

LAND AND REGULATORY ISSUES RELATED TO HORIZONTAL WELLS

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Texas Mineral Title Course
Institute for Energy Law
The Center for American and International Law
May 2 – 3, 2013
Houston, Texas

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The past decade has seen an unprecedented boom in horizontal drilling and development in Texas as continued refinement of drilling and completion techniques for horizontal wells has enabled operators to tap massive, previously unproducible hydrocarbon reserves trapped in shale rock and other tight geologic formations. This explosion in horizontal drilling activity is challenging landmen, lawyers, the courts and the Railroad Commission of Texas (“RRC”) to apply and adapt traditional legal and regulatory concepts – developed over more than a century for vertical drilling and development – to horizontal wells. This article addresses the application of these established principles to horizontal wells and how this existing law may be applied in the future.

I. HISTORICAL BACKGROUND

A. What Is a Horizontal Well?

Traditional wells are generally drilled in a vertical orientation. A directional or horizontal well is drilled with an intentional well bore deviation from the vertical. Generally, a horizontal well begins like a conventional vertical well and departs from the vertical at a pre-determined “kick-off” point, where it begins deviating from a vertical to a horizontal trajectory so that it may produce from the productive pay zone or target horizon horizontally. Alternatively, a horizontal well may be drilled from a previously drilled vertical well that is re-entered and directionally drilled to horizontal from a kick-off point in the existing wellbore.

The most significant distinction between the two drilling techniques – the difference which largely explains the horizontal drilling boom – is that while the productive interval of a vertical well is not greater than the vertical thickness of the formation, a horizontal well can be exposed to the formation for several thousand feet, limited only by the length of the horizontal wellbore. In tight formations, this extended contact with the reservoir is critical and enables operators to recover many times more hydrocarbons than would be possible from a vertical well.

B. Slant-Hole/Directional Drilling – Precursor to Horizontal Drilling.

The technology now utilized to drill horizontal wells has a long and interesting history. Perhaps the most critical technological component of horizontal drilling is the ability to “steer” a drill bit as it bores through the earth. This technology enables

¹ This paper is the product of an article entitled Square Pegs, Round Holes: The Application and Evolution of Traditional Legal and Regulatory Concepts for Horizontal Wells that was co-authored by H. Philip Whitworth and D. Davin McGinnis and published in 7 TEX. J. OIL GAS & ENERGY L. 178, 2012.

operators to “turn” the drill-bit to a horizontal trajectory within the target formation and to continue drilling in a horizontal direction for thousands of feet. Historically, the ability to drill a well directionally was limited to directional wells—wells which began at one surface location and were drilled to another specific, predetermined bottom-hole location. Perhaps the most noteworthy directional drilling innovators were the East Texas Field slant-hole drillers in the 1960’s. These unscrupulous operators used the emerging technology to drill deviated wells from surface sites on their own, unproductive leases to productive locations under neighboring tracts. This clandestine practice continued for several years until the RRC investigated and shut down hundreds of illegally drilled wells.

C. Horizontal Drilling and Development.

Horizontal drilling began in earnest in the 1980’s when improved downhole drilling motors and the invention of downhole telemetry equipment made the drilling of these wells commercially viable. The first widespread horizontal drilling in Texas occurred in the Austin Chalk formation in the Pearsall Field located in Frio, Zavala, Dimmit, and LaSalle Counties. In 1990, approximately 1,000 horizontal wells were drilled worldwide, 850 of them in the Austin Chalk formation. These first-generation horizontal wells were “open hole” wells. Rather than using the traditional method of completing a well by casing and cementing the wellbore and then perforating through the casing in the productive zone, these wells were open to the formation throughout the entire horizontal portion of the drainhole. While this method of drilling and completion worked well in naturally-fractured formations, it was not effective in hydrocarbon bearing reservoirs requiring extensive fracture stimulation in order to produce.

As evolving technology enabled drillers to case, cement and fracture stimulate horizontal wells, producers began to realize the enormous potential of the extensive—and previously uneconomic—shale formations. The first shale formation to be exploited by horizontal drilling was the Barnett Shale that covers approximately 5,000 square miles in north and north central Texas. The initial Barnett Shale horizontal well was drilled in 1992.

In the last decade, advances in horizontal drilling technology and hydraulic fracturing techniques, along with an increase in natural gas prices, led to the rapid development in this previously unproducable shale. Since 2006, the vast majority of Barnett Shale wells were horizontal. Since 1998, annual production from the Barnett Shale and other unconventional reservoirs across the country has consistently exceeded Energy Information of America’s forecasts. A great deal of this increase is attributable to shale gas production from the Barnett Shale and other shale formations.

Buoyed by the success encountered in the Barnett Shale, operators began looking for new shale plays to implement the drilling and fracture stimulation technology that

was developed and refined there. The Haynesville Shale, and more recently the Eagle Ford Shale, Wolfcamp, Cline, Woodbine and Bone Springs have become the new frontiers of shale development in Texas.

II. TITLE EXAMINER ALERT - DIFFERENCES IN VARIOUS KINDS OF UNITS

The advent of horizontal wells significantly expands the role of landmen and lawyers before a title may be cleared for drilling a horizontal well. Instead of reviewing mineral title for the drillsite where a vertical well is proposed, the title examiner must examine each and every tract to be traversed by the well.² This investigation often involves the analysis of various “units” affecting mineral ownership.

The term “unit” in the context of oil and gas may have caused more confusion for Texas landmen, lawyers and judges than any other single term of art. The misapplication of this term can result in disastrous consequences and stems largely from the fact that “unit” has a number of different meanings in Texas. Title examiners will accordingly be careful to distinguish these different kinds of “units.”

A. Voluntary Pooled Units

Voluntary pooled units result from the lessee’s exercise of authority granted in a lease pooling clause or other agreement of the parties. A voluntary pooled unit is created by combining separately owned mineral interests and leases covering different tracts of land into one “pool” or tract. This kind of unit is typically established by an instrument called a unit declaration or designation of unit. Production proceeds are usually allocated among the various mineral interest owners pro rata on the basis of their fractional mineral acres relative to total mineral acres in the unit. Operations and/or production on any portion of the pooled unit are deemed to be operations/production on each of the leases and tracts included within the unit, thereby maintaining all of the leases that are pooled.

B. Drilling Units

Drilling unit is a RRC term. A drilling unit is the acreage assigned to a well as shown on the plat submitted with the drilling permit application. Drilling units are designated to show the RRC that the operator seeking to drill a well has sufficient unassigned acreage in the tract to meet the applicable density rule for the target field. Designation of drilling units for RRC purposes normally does not have any title significance.

² The prudent examiner will also investigate title to all tracts within the lease line spacing distance from the drainhole to avoid Rule 37 spacing exception problems.

C. Proration Units

Proration unit is another RRC term. A proration unit includes the acreage assigned to a completed well for the purpose of obtaining production allowables. RRC Rule 38(a)(2). Proration units exist only when the RRC has adopted special field rules that use acreage, or some other reserve-based factor involving area or acreage, as a factor in the allocation formula. The allocation formula divides the field allowable, as determined by the RRC for all wells in the subject field or reservoir, among the various wells in that field. Each proration unit applies to a single well. Because the vast majority of fields recognized by the RRC are regulated by statewide - as distinguished from special - field rules, few wells have proration units.

D. Force Pooled Units

Force pooled units are relatively rare. These units are created by an order of the Railroad Commission (RRC) under the Mineral Interest Pooling Act (“MIPA”). This RRC action compels the joinder or inclusion of otherwise unpooled interests in the force pooled unit subject to the specific provisions of the statute. The MIPA designates who may make application for force pooling and under what circumstances. These units are limited to an individual well proration unit and to a specific RRC field or producing reservoir. The maximum size of an MIPA unit is 160 acres for oil wells and 640 acres for gas wells plus ten percent tolerance.

E. Fieldwide or Enhanced Recovery Units

Fieldwide or enhanced recovery units are formed to conduct enhanced recovery operations under the state’s unitization statute. In many cases, the unit will cover an entire field which gives rise to the term “fieldwide unit.” However, an operator may also establish an enhanced recovery unit for a portion of a field. The key distinction between this type of unit and a voluntary pooled unit is the way in which it is created. These units are rarely authorized by lease pooling clauses. Instead, the participants usually enter into a unit agreement committing their mineral interests, both working and royalty, to the cooperative project. A cornerstone of this statute is that no one may be compelled to join an enhanced recovery unit.

F. Specially Defined Units in the Lease Instruments

Many leases, particularly those containing retained acreage clauses, define other types of “units” and call them by various names such as “production units” or “producing units” or “retained acreage units.” These units typically consist of the lease acreage held by an individual well after a certain point in time, such as the end of continuous drilling operations, under the express terms of the lease instrument.

III. UNIQUE REGULATORY ISSUES PRESENTED BY HORIZONTAL WELLS

More than 100 years ago, the Texas Legislature charged the RRC with regulation of oil and gas drilling and production in this state. As part of this legislative directive, the RRC has promulgated statewide field rules which apply in all fields other than those in which special field rules have been obtained. Until 1990, the RRC's rules (both statewide and special) were drafted to regulate drilling and production from vertical or intentionally deviated directional wells.³ In many instances, these traditional rules cannot be neatly applied to horizontal wells. Understanding the basics of RRC regulation of horizontal wells is often critical to the drafting and interpretation of oil and gas lease provisions incorporating RRC regulation for pooling and retained acreage issues. An overview discussing the RRC's regulation of horizontal wells should therefore be helpful to the title examiner.

A. Density Issues and Assignment of Additional Acreage for Horizontal Wells

1. Proration Units.

One critical aspect of RRC regulation concerns proration, which is the regulation of the daily rate of production from wells within a given field or reservoir.⁴ In fields with special rules where acreage is a factor in the allocation formula, the RRC requires operators to designate a "proration unit" for each well in the field, with the size of a well's proration unit affecting its production allowable. The RRC defines a proration unit as "the acreage assigned to a well for the purpose of assigning allowables and allocating allowable production to the well."⁵ The "prescribed" or "permitted" size of a well's proration unit is dictated by the density rule for the field in question.

The prescribed or permitted size of a proration unit in a field will often impact parties' rights and obligations under private agreements such as oil and gas leases and farmout agreements. For example, and as is discussed below, the number of acres the RRC's rules "prescribe" or "permit" often dictates the maximum permitted size of a pooled unit authorized under a lease. Similarly, such rules often dictate the number of acres a lessee retains under a lease's continuous development provision.

Additional acreage may be included in a proration unit for horizontal wells under (a) Statewide Rule 86,⁶ or (b) the special density field rule for horizontal wells (if one exists for the field in question). The concept embodied by both Rule 86 and special rules for proration units and allowables applicable to horizontal wells is that the longer the horizontal drainhole displacement, the greater the drainage area, the larger the proration

³ See 16 TEX. ADMIN. CODE §3.11(d), §3.86 (effective June 1, 1990).

⁴ TEX. NAT. RES. CODE §85.053 *et seq.*; TEX. NAT. RES. CODE §86.081 *et seq.*

⁵ 16 TEX. ADMIN. CODE §3.38(a)(2).

⁶ 16 TEX. ADMIN. CODE § 3.86.

unit earned, and the greater the assigned allowable. This concept is based upon the engineering assumption that each point along the producing interval will drain radially an area that is approximately the size of the applicable density rule for the field in question.

2. Rule 86 and Special Field Rules.

Rule 86, which became effective on June 1, 1990, is the RRC's statewide rule applicable to horizontal wells. This rule applies to all horizontal wells or drainholes drilled in Texas except those horizontal wells in the fields that have special horizontal rules currently in effect.⁷ Accordingly, Rule 86 applies to horizontal wells (a) in fields for which the RRC has adopted special field rules for vertical wells only and (b) in fields that are subject to statewide regulation.⁸ The RRC's regulatory approach is to allow more acreage to be assigned to a horizontal well than a vertical well, resulting in a greater allowable for the horizontal well. Rule 86 applies this concept by providing that the maximum allowable for the horizontal drainhole is determined by multiplying the applicable allowable for a vertical well in a field by a fraction, the numerator of which is the acreage assigned to the well for proration purposes, and "the denominator of which is the maximum acreage authorized by the applicable field rules, exclusive of tolerance acreage."⁹ While special field rules may set forth a different formula for determining how much additional acreage may be assigned to a horizontal well as the numerator, they nevertheless have followed Rule 86(d)(5)'s mathematical method for the assignment of allowables.

Of critical importance to a number of land related issues is that the rule clearly allows an operator to assign more or less acreage to a horizontal well than the maximum authorized by the rules for vertical wells based upon its horizontal drainhole displacement.¹⁰

Rule 86 contains the following definitions that are important for understanding the land/legal problems that are unique to horizontal wells:

"Correlative Interval" is that vertical interval between the top and base of the productive reservoir as defined by the RRC.

"Penetration Point" is the point where the horizontal drainhole intersects the top of the correlative interval.

⁷ *Id.* Even if a field has special horizontal rules, Rule 86 nevertheless applies to the extent the special rules are not in conflict with Rule 86.

⁸ *Id.*

⁹ *Id.* (d)(5).

¹⁰ *Id.* (d)(1).

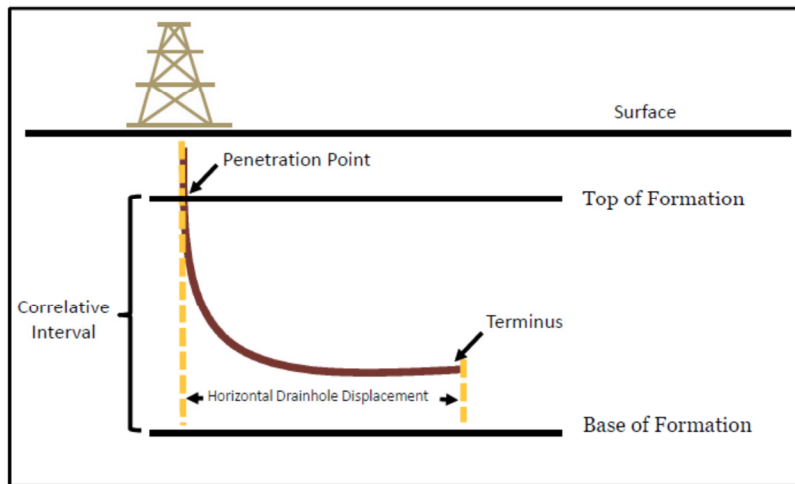
“Terminus” is the farthest point along the horizontal drainhole from the penetration point and within the correlative interval.

“Horizontal Drainhole Displacement” is the distance from the penetration point to the terminus, provided the drainhole never exited the correlative interval.

See 16 TEX. ADMIN. CODE §3.86(a).

These terms are illustrated on Figure 1 below.

Figure 1



Rule 86 contains two tables setting forth the number of acres which can be added to the standard proration unit size allowed under a field’s vertical rules: Table 1 applies to fields with a density rule of 40 acres or less while Table 2 applies to fields with a density rule of more than 40 acres.¹¹ In either event, the tables allow additional acreage to be assigned based upon a well’s horizontal drainhole length, which is defined as the distance between the point at which the well penetrates the correlative interval or field (penetration point) and its ending point in the field interval (terminus):

¹¹ Table 1 applies to fields in which a special density rule has not been adopted.

Table 1. Additional Acreage Assignment

For Fields with a Density Rule of 40 Acres or Less

Horizontal Drainhole Displacement, ft	Add'l Acreage Allowed, acres
100 to 585	20
586 to 1,170	40
1,171 to 1,755	60
1,756 to 2,340	80
2,341 to 2,925	100
2,926 to 3,510	120
etc. – 585 ft increments	etc. – 20 acre increments

Table 2. Additional Acreage Assignment

For Fields with a Density Rule Greater Than 40 Acres

Horizontal Drainhole Displacement, ft	Additional Acreage Allowed, acres
150 to 827	40
828 to 1,654	80
1,655 to 2,481	120
2,482 to 3,308	160
3,309 to 4,135	200
4,136 to 4,962	240
etc. – 827 ft increments	etc. – 40 acre increments

As an example, if a horizontal well is drilled with a horizontal displacement of 4,000' in a newly discovered field subject to the RRC's statewide rules prescribing 40-acre density, the operator, pursuant to Rule 86, may assign to the well the 40 acres allowed for vertical wells plus as much as 140 additional acres (for a total of 180 acres) under the top table of Rule 86.

Where special field rules have been adopted which provide for density rules of larger than 40 acres, the bottom chart of Rule 86 (Table 2) authorizes an operator to include even more additional acreage—and form potentially larger proration units—than

would be authorized under Rule 86 when applied to a well completed in a field on statewide (40 acre) density rules.

Some special field rules, like those adopted for certain Austin Chalk fields, may result in assignment of greater acreage than Rule 86. In 1993, the RRC changed the acreage allocation formula for the Giddings (Austin Chalk) Field. These field rules provide that instead of the basic acreage allotment allowed under Rule 86, the allowable was to be determined by the following formula: $A = [(L \times .11488) + 160] \times 1.5$.¹² Thus, in a hypothetical with a 5,000 foot lateral, the applicant would be able to retain 1,120 acres,¹³ rather than 400 acres permitted under Rule 86.

B. Spacing Considerations and Issues For Horizontal Wells.

1. Application of Rules 37 and 86.

The RRC's Statewide Rule 37 applies to both vertical and horizontal wells. Rule 37 provides that no well shall be drilled nearer than 467 feet to any property line, lease line, or subdivision line (including pooled unit boundaries). Rule 37 further provides that no well shall be drilled nearer than 1,200 feet to any well completed in or drilling to the same field on the same tract. The between well spacing rule does not apply to wells on different tracts or to wells on the same tract in different fields. The between well and leaseline spacing requirements of Rule 37 can be modified by special field rules adopted for particular fields.

The RRC adopted its first spacing rule and predecessor to Rule 37 nearly a century ago.¹⁴ Horizontal drilling, and the unique spacing issues presented by horizontal wells, were certainly not contemplated, much less addressed by Rule 37 or its predecessor spacing rules. Rule 86 includes provisions which explain the manner in which Rule 37 applies to horizontal wells. Significantly, Rule 86 makes clear that all portions of the horizontal drainhole must comply with the applicable leaseline and between well spacing requirements for the field.¹⁵ Otherwise, a Rule 37 exception is required. This situation is illustrated in Figure 2 below.

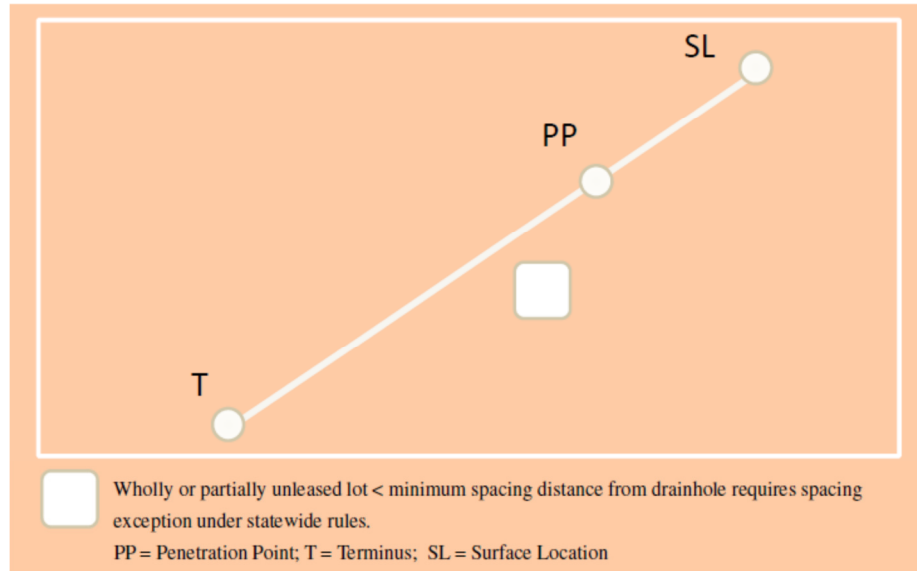
¹² Where A equals the maximum assignable acreage rounded up to the nearest number equally divisible by 40, and L equals the lateral length of the horizontal well.

¹³ $[(5,000 \text{ feet} \times .11488) + 160] \times 1.5 = 1120$, with rounding up to the nearest number equally divisible by 40.

¹⁴ See *Railroad Commission v. Bass*, 10 S.W. 2d 586, 586-88 (Tex. Civ App.—Austin 1928, writ dismissed).

¹⁵ 16 TEX. ADMIN. CODE § 3.86 (b).

Figure 2



In clarifying that the applicable spacing rules apply to all points along a well's horizontal drainhole, Rule 86 implicitly confirms that the surface location and all portions of a well prior to a well's horizontal drainhole are not relevant in determining compliance with leaseline and between well spacing rules. Figure 3, below, presents an example of a well which is in compliance with all spacing rules notwithstanding the fact that its surface location is less than the minimum leaseline spacing distance from the nearest leaseline.

Figure 3



Applying lease line and between well spacing rules to horizontal wells presents many other situations which do not arise when drilling vertical wells. Several are discussed below.

2. Outstanding Interest in Drillsite Tract.

If an unleased or unpooled interest is in a single drillsite tract crossed by a horizontal well, the RRC does not generally require a Rule 37 exception no matter how close the drainhole may be to other tracts included within the pooled unit for the well as long as such other pooled unit tracts have all of their interests pooled and are not themselves drillsite tracts for the well.

Figure 4

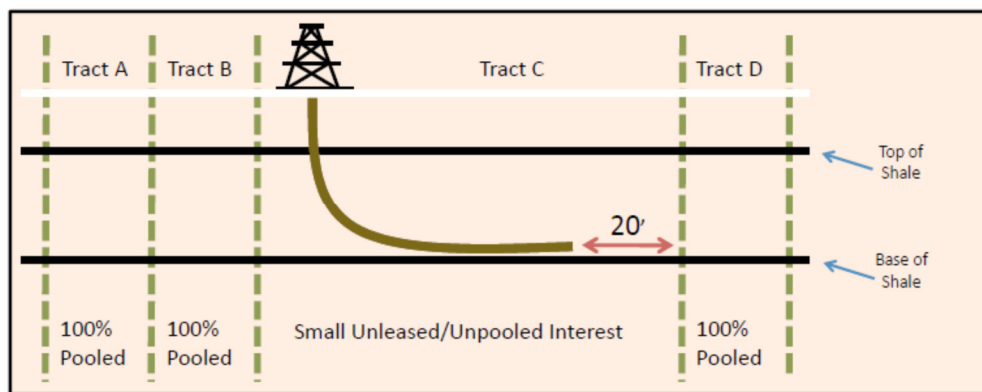
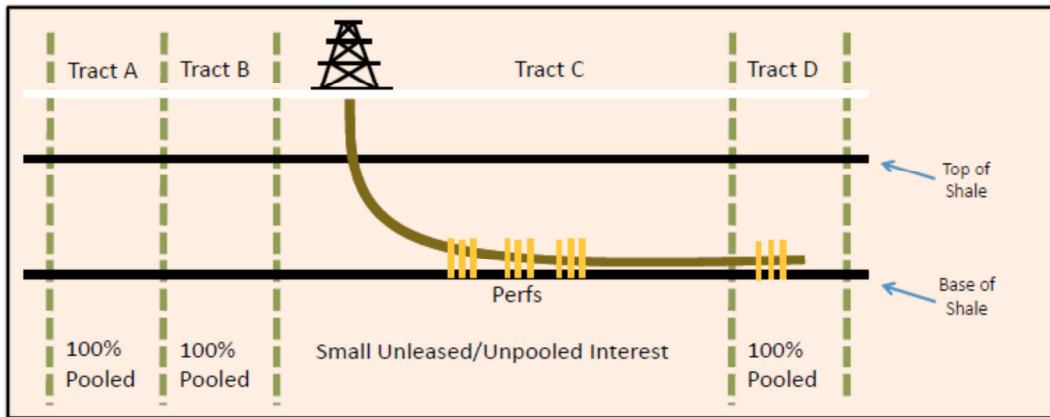


Figure 4 illustrates a situation where the operator forms a pooled unit composed of Tracts A, B, C, and D. The entire drainhole of the well is located within Tract C but the terminus is only 20 feet from the boundary separating Tract C from Tract D. All interests in Tracts A, B and D are pooled and unitized. There is a small, undivided, unleased and unpooled interest (a possessory mineral interest) in Tract C. The RRC has generally concluded that this well does not require a Rule 37 exception because the only unleased/unpooled interest is in the drillsite Tract C and co-tenancy rights protect the interests of this unleased interest.

If, however, the drainhole in Figure 4 does not terminate in Tract C and extends into Tract D as shown in Figure 5 below, the RRC normally requires a Rule 37 exception because the portion of the drainhole in Tract D that is less than the minimum spacing distance from Tract C could be draining the unleased interest in Tract C, even though the well is also drilled through Tract C. The operator would therefore have to notify the unleased owner in Tract C of the Rule 37 application and afford this party an opportunity to protest. If, however, the unleased/unpooled interest is a royalty or non-possessory

mineral interest, RRC policies and procedures allow the operator to waive itself and obtain the exception administratively without notice to the non-possessory owner.¹⁶

Figure 5



In those fields for which the RRC has adopted a Take Point Rule, discussed in further detail below, the operator can avoid the need for a Rule 37 exception by designating that portion of the horizontal drainhole which is located on Tract D, but less than the minimum spacing distance from Tract C, as a No Perf Zone (NPZ) where the well will not be perforated.

3. Unknown/Unlocatable Non-Consenting Interests.

If a Rule 37 is necessary and the non-pooled or non-leased interest cannot be determined or located, the RRC's notice by publication procedures allow the applicant to publish notice of the Rule 37 application once each week for four (4) consecutive weeks in a newspaper generally circulated in the county where the well is proposed to be drilled.¹⁷ The first publication must appear at least 28 days in advance of the deadline to file the written objection. Although not normally an issue, a prudent applicant may need to demonstrate a good faith attempt to locate the party or parties entitled to notice.

4. Non-Participating Royalty Interests.

The RRC has not adopted a clear policy as to whether non-pooled, non-participating royalty interests create a property line for purposes of Rule 37.¹⁸ Texas law clearly prevents these interests from being pooled absent their express consent and

¹⁶ *H.G. Sledge, Inc. v. Prospective Inv. and Trading Co., Ltd.*, 36 S.W.3d 597, 603-4 (Tex. App.—Austin 2000, pet. denied).

¹⁷ 16 TEX. ADMIN. CODE § 1.46.

¹⁸ As used herein, a non-participating royalty owner is a non-possessory interest owning a portion of the royalty but has no executive rights.

despite a pooling clause in the lease granted by the executive rights owner.¹⁹ However, even if these non-possessory owners' interests create a Rule 37 exception for the horizontal well, the operator has the authority to waive any objection and obtain the permit administratively.²⁰

C. Special Field Rules to Facilitate Horizontal Drilling.

Since Rule 86 was originally implemented in 1990, the RRC has adopted increasingly sophisticated special field rules to accommodate the drilling of horizontal drainhole wells and to maximize the exposure of drainholes to the reservoir without incurring unnecessary regulatory obstacles. Many of these special rules are necessary because the drafters of Rule 86 did not contemplate the practical difficulties encountered by operators attempting to comply with the RRC's spacing rules in permitting, drilling and completing cased, cemented and fracture stimulated horizontal wells.

The field rules adopted for the Newark, East (Barnett Shale) Field (the "Barnett Shale") illustrate the sophistication of these special horizontal rules. The Barnett Shale's special rules originally became effective on March 3, 1986, and have been amended on at least six separate occasions. Some or all of the special rules originally adopted in the Barnett Shale have been subsequently adopted in many other fields across the state where horizontal drilling is being extensively utilized. These special horizontal rules are discussed below.

1. 0' Between Well Spacing Rule.

In 2005, the RRC adopted a special between well spacing rule of 0' for horizontal wells in the Barnett Shale.²¹ This 0' between well spacing rule applies both (a) between two horizontal wells at all points along their respective drainholes; and (b) between all points along the drainhole of a horizontal well and a vertical well, and recognizes the limited drainage areas for shale formations to allow operators greater flexibility in developing the field.

2. Take Point Rule.

In 2005, the RRC adopted what has come to be known as a "Take Point Rule" for the Barnett Shale.²² The Take Point Rule avoids Rule 37 exceptions where a portion of a well's horizontal drainhole is closer than the minimum prescribed distance to a lease or

¹⁹ *Montgomery v. Rittersbacher*, 424 S.W.2d 210 (Tex. 1968); *MCZ, Inc. v. Triolo*, 708 S.W.2d 99 (Tex. App.—Houston [1st Dist.] 1986, writ ref'd n.r.e.)

²⁰ See *H.G. Sledge*, 36 S.W.3d at 603-4; 16 TEX. ADMIN. CODE § 3.37.

²¹ See Oil & Gas Docket No. 09-0242843; *Application of Devon Energy Operating Co., LP to Consider Amending the Field Rules for the Newark, East (Barnett Shale) Field, Wise, Bosque, Cooke, Denton, Erath, Hood, Jack, Johnson, Montague, Palo Pinto, Parker, Tarrant and Young Counties, Texas*. (Final Order signed August 2, 2005).

²² *Id.*

pooled unit line. Rather than requiring that all points along a horizontal drainhole comply with the minimum leaseline spacing distance from the nearest property line, the Take Point Rule only requires that those portions of the horizontal drainhole that are actually open to the formation (take points, or perforations, in a cased and cemented well) be in compliance with the applicable spacing rules.

Under the Take Point Rule, a “take point” is defined as any point along a horizontal drainhole where oil and/or gas can be produced from the reservoir/field interval.²³ If a horizontal well is cased and cemented back above the top of the shale formation, then the distance for Rule 37 purposes is the distance from the lease or pooled unit line to the nearest take point in the well. Similarly, if an external casing packer is placed in the well and cement is pumped above this packer to a depth above the top of the shale formation, the distance to any lease or pooled unit line will be based on the top of the external casing packer or the closest open hole section in the shale formation. These modifications to the spacing rule are premised upon mechanically preventing migration of hydrocarbons into any part of the wellbore closer than the minimum prescribed distance from property lines and are illustrated by Figures 6 and 7 below, which Devon Energy presented to the RRC in the hearing adopting the Take Point Rule for the Barnett Shale:

Figure 6

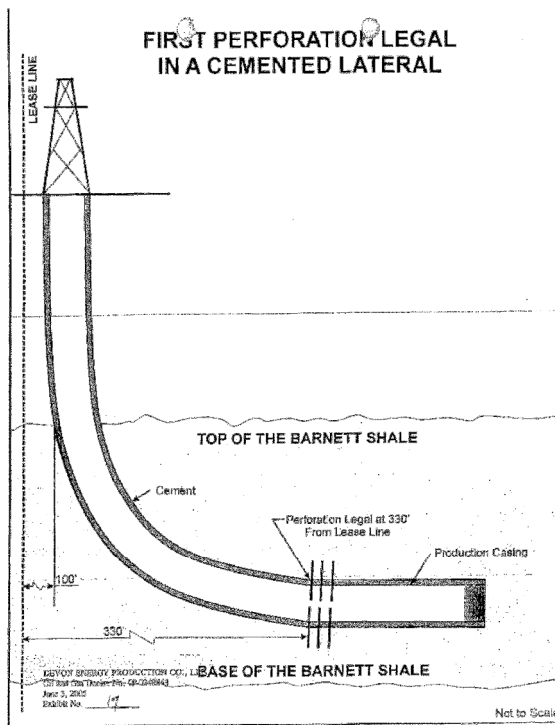
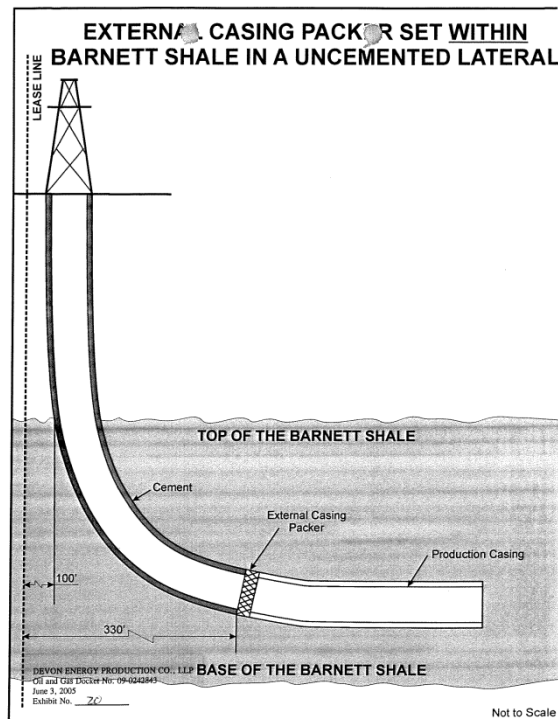


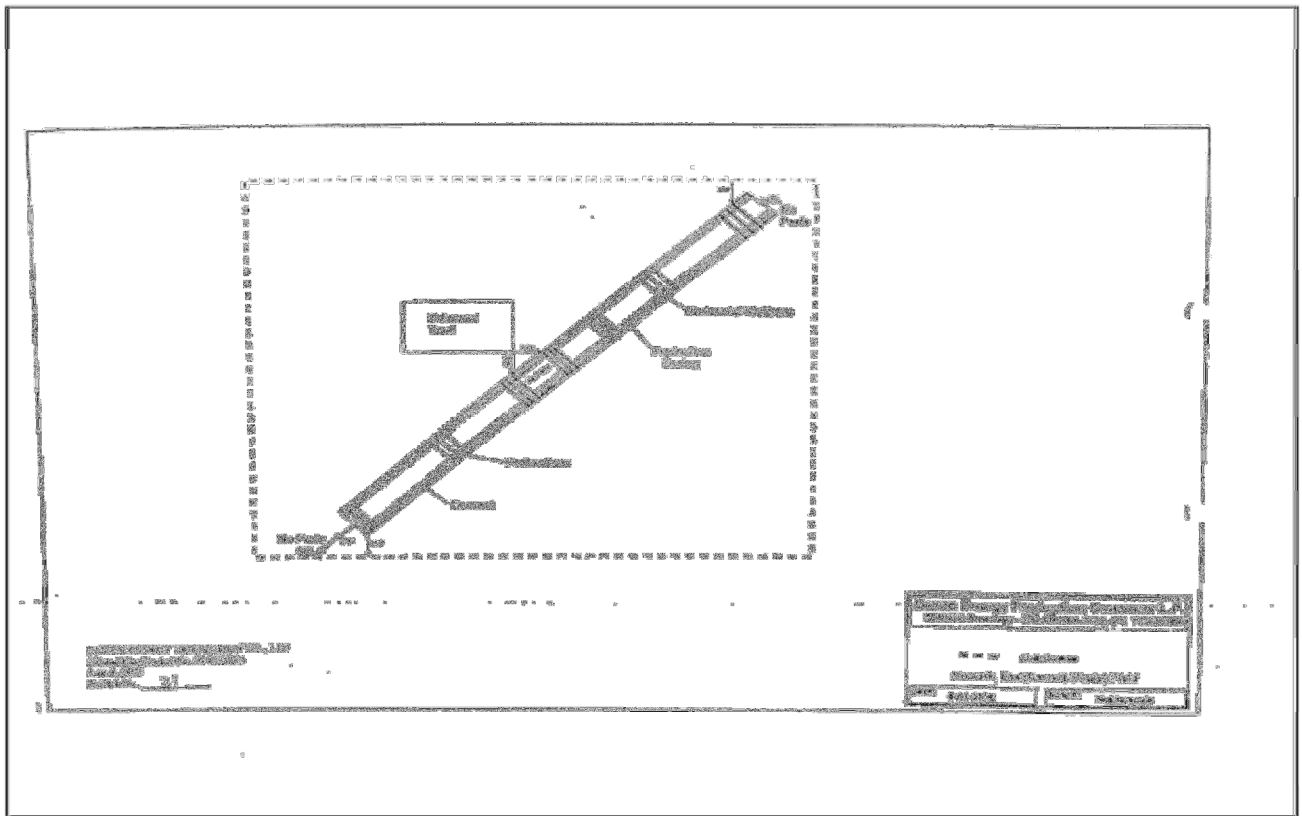
Figure 7



²³ *Id.*

Since the Take Point Rule was originally adopted in 2005 for the Barnett Shale, this rule has been interpreted to apply to all points along a horizontal wellbore, not merely the first and last take point. That is, if any portion of a horizontal well path is closer to a property line (*e.g.*, an interior tract containing an unpooled interest) but no take point is closer to such property line than the spacing rule allows, a Rule 37 exception is not necessary. Devon Energy presented the exhibit depicted as Figure 8 below to the RRC in the 2005 field rule amendment hearing for the Barnett Shale hearing to illustrate this application of the Take Point Rule:

Figure 8



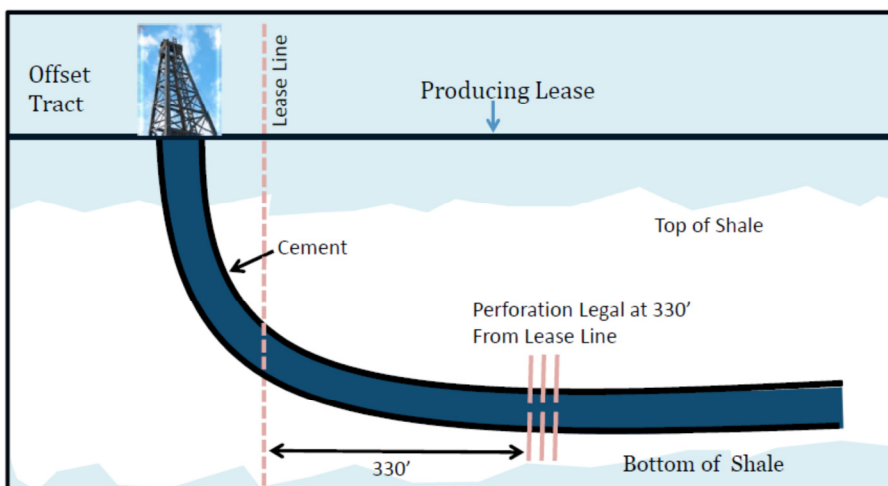
The RRC staff has struggled to apply and enforce the Take Point Rule and urged the commissioners to limit its application on several occasions. This opposition focused on the use of non-perforated zones (“NPZ’s”) for portions of horizontal wells drilled closer than the lease line spacing rule to unleased property lines to avoid Rule 37 exceptions. To date, a majority of the commissioners has refused to limit the use of NPZ’s, thereby facilitating the drilling of horizontal wells in urban areas.

3. Off-Lease Penetration Point Rule.

The Take Point Rule allows a portion of the horizontal drainhole to be less than the minimum distance from a property line specified by the lease line spacing rule. Rule 86(a)(4), however, requires that a horizontal well's drilling and proration unit include all points from the penetration point to the terminus, thereby preventing operators from penetrating the correlative interval of the field outside of the producing tract and taking full advantage of the flexibility afforded by the rule. If the well's penetration point had to be within the producing tract, the technical and geometric limits of horizontal drilling technology could result in the first take point being located more than the minimum required distance from the property line. Also, in certain areas where surface locations are extremely limited, Rule 86(a)(4) would preclude the drilling of numerous wells that could otherwise prevent waste of valuable hydrocarbons.

To address this issue of limited surface sites and the need to maximize the exposure of horizontal wells to the Barnett Shale, the RRC, on July 29, 2008, adopted its first Off-Lease Penetration Point Rule.²⁴ The increased exposure to the producing formation afforded by the Off-Lease Penetration Point Rule is illustrated in Figure 9 below.

Figure 9



Since that time, the RRC has adopted an off lease penetration point rule in many other fields across Texas where horizontal drilling is occurring. When seeking to drill a well with an off-lease penetration point pursuant to this special rule, the operator must give the off-lease drillsite operators, lessees, and/or unleased mineral owners (1) notice of the application and (2) an opportunity to protest before penetrating the formation at a

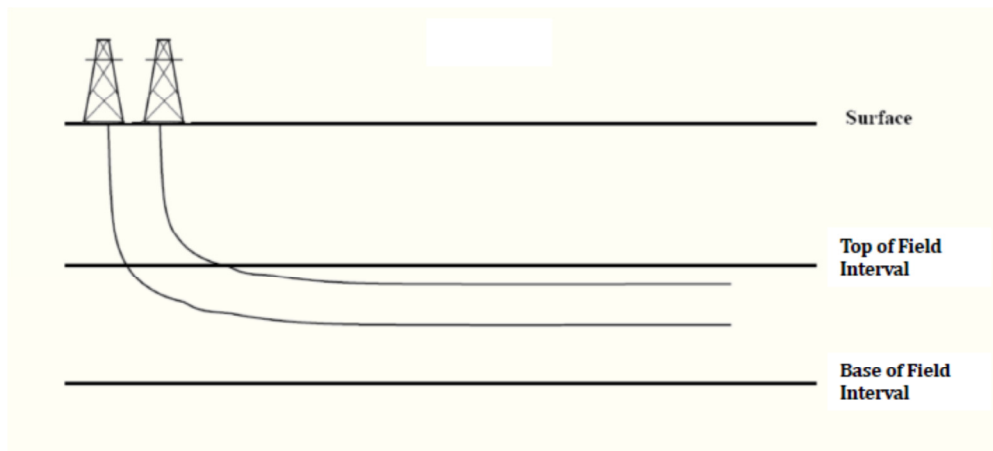
²⁴ See Oil & Gas Docket No. 09-0253880; *The Application of Chesapeake Oil and Gas Operating, Inc. to Amend the Field Rules for the Newark, East (Barnett Shale) Field* (Final Order signed July 29, 2008).

point outside of the “drillsite” tract. The RRC’s issuance of such permit, however, does not enable the operator to avoid obtaining any additional authority to use the surface and subsurface that the law may require.

4. Stacked Lateral Rule.

Rule 86(e) allows multiple horizontal drainholes to be drilled from a single vertical wellbore and provides that such multiple drainholes are to be treated as a single well for regulatory purposes. In many fields, including the Barnett Shale and the Haynesville Shale Field, the RRC has adopted a special “Stacked Lateral Rule” which also allows horizontal drainholes drilled from different surface locations to be treated as a single well where such horizontal drainholes are generally on top of each other within the field interval.²⁵ Stacked laterals are different than a single horizontal well with two or more laterals (i.e. a multilateral well). A stacked lateral well has two or more drainholes that are essentially on top of each other but drilled from different surface locations as illustrated by Figure 10 below.

Figure 10



For a horizontal well to be recognized as a stacked lateral, there must be: (i) two or more horizontal drainhole wells on the same lease or pooled unit within the field interval; (ii) the horizontal drainholes comprising the stacked lateral well must be drilled from at least two different surface locations on the same lease or pooled unit; and (iii) each point of a stacked lateral well’s horizontal drainhole shall be no more than a specified number of feet in a horizontal direction from any point along any other horizontal drainhole of that same stacked lateral well.²⁶ Notably, the RRC has declined to prescribe maximum or minimum distance limitations between the horizontal drainholes of a stacked lateral well

²⁵ See Oil & Gas Docket No. 09-0242054; *Final Order Amending the Field Rules for the Newark, East (Barnett Shale) Field, Various Counties* (signed May 10, 2005); Oil & Gas Docket No. 06-0260774.

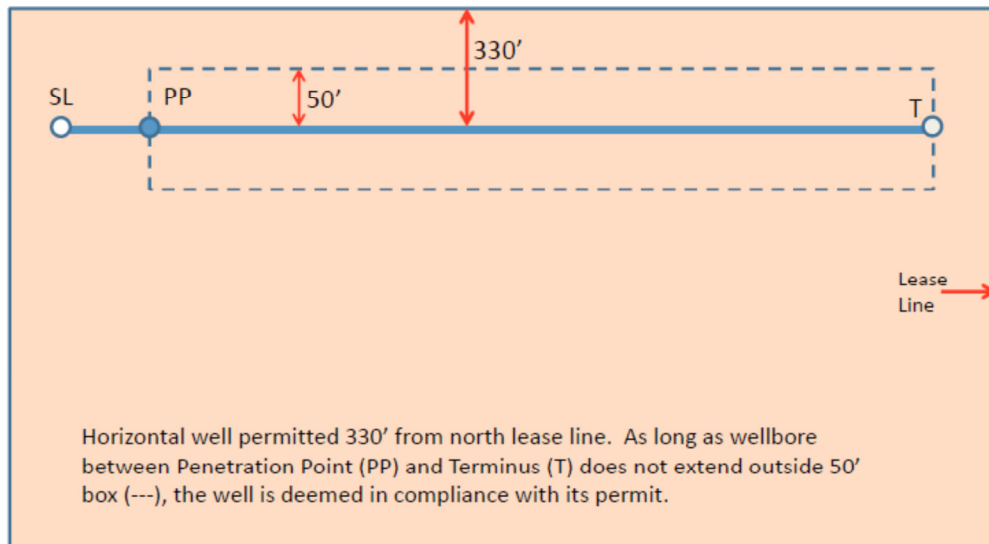
²⁶ This distance is measured perpendicular to the orientation of the horizontal drainhole.

in a vertical direction. With the repeated adoption of Stacked Lateral Rules to accommodate horizontal drilling in countless different fields across the state, the RRC continues to tweak and improve the rule to achieve conservation goals, such as requiring production to be reported separately for each lateral comprising the stacked lateral well.

5. Box Rule.

Recognizing that horizontal wells almost always deviate to some extent from the precise paths of their permits, the RRC has adopted a special rule, often referred to as a Box Rule, in certain fields to provide a bright line definition for determining whether a well is in compliance with its permit. The Box Rule was first adopted in the Carthage (Haynesville Shale) Field in 2009.²⁷ As its name suggests, the Box Rule essentially provides that a well is deemed to be in compliance with its permit as long as it remains within an imaginary “box” extending a certain number of feet to each side of a horizontal drainhole’s permitted location.

Figure 12

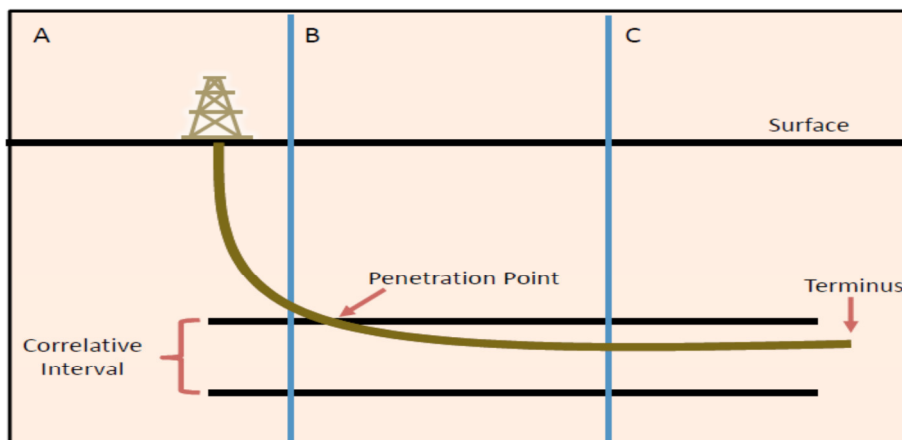


²⁷ Oil & Gas Docket No. 06-0262000; *The Application of Devon Energy Prod. Co, LP for a New Field Designation and Adopting Temporary Field Rules for the Carthage (Haynesville Shale) Field and Consolidating Various Bossier and Haynesville Shale Fields Into the Carthage (Haynesville Shale) Field, Harrison, Nacogdoches, Panola, Rusk and Shelby Counties, Texas* (Final Order signed December 15, 2009).

IV. TRESPASS ISSUES.

There are numerous trespass questions which may arise in the drilling of horizontal wells. Some of them are illustrated by Figure 13 below.

Figure 13



The operator desires to locate its drilling rig on, and drill a portion of the wellbore under, Tract A. The wellbore would not penetrate the correlative interval until it reached Tract B, with the horizontal drainhole continuing to its terminus in Tract C. This hypothetical assumes that (1) Lessee X holds oil and gas leases for Tracts B and C which may be validly pooled; (2) X must locate the drilling rig on Tract A to achieve the desired penetration point; (3) Tract A is under an “exclusive” oil and gas lease to Lessee Y; (4) the lessor of Tract A is also the surface owner; (5) Lessee Y will not agree to pool Tract A with Tracts B and C; and (6) Lessee X decides to pool only Tracts B and C. Whose permission is necessary to locate the well on Tract A?

A. Whose Consent Is Necessary to Drill From a Non-Participating Tract?

Texas courts have held that the operator must obtain permission from the surface owner of Tract A. In *Robinson v. Robbins Petroleum Corp.*,²⁸ the Texas Supreme Court held that the surface of one tract may not be used for oil and gas operations on adjacent tracts of land without permission from the surface owner. In a corollary case, the El Paso Court of Appeals held that consent is not required from the surface tenant/lessee for the construction of a pipeline by a company which obtained a right-of-way from the landowner who was also the mineral owner. In *Mobil Pipe Line Co. v. Smith*,²⁹ the landowner had granted Smith an “at will” surface lease for farming purposes. Apparently without terminating this surface lease, the landowner also granted Mobil a right-of-way

²⁸ 501 S.W.2d 865 (Tex. 1973).

²⁹ 860 S.W.2d 157 (Tex. App.—El Paso 1993, no writ).

to construct a pipeline “at a cost of \$35 million from near Denver City to near Post to transport CO2 for tertiary oil recovery.”³⁰ The court held that the pipeline company should be allowed access to construct the pipeline, citing authorities such as *Ball v. Dillard*,³¹ and the dominance of the mineral estate over the surface estate. While the court faithfully articulated the concept of the dominant mineral estate, its reliance upon the doctrine under the facts presented is questionable because the pipeline easement does not appear to have benefitted the minerals owned by the landowner who had granted the pipeline right-of-way.

On the other hand, permission from (mineral) Lessee Y seems to be necessary only if the drilling of the well interferes with Y’s right to produce the minerals from Tract A. In *Humble Oil & Ref. Co. v. L & G Oil Co.*,³² the drilling lessee had purchased the surface to one tract and sought to drill from that tract to a bottomhole location under its railroad right of way lease. The court held that the mineral lessee of the minerals underlying the surface drillsite had no right to enjoin the drilling of the well absent a showing that the drilling well would interfere with its leasehold mineral rights. However, one court has indicated that the mineral lessee’s consent may be required when a directional well is drilled through the leased subsurface. In *Chevron Oil Co. v. Howell*, the court upheld an injunction against drilling operations due, in part, to the “inevitable” damage to the subsurface formation occasioned whenever a well is drilled.³³ Under the view adopted by the court in *Howell*, the consent of the mineral owner/lessee may be required to avoid an injunction against drilling or damages for subsurface destruction. In *Howell*, however, neither the mineral lessee nor the surface lessee had granted the operator permission to conduct surface operations on the tract in question. Having determined that the surface owner had not granted Chevron permission, the court did not need to address the question of whether the mineral lessee’s permission was also necessary.

The question of what constitutes interference with the rights of the mineral lessee is not well settled. The fact that Lessee Y “may” want to drill at the location being used by Lessee X is not sufficient.³⁴ The mineral owner must show that he “needs the surface at the time and place then being used by the surface owner’s lessee.”³⁵ Because Lessee Y has the exclusive right to explore for oil and gas under Tract A, any subsurface information obtained by Lessee X in drilling through Tract A may be a violation of Lessee Y’s rights. Lessee X should accordingly not log the wellbore, take core samples or otherwise obtain subsurface information underlying Tract A without permission of Lessee Y.

³⁰ *Id.* at 158.

³¹ 602 S.W.2d 521 (Tex. 1980).

³² 259 S.W.2d 933 (Tex. Civ. App.—Austin 1953, writ ref’d n.r.e.).

³³ 407 S.W.2d 525 (Tex. Civ. App.—Dallas 1966, writ ref’d n.r.e.)

³⁴ *Humble Oil*, 259 S.W.2d at 938.

³⁵ *Atlantic Ref. Co. v. Bright & Schiff*, 321 S.W.2d 167 (Tex. Civ. App.—San Antonio 1959, writ ref’d n.r.e.).

B. Whose Permission Is Necessary for Wells Drilled Within Pooled Units?

Figure 14 below presents additional issues arising from drilling a horizontal well within a pooled unit:

Figure 14



Assume a valid pooled unit comprised of the leases to Tracts A, B, and C has been formed but that the surface owner to Tract A owns no minerals. Must the drilling lessee of the pooled unit obtain the surface owner's permission to use the surface and subsurface of Tract A?

In this scenario, Texas courts appear to have ruled that the surface rights that are appurtenant to a mineral interest may be used for the entire pooled unit to the same extent as if the pooled unit were a single tract of land.³⁶ These cases do not, however, necessarily square with the Texas Supreme Court's decision in *Robinson v. Robbins Petroleum*,³⁷ which involved a tract where the minerals had been severed from the surface and pooled into a fieldwide waterflood unit. That court held that the operator could not use the surface of the land (groundwater) for the benefit of the rest of the fieldwide secondary recovery unit. The court specifically noted that nothing in the mineral lease or in the reservation of the minerals contained in the deed to the surface owner authorized the mineral owner to increase the burden on the surface estate for the benefit of other lands. Under the *Robinson* decision, the question of whether the pooling was authorized at the time the surface is severed from the minerals is critical. The other cases cited above do not address that issue.

A lease of an undivided mineral interest covering Tracts A, B and C will allow the use of the surface of any of the tracts to benefit production from any of the leased acreage.³⁸ Thus, even though an operator may have leased or pooled only an undivided

³⁶ See *Property Owners of Leisure Land, Inc., et al. v. Woolf & Magee*, 786 S.W.2d 757, 760 (Tex. App.—Tyler 1990, no writ); *Delhi Gas Pipeline Corp. v. Dixon*, 737 S.W.2d 96, 98 (Tex. Civ. App.—Eastland 1987, writ den'd.); *Miller v. Crown Central Petroleum Corp.*, 309 S.W.2d 876, 878-79 (Tex. Civ. App.—Eastland 1958, writ dism'd by agmt.).

³⁷ 501 S.W.2d at 866-67.

³⁸ See *TDC Engineering, Inc. v. Dunlap*, 686 S.W.2d 346, 349 (Tex. App.—Eastland 1985, writ ref'd n.r.e.).

interest in a tract, the unpooled or unleased cotenants should not be able to enjoin this operator's drilling and production.

C. What Problems Arise If the Well Is Drilled Across Separate, Unpooled Tracts?

If Tracts A, B and C are under separate leases to the same lessee and there is no valid pooled unit, what legal issues may arise if the lessee drills across these three tracts? The first potential problem for the drilling lessee is an injunction to prevent drilling operations. The surface owner of Tract A may be able to enjoin the use of his land for the surface location or at a minimum would be entitled to damages pursuant to *Robinson v. Robbins Petroleum Corp.*³⁹ In addition, the surface owner of Tracts A and B may be able to enjoin the use of their subsurface for the production of minerals from Tracts B and C. These conclusions assume that the surface owners of Tracts A and B own 100% of the surface rights and have not approved lessee's operations.

Another potential problem for the drilling lessee is the potential obligation to pay double royalties. As discussed below, Texas law is not clearly developed on this issue. The operator may arguably be required to meet some yet to be determined burden of proof in establishing the amount of production from each of the tracts to avoid paying royalty as if 100% of the production were produced from each of the three tracts.

V. VOLUNTARY POOLING OF TRACTS FOR HORIZONTAL DRILLING

A. Each Tract Is a Drillsite.

Texas law is well established that each tract penetrated by the wellbore is a drillsite for purposes of allocating production. The general rule in Texas is that, absent a pooling agreement or other agreement apportioning production from a well, the production is allocated according to the ownership of the minerals at the location from which the production is obtained. This doctrine, known as the non-apportionment rule, was first established in *Japhet v. McCrae*.⁴⁰ The well's surface location is accordingly irrelevant in determining ownership of the produced minerals even though it may be critical in determining whether or not the minerals may be produced without being subject to a trespass claim.

The owners under each tract traversed by a horizontal drainhole are entitled to the minerals produced from their tract.⁴¹ If the properties are not validly pooled, and there is no sharing or apportionment agreement for the well's production, the operator could arguably be required to account to the owners in each tract penetrated by the wellbore as if 100% of the production had come from each of the respective tracts if such operator

³⁹ *Robinson*, 501 S.W.2d at 866-67.

⁴⁰ 276 S.W. 669 (Tex. Comm. App. 1925, opinion adopted).

⁴¹ *Browning Oil Co. v. Luecke*, 38 S.W.3d 625, 632-33 (Tex. App.—Austin 2000, pet. denied).

failed to establish “with reasonable certainty” the volume of production from each tract.⁴² While this harsh result may follow from the application of the confusion of goods doctrine, *Browning Oil Co. v. Luecke* suggests that such a repercussion would be disfavored under the law. In remanding the case to the trial court for a new trial as to the damages to which the Lueckes were entitled, the Austin Court of Appeals declined to accept the Lueckes’ arguments that they were entitled to their royalty share of all production from the wells in question, finding that such a result would mean the Lueckes would receive royalties from oil and gas produced from tracts they do not own.⁴³ The court also recognized the “immense benefits that have accompanied the advent of horizontal drilling, including the reduction of waste and more efficient recovery of hydrocarbons,” and expressed concern that “[d]raconian punitive damages for a lessee’s failure to comply with applicable pooling provisions could result in the curtailment of horizontal drilling.”⁴⁴ This language provides strong support for the conclusion that the confusion of goods doctrine, including the accompanying burden to prove with reasonable certainty what portion of production came from each tract, should not apply to disputes regarding the allocation of production from horizontal wells. Instead, an allocation method that reasonably apportions production among the tracts penetrated by the well would appear to be an equitable standard that would not interfere with the recovery of tremendous reserves via horizontal drilling.

Unpooled interests are common in pooled units. Lessees drilling horizontal wells also frequently encounter differing non-participating royalty interests in tracts crossed by a horizontal well that have not been pooled. Because there is no explicit Texas decision addressing the burden of proof issue for drill site interests that have not agreed to a method of allocating production in this situation, a prudent operator should investigate whether all interests along the path of the horizontal drainhole are validly pooled or have otherwise agreed to a method of allocating production, and should acquire drillsite title opinions on each tract to be penetrated by the horizontal well. Moreover, the preparation of title opinions on all tracts within the minimum prescribed spacing distance may also be wise to avoid potential Rule 37 spacing exception issues and illegal production claims.

B. Governmental Authority Provisions in the Pooling Clause.

Most modern pooling clauses in standard or printed form leases set forth a specific maximum acreage size that may be pooled for oil (usually 40, but sometimes 80, acres) and for gas (usually 640, but sometimes 320 or fewer, acres). These provisions usually include a “governmental authority” provision that expands the maximum size of the pooled unit a lessee may form if the governmental authority (RRC) adopts a larger unit size as part of the special field rules for the reservoir in question or otherwise authorizes

⁴² See *Humble Oil & Ref. Co. v. West*, 508 S.W.2d 812, 813-14 (Tex. 1974).

⁴³ *Luecke*, 38 S.W.3d at 645.

⁴⁴ *Id.*, at 646-47.

larger units. These provisions may include some condition or requirement before governmental authority pooling may be invoked and may be found in various form leases published by Pound Printing and Stationery Company. The Pound forms are widely used in the oil and gas industry, perhaps more so than any other form, and provide excellent examples of commonly used industry standards. The pooling clauses may be grouped into three categories as they relate to horizontal drilling.

The first category is “Substantially in Size With Those Prescribed By Governmental Regulations.” This language enables a lessee to form larger units than those specified in the lease to conform to the unit size prescribed by the RRC.⁴⁵ In the *Jones v. Killingsworth* case, the RRC had adopted 80-acre oil proration units and a tolerance allowing the assignment of an additional 80 acres per well for allowable credit in the Fairway (James Lime) Field. *Id.* The court ruled that the operator was limited to forming an 80-acre unit because while the RRC permitted 160 acres, it only prescribed 80 acres. The Tyler Court of Appeals reaffirmed this holding for similar pooling language involving the same field in *Hunt Oil v. Moore*.⁴⁶ This prescribed language, in conjunction with the horizontal spacing rules, may allow a lessor to argue that additional acreage assigned pursuant to such regulations is only permissive and not prescribed. Rule 86 enables an operator to assign additional acreage based upon the length of the horizontal drainhole but does not require that it be assigned. The only acreage that is required to be assigned to a horizontal well is the minimum amount of acreage that is necessary for a vertical well, unless the well (1) is permitted on a legal subdivision or after a density exception is granted, or (2) needs additional acreage assigned to comply with minimum spacing requirements.

The second category is “Required by Governmental Rule for a Regular Location or Maximum Allowable.” The operative word in this provision is required, just as the key in the previous clause was prescribed. This language may also present problems for the formation of units for horizontal wells. First, there has been no Texas case construing what is meant in this clause by a “regular location.” Such language may refer only to a location that complies with the lease line and between well spacing rules but not to the size of the drilling or proration unit. An operator may need to pool to obtain a regular location by eliminating a property line that the well will crowd in order to avoid a violation of Rule 37. If the avoidance of a Rule 37 exception is justification for pooling, it is not clear how the size of such pooled unit would be determined. If “regular location” means the amount of acreage required for a permit, then the acreage required for a regular location would be the same as is required for a vertical well under the applicable density rule or Statewide Rule 38 unless such size resulted in a unit that violated the applicable lease line spacing rule. The additional acreage allowed to be assigned for a horizontal well is merely permissive for allowable purposes and not required for a regular permit.

⁴⁵ See *Jones v. Killingsworth*, 403 S.W.2d 325, 327-28 (Tex. 1965).

⁴⁶ 656 S.W.2d 634, 638-39 (Tex. Civ. App.—Tyler 1983, writ ref'd n.r.e.).

Additionally, the size of a unit required for a maximum allowable under the horizontal rules would appear to be the maximum amount of acreage the RRC would allow to be assigned if a well has not yet been drilled. The maximum permitted size of the unit should be the maximum acreage the operator is allowed to assign to the well under the RRC's rules, provided acreage is a factor in the allocation formula for the field in question, so that a larger unit size will yield an increased allowable.

The third category deals with "Size Prescribed or Permitted By Governmental Regulation for a Regular Location or Maximum Allowable." The key word in this phrase is "permitted." The RRC will permit assignment of all the acreage "earned" by the horizontal drainhole according to its horizontal displacement, even if the well does not need all such acreage to produce at its capacity. The operator should, under this language, be able to form a pooled unit up to the full size permitted to be assigned as long as such pooling was in good faith.

C. Depth Interval to Be Pooled.

If the governmental authority provision is used to form a larger unit, the unit's pooled interval should normally be limited to the RRC field in question. Unless there are other, vertically separated reservoirs with similar special field rules, there may not be authority for a lessee's actions in pooling more depths than the correlative interval or field for which the RRC has adopted rules that trigger the governmental authority provision.

D. Enlargement of Existing Units by Governmental Authority.

Numerous horizontal wells have been drilled by re-entering old vertical wells producing on 40 or 80-acre pooled units. The lessee may need to enlarge the existing unit to accommodate the horizontal drainhole. Many modern lease forms and some older agreements include express authority to enlarge an existing unit. Where the applicable lease pooling provision is silent on this issue, the question has arisen whether the lessee may enlarge an existing unit as a matter of law. In *Expando Prod. v. Marshall*,⁴⁷ the court held that the lessee had the implied authority to expand an existing unit, provided the lessee's enlargement was performed in good faith. Enlargement of an existing unit to accommodate a horizontal drainhole would seem to be a sound reason for enlargement and should be upheld by a court, assuming the size to which the unit is enlarged does not exceed the authority contained in the pooled leases' governmental authority provision.

E. Failure to Reach Intended Horizontal Length.

Whether the pooled unit for a horizontal well is formed before or after the well is drilled may be critical if the well fails to reach its originally intended length. If a pooled

⁴⁷ 407 S.W.2d 254, 259-60 (Tex. Civ. App.—Ft. Worth 1966, writ ref'd n.r.e.).

unit is formed before the well is drilled pursuant to the governmental authority clause allowing additional acreage to be assigned to a well based upon its horizontal drainhole length, a problem may arise if the well does not reach the originally intended and projected horizontal length. A shorter horizontal length would normally reduce the amount of acreage that can be assigned to the well under RRC rules and accordingly may limit the size of the pooled unit that may be formed under the applicable governmental authority provision(s).

If the unit is formed prior to the drilling of the well based upon the operator's good faith belief that the well will reach the projected horizontal length, does the unit become invalid upon failure to reach the intended length for reasons beyond the operator's control? The obvious solution to this problem is to obtain lease amendments enabling the operator/lessee to make pooled units effective on a retroactive basis for horizontal wells. Some operators have cured this problem through the use of express agreements and ratifications of the pooled unit. Another approach is to form the minimum size pooled unit necessary to comply with the lease line spacing rules around the well and enlarge the unit as soon as drilling operations are completed. The authority to enlarge at this time may depend upon the capacity of the well and whether any additional allowable credit could be used from the assignment of additional acreage or whether the productivity of the well would be improved through future re-working operations or improved technology.

VI. EFFECT OF RETAINED ACREAGE CLAUSES ON HORIZONTAL WELLS

A. Typical Provisions.

Current leases increasingly contain partial termination provisions which provide for termination as to undeveloped acreage at some specified time during the life of the lease, usually at the end of the primary term or a continuous development period. These clauses are sometimes referred to as continuous development provisions, retained acreage clauses, or release clauses. Generally speaking, these provisions state the number of acres that can be retained for each drilled, completed and producing well, and often provide for the retention of additional acreage under "governmental authority" clauses similar to those found in pooling clauses. Determining the amount of acreage to be retained under these governmental authority clauses presents the same issues that arise when interpreting and applying governmental authority clauses found in pooling clauses.

B. Avoidance of Conflicts with Pooling Clause.

Conflicts between the number of acres authorized for retention under the retained acreage clause and the number of acres authorized for pooling under the pooling clause can lead to unintended and problematic results for the lessee. If a retained acreage clause does not allow the lessee to retain all of the acreage included in a validly pooled unit, the

lease could potentially terminate as to a portion of the pooled unit, thereby having the unintended effect of reducing the lessor's participation in unit production. For example, the typical lease form may give 640-acre pooling authority for gas, but there may be a typewritten addendum providing that the lease terminates at the end of the continuous development term as to all acreage save and except the acreage included within a producing well's proration unit. If the lessee has formed a 320-acre proration unit, the lessee, despite having formed a valid 640-acre pooled unit, may be required to release half of this pooled unit to comply with the retained acreage clause. Such a result obviously would have been unintended by either lessee or lessor, and care should be used to avoid such unintended consequences when drafting a lease.

VII. Production Sharing Agreements.

A. What Is a Production Sharing Agreement?

A production sharing agreement (PSA) is an agreement between royalty, working, and other mineral interest owners with interests in multiple pooled units and/or unpooled leases in which the parties agree to a method for allocating production from horizontal wells traversing these lands. PSAs are similar to pooled units insofar as they allow for the joint development of two or more separate tracts and are intended to promote efficient oil and gas development. Rather than pooling two or more leases into a single unit, however, PSAs may combine pooled units and/or unpooled tracts together into "super units" or otherwise provide for how production is to be allocated for horizontal wells drilled across tracts with mineral interest owners who have not agreed to production allocation for such a well.

PSAs are increasingly used in the development of shale formations lying beneath already-developed fields, most notably in the development of the Barnett Shale and the Haynesville Shale in East Texas. The need for PSAs most often arises where existing pooled units have previously been formed for all depths in configurations that are not conducive to (or that prevent) the drilling of horizontal wells in the proper orientation and/or for the needed lateral distances. While some pooled leases may specifically authorize the lessee to amend such units to exclude deeper depths and then form separate deep units in the size and configuration best suited to accommodate horizontal drilling, most oil and gas leases do not specifically address this issue, and there may be concern whether such action is implicitly authorized in the absence of an explicit grant of such authority.

B. Permitting Wells At the RRC on a PSA Basis.

1. PSA Permit.

Even if all mineral owners in the pooled units or unpooled tracts crossed by a well have entered into a PSA agreement, a PSA well requires a Rule 37 exception because the portion of the well's horizontal drainhole actually crossing the property line(s) will necessarily be less than the applicable minimum lease line spacing distance from the property line being crossed. In recognition of this issue, the RRC has implemented a procedure for securing administrative approval of drilling permits for these PSA wells (a "PSA Permit") and has created a form, the RRC Form PSA-12, Production Sharing Agreement Code Sheet, to be filed in conjunction with the drilling application for these wells. The PSA-12 requires certain information regarding the nature and extent of the operator's ownership and control of the drillsite tracts, and the extent to which the various working interest owners and royalty owners in each of the drillsite tracts have agreed to a PSA. Perhaps the most significant requirement for obtaining a PSA Permit is that the operator must represent that at least 65% of the working interest owners and 65% of the royalty interest owners in each of the drillsite tracts have agreed to the PSA. The specific requirements for permitting PSA wells are set forth in the RRC instruction sheet on "Permitting and Proration Requirements for PSA Wells" that is available from the RRC.⁴⁸

2. Allocation Well Permits.

In the absence of a PSA, or where a PSA is in place, but less than the requisite 65% of drillsite royalty interest owners have approved it, the RRC will issue an "allocation well" permit to an operator seeking to drill across a lease or pooled unit boundary provided that the operator makes certain representations as to the percentage of the leasehold interest owned or controlled by the operator. The allocation well concept was initially proposed by Devon Energy Production Co. in 2009. Devon sought a drilling permit to drill across three (3) different pooled units without a production sharing agreement, waiving Rule 37 exception requirements as its own offset operator for the portions of the drainhole crossing pooled unit lines.

In response to Devon's application, the RRC legal staff confirmed for the first time that the RRC Permitting Section would administratively issue an "allocation well" permit provided certain conditions were satisfied.⁴⁹ In this initial request, the RRC's legal staff concluded that such a permit could be granted when Devon owned 100% of the leasehold interest in all tracts to be traversed by the horizontal drainhole and otherwise complied with applicable rules. Notably, the RRC's legal staff stated that

⁴⁸ "Permitting and Proration Requirements for PSA Wells," available from the RRC.

⁴⁹ Railroad Comm'n Legal Staff Op. Ltr., April 21, 2010.

issuance of the permit should not be interpreted as an endorsement of Devon's "stated method of allocating production proceeds among component leases or units," because the "[p]ayment or royalties is a contractual matter between the lessor and lessee."⁵⁰ Nevertheless, RRC records reflect that this agency has issued a number of allocation well permits since the RRC's legal staff approved Devon's initial application on April 21, 2010.⁵¹

Despite the RRC's continued issuance of allocation well permits, the future of these permits is not certain. Before the RRC granted EOG Resources, Inc.'s allocation permit for its Klotzman Well, the lessors of the leases being traversed filed a complaint, contending that the requested permit should not be granted as EOG had no lessor pooling authority or consent to drill the proposed well. The RRC staff refused to issue the permit and held a contested hearing in early December of 2012 to receive evidence and argument. As of April 18, 2013, the case is pending before the examiners.⁵²

VIII. CONCLUSION

The proliferation of horizontal drilling over the past decade has challenged the courts, the RRC and practitioners alike to adapt traditional legal and regulatory concepts to address the unique issues presented by horizontal wells. While no means exhaustive, this article addresses some of the most significant issues that have arisen with this improved technology. The continued expansion of horizontal drilling will undoubtedly present new land and legal challenges for the title examiner in particular and the oil and gas industry in general to resolve.

⁵⁰ *Id.*

⁵¹ See RRC Online Drilling Permit Application Query as of April 16, 2013, available at <http://webapps.rrc.state.tx.us/DP/initializePublicQueryAction.do>.

⁵² See Oil & Gas Docket No. 02-0278952, Application of EOG Resources, Inc., Klotzman Lease (Allocation), Well No. 1H, Eagleville (Eagle Ford -2) Field, DeWitt County, Texas, Status No. 744730.