that fish, in their passage up or down a stream of water, become the property of each successive owner over whose land the stream passes. It is as unreasonable and untenable as to say that the air and the sunshine which float over the owner’s land is a part of the land, and is the property of the owner of the land.

Id.

²⁷⁷ *Pierson v. Post*, 3 Cai. 175 (N.Y. Sup. Ct. 1805) (holding that wild animals are the subject of property when mortally wounded or entrapped so as to be deprived of their natural liberty).

²⁷⁸ *Id.* at 180.

ownership is nevertheless subject to the rule of capture. This latter ownership-in-place rule is more analogous with the absolute ownership doctrine familiar in water law.

In any event, the applicable ownership theory has little, if any, direct effect on the rule of capture. One possible effect relates to the measure of damages theoretically available for breach of the implied covenant to protect against drainage—a covenant that burdens oil and gas lessees to protect the lessor's property from drainage. Generally, the measure of damages for breach of the drainage covenant is based upon the amount of oil or gas that a properly and timely drilled offset well would produce.²⁷⁹ Alternatively, the measure of damages may be based upon the amount of drainage that the draining well has caused.²⁸⁰ This latter measure implicitly recognizes that an offset well's ability to prevent drainage depends upon reservoir energy and upon the well's location relative to the geology of the reservoir. For example, a well drilled on a tract located above the lowest portion of a geologic structure, such as a water-drive reservoir produced from an anticline, cannot prevent drainage up the structure and thus cannot produce all of the oil physically located beneath that tract. Inevitably, some oil will migrate toward neighboring lands up the geologic structure. Likewise, a well drilled on a tract located at the top of an anticline-structure will likely drain more oil than is originally in place beneath that tract.

Thus, the latter measure is not necessarily less favorable to the lessor. The former measure seems consistent with the ownership theory, while the latter measure seems consistent with the non-ownership theory. Unfortunately, this consistency does not hold true in the case law. For example, Oklahoma, a non-ownership jurisdiction, measures drainage damages as the amount of oil that a timely drilled offset well would produce,²⁸¹ while Pennsylvania, an ownership-in-place jurisdiction, has some case law that appears to measure damages on the amount of drainage.²⁸²

Regarding the suitability of the rule of capture to oil and gas, one might argue that the one-stock rule—providing that profits in gross had to be exploited as a common venture²⁸³—would have better conserved our oil and

²⁷⁹ See, e.g., *Sinclair Oil and Gas Co. v. Bishop*, 441 P.2d 436, 447 (Okla. 1967) (“Lessor’s loss at most can be calculated by determining the oil allowable of this well during the period when the lessee determined to shut the well in as a gas well until the time the well was connected to a pipeline; lessor’s loss would be his pro rata royalty interest in that amount.”).

²⁸⁰ See, e.g., *Kleppner v. Lemon*, 48 A. 483, 483 (Pa. 1901) (measuring damages by determining the market value of oil taken from the land).

²⁸¹ *Sinclair Oil and Gas Co. v. Bishop*, 441 P.2d 436, 447 (Okla. 1967).

²⁸² *Kleppner v. Lemon*, 48 A. 483, 483 (Pa. 1901).

²⁸³ See, e.g., *Mountjoy’s Case*, (1583) 78 Eng. Rep. 11 (C.P.) (where two parties are mining the same interest, the parties “could not work severally, but together with one stock, or such workmen as belonged to them both”); see also *Stanton v. T. L. Herbert & Sons*, 211 S.W. 353, 355 (Tenn. 1919) (holding covenant to remove minerals is not divisible); *Harlow v. Lake Superior Iron Co.*, 36 Mich. 105, 110 (1877) (grantor of rights to take minerals from land also retains right to remove minerals). The one-stock rule has been rejected in the context of oil and gas operations—even in states that classify an oil and gas interest as a profit. See, e.g., *Hinds v. Phillips Petroleum Co.*, 591 P.2d 697, 699–700 (Okla. 1979) (right to use of surface and ownership of subterranean gas are separately alienable); *Chandler v. Hart*, 119 P. 516, 520–22 (Okla. 1911) (rejecting outcome in *Mountjoy’s Case*).

gas resources²⁸⁴ or argue, by analogy to the minority view on cotenancy, that development by fewer than all owners of a common reservoir constitutes waste.²⁸⁵ In this context, if conservation means that far less oil and gas resources would have been developed,²⁸⁶ then this is most certainly true.

While a one-stock rule or a waste rule or both would have discouraged the fractionalization of mineral rights, it would also have made the exploitation of a common reservoir much more difficult due to “hold outs” and strategic bargaining.²⁸⁷ The result most likely would have been continued hunting and early extinction of whales for their oil and conservation in place of many of our oil resources. In hindsight, this hardly seems to be a desirable outcome. Moreover, without knowing the geographic and geologic limits of a reservoir, something that could not have been ascertained in the 19th and early 20th centuries, the one-stock rule could not have been implemented because ownership interests would not be determinable until the common reservoir had been fully outlined through drilling, and drilling could not occur without all owners acting as one stock. Thus, by comparison, the rule of capture is more workable.

The rule of capture remains important to efficient conservation law because, without it, conservation regulations would be much more complicated, more time consuming, and more costly to administer, as evidenced by the *Cafilisch* case, discussed above.²⁸⁸ In particular, without the rule of capture modern well spacing, compulsory pooling, and even unitization would not work as efficiently as they do today. Modern well spacing is based upon two important fictions and what might be called a “ballpark” doctrine. The fictions are radial drainage and homogeneous reservoirs, and the ballpark doctrine is compensatory drainage.

Well spacing is based upon the area that theoretically may be efficiently and effectively drained by one well. In modern practice, well spacing units of

²⁸⁴ In criticizing the rule of capture and the various oil and gas ownership theories, the late Professor W. L. Summers offered this comment:

Eventually, perhaps, all courts will recognize that the landowner's legal interest in oil and gas in a common source of supply is determined on the basis of the physical and economic facts of these substances, different as they are from any other, and consists of rights that others not take them by trespass on his land, privileges to take by lawful operations on his land but limited by duties to the public not to waste, by duties to other landowners not to injure or destroy the source of supply and not to take an undue proportion or more than his just and equitable share. When this stage of development of the law of oil and gas has been reached, such terms as absolute ownership, qualified ownership, and the rule of capture should disappear from the language of the judicial decisions involving the landowner's legal interest in oil and gas.

1 W. L. SUMMERS, *THE LAW OF OIL AND GAS* § 63, at 190–91 (1954).

²⁸⁵ See, e.g., *Law v. Heck*, 145 S.E. 601, 601–02 (W. Va. 1928) (enjoining co-tenant's attempt to lease mineral estate without agreement of fellow co-tenants, as this would constitute waste).

²⁸⁶ Generally, “conservation” of oil and gas does not mean preservation, but rather refers to the maximum recovery of oil and gas without economic waste (i.e., the unnecessary expenditure of funds).

²⁸⁷ These difficulties are illustrated in the co-tenancy oil and gas context by *Law*, 145 S.E. at 601–02, where the holder of a 1/768th interest enjoined development because he wanted to be compensated for his interest in an amount that far exceeded its value.

²⁸⁸ See *supra* Part III.C.

generally uniform size and shape (usually squares or rectangles) are justified on the presumption that all reservoirs are homogeneous—that is, reservoirs are geologically and hydraulically similar from end to end and from top to bottom. From this presumption arises a further presumption of radial drainage—that all wells producing from a common reservoir will drain the reservoir in a radial manner.

Based upon these two presumptions, the compensatory-drainage doctrine holds that, if wells are simultaneously drilled and similarly produced, any drainage that occurs as a result of drilling units being square or rectangular will be offset by compensating drainage to and from wells across the whole of the reservoir. Thus, correlative rights will be protected—each well will recover a fair share of hydrocarbons in the reservoir even though the wells will not drain the exact acreage attributed to the well by the well spacing order. In essence, under the compensatory-drainage doctrine, “it all comes out in the wash.”

Because reservoirs are generally heterogeneous, not homogeneous, the first presumption is a fiction, which means that the second presumption is also a fiction. Due to geologic and hydraulic variations in a reservoir, wells do not generally drain in a radial manner.²⁸⁹ Together, these facts also mean that the compensatory-drainage doctrine is folly. Thus, well spacing and associated compulsory pooling of small tracts within a spacing unit, as well as production limits frequently placed on off-pattern exception wells, do not assure the recovery of a true fair share. However, owing to more efficient use of reservoir energy (the force that allows recovery of hydrocarbons) resulting from well spacing and pooling regulations, these deficiencies are more than offset by a greater ultimate recovery of hydrocarbons from the reservoir.

Moreover, these fictions and this inaccurate doctrine retain merit in making ballpark estimates of what occurs in the development of a reservoir. Perhaps a more appropriate statement is that these fictions and doctrine “are close enough for government work”—especially given the generally accepted fact that properly administered spacing and pooling regulations increase ultimate recovery for all. Thus, the objective of oil and gas conservation practices is not the perfect protection of correlative rights. Rather conservation practice is fundamentally utilitarian—to achieve the greatest good for the greatest number.

The rule of capture compensates for the deficiencies inherent in modern well spacing and pooling practices, the problem of relying on the fictions of homogeneous reservoirs and radial drainage, and the inaccuracies in compensatory-drainage doctrine. A fundamental principle of oil and gas conservation laws is that the rule of capture continues to govern production to the extent that the rule has not been modified by conservation law. This

²⁸⁹ Christopher Stewart Kulander, *Geologic Evolution and Structural Controls on Hydrocarbon Flow in the Ship Shoal Block 274/293 Field, Offshore Louisiana, Gulf of Mexico* 60, 63–64 (1997) (unpublished Ph.D. dissertation, Texas A&M) (on file with the Texas A&M Library). For an example of a case presuming radial drainage absent contrary evidence, see *Amoco Production Co. v. North Dakota Industrial Commission*, 307 N.W.2d 839, 847–48 (N.D. 1981).

fundamental principle recognizes the imperfections in conservation practices mentioned above. In fact, conservation law is far from perfect—both in terms of preventing waste and protecting correlative rights.

Whenever conservation law and practice are unable to fully protect correlative rights, in situations other than the correction of obvious and easily correctable mistakes through the exercise of a conservation agency's continuing jurisdiction, the rule of capture provides the answer. In other words, the rule of capture applies because reservoirs are not homogeneous, wells fail to drain radially, the compensatory-drainage doctrine fails to operate in practice as it does in theory, and compulsory pooling, which most commonly allocates production on an acreage basis, fails to give each interest owner a perfect share.

Thus, the rule of capture continues to protect correlative rights—albeit imperfectly—much as it did at common law. However, the imperfections today are not as great because the conservation regulation has diminished the rule's propensity to cause waste—in particular, the rule's propensity to allow and actually encourage the inefficient dissipation of reservoir energy resulting in otherwise recoverable hydrocarbons remaining trapped in the reservoir. It is the diminishing of this waste, which provides for a greater ultimate recovery of hydrocarbons for all owners, that justifies conservation law's limits on the rule of capture.

When unfettered by conservation law, the self-help rule of capture was quite effective in protecting correlative rights; however, it came at the price of waste—a problem that was unknown to the jurists that first applied the rule of capture to oil and gas. Conservation law addresses both waste and correlative rights, but its primary objective is the prevention of waste. While it addresses both of these objectives imperfectly, the lack of perfect information about a reservoir, coupled with the reality that obtaining more perfect information would cause economic waste, the rule of capture backstops this imperfection.

Without this backstop, conservation agencies and those operators appearing before them would have to spend much more time, money, and resources to more perfectly protect correlative rights. Even if this were required, perfection is not achievable. Conservation practice is, or at least should be, more science than art, but it is science that is necessarily based upon imperfect information. The rule of capture answers the problem of imperfect information—whether it be a lack of information about the subsurface or a lack of information about which hunter was more entitled to claim the fox—in the same way that it has always answered the lack of information.

In conclusion, the rule of capture in oil and gas law is alive and well, albeit significantly limited by modern conservation law. It is far from being on life support and is neither hospitalized nor in a nursing home. One might describe it as enjoying mature middle age with the occasional mid-life crisis. The mid-life crisis description is a useful metaphor to indicate that modern courts sometimes misapply the rule and occasionally ignore it in circumstances where it might be useful. Nevertheless, the rule of capture remains a central precept of modern oil and gas law, and the rule is

particularly important to the efficient application of conservation laws—the very laws that served to gradually reign in the rule during the past seventy or more years.

Our defense of the rule of capture and our favorable commentary on modern oil and gas conservation law is not intended to be zealous. However, we are comfortable with the rule as applied to oil and gas law. The rule of capture has served the hydrocarbon generations better than it has hunting and fishing generations. Indeed, the rule of capture, while serving to bring whales to near extinction, also saved them from certain extinction because lamp oil made from petroleum turned out to be a cheaper source of light than lamp oil made from whale oil.

To this extent then, the rule has been both a solution and a problem. Nevertheless, there is always room for improvement. One of the authors of this essay has previously argued,²⁹⁰ and the other author agrees, that modern oil and gas conservation law that depends so heavily on spacing and pooling should be supplanted by the early unitization of oil and gas reservoirs. If this were done, oil and gas recovery would be more efficient and the need for and importance of the rule of capture would be even more greatly diminished.

²⁹⁰ Owen L. Anderson & Ernest E. Smith, *The Use of Law to Promote Domestic Exploration & Production*, 50 INST. ON OIL & GAS L. AND TAX'N 2-1 (1999), reprinted in two installments in 18(3) INST. OF PETROLEUM ACCOUNTING 1 (1999) and 19(1) INST. OF PETROLEUM ACCOUNTING 67 (2000).