Texas Wesleyan Law Review

Volume 19 | Issue 1 Article 7

10-1-2012

Modifying Oil & Gas Documents for Horizontal Drilling

H. Martin Gibson

MODIFYING OIL & GAS DOCUMENTS FOR HORIZONTAL DRILLING

By H. Martin Gibson[1]

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1. The Author is delighted to acknowledge the able and professional assistance of Mr. Austin Henley at SNR Denton US LLP in the preparation of this Article.

DOI: https://doi.org/10.37419/TWLR.V19.I1.5

I. OIL & GAS LEASES

A. *Date*

The date of the lease determines the end date of the primary term. Generally, operations that have commenced off of a lease tract do not preserve the lease past the primary term, and a horizontal wellbore that is intended to penetrate the lease will not preserve the un-penetrated lease.

However, the United States District Court for New Mexico reached a different result in a 2001 case.[2] As an oil and gas lease was approaching the end of its primary term, the lessee, Chesapeake, was informed that a drilling zoning variance would not be granted for drilling on the leased tract due to its location near a residential neighborhood.[3] Chesapeake purchased a three-acre parcel adjoining the leased tract to directionally drill a well from the surface of the purchased parcel to a producing formation within the leased tract.[4] The proposed well was spudded on July 27, 1998, on the three-acre purchased parcel.[5] The stated primary term of the lease expired on August 3, 1998.[6] On August 12, 1998, the drill bit penetrated the subsurface of the leased tract.[7]

The court focused on two lease provisions in finding that the lease was extended by the commencement of operations off the leased premises:

> Paragraph five of the Lease provides, in pertinent part, that Defendant, the lessee, is 'granted the right . . . to pool or combine this lease, the land covered by it or any part or horizon thereof with any other land, leases, mineral estates or parts thereof for the production of oil or gas.' Paragraph five also contains the following language, to wit:
>
> > Drilling operations on or production from any part of any such unit shall be considered for *all purposes*, except the payment of royalty, as operations conducted upon or production from the land described in this lease.
>
> Paragraph six of the Lease provides, in pertinent part, that '[i]f at the expiration of the primary term there is no well upon said land capable of producing oil or gas, but lessee has commenced operations for drilling or reworking thereon this lease shall remain in

2. Manzano Oil Corp. v. Chesapeake Operating Co., 178 F. Supp. 2d 1217 (D.N.M. 2001) (mem. op.).
3. *Id.* at 1218.
4. *Id.*
5. *Id.* at 1219.
6. *Id.*
7. *Id.*

> force so long as operations are prosecuted with no cessation of more than 60 consecutive days . . . .'"[8]

It was undisputed that the defendant timely began "drilling operations" on the tract adjacent to the lease.[9] The court went a step further and found that the operations on the off-lease property should be included as "drilling operations" for the purpose of continuing the lease:

> The intent of the parties as manifested in the totality of the Lease provisions and in the actions of the parties would permit the drilling of the horizontal well and would allow for the extension of the Lease under the circumstances here presented. Plaintiffs argue that paragraph 6 of the Lease requires that any drilling actually be on the lands covered by Lease. I do not agree. To so hold would substantially negate the provisions of paragraph 5 of the Lease. *See Owens*, 105 N.M. at 157, 730 P.2d 458 (oil and gas leases must be construed to give effect to all of their provisions so far as possible). Here the Plaintiffs entered into an agreement which allowed the horizontal well to be drilled and later, on the strained rationale that the well had to be solely on the Leased land, they would work a forfeiture on Defendant. Lease provisions providing for forfeiture by the lessee will be strictly construed in lessee's favor. *Stamm v. Buchanan*, 55 N.M. 127, 227 P.2d 633 (1951) (forfeitures are not favored by the Court). Thus, I find that adjacent property and the Lease property were "pooled" or "combined" in such a way as to make the provisions of paragraph five of the Lease applicable "for all purposes" including the provisions of paragraph six of the lease which provided for an extension of time where drilling operation had begun.[10]

The decision essentially *implied* "pooling" or a "combination" of the off-lease acreage and the leasehold acreage without any actual exercise of the pooling authority in the lease. However, the result might be justified by certain language in the lease. A term that reads that the "lessee has commenced operations for drilling or reworking thereon this lease shall remain in force so long as operations are prosecuted with no cessation of more than 60 consecutive days . . . ." can be interpreted in two ways. The first is that the operations must have been commenced on the lease. The second is that the operations for drilling or reworking on the lease must have been commenced. The question is whether "on the lease" pertains to "commenced operations" or "drilling or reworking." Under the "last antecedent" principal of contract interpretation, the argument is that it pertains to "drilling or reworking."[11] Under that interpretation, the "commenc-

8. *Id.* (emphasis in original).
9. *Id.* at 1220.
10. *Id.*
11. Stewman Ranch, Inc. v. Double M. Ranch, Ltd., 192 S.W.3d 808, 812 (Tex. App.—Eastland 2006, pet. denied).

ing of operations" does not necessarily have to be on the leased premises; it simply needs to be for drilling on the leased premises. The regulatory approvals would indicate that the operations were to be conducted on the lease through horizontal drilling and could be enough to hold the lease.

The *Manzano* case is an expansion of the traditional rule, which can be stated as follows: If a lease has been pooled, then operations on one pooled tract will be considered operations on other pooled tracts; therefore, horizontal drilling will extend the lease on a tract that has not yet been penetrated.[12]

B. *Granting Clause*

A grant of a lease on specific lands does not grant the lessee the right to use the surface to drill a well onto an adjoining tract unless the drillsite tract is or will be pooled with the adjoining tract. Likewise, there is no grant in the typical lease to use the leased tract for the benefit of adjoining tracts; however, transportation of production through the wellbore from an adjoining tract through the leased tract to the tract on the other side will be fine if the tracts have been pooled. If the drillsite tract will not be included in the pooled unit, then permission from the surface owner of the drillsite must be secured. Normally, the mineral lessee of the drillsite tract cannot prohibit use of the drillsite as a drilling location unless such lessee can show that the use interferes with such lessee's operations.[13] "Each tract traversed by the horizontal wellbore is a drillsite tract, and each production point on the wellbore is a drillsite."[14]

The following general grant has been suggested by Mr. Russell L. Schetroma,[15] and this discussion–debate draft is being used with an eastern mineral law foundation working group to create a more standard "eastern" oil and gas lease:

> Horizontal Wells. Lessor acknowledges and agrees that optimal production from certain formations may best be obtained through the use of a horizontal well. Decisions as to when, if ever, a horizontal well may be appropriate for production from any formation

12. *See* Pioneer Natural Res. USA, Inc. v. W.L. Ranch, Inc., 127 S.W.3d 900, 906 (Tex. App.—Corpus Christi 2004, pet. denied).

13. The interference must be meaningful and the mineral lessee of the drillsite tract must show that the lessee will need that portion surface at the same time. Humble Oil & Ref. Co. v. L. & G. Oil Co., 259 S.W.2d 933, 937–38 (Tex. App.—Austin 1953, writ ref'd n.r.e.); Atlantic Ref. Co. v. Bright & Schiff, 321 S.W.2d 167, 169 (Tex. App.—San Antonio 1959, writ ref'd n.r.e.).

14. Browning Oil Co. v. Luecke, 38 S.W.3d 625, 634 (Tex. App.—Austin 2000, pet. denied).

15. Mr. Schetroma is with Steptoe & Johnson's Meadville, Pennsylvania office, located at 201 Chestnut Street, Suite 200, Meadville, Pennsylvania 16335. Mr. Schetroma's biography can be found at http://www.steptoe-johnson.com/attorneys/personnel/RussellLSchetroma,910.aspx.

is and shall at all times remain within the sole and absolute discretion of the Lessee, its successors and assigns. If and when a decision may be made to use a horizontal well to achieve production from any formation under the leased premises, Lessor does hereby consent and agree to the use of a horizontal well on and under the leased premises and Lessor specifically: a) grants to Lessee the right, in Lessee's sole and absolute discretion, to use the leased premises as the site of the vertical bore for such horizontal well, whether or not that bore intersects the target formation upon the leased premises; b) grants to Lessee the right, in Lessee's sole and absolute discretion, to horizontally drill through the leased premises whether or not that bore intersects the target formation upon the leased premises, whether or not any completion or stimulation is performed upon the leased premises and whether or not production is obtained or maintained upon the leased premises, grants to the Lessee the right to perform such completions and stimulations in and from any horizontal bore as Lessee may, in Lessee's sole and absolute discretion determine. Any vertical or horizontal bore made upon the leased premises as part of a horizontal well the vertical bore of which is on the leased premises or any other premises shall be and shall be deemed to be a well drilled upon the leased premises for all purposes of this lease.

Any and all horizontal wells affecting the leased premises shall, at Lessee's sole option, be under and subject to the pooling and unitization provisions of this lease and any regulations of any and all applicable governmental authorities. In addition, and without limiting Lessee's rights and options under any other provision of this lease, horizontal wells shall be subject to special pooling and royalty sharing options in accord with this paragraph. Upon Lessee's election to utilize a horizontal well on, under or through the leased premises, Lessee may pool or unitize all or any part of the leased premises with any and all other lands that, in Lessee's sole discretion, Lessee determines to be drained or otherwise affected by the subject horizontal well.

C. *Habendum Clause*

Whether there is production in paying quantities from the leased tract should not be an issue if the leased tract has been pooled and the unit is producing in paying quantities, even if production from the leased tract has ceased.

D. *Royalty*

Ignoring the issue of post-production costs and other royalty calculation issues, in most cases, production is allocated to tracts in a pooled unit according to an allocation provision in the pooling clause.

E. *Pooling*

Pooling is probably the most vexing current issue for lessees. Extant leases were designed for vertical wells and contain provisions that are difficult to deal with in the context of a horizontal well and may even prevent the pooling of the lease. The best example may be contained in the case of *Browning Oil Co. v. Luecke*.[16]

1. The *Browning* Case

In *Browning*, Browning and other lessees had leases, granted in 1979, covering lands in Fayette County, Texas.[17] Each lease was substantially the same and contained the following language:

> 4. Lessee, at its option, is hereby given the right and power to pool or combine the acreage covered by this lease or any portion thereof as to oil and gas, or either of them, with any other land covered by this lease, and/or with any other land, lease or leases in the immediate vicinity thereof to the extent hereinafter stipulated .... For the purposes of computing the royalties to which owners of royalties and payments out of production and each of them shall be entitled on production of oil and gas, or either of them, from the pooled unit, there shall be allocated to the land covered by this lease and included in said unit . . . a pro rata portion of the oil and gas, or either of them, produced from the pooled unit after deducting that used for operations on the pooled unit. Such allocation shall be on an acreage basis—that is to say, there shall be allocated to the acreage covered by this lease and included in the pooled unit . . . that pro rata portion of the oil and gas, or either of them, produced from the pooled unit which the number of surface acres covered by this lease . . . and included in the pooled unit bears to the total number of surface acres included in the pooled unit. Royalties hereunder shall be computed on the portion of such production, whether it be oil and gas, or either of them, so allocated to the land covered by this lease and included in the unit just as though such production were from such land.
>
> . . .
>
> 14. Notwithstanding paragraph number four (4) hereof, if any pooled unit is created with respect to any well drilled on the land covered hereby, at least sixty percent (60%) of such pooled unit shall consist of the land covered hereby.
>
> . . .
>
> In the event a well is drilled on a tract of insufficient size to contribute sixty percent (60%) of the unit acreage, Lessee will pool all of the drillsite leased acreage and when available, will pool only acreage from other Lessor owned land under lease to Lessee, provided however, that Lessee may pool other acreage not owned by Lessor if required to meet established field rules. In this event, only that

16. *Browning Oil Co.*, 38 S.W.3d 625.
17. *Id.* at 636.

> acreage necessary to make the unit meet the applicable field rules will be included.
>
> In the event that Lessee shall have an option to utilize a greater or lesser spacing requirement with respect to any producing well and or producing formation or horizon, then Lessee affirmatively covenants and agrees to utilize the lesser spacing requirement. For example, in the event that the field rules specify that in connection with the production from the Chalk Formation, the Lessee may utilize either a One Hundred Sixty (160) acre spacing requirement and/or an optional Eighty (80) acre spacing requirement, then Lessee shall utilize the lesser Eighty (80) acre spacing requirement.[18]

In 1994, the lessee requested a modification of the pooling provisions:

> In addition to the provisions for pooling, combining or unitizing as contained in Paragraph 4 of the Lease, in the event Lessee, its successors or assigns, should exercise its right and power, in its sole option and discretion, to pool, unitize or combine the lease premises or any portion thereof with other lands in order to form a unit or pooled unit containing a well with a horizontal drainhole, as defined herein, such unit or pooled unit may, within the discretion of Lessee, its successors or assigns, contain the greatest acreage allowable to the extent prescribed or permitted by the Railroad Commission of Texas or other governmental authority having jurisdiction, including, without limitation, Statewide Rule 86 . . . and any amendments or supplements thereto . . . . For the purposes of the lease and for the purpose of exercising the above described rights, a horizontal well or horizontal drainhole is defined as any well in which the horizontal component of the gross completion interval is, at a minimum, one hundred (100) feet.[19]

The Lueckes, the lessors, refused to agree to the modification.[20] In spite of such rejection, the lessee proceeded to drill and complete two horizontal wells traversing the Lueckes' land.[21] The Jennifer Medusa Well No. 1 crossed seven separate tracts of land, only one of which belonged to the Lueckes; however, the vertical portion of the well and part of the horizontal drainhole were physically located on the Lueckes' tract.[22] The P-12 showed a unit of 839 acres, 268 of which were the Lueckes' tracts.[23] The Lueckes' tract with a wellbore consisted of 10% of the total unit acreage.[24]

The lessee drilled a second horizontal well, the Weyand-Hays Unit Well No. 1, and portions of its wellbore crossed two of the Lueckes'

18. *Id.* at 637–38.
19. *Id.* at 638.
20. *Id.*
21. *Id.*
22. *Id.*
23. *Id.*
24. *Id.*

tracts.[25] The P-12 reflected 346 acres, including seventy-eight acres from one of the Lueckes' tracts and thirty-six acres from another, for an aggregate of about 30% of the unit.[26]

The Lueckes sued.[27] The trial court ruled that the lessee had breached the pooling provisions.[28] Damages were reserved for determination by the jury.[29] The Lueckes claimed royalty on all production from the two units and, with respect to the wellbores actually crossing the tracts, they claimed a double royalty on the total production from that well.[30] The lessee proposed a royalty based on the share of production from the wells that could be attributed to the Lueckes' tracts.[31] The trial court awarded damages of $833,256 plus prejudgment interest generally in accord with the Lueckes' contention and $75,000 in attorneys' fees.[32]

On appeal, the lessee made three arguments:

(1) The lessee did not have to comply with the pooling provisions;
(2) The Lueckes presented no evidence of damages or that proof was insufficient; and
(3) The trial court failed to submit the proper measure of damages.[33]

The court of appeals recognized that parties to an oil and gas lease must strictly comply with its terms and that such compliance applies to pooling clauses.[34] The court then concluded that there was no implied general exception for horizontal wells.[35] The lessee argued that the applicable field rules precluded the formation of pooled units in accordance with the lease's anti-dilution provisions.[36] The court examined previous decisions and found no holdings mandating the inclusion of acreage from existing units when designating a new adjacent unit but that, even if they had, the lessees were required to heed the provision mandating that 60% of each unit consist of Luecke land.[37]

However, the court disagreed with the consequence of the breach of the pooling provisions.[38] The court, instead, held that the breach "rendered the pooled units invalid with respect to the Lueckes' land. Absent valid pooling, there [was] no cross-conveyance, and the

25. *Id.*
26. *Id.* at 638–39.
27. *Id.* at 639.
28. *Id.*
29. *Id.*
30. *Id.*
31. *Id.*
32. *Id.*
33. *Id.*
34. *Id.* at 640.
35. *Id.*
36. *Id.* at 641.
37. *Id.*
38. *Id.* at 643.

Lueckes [were] not entitled to royalties on oil and gas produced from land they d[id] not own."[39] The court found that the trial court had failed to give the jury sufficient guidance on determining the damages.[40]

The court went on to state the following:

> Without valid pooled units, the leases do not and cannot award the Lueckes royalties on oil and gas produced from tracts they do not own.
>
> . . .
>
> But the rule of capture, which is premised on drainage, does not support [the Lueckes'] entitlement to royalties on all production from a horizontal well, precisely because (1) the geophysical characteristics of the formation actually inhibit the natural drainage underlying the rule of capture, (2) production from multiple drillsite tracts is involved, and (3) the fractures contributing to production are not all adjacent to any single drillsite.
>
> . . .
>
> Absent the ability to naturally drain neighboring tracts, the Lueckes are not entitled to production from other lessors' tracts unless there has been a cross-conveyance of property interests. Because the purported units were invalid, there has been no cross-conveyance of interests, and the Lueckes are not entitled to royalties on production from lands they do not own. Although the Lueckes' tracts are drillsite tracts, they cannot claim royalties for total production when they have no legal claim to oil and gas recovered from other lessors' drillsite tracts.[41]

The court decided that it had to balance two competing interests: (1) the lessee should not be allowed to ignore anti-dilution provisions with impunity and (2) the immense benefits that have accompanied the advent of horizontal drilling, including the reduction of waste and the more efficient recovery of hydrocarbons:

> Draconian punitive damages for a lessee's failure to comply with applicable pooling provisions could result in the curtailment of horizontal drilling. We decline to apply legal principles appropriate to vertical wells that are so blatantly inappropriate to horizontal wells and would discourage the use of this promising technology. The better remedy is to allow the offended lessors to recover royalties as specified in the lease, compelling a determination of what production can be attributed to their tracts with reasonable probability.[42]

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39. *Id.*

40. *Id.* at 644.

41. *Id.* at 645–46 (citations omitted).

42. *Id.* at 646–47 (citing Ortiz Oil Co. v. Luttes, 141 S.W.2d 1050, 1053 (Tex. Civ. App.—Texarkana 1940, writ dism'd by agr.) and stating the fact that the exact amount of oil produced cannot be precisely determined is no reason for denying recovery based on the jury's approximation).

On that basis, the court remanded for a new trial on damages.[43]

2. General Analysis of Pooling Clauses

The pooling clause in most leases does three things:

(1) It allows the sharing of production and operations across lease lines and allows operations on one tract to qualify as operations on any pooled tract.
(2) It decides how much of the lease acreage may be included in the unit.
(3) It determines how production from each tract will be shared with the other tracts.

a. How Much Acreage?

The Texas Railroad Commission ("RRC") does not restrict the maximum size of a pooled unit—the maximum is based on the lease provisions. However, under an oil and gas lease in Texas, the lessee is under a duty to exercise pooling power in good faith, and the inclusion of non-productive acreage could be pooling in bad faith.[44]

Under pre-horizontal leases, the lessee could pool, say, a 640-acre unit, and as long as there were no obvious faults, the entire 640-acre tract could be said to be productive. With a horizontal well, the reach of the drainage pattern is going to be limited to a few hundred feet from the wellbore. It will be difficult for a lessee to justify holding the entire 640-acre tract with one lateral drain.

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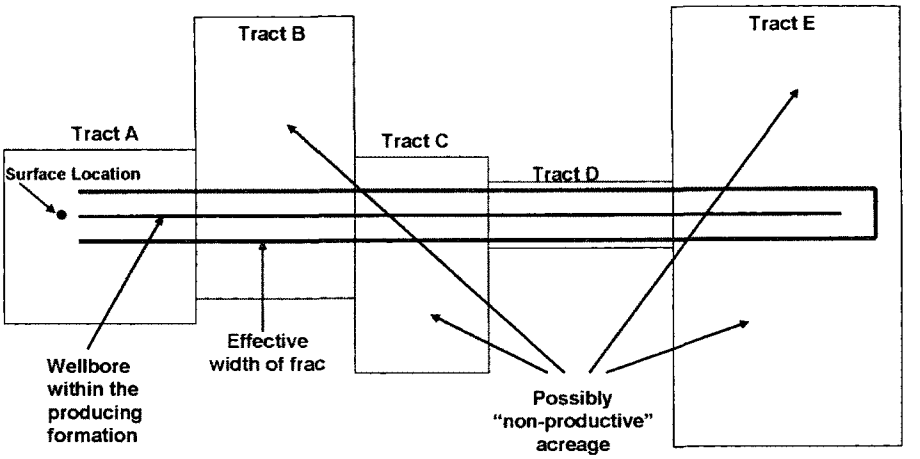
43. *Id.* at 647.

44. Amoco Prod. Co. v. Underwood, 558 S.W.2d 509, 512–13 (Tex. Civ. App.—Eastland 1977, writ ref'd n.r.e.). In *Underwood*, the lessee had held over 2,200 acres with a 640-acre unit and had included some acreage in which the testimony was that it would be "stupid" to drill in that section. *Id.* at 512. This obligation is described as part of the doctrine of implied covenants, and a duty of good faith is imposed in exercising the pooling authority. *Id.* The standard imposed in exercising this duty has, in some cases, been described as fiduciary, e.g., Expando Prod. Co. v. Marshall, 407 S.W.2d 254, 260 (Tex. Civ. App.—Fort Worth 1966, writ ref'd n.r.e), but subsequent cases, e.g., Amoco Prod. Co. v. First Baptist Church of Pyote, 579 S.W.2d 280, 285 (Tex. Civ. App.—El Paso 1979, writ ref'd n.r.e.), find it to be a lesser duty: "Since his interests frequently conflict with those of his lessor, however, he must exercise the power in fairness and in good faith, taking into account the interests of both lessor and lessee." *Id.* The same approach with respect to requiring geological justification for exercising the pooling authority seems to be followed in North Dakota, Sotrana-Texas Corp. v. Mogen, 551 F. Supp. 433 (D.N.D. 1982), and in Louisiana, Gorenflo v. Texaco, Inc., 566 F. Supp. 722 (M.D. La. 1983).

FIGURE 1:
NON-PRODUCTIVE ACREAGE



By the same token, interpreting an implied covenant to say that including anything outside of the actual, effective frac zone is bad-faith pooling seems extraordinarily burdensome as it would have to imply a continuous development obligation when one is not written into the lease. Since the non-productive acreage is likely potentially productive, could this, perhaps, be better handled by the implied covenant of further development? Or would it lead to the same result?

In an attempt to protect themselves from abuse of the pooling authority, lessors have incorporated a number of devices. Because the *Amoco Production Company v. Underwood* case, and similar cases, pointed out that lessees could, absent a Pugh clause and a limitation in the lease, include a small portion of a lease and thereby hold a large number of acres as long as the unit remained productive, lessees have incorporated a requirement that a certain minimum percentage of the lease be included in the pooled unit.[45] This approach also works great with vertical wells. As exhibited in *Browning*, it can prevent the drilling of a horizontal well, and such limitations will be enforced.[46]

Lessors have also relied increasingly on limiting the size of the units thinking that if the lessee can form a unit no larger than what is required by the rules of the RRC, then the lessee will be protected, as a practical matter. However, the rules do not "require" acreage to be attributed to a well or unit except for the minimum acreage to get a permit or an allowable. Richard P. Marshall Jr. has gone into detail

45. *See Amoco Prod. Co.*, 558 S.W.2d at 512–13.
46. *See Browning Oil Co.*, 38 S.W.3d at 642.

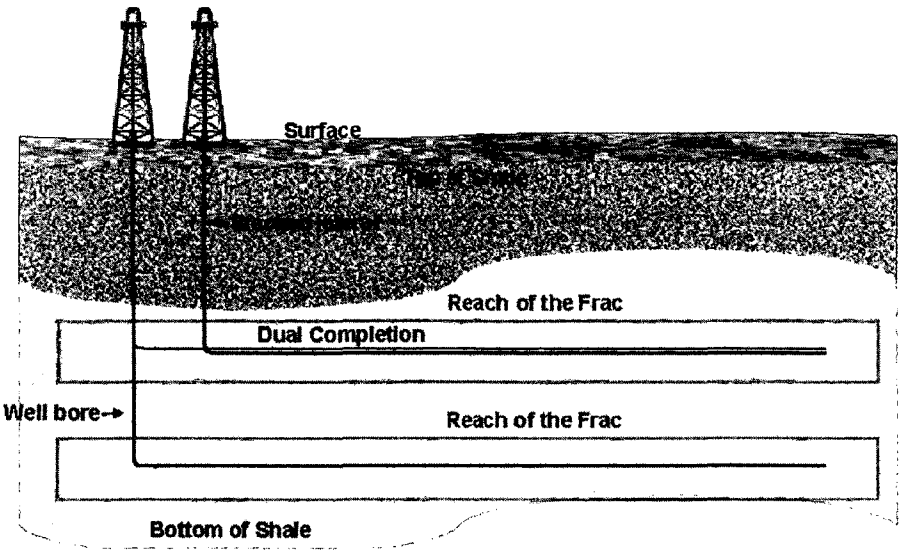
on the difficulties in drafting such limiting language[47] and has suggested the following:

> The operator must be certain that the retained acreage clause will allow the retention of all acreage covering the horizontal drainhole and the surface location. Tying the retained acreage amount to the acreage prescribed by RRC rules or acreage required for [the] maximum allowable may create undue restrictions for the lessee. Instead, the operator should tie the amount of the retain[ed] acreage to the acreage operators are permitted to assign to the well. A fixed amount of acreage is even better as long as the fixed amount is equal to or greater than the amount allowed by the RRC rules.[48]

b. The Depth of the Shale

Many of the shale discoveries are quite thick. In many, the lessee is faced with the "problem" of whether to drill the high, middle, or low portion. In some shales, the frac will not reach to both the bottom and top of the shale formation.

FIGURE 2:
THE REALLY DEEP SHALE



So, should the lessor make some requirement with respect to the development of all portions of the shale? A lessor does not know for sure if his shale is productive in its entire depth, and the lessee may not know either. There are technical ways to fully develop a thick

47. Richard P. Marshall Jr., *Land Problems Related to Horizontal Drilling in Texas*, LANDMAN, July–Aug. 2008, at 47–66.
48. *Id.* at 66.

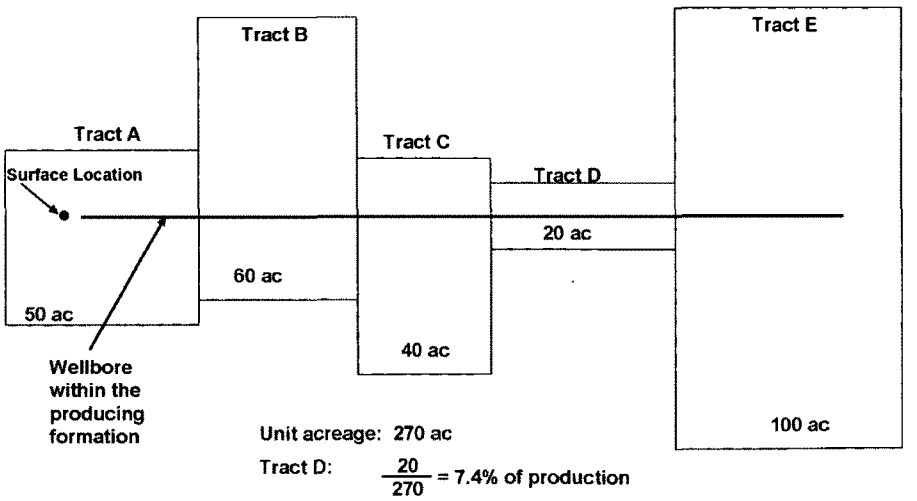
shale, such as dual completions and stacked laterals.[49] Will the lessee be required to develop the remainder of the shale? This is a problem similar to that apparently found in the Bakken Shale where there are two shales, one on top of the other, and a possible, even deeper, third shale. The problem also occurs where there are conventional zones with shales; for example, the Bone Springs is found in the same area as the "Wolfberry" zones (the juncture of the Sprayberry and the Wolfcamp).

c. Sharing the Production

The traditional sharing formula in the pooling clause is based on the acreage in the lease in question divided by the total acreage in the unit, which equals the percentage of total production from the unit to which that lease is entitled. However, in a horizontal well situation, this can result in what would seem to be unfair sharing.

FIGURE 3:
ALLOCATION FACTORS

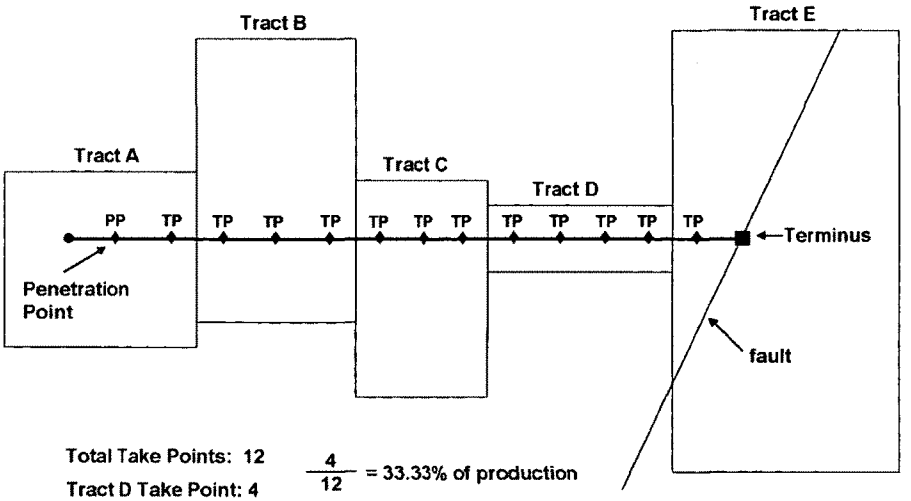
ACREAGE



49. *See generally* Doug J. Dashiell, Texas Railroad Commission Regulation of Horizontal Drilling in Texas; Potential Problems and Practical Solutions 12 (2010) (presented at the 36th Annual Ernest E. Smith Oil, Gas & Mineral Law Institute Apr. 9, 2010; on file with author).

FIGURE 4:
ALLOCATION FACTORS

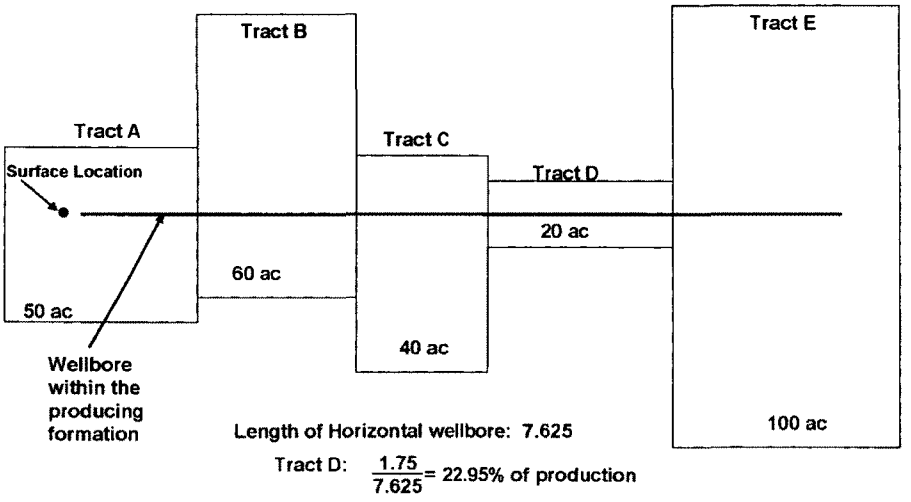
TAKE POINTS



However, it can seem more unfair when the concept of "take points" is introduced.

FIGURE 5:
ALLOCATION FACTORS

WELLBORE LENGTH



Tract D would receive more than any other tract based on the relative length of the lateral, and even more based on sharing by take points. The real problem here is that the lessee may end up with dif-

ferent sharing provisions in each lease; *Browning Oil Co. v. Luecke* says that the lessee is required to comply with each.[50] Once the lessee drills a well, it will be too late to get an agreement from the lessors. For reasons that are not clear, almost all lessors and their attorneys regard a request to modify a lease after it has been executed as attempted fraud. This may reflect insecurity with things geological and engineering—if so, hire a consultant!

Perhaps sticking with the acreage allocation formula is best for now.

d. Sample Language

The following comes from Mr. Russell L. Schetroma.[51] It is a discussion–debate draft that is being used with an eastern mineral law foundation working group to create a more standard "eastern" oil and gas lease.

> a) Lessee's Reasonable Judgment. As to any horizontal well affecting the leased premises, Lessor shall be compensated at the royalty set forth in paragraph ____ for that portion of the production from the horizontal well that Lessee, in its reasonable discretion, determines to be attributable, from time to time, to the leased premises. In no case shall Lessor receive any payment less than the delay rental provided in paragraph ___ of this lease. Within _____ of placing any horizontal well into market, Lessee shall provide Lessor with the calculations by which Lessee proposed to allocate production from that horizontal well among all Lessors of leases which will be held in secondary term by such production. Any disputes between Lessee and any Lessor concerning any such allocation shall be resolved in accord with the provisions of paragraph ___ of this Lease. Unless Lessor shall file a dispute to any proposed allocation under paragraph ___ of this lease within thirty (30) days of the date upon which Lessee provides notice of Lessee's proposed allocation to Lessor, it shall be conclusively presumed that Lessor has accepted and agreed to the proposed allocation and that allocation shall continue until such time as the Lessee may elect to propose an alternate allocation among all lessors participating in a share of such royalty. Upon the filing of any dispute by any person entitled to share in any royalty from any well affecting the leased premises, Lessor agrees that all royalty shall be retained by Lessor until such time as a final allocation of all such royalty is obtained in accord with the dispute resolution provisions of this paragraph.
>
> b) Relative Surface Acreage. Lessor agrees that the complexity and expense of the drilling, completion and operation of a horizontal well requires that some land be utilized for vertical boring, other land for horizontal boring, other land for uncompleted recovery, other land for recovery through completions thereon, and some land for recovery with no operations, boring or completion thereon.

50. *Browning Oil Co.*, 38 S.W.3d at 640.
51. *See* Schetroma, *supra* note 15.

No land affected by the horizontal well would benefit from oil or gas operations without use of and impact upon all other land affected thereby. Lessor agrees that Lessor shall receive that portion of the royalty provided in paragraph ___ of this lease upon all production from any horizontal well affecting the leased premises that is equal to the relative percentage of the surface acreage of the leased premises to the surface acreages of all leases held by production from the subject well.

c) Relative Bore Length. Lessor agrees that Lessor shall receive that portion of the royalty provided in paragraph ___ of this lease upon all production from any horizontal well affecting the leased premises that is equal to the relative percentage of the length of the bore of the well through the leased premises to the total length of the bore of the entire well upon of all leases held by production from the subject well. Vertical and non-productive bore-through lengths shall be included in all calculations implementing this paragraph.

d) Relative Bore Length/Completion Allowance. Lessor acknowledges that some parcels subject to any horizontal well will be more completely drained than others based upon the design, completion and operation of the well and that a major factor leading to enhanced drainage is whether any completion(s) is/are made upon each tract. Lessor agrees that Lessor shall receive that portion of the royalty provided in paragraph ___ of this lease upon ____ percent of all production from any horizontal well affecting the leased premises that is equal to the relative percentage of the length of the bore of the well through the leased premises to the total length of the bore of the entire well upon of all leases held by production from the subject well. Vertical and non-productive bore-through lengths shall be included in all calculations implementing this paragraph. The remaining royalty upon the ___ percent of all production from any horizontal well shall be dividing among the lessors of those leaseholds upon which completions have been made in equal shares determined by dividing that remaining royalty by the number of completions made in the entire horizontal well.

e) Areas Not Bored But Within A Defined Distance Of Any Bore (add-in to other clause). If and to the extent any lease held by Lessee is located within _____ feet of any bore of any horizontal well on this lease and Lessee determines to include all or any part of that other lease in a pool or unit with all or any part of this lease, the royalty payable hereunder shall be divided among all lessors of leases held by production by the horizontal by allocating to the other lease so much of the production from the well as Lessee in its reasonable discretion determines to be appropriate and then applying to the remaining production the royalty allocation procedures set forth in this paragraph.

e. More Sample Language

A. POOLING

Lessee shall have no right to pool or combine any portion of the Leased Premises with adjoining lands belonging to third parties who are not signatories to this Lease without first obtaining the prior written consent of Lessor which consent shall not be unreasonably withheld. Lessee may pool as follows:

1. Non-Horizontal Wells Located Within 330 Feet of Leased Premises. If the well is not a Horizontal Well and the bottom hole location of the well is located within 330 feet of the Leased Premises on land adjacent to the Leased Premises, Lessee may pool so long as no less than fifty percent (50%) of the land comprising the pooled unit for such well is from the Leased Premises.

2. Horizontal Wells Located on or Partially on Leased Premises. If the well is a Horizontal Well located all or partially on the Leased Premises, Lessee may pool so long as the land comprising the pooled unit for such well shall include land from the Leased Premises in at least the same percentage as the percentage that the length of the horizontal drainhole displacement of such well located on the Leased Premises bears to the total length of the horizontal drainhole displacement of such well, provided, however, that in any event no less than fifty percent (50%) of the land comprising such pooled unit shall be from the Leased Premises. As used herein, the term "Horizontal Well" means any well that is drilled with one or more horizontal drainholes having a horizontal drainhole displacement of at least 100 feet, provided and so long as such well also constitutes a "horizontal well" as defined in Statewide Rule 86, as promulgated by the Texas Railroad Commission.

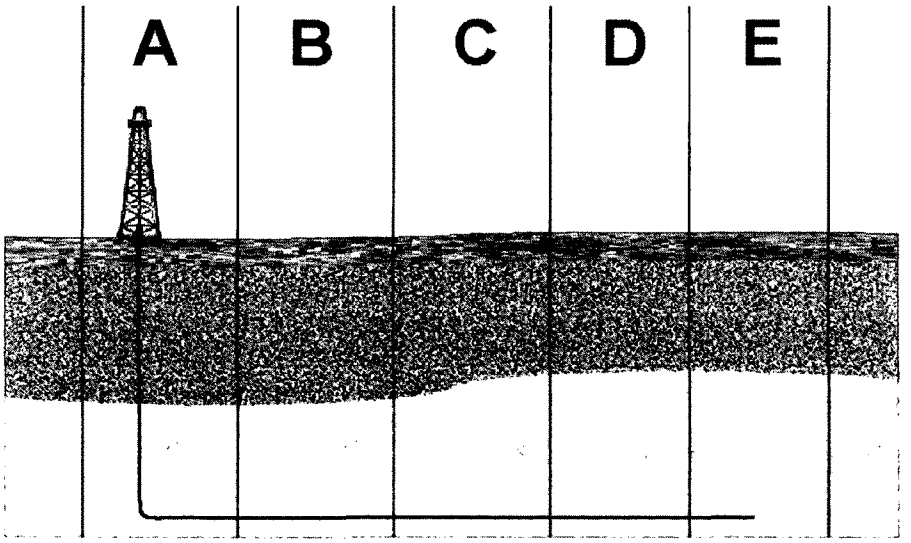
3. Pooled Unit Size. No pooled unit shall be larger than the minimum number of acres required to obtain approval of the drilling unit size applicable to a well under the applicable density rules adopted by a governmental authority having jurisdiction, provided, however, and notwithstanding anything contained to the contrary in the preceding clause, for gas wells completed in the Barnett Shale formation, the pooled unit (i) for a well which is not a Horizontal Well may be as large as, but shall not exceed, forty (40) acres and (ii) for Horizontal Wells may be as large as, but shall not exceed, forty (40) acres plus the additional acreage listed in the table in Statewide Spacing Rule 86 of the Railroad Commission of Texas for fields with a density rule of 40 acres or less.[52]

52. ARTHUR J. WRIGHT, HORIZONTAL WELLS: TECHNICAL AND LEGAL ISSUES, ENERGY & MINERAL LAW FOUND, 17–18 (2007) (on file with author).

F. *"Confusion of Goods"*

Traditionally, an exploration and production ("E&P") company is very careful about unleased interests on the drillsite tract but less so on non-drillsite tracts. Generally an unleased owner in a non-drillsite tract in a unit cannot interfere with production from a well and is not entitled to participate in production from the well unless that unleased owner is included in the unit either voluntarily or by a Mineral Interest Pooling Act action. This is a risk to be weighed by each company but is normally considered of low risk. However, in the horizontal well context, each separate tract penetrated by a wellbore is a "drillsite tract." So, assuming that there are five tracts penetrated by the wellbore and, for simplicity, there are no tracts in the pooled unit that are not penetrated by the wellbore, and assuming further that each tract is forty acres, What happens if there is an unleased 1% in Tract C?[53]

FIGURE 6:
FIVE DRILLSITES



Note that the following is applied in situations analogous to horizontal well situations, but the Author has found no case that has actually applied these concepts to horizontal wells.

In the case of *Humble Oil & Refining Company v. West*, West was the lessor of certain tracts, and Humble was the lessee.[54] Humble decided to convert the field to a gas storage reservoir.[55] The conversion

53. *See supra* FIGURE 5.
54. Humble Oil & Ref. Co. v. West, 508 S.W.2d 812, 813 (Tex. 1974).
55. *Id.*

was approved by the RRC.[56] Humble injected gas into the reservoir while there was still native gas (gas in place) in the reservoir.[57] West's suit for an injunction to prohibit injection was rejected.[58] West then argued that it was entitled to royalty in all production from the reservoir (including injected gas) because the lease said West was entitled to royalties "on oil, gas and other minerals which may be produced and saved from the lands hereby conveyed."[59] Having previously rejected the notion that injected gas was, once again, subject to the rule of capture,[60] the Court applied the "confusion of goods" theory:

> [T]he confusion of goods theory attaches only when the commingled goods of different parties are so confused that the property of each cannot be distinguished. Where the mixture is homogeneous, the goods being similar in nature and value, and if the portion of each may be property shown, each party may claim his aliquot share of the mass. Additionally, the burden is on the one commingling the goods to properly identify the aliquot share of each owner; thus, if goods are so confused as to render the mixture incapable of proper division according to the pre-existing rights of the parties, the loss must fall on the one who occasioned the mixture. Stated differently, since Humble is responsible for, and is possessed with peculiar knowledge of the gas injection, it is under the burden of establishing the aliquot shares with reasonable certainty.[61]

So, Humble's burden was as follows:

> [I]t is our view that the act of commingling native and extraneous gas did not impose upon Humble the obligation of paying royalties on all gas thereafter produced from the reservoir, if the evidence establishes with reasonable certainty the volume of gas reserves

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56. *Id.*
57. *Id.* at 813–14.
58. *Id.* at 814.
59. *Id.* at 814–15.
60. *Id.* at 817 (relying on Lone Star Gas Co. v. Murchison, 353 S.W.2d 870 (Tex. Civ. App.—Dallas 1962, writ ref'd n.r.e.), which adopted the reasoning that gas, once extracted, becomes personal property, as stated in White v. N.Y. State Natural Gas Corp., 190 F. Supp. 342 (W.D. Pa. 1960), instead of the opposite conclusion that injected gas becomes subject to the doctrine of *animas ferae naturae,* Hammonds v. Cent. Ky. Natural Gas Co., 75 S.W.2d 204 (Ky. 1934)).
61. *Id.* at 818 (citations omitted); *see also* W.L. Lindemann Operating Co. v. Strange, 256 S.W.3d 766, 781 (Tex. App.—Fort Worth 2008, pet. denied). In *Strange,* the court explained the "confusion of goods" theory further:

> Commingling is also referred to as confusion of goods; 'as a general rule, the confusion of goods theory attaches only when the commingled goods of different parties are so confused that the property of each cannot be distinguished.' 'One who wrongfully permits the property of another to become so intermingled and confused with his own property as to render it impossible to identify the goods of each is under the burden of disclosing such facts as will insure a fair division, and if he fails or refuses to do so, *the combined property or its value will be awarded to the injured party.*' In applying the commingling rule, we hold one who willfully commingles to a strict burden
> . . . .

Strange, 256 S.W.3d at 781 (emphasis added) (citations omitted).

> upon which the Wests would have been entitled to royalties, absent injection of extraneous [the term for gas that has become personal property and then re-injected] gas. The burden of this showing devolves upon Humble after proof by the Wests of their royalty interests, together with proof of Humble's commingling of extraneous and native gas. The threshold question for determination is whether the requisite computation of reserves is capable of establishment with reasonable certainty; and, if so, the further question to be resolved is whether the burden defined above is discharged by Humble under the evidence.[62]

The Court remanded the case to the trial court for further proceeding in accordance with the opinion.[63]

In Pennsylvania, there is, perhaps, no ability on the part of the lessee to provide testimony as to the amount of the commingled gas to which the lessor is entitled. In *Pomposini v. T.W. Phillips Gas & Oil Co.*, the lessor, Wesley Pomposini, leased a 175-acre tract to the lessee, T.W. Phillips Oil and Gas Company.[64] The lease provided for royalties based on a sliding pressure scale:

> [On gas] at the rate of two hundred dollars per year while the well shows a pressure of 200 or more lbs., per square inch upon being shut in five minutes in two inch pipe or thirty minutes in larger pipe; at the rate of one hundred dollars per year while the well shows a pressure of 100 or more lbs. per square inch and less than 200 lbs. per square inch upon being shut in five minutes in two inch pipe or thirty minutes in larger pipe; at the rate of fifty dollars per year while the well shows a pressure of less than 100 lbs. per square inch upon being shut in five minutes in two inch pipe or thirty minutes in larger pipe; to be paid quarterly from completion until abandonment of well.[65]

Here, the reservoir was being used as a gas storage reservoir; the lessor had not granted the right to store gas (apparently the lessor was also the surface owner) but was being paid $75 per year.[66] The court, recognizing that both native and extraneous gas was in the reservoir, held that the royalties were to be determined by the pressures exerted by the native gas; however, because of the commingling, the gas in-

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62. *Humble Oil & Ref. Co.*, 508 S.W.2d at 819.

63. *Id.* The retrial of the issue of the amount of native gas occurred in Exxon Corp. v West, 543 S.W.2d 667 (Tex. Civ. App.—Houston [1st Dist.] 1976, writ ref'd n.r.e.). In essence, Exxon's expert witnesses analyzed all information in the reservoir and made every assumption in favor of West up to the "bounds of reason." *Id.* at 670. The court stated as follows: "In making his geological interpretation for the Maximum Reserve Study, [the expert] picked the highest point on the log for the ceiling of the reservoir, the deepest point for the gas/water contact and the most eastern area location for the fault; all of these points being extended, in the witnesses opinion, to the 'bounds of reason.'" *Id.*

64. Pomposini v. T.W. Phillips Gas & Oil Co., 580 A.2d 776, 777 (Pa. Super. Ct. 1990).

65. *Id.* at n.1.

66. *Id.* at 777.

jected into the well could not be separated with certainty from the amount of natural gas produced and stored.[67] Under these circumstances, the lessor was entitled to royalties based on the pressure exerted by the gas without regard to whether the gas therein was native or injected from a foreign source.[68] The Pennsylvania Superior Court sent the case back to the trial court, but apparently, it did not disturb the lessor's rights to royalties based on the aggregate pressure.[69]

Whether the Texas Supreme Court will adopt the "confusion of goods" doctrine with respect to horizontal wells is open. The *Browning* case was decided after the *Humble Oil & Refining Co.* case in which the "confusion of goods" doctrine was articulated, and *Browning* expressly rejected the theory that the lessors were entitled to share in production from other tracts.[70] On the other hand, *Humble* is a Texas Supreme Court case, but it did not deal with horizontal wells, and *Browning* is a well-reasoned court of appeals case dealing specifically with horizontal wells.

G. *Effective Date of the Unit*[71]

Most oil and gas leases will say that the lessee may form a unit by filing a unit designation in the county where the land is located. Some say that the unit is effective when it is filed for record; others will say that it is effective from the date of first production (which works best for new wells). The problem with saying it is effective when filed for record is that there may be a delay between the date the well starts producing (many horizontal wells produce as they are being drilled and the flush production can occur during drilling), and the date the unit designation is filed of record. The industry's standard practice of filing the unit designation after the well starts producing is that (i) the additional acreage, outside of the drilling unit, is not necessary until the lessee knows if he has a well and (ii) the lessee may learn more about what is and is not productive acreage if he waits until the well is completed. In most horizontal wells, the lessee is drilling a "resource play," and absent unexpected geological miscreance, the resource rock will exist along the entire length of the wellbore. So, being a resource play, when combined with it being produced as drilled, strongly signals that unit designations should be filed before the target formation is reached.

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67. *Id.* at 777–78, 780.

68. *Id.* at 780 (citing Humble Oil & Ref. Co. v. West, 508 S.W.2d 812 (Tex. 1974)).

69. *Id.*

70. *See* Browning Oil Co. v. Luecke, 38 S.W.3d 625, 643 (Tex. App.—Austin 2000, pet. denied).

71. This is not, directly, a horizontal well issue.

For a look at the problems raised by filing a unit designation later than it should have been, but in a vertical well context, look at the case of *Tittizer v. Union Gas Corp.*[72]

In 1999, Union Gas Corporation entered into multiple oil and gas leases with the Gislers and various adjoining landowners.[73] The leases contained pooling clauses, which allowed Union Gas to pool acreage owned by the various lessors for production of natural gas.[74] Completed in March 2000, the Watts-Gisler No. 1 Well, a vertical well, was part of a pooled unit.[75] While the well began production on March 27, 2000, Union Gas did not file its Designation of Pooled Unit (the "Designation") until August 7, 2000.[76] The Designation included language that made the pooled unit effective retroactively, from the date of first production on March 27, 2000.[77]

The Gislers filed a breach of contract claim against Union Gas, seeking to invalidate the retroactive effect of the Designation.[78] The Gislers sought 100% of their royalties from March 27, 2000, to August 7, 2000.[79] Concerned that the adjoining landowners' royalty rights under the pooling clause might be affected by the Gislers' claims, Union Gas joined the adjoining landowners as third-party defendants and sought a declaration to establish the rights of the parties concerning the royalty payments and the effective date of the pooled unit as the date of first production for all royalty owners.[80]

Tittizer, one of the non-drillsite lessors joined by Union Gas's third-party action, counterclaimed against Union Gas seeking a declaration that the effective date of the pooled unit under her lease was the date of first production and to recover her pro rata share of royalties accruing from the date of first production to the date of judgment.[81] The trial court entered final judgment for the Gislers on their severed contract claims and also awarded Tittizer her pro rata share of royalties from the first date of production to the date of judgment.[82]

On appeal, Union Gas complained that it had been wrongfully ordered to pay double royalties for production between March 27, 2000, and August 7, 2000.[83] The court of appeals reversed the part of the trial court's judgment in favor of Tittizer and ordered that the Gislers

72. Tittizer v. Union Gas Corp., 171 S.W.3d 857 (Tex. 2005) (per curiam).
73. *Id.* at 859.
74. *Id.*
75. *Id.*
76. *Id.*
77. *Id.*
78. *Id.*
79. *Id.*
80. *Id.*
81. *Id.*
82. *Id.* at 860.
83. *Id.*

alone were entitled to royalties from production between March 27, 2000, and August 7, 2000.[84]

The Texas Supreme Court noted that for pooling to be valid, it must be done in accordance with the method and purposes specified in the lease.[85] The Court held that under the terms of Tittizer's lease, pooling could only be effectuated upon recordation of an instrument identifying the pooled unit.[86] Therefore, the attempt by Union Gas to effect pooling on a date prior to the date of recordation was contrary to the terms of the lease.[87] As such, the Texas Supreme Court affirmed the court of appeals' conclusion that Tittizer was only entitled to her pro rata share of the royalties earned after the date of recordation.[88]

Tittizer argued to the contrary that Union Gas was estopped from asserting that the effective date was the date of recordation because Union Gas had previously filed a third-party claim seeking a declaration that the effective date was the date of first production.[89] Estoppel prevents a litigant from requesting a ruling from a court and then complaining that the court committed error in giving it to him.[90] The Texas Supreme Court recognized, however, that the trial court did not give Union Gas the ruling that it requested.[91] Union Gas requested a uniform determination from the trial court that the effective date of pooling was the date of first production.[92] By establishing different effective dates for the Gislers and Tittizer, the trial court did not grant Union Gas's requested uniform relief.[93] Thus, the Court held that estoppel was inapplicable to this case.[94]

The take away is that the pooling language in the lease will be strictly construed as to the effective date of the pooling. There is no reason to expect that this conclusion would have been different for a horizontal well.

II. THE JOINT OPERATING AGREEMENT ("JOA")[95]

The JOA is well designed for vertical wells—not so much for horizontal wells. The most obvious issue is that of the completion election

84. *Id.*
85. *Id.*
86. *Id.* at 861.
87. *Id.*
88. *Id.*
89. *Id.*
90. *Id.*
91. *Id.* at 682.
92. *Id.*
93. *Id.*
94. *Id.*
95. All comments related to the JOA are based on the Model Form Operating Agreement, created by the American Association of Petroleum Landmen ("A.A.P.L."), and various articles ("Articles") therein. *See* A.A.P.L. Form 610-1989 Model Form Operating Agreement (1989) [hereinafter A.A.P.L. JOA].

in Article VI.C of the JOA.[96] Also of concern are non-consent issues; Can or should a working interest owner ("WIO") who has gone non-consent in a horizontal well be able to participate in (i) a subsequent lateral using the same vertical wellbore, (ii) a subsequent decision to lengthen an existing wellbore, or (iii) a decision to drill a stacked lateral?

A. *The Completion Election*

Most horizontal wells are being completed as they are being drilled, and there is no practical point at which a WIO can or should have an election to participate or not participate. One way to handle this is to make "Option No. 1" applicable only to horizontal wells; the defect is, of course, that the option to have one election for both drilling and completion in a vertical well no longer exists. The suggested change is as follows:

> C. Completion of Wells; Reworking and Plugging Back:
>
> 1. Completion: Without the consent of all parties, no well shall be drilled, Deepened or Sidetracked, except any well drilled, Deepened or Sidetracked pursuant to the provisions of Article VI.B.2. of this agreement. Consent to the drilling, Deepening or Sidetracking shall include:
>
> Option No. 1: All necessary expenditures for the drilling, Deepening or Sidetracking, testing, Completing and equipping of *a horizontal or multi-lateral* well, including necessary tankage and/or surface facilities.
>
> Option No. 2: All necessary expenditures for the drilling, Deepening or Sidetracking and testing of *a vertical well*. . . . [using old Option No. 1]
>
> Option No. 3: All necessary expenditures for the drilling, Deepening or Sidetracking, and testing of a well. When such well has reached its authorized depth . . . [continue with old Option No. 2].[97]

B. *Definitions*

1. Completion

The JOA defines "Completion" as a "single operation intended to complete a well as a producer of Oil and Gas in one or more Zones, including, but not limited to, the setting of production casing, perforating, well stimulation and production testing conducted in such operations."[98] Since the completion of a horizontal well with multi-stage fracs is never a single operation, the definition seems inapposite.

96. A.A.P.L. JOA, art. VI, § C.
97. *See id.*
98. *Id.* at art. I, § B.

The term "Completion" is used, among other places, in Article VI.B.2.b.[99] This is the section that deals with a non-consent election followed by an inability to reach impenetrable substances and the extension of an election to the non-consenting parties to participate in the completion in a shallower zone.[100] First, whether the portion of the targeted formation is shallower should make no difference for this purpose. Second, how do you want to handle this? On the one hand, letting someone back into a resource play by paying their share of costs up to that point where you could not drill any further out spreads the risk; on the other hand, the consenting parties have already run most of the risks and may not want the non-consenting party to be able to get back in without suffering the non-consent penalty.

2. Deepening

Article VI.B.4.a contains the provision for a separate election for non-consenting parties to participate in the deepening of a well.[101] In essence, if the parties decide to deepen a well, the non-consenting party has the right to participate upon paying its share of costs incurred up to that point.[102] In the definitions section, "deepening" is defined as "a single operation whereby a well is drilled to an objective Zone below the deepest Zone in which the well was previously drilled, or below the Deepest Zone proposed in the associated AFE, whichever is the lesser."[103] In some of the JOA revisions the Author has seen, the term "Deepening" is modified to include any extensions of the lateral wellbore. However, it seems highly impractical to utilize that definition without revising the implications of its use in Article VI.B.4.[104] This is primarily attributable to the fact that such implications would require separate measuring of the production from the extended wellbore in a horizontal well. It may be that the best way to handle a proposal to extend the wellbore beyond its original AFE length is to use an election process whereby if a certain percentage approve the operation, it is binding on all WIOs who consented to the original well, and if the votes are not there, the operation does not proceed.

3. Drilling Unit

The term "Drilling Unit" means "the area fixed for the drilling of one well by order or rule of any state or federal body having author-

99. *Id.* at art. VI, § B(2)(b).
100. *Id.*
101. *Id.* at art. VI, § B(4)(a).
102. *Id.*
103. *Id.* at art. I, § D.
104. *See id.* at art. VI, § B.

ity."[105] It is used for defining the extent of required title exams for a new well and for the assignments necessary when one WIO takes over a well that has previously produced under Article VI.E.2.[106] Usually a drilling unit for regulatory purposes is just the drillsite tract for a vertical well and is, generally, smaller than the final unit. The Author submits that it is better to require the operator to run title on all of the tracts that will be in the final unit for the horizontal well, at least with respect to those tracts that will be penetrated by the wellbore, since they are drillsites. With respect to abandonment operations, there seems to be good reason to assign a well that most of the WIOs want to abandon and include only the tracts that contain a wellbore—unless more acreage is included than just the proration unit (if there are special field rules) or the acreage allocated to the well pursuant to Rule 86. The language in both the title provisions and in Article VI.E.2 should probably be limited to that proration unit or the Rule 86 unit. Currently, the Author does not believe that separate provisions will be necessary in this definition for stacked laterals, but some language dealing with how a stacked lateral should be treated should be added.

4. Drillsite

Similarly, the term "Drillsite" means the "Oil and Gas Lease or Oil and Gas Interest on which a proposed well is to be located."[107] It is used in the JOA only with respect to title matters. It appears that Texas law will treat each tract penetrated by a wellbore as a "Drillsite." That definition should be included in the "Drillsite" definition with respect to horizontal wells.

5. Plug Back

The definition of "Plug Back" is limited to "a single operation whereby a deeper Zone is abandoned in order to attempt a Completion in a shallower Zone."[108] It is conceivable that horizontal wells will be plugged back, and if so, this definition will not be helpful; however, modifying the definition to include, with respect to a horizontal well, any reduction in the length of a lateral in a well may be helpful. While not entirely clear, in the case of eliminated take points in a wellbore in order to create a non-productive zone ("NPZ") to avoid spacing issues with respect to a wellbore that may get too close to an adjoining unleased tract, the operation to create an NPZ should not be considered "plugging back."

105. *Id.* at art. I, § F.
106. *See id.* at art. VI, § E.
107. *Id.* at art. I, § G.
108. *Id.* at art. I, § N.

6. Recompletion

The definition of "Recompletion" is "an operation whereby a Completion in one Zone is abandoned in order to attempt a Completion in a different Zone within the existing wellbore."[109] Any recompletion in a horizontal well is most likely to be attempted in the same zone, so the definition is not helpful. While there is logic to anticipating that the owners of a well may decide that re-fracing a particular portion of the wellbore may be desirable, allowing one party to elect not to participate raises the specter of how one is going to measure the production attributable to that re-fracing. It would seem that an owner desiring not to participate should lose all production in the wellbore until the non-consent penalty has been recovered or the parties should agree on a formula for allocating production according to the length of the lateral or according to the relative number of take points involved. Of course, if the re-frac consists of some new technology, then the yardstick agreed to a couple of years earlier may not be fair, which would result in either falling out of the wellbore altogether or recovering a non-consent penalty from all production in the wellbore.

7. Reworking Operation

A "Reworking Operation" is "an operation conducted in the wellbore of a well after it is Completed to secure, restore, or improve production in a Zone which is currently open to production in the wellbore."[110] It will include well stimulation but exclude "Sidetracking, Deepening, Completing, Recompleting, or Plugging Back."[111] Many have noted that horizontal drilling technology may well require the re-fracing of a well because of the belief that rock will strengthen as hydrocarbons are removed so a new frac may open fractures in rock containing additional hydrocarbons not accessed in the first frac. The options granted by the JOA with respect to "reworking" are like "deepening" and not particularly useful in the horizontal well context. It is submitted that a party not desiring to participate in a rework of a horizontal well should surrender entirely all production from the wellbore and the wellbore itself, or the party should surrender until the consenting parties have recovered the non-consent penalties.

8. Additional Definitions

Either incorporating the RRC definitions of a horizontal well or actually inserting these as definitions, taken mostly from RRC Rule 86, makes sense. Obviously, these definitions may be modified depending on the horizontal well provisions included in a JOA.

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109. *Id.* at art. I, § O.
110. *Id.* at art. I, § P.
111. *Id.*

1) Horizontal Drainhole – "That portion of the wellbore drilled in the correlative interval, between the penetration point and the terminus."[112]
2) Horizontal Drainhole Displacement – "The calculated horizontal displacement of the horizontal drainhole from the penetration point to the terminus."[113]
3) Horizontal Drainhole Well – Any well that is developed with one horizontal drainhole having a horizontal drainhole displacement of at least 100 feet.[114]
4) Penetration Point – "The point where the drainhole penetrates the top of the correlative interval."[115]
5) Terminus – "The farthest point required to be surveyed along the horizontal drainhole from the penetration point and within the correlative interval."[116]
6) Other States
   (a) North Dakota – "'Horizontal Well' means a well with a horizontal displacement of the well bore drilled at an angle of at least eight degrees within the productive formation of at least three hundred feet."[117]
   (b) Wyoming – "Horizontal well shall mean wellbore drilled laterally at an angle of at least eighty degrees (80[°]) to the vertical and with a horizontal projection exceeding one hundred feet (100') measured from the initial point of penetration into the productive formation through the terminus of the lateral in the same common source of hydrocarbon supply."[118]
7) Larsen –

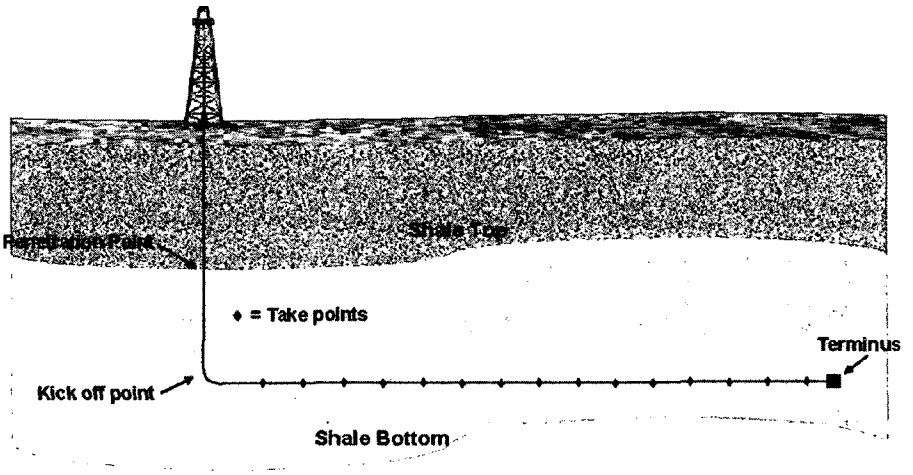
In the absence of a statutory or regulatory definition, the definition of a horizontal well can vary from a simple, non-technical definition to a more complex and technical definition. Care should be exercised in drafting a definition to distinguish a horizontal well from a more common directional well. In a directional well, the wellbore deviates from a vertical orientation in order to reach a bottom-hole location some distance from the surface location. However, the completion interval of a directional well does not extend horizontally through the objective formation, but rather penetrates the formation and is completed much the same way as a conventional vertical well.

> The term "Horizontal Well" shall mean a well containing a single Lateral which is drilled, Completed or Recompleted in a manner in which the Lateral (1) extends at least one hundred (100') feet in the objective formation and (2) ex-

112. 16 TEX. ADMIN. CODE § 3.86(a)(2) (2012).
113. *Id.* § 3.86(a)(3).
114. *See id.* § 3.86(a)(4).
115. *Id.* § 3.86(a)(5).
116. *Id.* § 3.86(a)(6).
117. N.D. CENT. CODE § 57-51.1-01(4) (2012).
118. 1 WYO. CODE R. § 2(y) (LexisNexis 2012) (Oil & Gas Conserv. Comm'n).

ceeds the vertical component of the completion interval in the objective formation.[119]

FIGURE 7:
Illustration of Definitions



8) Additional Definitions Not from Rule 86
   (a) Multi-Lateral Well – means a horizontal drainhole well with one or more horizontal drainholes that each have a horizontal drainhole displacement of at least 100 feet.
   (b) Total Depth or Total Measured Depth – the distance from the surface of the ground [or Kelly bushing] to the terminus of the wellbore following the path cut by the wellbore. Total Vertical Depth means the distance from the surface to its true vertical depth independent of the path of the wellbore.

The following language also appears in some JOAs:

> The term 'total depth' shall apply to all multi-lateral or horizontal wells drilled pursuant to this agreement and shall mean the distance from the surface of the ground to the terminus of the well bore. Each lateral together with the common vertical well bore shall be considered a single well bore and shall have a corresponding total depth. If the production from each lateral is to be commingled in the common vertical well bore then the lateral(s) and vertical well bore shall be considered collectively as one well bore. When the proposed operation is the drilling of, or operations on, a well containing a lateral component, the term 'depth' wherever used in the

119. Lamont C. Larsen, *Horizontal Drafting: Why Your Form JOA May Not Be Adequate For Your Company's Horizontal Drilling Program*, 48 ROCKY MTN. MIN. L. FOUND. J. 1, 51 (2011), *available at* http://www.dgslaw.com/attorneys/ReferenceDesk/DAPL-Presentation-Horizontal-Drilling-Paper.pdf.

> Agreement shall be deemed to be real 'total measured depth' insofar as it applies to such well.

9. The Provisions of Article VI.B.5

"Sidetracking" should not be applicable to operations in the lateral portion of a Horizontal Drainhole Well or a Multi-Lateral Well. Drilling operations that are intended to recover penetration of the target interval and are conducted in a horizontal or multi-lateral well should be considered as included in the original proposed drilling operations.

Oddly enough, even after going through the trouble of creating detailed definitions for use in horizontal wells, the Author has found surprisingly little use of the defined terms. In one JOA in the Bakken, the terms appeared only in the "Initial Well" provision as follows: "[well location] and shall thereafter continue the drilling of the well with due diligence to the Bakken formation then drill in formation one horizontal lateral approximately 8,000 feet . . . ." In another "Initial Well" provision, the Author has found the following language:

> Operator may cease drilling of the well if granite or other practically impenetrable substance, condition in the hold or mechanical problem which renders further drilling impractical, is encountered prior to the drilling of any lateral. In the event that granite or other practically impenetrable substance, condition in the hole or mechanical problem which render further drilling impractical, is encountered in the lateral portion of a horizontal or multi-lateral well, the Operator may cease drilling in the lateral in which conditions or problems are encountered. However, the Operator will drill all of other [sic] proposed laterals.

In one form, the Author has found the following language in the "Stand-By Time" provision:

> This paragraph [VI.B.3. Stand-By Time] shall not be applicable to operations in the lateral portion of a horizontal or multi-lateral well. Drilling operations which are intended to recover penetration of the target interval which are conducted in a horizontal or multi-lateral well shall be considered as included in the original proposed drilling operations.
>
> Paragraph VI.B.3. applies to a well which has reached its authorized depth and all tests have been completed and then a Party proposes a reworking, deepening, plugging back or completing operation.

In other JOAs, the Author has found detailed definitions but then no use of the definitions anywhere in the document.

Some JOAs have made no changes to the form JOA but have added separate paragraphs entitled "Other Provisions":

> A. Article VI.C. of Operating Agreement. Notwithstanding anything in this Operating Agreement to the contrary, the Parties agree that (i) for any well proposed to be drilled under this Operating Agreement that is not a Horizontal Well (as defined herein) then a

consent to participate in such operation shall be subject to Option 2 as reflected in Article VI.C. in this Operating Agreement and (ii) if the operation involves the drilling of a Horizontal Well (as defined herein) then consent to such operation shall be subject to Option 1 as reflected in Article VI.C. of this Operating Agreement. For purposes of this Operating Agreement "Horizontal Well" shall mean an Oil and Gas Well proposed to be drilled horizontally rather than vertically to penetrate a gas/oil bearing formation.

B. Relinquishment Provision-Horizontal Well. Any party may be subject to the restrictions set forth in this Article XVI. [Insurance Provisions] at any time prior to the drilling of a Horizontal Well pursuant to Article VI.B. In the event any Party to this Agreement elects not to participate in the Horizontal Well which is proposed pursuant to Article VI.B. such non-participating party shall, upon commencement of the operations for said well, relinquish, to the participating party one hundred percent (100%) of its right, title and interest in and to that portion of the Contract Area included in the drilling unit and/or production unit established for such well, whichever is the larger, from surface of the earth to 100 feet below the deepest producing depth encountered for said well. Such assignment shall be made promptly after commencement of the proposed operations and shall be free and clear of all overriding royalties, production payments, mortgages, liens and other burdens and encumbrances placed thereon by the assigning party, but otherwise without warranty of title express or implied.

C. *Article III: Interests of the Parties*[120]

Where all parties own an undivided interest in all of the leases in the unit, the Author does not see a problem. But, where a party has contributed a particular lease and further, if that lease has a higher royalty burden and the contributing party is required to pay for the royalty in excess of a certain amount, How does that contributing party know how much production to allocate to its lease on which it must pay royalty? If the leases have consistent production allocation provisions in their pooling provisions, then it should not be a problem. Otherwise, the Author submits that the only way to do it is to have the parties simply agree on an allocation formula as amongst the WIOs, but that certainly does not bind the lessor.

D. *Article IV: Titles*

As noted above, title review should be conducted on all tracts that the wellbore is expected to penetrate because each is a "drillsite," and such examination should be conducted on each such tract and should have been accepted by the "Drilling Parties" as provided in Article IV.A.[121] The Author asks, but does not answer, whether the obliga-

120. *See generally* A.A.P.L. JOA, *supra* note 95, at art. III.
121. *Id.* at art. IV, § A.

tion of the party who contributed the lease to cure the title and then, if unsuccessful, to bear the entire cost of the loss, adequately addresses the problem. If the title that failed is for a tract in the middle of the lateral wellbore, Is the obligation to "bear alone the entire loss" the loss of the lateral wellbore beyond the lost tract, the cost to re-drill to bypass the tract, or both? What *should* it be?

E. *Non-horizontal Comment*

Because of the decision in the *Seagull* case, the Author typically inserts a non-horizontal provision.[122] *Seagull* generally held that a party that assigns all of its interest in the "Contract Area" to another, and does not get a specific release of liability for obligations incurred with respect to the interest arising after the date the property is conveyed, remains liable for any and all costs incurred after the sale.[123] An example of the Author's non-horizontal language is as follows:

> A sale of all (or a proportionate part) of one party's interest in the Contract Area acts as a release of any claims, obligations or liabilities accruing after the effective date of the sale except as to any interest retained by the assigning party. The Parties intend to reject the conclusion reached in the case of *Seagull Energy E&P, Inc. v. Eland Energy, Inc.*, 207 S.W.3d 342 (Tex. 2006).

The argument against this treatment is that the operator wants to be able to pursue any avenues to recover the plugging and abandonment liability, and holding a prior owner in the properties liable is a way to do that. The reason the Author does not like that approach is that it constitutes a huge potential liability for the prior owner, an obligation that likely should be reflected, if only by footnotes, on the financials of the prior owner. What does a bank, asked to lend to the prior owner, do to protect itself against the unknown liabilities its borrower has for every lease it has ever owned that was subject to a JOA? Perhaps a better solution is to modify the JOA to authorize the operator to create a plugging and abandonment fund to be used for that purpose.

F. *Article VI: Drilling and Development*

Article VI.A. says that "[t]he drilling of the Initial Well and the participation therein by all parties is obligatory, subject to Articles VI.C.1. as to participation in Completion operations."[124] As previously indicated, the Completion election for a horizontal well does not work and the referenced language probably should be eliminated or something like "if applicable" inserted.

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122. *See* Seagull Energy E&P, Inc. v. Eland Energy, Inc., 207 S.W.3d 342 (Tex. 2006).

123. *Id.* at 346–47.

124. A.A.P.L. JOA, *supra* note 95, at art. IV, § A.

Article VI.B.1 should be modified to specifically identify any additional information that should be provided when a horizontal well is proposed. Now, the language requires providing "the work to be performed, the location, proposed depth, objective Zone and the estimated cost of the operation."[125]

What should be the non-consent penalty for drilling a horizontal well? Originally, these provisions were inserted so that the non-consenting parties could not ride the consenting parties down in the well, putting all of the geological risk on the participating parties. Most, but not all, horizontal wells are into resource plays where the geological risk of a producing zone being absent is low. In that case, where the geological risk is low, What risks are the participating parties bearing that are not being born by the non-consenting parties? There is an engineering risk (Can one reach the end of the proposed lateral extension?), and there is a risk that the multiple-stage fracs will not be successful and the well will be lost. There is also some geological risk because of the possibility of encountering previously unidentified faults. As far as the Author can tell, most operators are simply using the non-consent penalties they used for vertical drilling. That may be a considered decision; it may not be.

Article VI.B.2.c is the provision for reworking, recompleting or plugging back wells.[126] In the Author's view, a separate provision needs to be added to Article VI.B to cover the kinds of events that may occur in a horizontal well. If one decides to drill a second or a third lateral from the same vertical wellbore, How should that be handled? If one decides to extend a lateral another 1,000 feet, Should a non-consenting party be able to get back in? If so, How does one allocate production? If one decides to drill a stacked lateral, How should it be dealt with?

Article VI.B.4 covers the Deepening of a well.[127] In lieu of this section, six situations need to be considered: Should a separate provision be drafted for a proposal to (i) extend a lateral, (ii) make a dual completion above the current completion, (iii) make a dual completion below the current completion, (iv) drill a separate lateral in a different direction and commingle the production, (v) drill a stacked lateral, and (vi) drill a new vertical and horizontal well from the same location as the first well?

Article VI.B.5 deals with the order of preference of operations but seems to pertain primarily to vertical wells.[128] The Author does not yet have suggestions for drafting a horizontal-well-specific provision on the order of operations.

125. *See id.* § B(1).
126. *Id.* § B(2)(c).
127. *Id.* § B(4).
128. *Id.* § B(5).

Article VI.D indicates that any agreement with respect to the installation of gathering lines or other transportation or marketing facilities should be governed by "a separate agreement between the parties."[129] But, Article VI.D requires the operator to deliver a proposal to "all parties entitled to participate therein."[130] What decides who is entitled to participate? Because of the potential conflicts over processing, marketing, and transportation with respect to horizontal wells, it seems that a specific agreement as to the participation, if any, by the WIOs should be addressed at the time the JOA is signed.

Article VI.E.1 covers the abandonment of wells that have previously produced, requires "the consent of all parties," and allows a non-consenting party to take over the well.[131] Given the high cost and expense of plugging an abandoned horizontal well, Should there be a requirement that a party taking over a well must own a minimum percentage (10%?) in addition to the operator's right to require proof of its financial capability? In light of *Seagull*, even this may not be enough.[132]

G. *Article VIII*

The Maintenance of Uniform Interest ("MUI") provision is enforceable.[133] That has resulted in many parties' deleting the provision. The Author submits that deleting it creates a conundrum that would be better solved by drafting a suitable alternative than allowing it to be decided judicially. Primarily, the issue is who gets to decide questions either by vote or by entitlement to participation. There is nothing saying that a WIO buying a specific well in a "Contract Area" is not entitled to participate in proposals over the entire "Contract Area" if the MUI provision is deleted. If there is a vertical assignment, What is it that prohibits the shallow owner from exercising options in the deeper area? Can one fix this with a revised Exhibit A?[134] Probably not, unless one states it specifically.

H. *Article XIV: Last Paragraph*

This provision protects the operator from claims based on the operator's interpretations of rules by regulatory agencies.[135] Does this extend to the operator's good-faith interpretation of lease provisions and conflicting sharing provisions in a horizontal well? Probably.

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129. *Id.* § D.
130. *Id.*
131. *Id.* § E(1).
132. *See* Seagull Energy E&P, Inc. v. Eland Energy, Inc., 207 S.W.3d 342 (Tex. 2006).
133. ExxonMobile Corp. v. Valence Operating Co., 174 S.W.3d 303, 311–12 (Tex. App.—Houston [1st Dist.] 2005, pet. denied).
134. *See infra* EXHIBIT A.
135. *See* A.A.P.L. JOA, *supra* note 95, at art. XIV, § C.

I. *Payment Defaults*

Article VII.D.3 gives the operator the right to put the non-paying party into a deemed non-consent posture under Article VI.B (Subsequent Operations) or Article VI.C (Completions, Reworking, and Plugging Back).[136] Rather than limit the impact of the non-payment deemed non-consent to a specific operation, it probably should apply to the entire horizontal well. Otherwise, one could never be sure when there was a recovery with respect to a particular operation because of the inability to separately calculate production attributable to that operation. It should still work because the recovery of the defaulted amount could come from the entire production of the well. One alternative would be for the parties to agree that if there is any non-consent operation, the operator may determine the amount of production attributable to that operation, or the WIOs may consent in advance to a determination of allocation based on (i) relative length of the wellbore, (ii) take points, or (iii) an agreed upon third-party engineer (following the statutory binding arbitration rules).

J. *Understated AFEs*

Provisions limiting the liability of a WIO in the event an authority for expenditure ("AFE") is substantially exceeded are becoming more common. The difficulty is that if a WIO is given the right to a consent/non-consent election during an operation, the problem of not being able to measure the revenues attributable to the operations before the AFE is exceeded makes the provision unworkable. Options seem to be as follows: (i) terminate operations if the AFE is exceeded by a certain percentage; (ii) allow the WIO to make a non-consent election and surrender its right to income until the consenting parties recover from the non-consenting party's share of production from the entire well, all of the excess costs plus a non-consent penalty; or (iii) create a sit-out, fall-out situation using language similar to the following:

> Should the cost of any actual drilling or completion operation reach 125% of the estimated cost as reflected by its respective AFE, the operator will inform the parties. Within 24 hours of a receipt of such notice, any party may elect out of the well effective immediately upon receipt of such election by the Operator. Failure to respond within the 24 hour period will be deemed as election to continue to participate in the well. Should a party elect to discontinue participation in a well for the reasons set out in this paragraph, that party will be indemnified from any liability resulting from operations subsequent to such election. However, such party will remain liable for its share of any liability resulting from operations which occurred while such party was in the well. An election by a party to discontinue participation in the Initial Well will result in its

136. *Id.* at art. VII, § D(3).

forfeiture of all interest and investment in the [Well, specific leases, or the entire prospect].

Of course, one could insert different levels of excess over AFE costs with different consequences. For example, for exceeding the AFE by 125%, a traditional non-consent penalty (400%?) would apply to the entire production from the well; for exceeding the AFE by 200%, the WIO would remain liable for 90% of the excess costs with the operator picking up the rest; and for exceeding the AFE by 400%, the operation would be terminated, giving the other WIOs the right to remove the operator on the operation.

III. THE COUNCIL OF PETROLEUM ACCOUNTANTS SOCIETIES, INC. ("COPAS")[137]

"Super pads" and "super production facilities" are often required so as to minimize the physical imprint and environmental impact of multiple shale wells. The Author has discussed how to properly allocate those kinds of costs if they serve multiple ownerships but has never reached the point of creating a proposed document. If there were better real-world examples instead of theoreticals, perhaps some folks would tackle the issue.

Calculation of drilling overhead can be more tricky and contentious on shale wells given their multi-stage frac jobs that sometimes take several weeks to complete. COPAS is currently working on a rewrite of MFI-48 (Drilling Overhead - Application and Calculation) to clarify "spud date"; the Author hopes to have COPAS add the shale frac issues into the rewrite, but that is not certain at this point.

There are numerous potential issues with respect to the basis for sharing wellbore costs with WIOs who previously went non-consent in that wellbore.

IV. INSURANCE EXHIBIT[138]

The Author is unaware of suggestions for changes to the insurance provisions of the JOA. It is reported, however, that the insurance industry (the "Industry") does not consider horizontal drilling to be a problem but is seeing problems with the continuing growth in the length of the laterals. The Industry is finding that increasing the number of fracs puts extra stress on the casing. The biggest problems seem to be (i) using inexperienced personnel and (ii) using flow testing equipment that is too light. It seems that the normal well testing equipment is lighter than flow line testing equipment, and the lighter

137. The following information was provided by Mr. Mike Cougevan, Martindale Consultants, Inc., The Oil & Gas Consulting Company, www.marticons.com.

138. The following information was collected and provided by Mr. Joe Sanchez, Managing Director, Wells Fargo Insurance Services USA, Inc., who bears no responsibility for the Author's, perhaps, inarticulate summary of it.

well testing equipment is failing from time to time. Claims made with respect to fracing operations are increasing.

The Industry notes that insurance coverage that would permit only re-entry and recovery of the well is being maxed out because recovering a long-frac horizontal well is nearly impossible once the well has been lost; this has substantially increased the costs. Instead, they are recommending re-drill coverage. The Industry is likely to react by rating changes on horizontal fracing operations and by increasing the deductible amounts. It is also possible that the claim limits on re-drill policies may be reduced.

V. PRODUCTION SHARING AGREEMENTS

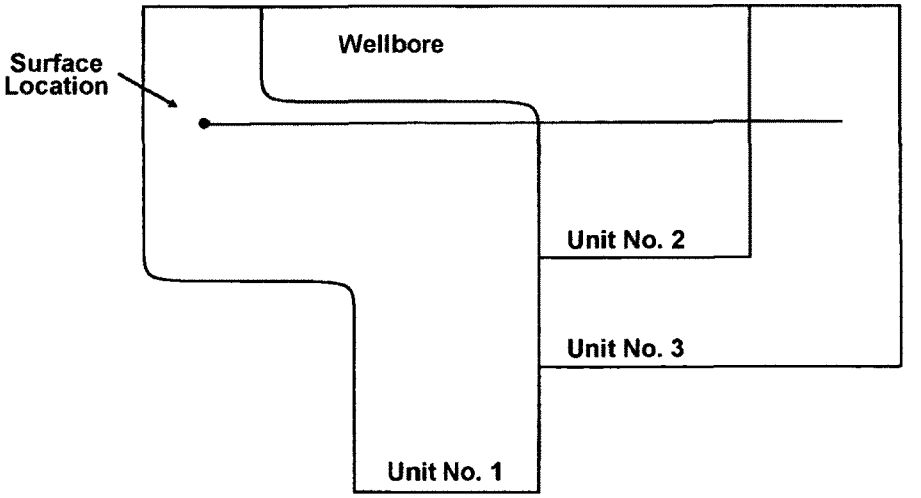
A production sharing agreement is a beast created by the RRC, but it is not announced in the RRC's rules or regulations. In essence, it allows an operator to form a production sharing agreement by getting the consent of at least 65% of the working interest and 65% of the royalty interest to consent. If the operator receives such consent, the RRC will allow the operator to treat the production sharing agreement as a single drillsite tract.[139] The Author believes, but does not know for sure, that this provision has been applied only in the Haynesville Shale.

It appears to work in a situation in which there are several adjacent, irregularly shaped, existing units. Because ownership of the units varies widely, the operator cannot drill a long lateral horizontal well. The concept works where the same operator operates each penetrated unit. Rule 37 is not obviated, so if one has less than 100% sign up, Rule 37 exceptions may be necessary; however, some practitioners before the RRC believe that the operator may waive objection to Rule 37. The Author fails to see why this could not also be done by cooperating operators across units. The Author also does not know whether such an agreement would be acceptable to the RRC if there were a non-unitized tract off of the unit from which the horizontal well was drilled.

Moreover, the Author is unsure of exactly how it works in practice.

139. A sample of such an agreement is attached as EXHIBIT A, *infra*.

FIGURE 8:
PSA – SINGLE DRILLSITE



This would not work if the well is not being drilled into a formation that is already unitized. The agreement states that drilling this well does not create an offset obligation under the leases; if the owner signs this agreement, then that probably does work to create an exception from the implied and express offset covenants in the lease. The sharing of production, at least in FIGURE 8, *supra*, is based on the proportionate length of the "Productive Drainhole Length," which is from the first take point to the last take point. The proportionate share of the drainhole for each unit over the total drainhole length determines the sharing ratio for that unit or group of units.

Can the well drilled under the production sharing agreement keep the unit alive? One would think so under the language in most unit designations. What if a unit lease expires? Will the strange case of *Wagner & Brown v. Sheppard* keep the unit alive if it is drilled under a production sharing agreement?[140]

140. *See* Wagner & Brown, Ltd. v. Sheppard, 282 S.W.3d 419 (Tex. 2008). The Texas Supreme Court held that the termination of Sheppard's lease did not terminate her participation in the unit. *Id.* at 422. The Court noted that a lease is not necessarily required for pooling. *Id.* Both Sheppard's lease and the unit agreement pooled certain "premises" and "lands," not just their leased interests. *Id.* at 422–23. Sheppard's lease allowed the actual Sheppard tract to be pooled rather than just the lease. *Id.* at 423. The termination of the lease had no effect on the lands committed to the unit, and it did not cause the unit to terminate because it was a pooling of the lands, not just leases. *Id.*

FIGURE A

PRODUCTION SHARING AGREEMENT

STATE OF TEXAS §
§ KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF PANOLA §

The undersigned parties enter into this Production Sharing Agreement ("Agreement") on the terms set forth herein.

Each of the undersigned parties (individually, an "Interest Owner" or collectively, the "Interest Owners") owns an interest in the leases, minerals, royalties and/or executive rights in and under the 640 acre pooled unit known as the _____ (the "Unit") covering lands in the _____, _____ County, Texas, that are pooled for the production of gas and all hydrocarbons and gaseous substances, including condensate produced with such gas that may be produced from a well recognized by the Railroad Commission of Texas as a gas well, said Unit having been formed by that certain _____ recorded on _____, in Volume _____, Page _____, of the Deed Records of _____ County, Texas (as may have been amended from time to time).

_____, whose address is _____, _____, _____ is the present operator ("Operator") of the Unit.

The Interest Owners wish to encourage and agree to the further development of the Unit and lands covered thereby via the drilling of horizontal wells in order to:

(a) prevent physical and economic waste and the drilling of unnecessary wells, and to increase the ultimate recovery of Hydrocarbons (defined below) from the Unit by drilling a Horizontal Well(s) (defined below) which may traverse under the lands both within and outside the geographic boundary of the Unit; and

(b) protect the correlative rights of all Interest Owners so that each may receive a fair share of the Hydrocarbons production in and under the Unit.

The Interest Owners agree that positioning and location of such Horizontal Well(s) as provided for herein will be advantageous to all Interest Owners and further agree that a basis for sharing in production proceeds from such Horizontal Well(s) should be established in the event same traverse under the lands both within and outside the geographic boundary of the Unit.

NOW THEREFORE, each of the undersigned, for the recitals, promises, performances, payments, and other good and valuable consideration hereunder, the receipt and sufficiency of which is acknowledged, do hereby agree to the following:

1. For purposes of this Agreement the following definitions apply:

   a. "Horizontal Well" is a well with one or more drainholes with a horizontal displacement of at least 100 feet within the Producing Field Interval.

   b. "Horizontal Drainhole" is the portion of the wellbore of a Horizontal Well drilled within a Producing Field Interval.

   c. "Hydrocarbons" means natural gas, oil, condensate, casinghead gas, and all other liquid or gaseous hydrocarbon substances which may be produced through the wellbore of a well.

   d. "Take Point" is any point along a Horizontal Drainhole where hydrocarbons could enter the wellbore from the Producing Field Interval and be produced.

   e. "Producing Field Interval" is that formation recognized by the Railroad Commission of Texas in which a Horizontal Well is permitted, drilled to, and completed in.

   f. "Productive Drainhole Length" is the horizontal length of the wellbore path that begins at the first Take Point of a Horizontal Drainhole and runs along the wellbore path to the last Take Point. In the event a Sharing Well shall be developed with more than one Horizontal Drainhole, the Productive Drainhole Length shall be the sum of such horizontal lengths of all such Horizontal Drainholes.

   g. "Sharing Well" is a Horizontal Well in which the Productive Drainhole Length is located on or within the boundaries of the Unit and on other lands, leases, or pooled or unitized units. The surface location of a Sharing Well mayor may not be located on or within the geographic boundaries of the Unit.

2. Each Interest Owner shall share in each Sharing Well on the basis of such Interest Owner's ownership in the Unit multiplied by the Allocation Factor. For purposes of this Agreement, the term "Allocation Factor" shall be defined as a fraction, the numerator of which is equal to the length of that portion of the Productive Drainhole Length that lies within the geographic boundaries of the Unit, and the denominator being the total Productive Drainhole Length.

3. Operations on or production from each Sharing Well shall be treated as if they were actual operations on or production from each of the leases and interests included in the Unit and the proceeds from production from each Sharing Well shall be paid in accordance with the Allocation Factor. Operator shall have the right to make reasonable use of the surface and subsurface of the Unit are for the purpose of exploring, drilling, completing, producing, transporting and marketing hydrocarbons and their constituent elements or byproducts from any Sharing Wells.

4. Production from any Sharing Wells drilled hereunder shall not create any offset obligation, whether express or implied, and as to each Sharing Well drilled, this Agreement shall be deemed to constitute complete protection of each Interest Owner's correlative rights and shall further constitute their consent to and waiver of any claims regarding the drilling of any Sharing Well (including rights to object to the positioning of any Sharing Well under Statewide Rules 37 or 38). Each Interest Owner further agrees that this Agreement affects only production from each Sharing Well drilled hereunder and in no way affects ownership under any other wells drilled or to be drilled which lie solely within the Unit. In the event any Sharing Well shall be plugged back or recompleted in such manner that the well no longer falls within the above definition of a Horizontal Well such well shall no longer be considered a Sharing Well for purposes of this Agreement.

5. The provisions of the various leases, agreements, division orders, transfer orders, and pooling or unitization agreements covering or affecting the lands, leases, and interests within the Unit are hereby amended to the extent necessary to make such instruments and agreements conform to the provisions of this Agreement, but not otherwise. In the case of conflict between the provisions of this Agreement and the provisions of such instruments and agreements, the provisions of this Agreement shall control.
This Agreement shall become effective as to each Interest Owner upon such Interest Owner's execution and shall remain effective for so long as the Unit shall remain in force and effect, unless sooner terminated by Operator as hereinafter provided.

6. Operator may terminate this Agreement by filing a notice of termination to that effect in the records of Panola County, Texas at any time that:

   a. there is no Sharing Well on or within the geographic boundaries of the Unit producing or capable of producing in paying quantities,

   b. that there are no operations on an existing Sharing Well or for a potential Sharing Well hereunder, or

   c. any Sharing Well is plugged back or recompleted in such a manner that the well no longer falls within the definition of a Horizontal Well or such that the Productive Drainhole Length of the applicable well no longer traverses lands both within and outside the geographic boundaries of the Unit such that said well no longer satisfies the definition of a Sharing Well hereunder.

In addition to the foregoing, each of the undersigned Interest Owners do hereby RATIFY, ADOPT, and CONFIRM (i) the Unit and the lease(s), instrument(s), and/or agreement(s) under which such Interest Owner's interest is derived, (ii) the pooling of same into the Unit, and (iii) do hereby GRANT, LEASE and LET unto the current lessee of such interest, all of Interest Owner's interest in the acreage covered by the respective lease(s), instrument(s), and/or agreement(s)

subject to the same terms and conditions provided for therein, as same may have been heretofore amended.

This Agreement shall not be construed and is not intended to be a pooling or unitization of interests, nor shall this Agreement be interpreted as affecting a cross-conveyance of interests between the Interest Owners hereunder, those within the Unit, or those within a Sharing Well. This Agreement is entered into and executed to illustrate the agreement of and by the undersigned Interest Owner(s) of the manner and method by which revenues attributable to any Sharing Well which might be drilled hereunder will be distributed to those Interest Owners who own an interest in the Unit and in any Sharing Well which may be located thereon, in whole or in part. Nothing in this Agreement shall be deemed to be or construed as an obligation on Operator's behalf to drill a Sharing Well.

This instrument may be executed in multiple counterparts, each of which shall be given the same effect as the execution of an original instrument. Failure of any party hereto to execute a counterpart shall not render this instrument ineffective as to any other party hereto who does execute a counterpart thereof, but shall be binding upon each executing party and its, his or her heirs, legal representatives, successors and assigns. The executed counterparts may be combined into one or more instruments for recordation, by combining the signature pages and acknowledgments, and the executing parties agree that such instruments shall be treated and given effect for all purposes as a single instrument.

[Remainder of page intentionally left blank; signature pages to follow.]

EXECUTED by each Interest Owner and effective for all purposes as of the date shown for each such Interest Owner's acknowledgement below.

INTEREST OWNER:

_____

_____

OPERATOR:

_____

By:_____
Printed Name:_____
Title:_____

NOTARY ACKNOWLEDGMENTS

STATE OF _____ §
§
COUNTY OF _____ §

This instrument was acknowledged before me on _____, 2010, by _____.

Notary Public, State of _____
My Commission Expires: _____

STATE OF OKLAHOMA §
§
COUNTY OF TULSA §

This instrument was acknowledged before me on _____, 2010, by _____, as _____ for _____, a Texas limited liability company, on behalf of said company.

_____
Notary Public in and for Tulsa County, Oklahoma
My Commission Expires: _____