Title:	**IMPLIED COVENANT LAW AND HORIZONTAL DEVELOPMENT**
Date:	**November 9, 2012**
Location:	**Westminster, Colorado**
Program:	**Special Institute on Horizontal Oil & Gas Development**
Sponsor:	**Rocky Mountain Mineral Law Foundation**
Duration:	**One Hour**

IMPLIED COVENANT LAW AND HORIZONTAL DEVELOPMENT

By

David E. Pierce
Washburn University School of Law
Topeka, KS

Paper 7

Implied Covenant Law and Horizontal Development

by

David E. Pierce

"[B]ecause of the complexity of the oil and gas industry, and changes in technology, the courts cannot list each obligation of a reasonably prudent operator which may arise."

The views expressed in this paper are solely those of the author (or authors).
Please cite as: Pierce, David E., "Implied Covenant Law and Horizontal Development," *Horizontal Oil & Gas Development*, Paper No. 7, Page No. ___ (Rocky Mt. Min. L. Fdn. 2012).

[This page was left blank intentionally]

Implied Covenant Law and Horizontal Development

by

David E. Pierce

> "[B]ecause of the complexity of the oil and gas industry, and changes in technology, the courts cannot list each obligation of a reasonably prudent operator which may arise."[1]

I. Introduction

Horizontal development technology and techniques are being used successfully to extract oil and gas from rock structures previously thought to be of no economic value. As with anything new, once something is proven to work, there will be varying degrees and rates of acceptance by industry participants. Within the oil and gas reservoir, the rate at which production-enhancing technology and techniques are employed can have a direct economic impact on parties owning the oil and gas.[2] This impact is a product of the rule of capture and the ability of oil and gas to migrate, within the reservoir, toward areas of lower pressure created by connection to a wellbore. Horizontal drilling and hydraulic fracturing act in concert to maximize these reservoir/wellbore connections. The better the connection, the more likely the formation will give up the oil and gas it contains.

The law is devoid of a legal mechanism that allows competing tracts overlying an oil and gas reservoir to "catch up." Oil and gas jurisprudence has never accepted a concept of correlative rights that requires the equitable apportionment of reservoir contents among reservoir owners. Instead, an owner's correlative rights consist of the "opportunity" to develop its portion of the reservoir.[3] Owners that fail to fully exercise

[1] Amoco Prod. Co. v. Alexander, 622 S.W.2d 563, 568 (Tex. 1981), *quoted in* Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 18 n.57 (Tex. 2008).

[2] This would include owners of unleased oil and gas mineral interests, lessors, lessees, those holding rights carved from the leasehold interest, such as overriding royalty owners, and those holding rights carved from the mineral interest, such as a nonparticipating royalty interest owner. *See generally* 5 EUGENE KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS § 55.3 (1991) (addressing the application of oil and gas lease implied covenant analysis to other oil and gas development and revenue sharing relationships).

[3] 1 BRUCE M. KRAMER & PATRICK H. MARTIN, THE LAW OF POOLING AND UNITIZATION 5-6 (3d ed. 2010). Professors Kramer and Martin observe:

> Having correlative rights in a common source of supply does not mean that each owner is guaranteed to recover a proportionate share of the oil or gas in the reservoir, but only that each owner shall be afforded the

their opportunity, or that are slow in exercising their opportunity, will lose out to the more diligent reservoir owners. These physical and legal facts, along with the lessor's desire to maximize royalty income, form the foundation of implied covenant law.

This article examines the role of "implied covenant law" when a formation is being developed, or is susceptible to being developed, using horizontal drilling and hydraulic fracturing. The label "implied covenant law" is used to describe the body of case law where courts have found an implied obligation that necessarily compliments, and supplements, the express terms of an oil and gas lease. Commentators have tended to treat implied covenants as a given adjunct to the express terms of the oil and gas lease.[4] They have developed theories of "cooperation"[5] and "relational contract"[6] that tend to obscure the true function and proper role of the implied covenant. Implied covenants are more accurately described as interpretive tools to be applied, when necessary, to ascertain and give effect to the intent of the parties by supplying an omitted term they would have provided had they chose to address the matter.[7] The existing body of implied covenant law is a collection of factual situations where courts were seeking, or at least purporting to seek, to give effect to the terms of the parties' oil and gas lease. The ultimate goal is to ascertain the parties' intent.

> opportunity to produce or to share in production on a reasonable and fair basis. The point bears repeating for emphasis: The correlative right is having the *opportunity* to produce, not having a guaranteed share of production.

Id.

[4] As Professor Kuntz notes in his treatise: "There has been a natural tendency to identify the lessee's duties as implied covenants to perform the various readily identifiable phases of a lessee's operations in the process of exploiting the mineral interest." 5 EUGENE KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS 16 (1991).

[5] Professors Williams and Meyers rely upon what they describe as "the contract principle of cooperation" as the foundational basis for implied covenants. 5 PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS & MEYERS OIL AND GAS LAW 8-9 (2011).

[6] Professor Kuntz relies upon "the familiar common law concept of relation" and observes: "The unexpressed rights and duties of the parties to the lease are truly relational and not contractual." 5EUGENE KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS 5 (1991).

[7] David E. Pierce, *Exploring the Jurisprudential Underpinnings of the Implied Covenant to Market*, 48 ROCKY MTN. MIN. L. INST. 10-1, 10-2 (2002) ("Courts use implied covenants as interpretive tools to complete an otherwise incomplete contract. As with any interpretive tool, the goal is to give effect to the intent of the contracting parties.").

II. What Did the Parties Intend?

Courts imply covenants to fill in the details of what the parties left unsaid in the oil and gas lease. When a lease is silent regarding the timing, extent, and nature of development, the court must extrapolate, from the parties' express agreements, what they intended regarding development. The issue is purely contractual. If the parties have expressed their intent in the oil and gas lease, that intent will govern. If the parties chose not to address the matter, or failed to address it adequately, their presumed intent will be gleaned from the terms of the contract and their general purpose and goals for entering into the contract. The test is would a reasonable person expressly agreeing to terms *a*, *b*, and *c*, logically have intended to include term *d* as well. If so, then term *d* will be implied as part of the contract the parties intended to create. If not, then the contract will be interpreted and applied without term *d*.[8]

Under this analysis, contracts are supplemented only with implied terms that are consistent with the parties' contractual purpose and intent. The goal of the judiciary in some cases, however, has not been to ascertain and give effect to the parties' contractual purpose and intent. Usually these cases look more like an exercise in re-interpretation to achieve a desired result. The cases that suffer the most from this aberrant judicial policy-making are the royalty calculation cases purporting to apply an implied covenant to market.[9]

Once it is determined a covenant should be implied, the next step is to define and apply the standard used to evaluate the lessee's actions or failure to act. The lessee's conduct will be measured by the prudent operator standard.[10]

III. Is My Lessee a Prudent Operator?

The *Williams & Meyers* treatise likens the prudent operator to the "reasonable man" of tort law: "The prudent operator is a reasonable man engaged in oil and gas operations."[11] The standard, in the vast majority of producing jurisdictions, is objective.[12]

[8] *Id.* at 10-6 ("The process is not pursued to improve the position of one party at the expense of the other; the process is pursued to define the bargain, not pass judgment on its fairness.").

[9] *See generally* David E. Pierce, *Royalty Jurisprudence: A Tale of Two States*, 49 WASHBURN L. J. 347 (2010).

[10] 5 PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS & MEYERS OIL AND GAS LAW 34 (2011) ("The great majority of oil and gas producing jurisdictions apply the prudent-operator standard in testing performance of implied covenants by lessees.").

[11] *Id.* at 39.

The prudent operator is a hypothetical operator, not the real operator. The real operator may be short on cash. The real operator may have other obligations, under other leases, that demand more immediate attention. The real operator may want to spend its money developing oil prospects instead of further developing the lessor's lease, which is producing dry gas.[13]

An area not fully explored by courts to date is whether a real operator's unique capabilities can increase its obligations under the prudent operator standard. Although it is clear a real operator's individual limitations cannot lower the bar of the hypothetical prudent operator,[14] can a real operator's unique capabilities raise the bar?[15] Put another way, will Shell Oil Company be held to the same standard as Mom & Pop Oil Company? The implied covenant cases and commentary rightly assume the answer is "yes." There is

[12] Whether using a subjective or objective analysis, all jurisdictions view the prudent operator standard as being a contract standard as opposed to a tort standard. *See generally*, T.W. Phillips Gas and Oil Co. v. Jedlicka, 43 A.3d 261, 269 (Pa. 2012) (discussing implied covenant cases and the subjective vs. objective analyses in deciding how to address the "paying quantities" issue under the lease habendum clause).

[13] The objective nature of the standard is further explained in the *Williams & Meyers* treatise where it is stated:

> He [the prudent operator] is a hypothetical oil operator who does what he ought to do not what he ought not to do with respect to operations on the leasehold. Since the standard of conduct is objective, a defendant cannot justify his act or omission on personal grounds or by reference to his peculiar circumstances. It is no excuse that defendant failed to drill the offset well a prudent operator would have drilled because the defendant is short of cash, over-committed on drilling programs, has no need for more production, or prefers to spend his money on other things. In short, the question is not what was . . . proper for *this* defendant to do, given his peculiar circumstances, but what a hypothetical operator acting reasonably would have done, given circumstances generally obtained in the locality.

5 PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS & MEYERS OIL AND GAS LAW 39-40 (2011).

[14] Amoco Prod. Co. v. Alexander, 622 S.W.2d 563, 570 (Tex. 1981) ("Amoco owed the Alexanders the duty to do whatever a reasonably prudent operator would do if the Alexanders were its only lessor in the field."); Smith v. Amoco Prod. Co., 31 P.3d 255, 272 (Kan. 2001) (referring to the single-lease analysis as the "independent duty principle").

[15] The cases addressing this issue are addressed in the following section. *See* discussion *infra* at § IV.

only one standard. The same hypothetical prudent operator standard will be applied to Shell and Mom & Pop regardless of their individual capabilities or limitations. This means a lessee that owns its own horizontal drilling company, or hydraulic fracturing service company, will be treated the same as a company that has no special relationship with the drilling and completion side of the industry.[16]

This seems logical, particularly when it is recognized that oil and gas leases, since the inception of the industry, have been freely assignable.[17] A lease today with Mom & Pop could end up with Shell. Also, the lease is often taken by an individual or entity that has no capability to develop the leased land. In those cases the plan, at the inception of the transaction, is to ultimately transfer the lease to a developer.

IV. Prudent Operators Have Only One Lease

The hypothetical nature of the prudent operator standard is best illustrated by asking "how many oil and gas leases does a prudent operator own"? The answer provided by courts that have addressed this issue is clear: a prudent operator has one lease. Not two, not a hundred, not a thousand. The Texas Supreme Court, in *Amoco Production Co. v. Alexander*,[18] applied this "single-lease analysis" to limit both the rights and the obligations of the lessee. First, the rights of Amoco were limited by the court's holding that Amoco's obligations to other lessors in the field could in no way reduce its hypothetical prudent operator obligations to the Alexanders under their oil and gas lease.[19] On the other hand, Amoco's obligations as a hypothetical prudent operator could

[16] This observation could be particularly useful in jurisdictions that define royalty obligations relying upon the implied covenant to market instead of express royalty clause language. For example, the hypothetical prudent operator of an oil and gas lease will not own a gathering system, a processing plant, or hundreds of leases in the field that can give it control over massive quantities of gas. Instead, the hypothetical prudent operator will own only the lease at issue, and therefore have available for marketing only the volume of gas that the wells on the lease are able to produce. The actions of the real operator, under implied covenant law, should be evaluated considering the hypothetical operator that is deemed to own one lease, the volumes produced by that single lease, and no downstream capabilities beyond the leased land.

[17] OWEN L. ANDERSON, ET AL., HEMINGWAY OIL AND GAS LAW AND TAXATION 475 (4th ed. 2004).

[18] 622 S.W.2d 563 (Tex. 1981).

[19] The court observed:

> Amoco's responsibilities to other lessors in the same field do not control in this suit. This lawsuit is between the Alexanders and Amoco on the lease agreement between them and the implied covenants attaching to that lease agreement. The reasonably prudent operator standard is not to be

not be increased because it owned the surrounding oil and gas leases causing drainage from the Alexander lease. Amoco's obligations, instead, must be based on its hypothetical status as the owner of only one lease in the field, the Alexander lease.[20] Therefore, the single-lease analysis cuts both ways: Amoco's hypothetical prudent operator status cannot be affected, positively or negatively for either party, by the fact Amoco owns other leases in the field. The existence of other leases in Amoco's inventory did not matter, because a prudent operator owns only one lease.

In *Coastal Oil & Gas Corp. v. Garza Energy Trust*,[21] the court commented on the *Amoco* case but in a "local drainage" context.[22] Local drainage is when the draining well is on land adjacent to the land being drained. Coastal owned the lease covering the land allegedly being drained by a well on adjacent land owned by Coastal.[23] Coastal's complaining royalty owners had no interest in the draining well that was owned and operated by Coastal. Nevertheless, the court observed, citing the *Amoco* case, that: "We have rejected the argument that a lessee should be held to a standard higher than a reasonably prudent operator when, as in this case, he is also the operator of the well that is draining the lessor's property."[24] This is another way of saying: a prudent operator owns one lease.

> reduced to the Alexanders because Amoco has other lessors in the same field.

Amoco Prod. Co. v. Alexander, 622 S.W.2d 563, 569 (Tex. 1981). The court summarized its holding in this regard by stating: "Amoco owed the Alexanders the duty to do whatever a reasonably prudent operator would do if the Alexanders were its only lessor in the field." *Id.* at 570.

[20] Although the court did not directly analyze and discuss the issue, the court chose to apply the same standard to Amoco as applied in other drainage cases, without regard for Amoco's "common lessee" status. *Id.* at 572 ("In drainage cases, Texas courts place upon the lessor the burden of proof that substantial drainage has occurred and that an offset well would produce oil or gas in paying quantities."). The court also noted: "Amoco's status as a common lessee does not affect its liability to the Alexanders." *Id.* at 569.

[21] 268 S.W.3d 1 (Tex. 2008).

[22] *Id.* at 19. The *Amoco* case concerned field-wide drainage where Amoco owned leases in the up-dip and down-dip potions of the field. *Amoco Prod. Co.*, 622 S.W.2d at 566.

[23] *Coastal*, 268 S.W.3d at 17 n.57.

[24] *Id.* at 19 n.63.

V. Analysis: Covenant First, Prudent Operator Second

The prudent operator is the standard that is used to determine whether an implied covenant has been breached.[25] Therefore, before the prudent operator standard can be applied, the covenant that is being implied must be clearly stated. To properly state the contours of any implied covenant, the first step is to examine the oil and gas lease and determine whether it contains express language that addresses the issue. If the lease is silent on the matter, the second step is to determine, from the express terms contained in the lease, and the underlying purposes of the lease, what the parties intended regarding the matter at issue. The resulting implied covenant should be wholly consistent with all of the express terms of the oil and gas lease, and with the purposes the parties sought to promote by entering into the lease. This is the classic implied-in-fact approach to implied covenants. The Oklahoma Supreme Court has described the analytical process as follows:

> An implied covenant to protect the leased premises from drainage by surrounding wells is a covenant implied in fact to carry out what the parties must have intended which the courts read into the lease as an integral part thereof. Such a covenant becomes a part of the lease only where its inclusion in the lease is not inconsistent with other terms of the lease.[26]

Once the covenant is fully defined, the prudent operator standard will be applied to determine what the lessee can or should do to comply with the covenant.

Under a proper implied-in-fact analysis, there can be an unlimited number of implied covenants because they will be found to exist whenever it is necessary to provide an omitted contract term. Courts and commentators, however, have grouped cases where covenants have been found to exist in recurring factual situations. One of the first implied covenants found to exist by courts was the implied covenant to drill a test well.

VI. Must I Drill a Test Well Under My "Paid-Up" Lease?

Oil and gas leases are option contracts. The lessee is given the exclusive option, during the primary term, to drill a well on the leased land. Rarely will a lessee knowingly undertake an obligation to drill.[27] But, it is fairly easy for a lessee to unknowingly create

[25] 5 PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS & MEYERS OIL AND GAS LAW 30 (2011) ("Once it is determined that a lessee is bound by implied obligations relating to operations on the leasehold, the question arises of the standard of conduct to which the operator is held.").

[26] Rogers v. Heston Oil Co., 735 P.2d 542, 546 (Okla. 1984).

[27] A major lessee goal in any leasing transaction is to obtain the exclusive right to develop the leased land for a stated period without undertaking any obligation to develop. JOHN S. LOWE ET AL., CASES AND MATERIALS ON OIL AND GAS LAW 309 (5th ed. 2008).

an obligation to drill by simply striking the drilling/delay rental clause from the lease form. This is often done when the habendum clause creates a primary term of one-year or less, or when a "paid up" lease is intended. Removing the drilling/delay rental clause leaves the lease silent regarding the lessee's development obligations during the primary term. Although the lessee's intent will be to retain an "option" whether to drill, the lessor's intent may be just the opposite. When the situation is ambiguous, extrinsic evidence regarding landman representations leading up to execution of the lease may become relevant.

One of the lease forms being used to develop the Mississippi Lime formation in Kansas presents another problem. Although these leases are for primary terms ranging from 2 to 5 years, they are silent regarding development obligations during the primary term, except for the heading of the document which states:

OIL AND GAS LEASE
(PAID-UP)

Does the mere reference to "PAID-UP" convey the message that the lessee is under no obligation to drill a test well[28] on the leased land during the primary term? Might the lessor view this as a statement that the lessee had "PAID-UP" the bonus referenced in the sight draft they were given? The lessee will respond that the express terms of the lease, "PAID-UP," reveal the parties' intent regarding development during the primary term. Therefore, there is no need to imply anything.

It is not likely that the implied covenant to drill a test well will be resurrected in modern leasing transactions where a substantial bonus is paid to acquire the lease. The implied covenant to test arose because royalty was often the sole compensation provided to the lessor.[29] Today, with the routine payment of substantial up-front bonuses, the lessee can argue they have purchased the option to decide when, if ever, an initial well will be drilled on the leased land during the primary term. The world of implied covenants, however, is always a dangerous one for lessees. A simple clause can avoid the implied covenant problem by providing express guidance on the issue. For example:

> **3. No Drilling or Development Obligations During Primary Term.** Drilling or other development activity on the leased land during the primary term is optional with the lessee. During the primary term the

Sometimes mineral owners are able to negotiate either for a very short primary term or an affirmative obligation to drill one or more wells on the leased land.

[28] This is also referred to as the implied covenant to drill an "exploratory" well. Using the "test well" or "initial well" terminology instead of "exploratory well," avoids confusion with the fundamentally different implied covenant to "explore" the leased land.

[29] ROBERT E. SULLIVAN, HANDBOOK OF OIL AND GAS LAW 168 (1955) ("This covenant was originally applied to all leases wherein the sole consideration moving to the lessor was a share of the fruits of production.").

> lessee has the option to determine the rate and extent of development, including the decision whether to drill an initial well, to drill additional wells, or to otherwise explore or develop the leased land.

Lessors may respond to this by demanding a modification to clarify that the lessee remains obligated to protect the leased land from drainage that a prudent operator would address. Lessors will also want the lessee to continue development of the leased land in the event the lessee elects to drill a test well that is profitable. The lessee, however, would prefer to have the option not to drill or develop, during the primary term, even if there is drainage. The lessee would prefer to retain the flexibility of releasing acreage, entering into a farm-out, or paying damages. Each of these options may be superior to being forced to drill a protection well.

VII. Do I Really Need to Drill Another *Gas* Well At This Time?

Many of the external facts prompting lessees holding gas leases to "go slow" on further development, are the same external facts that would prompt the hypothetical prudent operator to go slow. The major external fact is the price that the natural gas will fetch in current markets. It must be remembered, however, that the hypothetical prudent operator owns only one lease; the lease with the producing gas well that confirmed the land is capable of producing dry gas. The fact the lessee also owns other leases, including undeveloped acreage with liquids potential, is not relevant. The focus must be on the lease at issue, without regard for the lessee's other leases.[30]

Is it possible that a hypothetical operator in the oil and gas business may resist deploying development money into another gas well when pricing signals suggest now is not the time to bring more gas into the market? This is the sort of timing decision any investor must make. The problem is whether it is speculation or prudent management of the asset. Even if labeled "speculation," this is a different sort of speculation than in the paying quantities situation. In this case the lessee has a valuable asset producing a net profit, albeit maybe not enough to pay back, in a reasonable time frame, the overall investment in the leased land.

The issue comes into greater focus by asking: does a hypothetical prudent operator ever exercise sound business judgment? It would be an odd state of affairs to prohibit a prudent operator from exercising sound business judgment. So long as the analysis accounts for the interests of the lessor, in addition to those of the lessee, the prudent operator should be able to consider sound business judgment in deciding how and when to deploy its drilling and development funds.[31]

[30] *See* discussion *supra* at § IV.

[31] *See generally* Jicarilla Apache Tribe v. Supron Energy Corp., 479 F. Supp. 536, 545 (D.N.M. 1979), *affirmed in part, reversed in part on other grounds*, 728 F.2d 1555 (10th Cir. 1984), *on rehearing*, 782 F.2d 855 (10th Cir. 1986), *opinion modified*, 793 F.2d 1171 (10th Cir. 1986) ("the lessee is not obliged to pursue development when, in its sound

The lessor's interest in further development is, in large part, driven by the time-value of money. As explained by the court in *Temple v. Continental Oil Co.*:[32]

> A lessor is entitled to the benefit of oil produced from the lease at the time it should be produced and not at some remote period of time in the future. The lessee is not the sole judge of what constitutes prudent development of the tract. The test is what would be expected of an operator of ordinary prudence, in the furtherance of the interests of both *the lessor* and the lessee.[33]

Expanding on this analysis the court, on rehearing, stated:

> [T]he *time* element must be reconciled with the established Prudent Operator Rule. It is well settled that where the existence of oil in paying quantities is made apparent, it is the duty of the lessee to continue the development of the property and to put down as many wells as may be reasonably necessary to deplete the oil and gas reserves underlying the premises for the common advantage of both the lessor and the lessee. Obviously, fulfillment of this obligation might require the drilling of several wells, despite the fact that one well alone *might ultimately* drain the entire reservoir *given unlimited time*. In other words, lessees cannot prove compliance with the Prudent Operator Rule by showing they have drilled enough wells to "adequately" drain the recoverable oil from the leased premises "*eventually*."[34]

An equally compelling argument for the lessor is that by entering into the oil and gas lease it transferred all of the landowner's "Rule of Capture" rights to the lessee. Therefore, the lessee has the obligation, to the extent a prudent operator would do so, of maximizing development of the leased land to hopefully capture, for the lessor and lessee, more than the oil and gas in place beneath the leased land. So long as it can be done within the confines of existing conservation laws, every developer has the right, under the Rule of Capture, to produce more than the proportionate share of the oil and gas attributable to the leased land. This capture component should be considered in the context of when gas prices are low, and therefore other producers in the area are also less likely to drill additional wells. Is there a capture premium to be gained by the more diligent developer in this situation? To the extent this could be proven, and quantified, it

economic judgment, drilling such a well would result in minimally positive or negative economic results for itself.").

[32] 320 P.2d 1039 (Kan. 1958).

[33] *Id.* at 1055 (emphasis in original).

[34] Temple v. Continental Oil Co., 328 P.2d 358, 360 (Kan. 1958) (emphasis in original).

would seem to be one of those external facts a prudent operator would consider in deciding whether now is the time to drill more wells.[35]

Balanced against the lessor's desire to maximize the time-value of money and to ensure affirmative use of the Rule of Capture, are the lessee's economic concerns. As noted by the court in *Jicarilla Apache Tribe v. Supron Energy Corp.*:[36]

> Suffice it to say that the law of diligent development permits the lessee to consider its own economic well-being in addition to that of the lessor.... To require operators to develop leases earlier than might be economically indicated, albeit according to the economics derived by the operator, so that the lessor might have cash revenues at the earliest time possible, is a result not required by the prudent operator rule."[37]

The implied covenant to further develop the leased land is triggered when a well is drilled on the leased land and it is proven that profitable production can be obtained from a reservoir.[38] If it is possible to drill an additional well into the proven reservoir, and it is probable the undertaking would result in the recovery of all costs plus the reasonable profit required by a prudent operator, then the hypothetical prudent operator would pursue additional development.[39]

VIII. Can I Hold My Lease With Vertical Wells?

The implied covenant to further develop the leased land, and the implied covenant to protect against drainage, are both impacted by technological advances, such as horizontal drilling and hydraulic fracturing. Jurisdictions that recognize a separate implied covenant to further explore leased land will also have to evaluate the impact of these technological advances. When there are existing vertical wells completed in a formation suitable for horizontal drilling, the implied covenant may partake of elements of both development and exploration. Before engaging in horizontal development of a

[35] The prudent operator would also weigh the risk that their actions may trigger a drilling war that could negatively impact the leased land, and the prudent operator's drilling budget.

[36] 479 F. Supp. 536 (D.N.M. 1979), *affirmed in part, reversed in part on other grounds*, 728 F.2d 1555 (10th Cir. 1984), *on rehearing*, 782 F.2d 855 (10th Cir. 1986), *opinion modified*, 793 F.2d 1171 (10th Cir. 1986).

[37] *Id.* at 546.

[38] OWEN L. ANDERSON, ET AL., HEMINGWAY OIL AND GAS LAW AND TAXATION 405 (4th ed. 2004). The development obligation can therefore arise during the primary term of the lease and throughout the secondary term. *Id.* at 405.

[39] *Id.* at 407.

new reservoir, the prudent operator would require a level of certainty more in line with the development covenant as opposed to the exploration covenant. When vertical drilling has already proven the existence of the reservoir beneath the leased land, the likely success of horizontal drilling on the leased land will hinge on existing successful horizontal completions in the same reservoir beneath other lands in the area. Since the cost of horizontal development is greater than vertical development, a higher level of likely success would seem to be in order. The greater risks could, however, be offset by the greater potential rewards. All of these matters would be part of the prudent operator analysis.

Once horizontal drilling and hydraulic fracturing are proven to be superior to vertical well development of a formation, a number of questions can arise. What are the obligations of existing lessees that are holding leases by production from vertical wells? Will subsequent development of a lease using vertical wells be acceptable when the formation is appropriate for horizontal development? Can the acreage-rich, cash-poor lessee engage in cheaper vertical well development to hold acreage for future horizontal well development? Must horizontal wells on adjacent leases causing drainage be offset by horizontal wells? Must hydraulically fraced wells on adjacent leases causing drainage be offset by similarly fraced wells? Each of these issues, whether in the exploration, development, or drainage context, will be answered applying the prudent operator standard.

If a prudent operator would pursue the proven technology to maximize production from the formation, then failing to do so can be a breach of the lease. The individual lessee's lack of expertise is not an excuse, nor is the lessee's desire to "go slow" at adopting new-fangled things; unless that is what the prudent operator would do under the circumstances. Lessees have the option to sell, surrender, or farmout their lease if they choose not to adopt the new technologies. A lack of expertise can be remedied by associating with those who possess the expertise; either by hiring the expertise or seeking to jointly develop the property with someone who has the expertise. If the technology is too rich for the lessee, they can share the financial burdens with other developers or be satisfied with a carried position or an overriding royalty.

The underlying issue in all these situations is: when must a prudent operator embrace new technology and techniques? The most instructive case in this area is a 1965 decision by the Oklahoma Supreme Court: *Crocker v. Humble Oil & Refining Co.*[40] The lease was granted in 1919 and covered 90 acres.[41] The development pattern in the area allocated 10 acres to each well. Six wells were drilled on the lease with four producing at the time of the dispute. The last well drilled on the leased land was in 1922. Approximately 37 years passed without further development of the leased land. The lessor, in 1949, first expressed his concerns about the lack of development; this was

[40] 419 P.2d 265 (Okla. 1965).

[41] *Id.* at 266.

followed in 1959 with a formal demand for further development or a release of undeveloped acreage.[42]

The lessee defended arguing it had prudently developed the leased land "in light of the circumstances then existing and in harmony with known skills and knowledge."[43] The lessee argued that no "prudent operator would drill additional wells on the lease until after the advent of sandfracing."[44] The trial court found that conducting further development on the lease would not have been profitable "until after the discovery and availability of hydraulic-fracturing process . . . ."[45] Therefore, the availability of hydraulic fracturing was the key external fact that would trigger an obligation to further develop the leased land. The court summarized the relevant evidence stating:

> The testimony showed that sandfracing was first discovered in 1948 and was first used commercially in 1949. It was used at certain places in Southern Oklahoma in 1950 and 1951. Sandfracing was first used in the Hewitt Pool in 1956. The first time the defendant used the fracing process in the Hewitt Pool was in January, 1957. Mr. Fort, plaintiff's witness, testified that he did not know of the use of sandfracing in the Hewitt Pool prior to 1956. He was asked on cross-examination whether all operators in the Hewitt Pool should be considered imprudent if no operator in that pool fraced their wells before 1956. His answer was "no."[46]

In upholding the cancellation of a portion of the leased land the court noted:

> During the years 1957-1961 the defendant sandfraced 100 wells. The defendant cannot offer any reasonable excuse in its failure to utilize the sandfracing process for further development of the cancelled portion of the lease.[47]

The *Crocker* holding provides that once a new technological advancement is proven to be cost-effective at enhancing oil and gas production from a particular reservoir, it will be adopted by the hypothetical prudent operator.

[42] *Id.* at 269.

[43] *Id.* at 271.

[44] *Id.*

[45] *Id.*

[46] *Id.*

[47] *Id.* at 274.

Another instructive case on the obligation to embrace technological innovation is *Waseco Chemical & Supply Co. v. Bayou State Oil Corporation.*[48] This case addressed Bayou's reluctance to engage in "fire flooding" to enhance recovery from a reservoir underlying the leased land. Although Bayou, the lessee, had drilled many wells into the reservoir, the most efficient way to maximize production was with the proven fire flooding technique. In canceling the lease, and rejecting the conditional cancellation option, the trial judge stated: "*frankly it appears to the Court that Bayou State learned as much about fireflooding in the two weeks of our trial as it had in its twenty years of operation.*"[49] The court traced the adoption of fire flooding throughout the field and identified 1967 as the date by which it had been "proved successful." This success was also generally known; the relevant information was available to Bayou.[50] The fire flooding process produced 60% of the oil in place while conventional development produced 5%.[51] As to this particular field, fire flooding had become "the normal [and] efficient method" of production.[52]

The *Waseco* case highlights the importance of matching the unique characteristics of the reservoir to the proper technology or techniques. This has been demonstrated with the extraction of methane gas from coal seams and, most recently, the development of oil and gas in shale rock.

IX. Shale is Different

Shale development demonstrates the fact-intensive nature of implied covenant analysis. For example, the tight, homogeneous nature of shale rock makes development somewhat like a mining operation.[53] Once the formation is located, and completion techniques perfected, the risk associated with development is more a matter of technical expertise as opposed to the fortuity of geology. This will impact analysis of development covenant and exploration covenant issues. Protection covenant issues are also impacted when drainage patterns are more predictable.

[48] 371 So.2d 305 (La. Ct. App. 1979).

[49] *Id.* at 307.

[50] *Id.* at 311.

[51] Id. at 312.

[52] Id.

[53] U.S. DEPT. OF ENERGY, OFFICE OF FOSSIL ENERGY, MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES: A PRIMER 14 (2009) ("low permeability means that gas trapped in shale cannot move easily within the rock except over geologic expanses of time").

[This page was left blank intentionally]

X. Conclusions

New technology and techniques that allow for the more efficient recovery of oil and gas are rapidly becoming the tools of the prudent operator. The external facts concerning the reservoir, the development technology and techniques, and the current state of the industry and the world in which it operates, will all be factored into the prudent operator analysis. Once it is found that a prudent operator would not just drill a well, but would drill a horizontal well, lessees, regardless of their personal situation and judgment regarding the technology, will be required to follow the path of the prudent operator.

Implied Covenant Law and Horizontal Development

by

David E. Pierce

1

Keeping Up With Technology

- **"[B]ecause of the complexity of the oil and gas industry, and changes in technology, the courts cannot list each obligation of a reasonably prudent operator which may arise."**

2

Newfangled Stuff

- Horizontal drilling & hydraulic fracturing.
- Improve connection between the wellbore and the formation.
- The better the connection, the more likely the formation will give up the oil and gas.

3

Newfangled Stuff

- **When does a "prudent operator" embrace new technology?**
- Incentive created by the **rule of capture**.
- **No "catch up" rights** under the law.
- **Correlative rights: an "opportunity"** to exercise capture rights.
- Not an equitable apportionment of the reservoir contents.

4

Implied Covenant Law

- The oil and gas lease confers **exclusive authority on the lessee** to develop the leased land.
- The lessor's primary continuing benefit under the oil and gas lease: **royalty**.
- The lessor desires the maximum **defensive *and offensive* use of the rule of capture**.

5

Implied Covenant Law

- **The role of implied covenant law when a formation becomes susceptible to development using horizontal drilling and hydraulic fracturing.**
- **Implied covenant law: the process a court pursues to identify obligations that are necessary to supplement the express terms of the oil and gas lease.**

6

Implied Covenant Law

- Theories to explain implied covenant law.
- "**Cooperation.**" ***Williams & Meyers***
- "**Relational contract.**" ***Kuntz***
- "**Omitted term**" analysis. ***Farnsworth* and the *Restatement (Second) of Contracts***

7

Implied Covenant Law

- Implied covenants are **interpretive tools** to be applied, when necessary, to **ascertain and give effect to the intent of the parties** by supplying an omitted term they would have provided had they chose to address the matter.

8

Implied Covenant Law

- **Intent of the parties:**
- The test is would a reasonable person expressly **agreeing to terms *a*, *b*, and *c*,** logically have **intended to include term *d*** as well.

9

Implied Covenant Law

- Contracts are supplemented only with implied terms that are consistent with the parties' contractual purpose and intent.
- The goal of the judiciary in some cases, however, has not been to ascertain and give effect to the parties' contractual purpose and intent.
- Interpret to ascertain intent vs. re-interpret to achieve equity.

10

Implied Covenant Law

- **Step #1:** Determine whether a covenant should be implied.
- **Step #2:** If so, define the content of the covenant.
- **Step #3:** Apply the prudent operator standard to determine whether the covenant has been violated.

11

Prudent Operator Standard

- "The prudent operator is a reasonable man engaged in oil and gas operations." ***Williams & Meyers***
- Objective standard, in most jurisdictions.
- ***Hypothetical*** operator.
- Not the "real" operator.

12

Prudent Operator Standard

- "Real" operators may be short of cash, have an inventory of leases to manage, have a special need for oil instead of gas, or perhaps owns a gathering system and processing plant.
- Hypothetical operators have money, one lease, and do not own separate downstream assets, such as a gathering system or processing plant.

13

Prudent Operator Standard

- Shell Oil Company, in theory, will be treated the same as the used car salesman who just purchased his first lease.
- To satisfy the terms of their respective lease contracts they must each perform as would the hypothetical prudent operator.

14

Prudent Operator Standard

- Under most oil and gas leases, the used car salesman could ***assign*** his lease to Shell.
- And, of course, Shell could ***assign*** its lease to the used car salesman.

15

Prudent Operator Standard

- "Since the standard of conduct is objective, a defendant cannot justify his act or omission on ***personal*** *grounds* or by reference to ***his*** peculiar circumstances."
- ***Williams & Meyers***

16

Prudent Operator Standard

- "[T]he question is not what was . . . proper for ***this defendant*** to do, given ***his*** peculiar circumstances, but what a hypothetical operator acting reasonably would have done, given ***circumstances generally*** obtained in the locality."
- ***Williams & Meyers***
- General circumstances are those that ***every operator*** would have to address.

17

Prudent Operator Has *One* Lease

- Few things bring the prudent operator's obligations into focus as does **the single-lease analysis**.
- What would the lessee do if the lease at issue were the ***only*** lease the lessee owned?

18

Prudent Operator Has ***One*** Lease

- **The single-lease analysis:**
- ***Amoco Prod. Co. v. Alexander***, 622 S.W.2d 563, 569 (Tex. 1981).
- "Amoco's responsibilities to other lessors in the same field do not control in this suit."
- "This lawsuit is between the Alexanders and Amoco on the lease agreement between them and the implied covenants attaching to that lease agreement."

19

Prudent Operator Has ***One*** Lease

- "The reasonably prudent operator standard is not to be reduced to the Alexanders because Amoco has other lessors in the same field."
- "Amoco owed the Alexanders the duty to do whatever a reasonably prudent operator would do ***if the Alexanders were its only lessor in the field***."

20

Prudent Operator Has ***One*** Lease

- Can the single-lease analysis ever operate to the lessee's ***benefit***?
- Can the single-lease analysis ***limit*** the lessee's obligations?
- Amoco owned the draining leases and the leases being drained.
- **"Amoco's status as a common lessee does not affect its liability to the Alexanders."**

21

Prudent Operator Has ***One*** Lease

- ***Coastal Oil & Gas Corp. v. Garza Energy Trust***, 268 A.W.3d 1 (Tex. 2008).
- "Local drainage" case.
- "**We have rejected the argument that a lessee should be held to a standard higher than a reasonably prudent operator** when, as in this case, he is also the operator of the well that is draining the lessor's property."

22

Prudent Operator Has ***One*** Lease

- ***Rogers v. Heston Oil Co.***, 735 P.2d 542 (Okla. 1984).
- "[T]he defendant lessee owns the lease upon plaintiff lessor's tract, and upon adjacent and adjoining leases, including the one on which drainage is alleged to exist of plaintiff's tract."

23

Prudent Operator Has ***One*** Lease

- "[W]here the lessee is the owner of an adjoining lease which is draining the lessor's tract, the 'prudent operator' rule applicable to the lessee's implied covenant to protect against drainage is whether the lessee as a prudent operator would drill a protection well on the lessor's tract ***if the draining lease were owned by a third party, and not the lessee***."

24

Prudent Operator Has ***One*** Lease

- ***Smith v. Amoco Production Co.***, 31 P.3d 255 (Kan. 2001).
- Single-lease analysis, referred to as the "**independent duty principle**," applied to the implied covenant to market.

25

Prudent Operator Has ***One*** Lease

- **The single-lease analysis should also help in defining royalty obligations.**
- The lessee owns one lease, the lease at issue.
- No aggregated volumes.
- No marketing affiliate.
- No gathering system, processing plant, or other midstream assets.

26

Prudent Operator Standard

- In cases using an implied covenant to market to require the lessee to produce a "**marketable product**," there was no mention of how the prudent operator standard should be used to evaluate compliance with the covenant.
- ***Smith v. Amoco Production Co.***, 31 P.3d 255 (Kan. 2001) (traditional prudent operator analysis applies to evaluate royalty owner's underpayment claim).

27

Implied Covenant to Drill Test Well

- Oil and gas leases are option contracts.
- Exclusive right to drill, but no obligation to drill.
- Pre-drilling/delay rental clause.
- Pre-big bonus days.
- Express language negates the implied.

28

Implied Covenant to Drill Test Well

- Modern problems: primary term less than a year in duration; striking of the drilling/ delay rental clause.
- The Mississippi Lime play lease form:

OIL AND GAS LEASE
(PAID-UP)

29

Implied Covenant to Drill Test Well

- **Implied covenants are implied in fact.**
- **So, provide the facts.**
- **No Drilling, Development, or Protection Obligations During Primary Term.** During the primary term the lessee is under no obligation, regardless of the circumstances, to drill: an initial well; any development or exploration well; or any well necessary to protect the leased land from drainage (whether the draining well is owned by lessee or a third party).

30

Further Development, More Gas?

- Will one producing **gas** well on that high-bonus Marcellus lease be enough – for now?
- Can I spend my money looking for **oil** in Kansas, North Dakota, Ohio, or Texas?
- The law of "going slow" on (gas) development.

31

Further Development, More Gas?

- **The lessor's development interests:**
- **Time value of money.**
- $100 invested for one year at 4% interest has a future value of $104.
- Turn oil and gas in place into extracted oil and gas so it can trigger payment of a royalty that can begin earning interest now.

32

Further Development, More Gas?

- What happens if the lessee delays further development when gas is $2.00/Mcf and later pursues development when gas is $4.00/Mcf?
- No drainage so no loss in royalty.
- Any liability for ***not*** waiting?
- Is there a "**window theory**" that can be applied? Lost opportunity to develop.

33

Further Development, More Gas?

- ***Temple v. Continental Oil Co.***, 328 P.2d 358 (Kan.1958).
- "[F]ulfillment of . . . [the further development] obligation might require the drilling of several wells, despite the fact that one well alone *might ultimately* drain the entire reservoir *given unlimited time*. . . . **[L]essees cannot prove compliance with the Prudent Operator Rule by showing they have drilled enough wells to "adequately" drain the recoverable oil from the leased premises "*eventually*."**

34

Further Development, More Gas?

- **Another lessor interest** (that is seldom mentioned): **aggressive use of the rule of capture.**
- Only the lessee can further develop.
- This will be factored into the projected revenue portion of the equation as the lessee evaluates the potential profitability of drilling another well.
- Risk of triggering a drilling war?

35

Further Development, More Gas?

- **The lessee's interests:**
- Prudent operators pursue further development only when the undertaking as a whole offers the probability of profits commensurate with the risks.
- Just because the prudent operator only has ***one lease*** does not mean they will do dumb things to develop it.

36

Further Development, More Gas?

- Does the "prudent operator" exercise sound business judgment when deciding how and when to invest its money?
- Objective standard which considers the interests of both lessor and lessee.
- Lessee pays, lessee assumes the risk, lessor gets to share in all successful development while being shielded from the risk of unsuccessful development.

37

Further Development, More Gas?

- Major external fact considered by a prudent operator: oil & gas prices.
- Not speculation in the paying quantities and habendum clause sense of the term.
- **Is it time to deploy money to drill another gas well when pricing signals suggest *now* is not the time to bring more gas into the market?**

38

Further Development, More Gas?

- So long as the analysis accounts for the interests of the lessor, in addition to those of the lessee, the prudent operator should be able to consider sound business judgment in deciding how and when to deploy its drilling and development funds.
- The mere fact it may be profitable is not the only consideration.

39

Further Development, More Gas?

- ***Jicarilla Apache Tribe v. Supron Energy Corp.***, 479 F. Supp. 536, 545 (D.N.M. 1979), *affirmed in part, reversed in part on other grounds, opinion modified on rehearing*.
- "[T]he lessee is not obliged to pursue development when, in its sound economic judgment, drilling such a well would result in minimally positive or negative economic results for itself."

40

Further Development, More Gas?

- "[T]he law of diligent development permits the lessee to consider its own economic well-being in addition to that of the lessor.... To require operators to develop leases earlier than might be economically indicated . . . so that the lessor might have cash revenues at the earliest time possible, is a result not required by the prudent operator rule." ***Supron Energy***.

41

Obligation To Go Horizontal?

- Implied covenants to further develop, and to protect against drainage, are both impacted by the technological advances in horizontal drilling and hydraulic fracturing.
- Jurisdictions that recognize a separate implied covenant to further explore will also have to evaluate the impact of these technological advances.

42

Obligation To Go Horizontal?

- When there are existing vertical wells completed in a formation suitable for horizontal drilling, the implied covenant may partake of elements of both development and exploration.
- You know the formation exists (development-like), but the horizontal drilling technique has yet to be applied to the leased land (exploration-like).

43

Obligation To Go Horizontal?

- Importance of horizontal development on other leased lands in the area.
- Comparing the additional risks, and potential rewards, of pursuing horizontal development.

44

Obligation To Go Horizontal?

- Once horizontal drilling and hydraulic fracturing are proven to be superior to vertical well development of a formation, a number of questions can arise.
- **What are the obligations of existing lessees that are holding leases by production from vertical wells?**

45

Obligation To Go Horizontal?

- **Will subsequent development of a lease using vertical wells be acceptable when the formation is appropriate for horizontal development?**
- **Can the acreage-rich, cash-poor lessee engage in cheaper vertical well development to hold acreage for future horizontal well development?**

46

Obligation To Go Horizontal?

- **Must horizontal wells on adjacent leases causing drainage be offset by horizontal wells?**
- **Must hydraulically fraced wells on adjacent leases causing drainage be offset by similarly fraced wells?**
- Each of these issues, whether in the exploration, development, or drainage context, will be answered applying the **prudent operator standard**.

47

Obligation To Go Horizontal?

- If a prudent operator would pursue the proven technology to maximize production from the formation, then failing to do so can be a breach of the lease.
- Lack of expertise is not an excuse, nor is the lessee's desire to "go slow" at adopting new-fangled things; unless that is what the prudent operator would do under the circumstances.

48

Obligation To Go Horizontal?

- Lessees have the option to sell, surrender, or farmout their lease if they choose not to adopt the new technologies.
- A lack of expertise can be remedied by associating with those who possess the expertise; either by hiring the expertise or seeking to jointly develop the property with someone who has the expertise.

49

Obligation To Go Horizontal?

- If the technology is too rich for the lessee, they can share the financial burdens with other developers or be satisfied with a carried position or an overriding royalty.

50

Obligation To Go Horizontal?

- The underlying issue in all these situations is: **When must a prudent operator embrace new technology and techniques?**
- A most instructive case in this area is ***Crocker v. Humble Oil & Refining Co.***, 419 P.2d 265 (Okla. 1965).

51

Obligation To Go Horizontal?

- **1919**: landowner grants oil and gas lease.
- **1922**: six wells drilled on 90-acre lease, 10-acre spacing, four producing wells.
- **1949**: lessor expresses concerns about lack of development.
- **1959**: formal demand for further development or release of undeveloped acreage.

52

Obligation To Go Horizontal?

- **Lessee's defense:** It had prudently developed the leased land "in light of the circumstances then existing and in harmony with known skills and knowledge." and
- **"[No] prudent operator would drill additional wells on the lease until after the advent of sandfracing."**

53

Obligation To Go Horizontal?

- The trial court found that conducting further development on the lease would not have been profitable **"until after the discovery and availability of hydraulic-fracturing process . . . ."**
- The availability of hydraulic fracturing was the key external fact that would trigger an obligation to further develop the leased land.

54

Obligation To Go Horizontal?

- "Mr. Fort, plaintiff's witness, testified that he did not know of the use of sandfracing in the Hewitt Pool prior to 1956. He was asked on cross-examination whether all operators in the Hewitt Pool should be considered imprudent if no operator in that pool fraced their wells before 1956. His answer was 'no.'"

55

Obligation To Go Horizontal?

- **In upholding the cancellation of a portion of the leased land the court noted:**
- "During the years 1957-1961 the defendant sandfraced 100 wells. The defendant cannot offer any reasonable excuse in its failure to utilize the sandfracing process for further development of the cancelled portion of the lease."

56

Obligation To Go Horizontal?

- The *Crocker* holding provides that once a new technological advancement is proven to be cost-effective at enhancing oil and gas production from a particular reservoir, it will be adopted by the hypothetical prudent operator.

57

Obligation To Go Horizontal?

- ***Waseco Chemical & Supply Co. v. Bayou State Oil Corporation***, 371 So.2d 305 (La. Ct. App. 1979).
- This case addressed Bayou's reluctance to engage in "fire flooding" to enhance recovery from a reservoir underlying the leased land.

58

Obligation To Go Horizontal?

- The lessee, had drilled many wells into the reservoir, but the only efficient way to maximize production was with the fire flooding technique.
- **In canceling the lease, and rejecting the conditional cancellation option**, the trial judge stated: "*frankly it appears to the Court that Bayou State learned as much about fireflooding in the two weeks of our trial as it had in its twenty years of operation.*"

59

Obligation To Go Horizontal?

- The court traced the adoption of fire flooding throughout the field and identified 1967 as the date by which it had been "proved successful."
- This success was also generally known; the relevant information was available to Bayou.

60

Obligation To Go Horizontal?

- The fire flooding process produced 60% of the oil in place while conventional development produced 5%.
- As to this particular field, fire flooding had become "the normal [and] efficient method" of production.

61

Obligation To Go Horizontal?

- The *Waseco* case highlights the importance of matching the unique characteristics of the reservoir to the proper technology or techniques.
- This has been demonstrated with the extraction of methane gas from coal seams and, most recently, the development of oil and gas in shale rock.

62

Shale Is Different

- Shale development demonstrates the fact-intensive nature of implied covenant analysis.
- For example, the tight, homogeneous nature of shale rock makes development somewhat like a mining operation.

63

Shale Is Different

- Once the formation is located, and completion techniques perfected, the risk associated with development is more a matter of technical expertise as opposed to the fortuity of geology.
- This will impact analysis of development covenant and exploration covenant issues.
- Protection covenant issues are also impacted when drainage patterns are more predictable.

64

Conclusions

- New technology and techniques that allow for the more efficient recovery of oil and gas are rapidly becoming the tools of the prudent operator.
- External facts concerning the reservoir, development technology and techniques, and the current state of the industry and the world in which it operates, will all be factored into the prudent operator analysis.

65

Conclusions

- Once it is found that a prudent operator would not just drill a well, but would drill a horizontal well, lessees, regardless of their personal situation and judgment regarding the technology, will be required to follow the path of the prudent operator.

66

[This page was left blank intentionally]