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Chapter 13

Overview of Pooling and Unitization Affecting Appalachian Shale Development

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§ 13.01. What Are Pooling and Unitization?

[1] — Oil and Gas Title and the Rule of Capture.

From the initial developments of commercial oil and gas production, legislatures and courts have faced significant challenges in developing a comprehensive legal framework to address various questions regarding ownership of oil and gas. Commercial development of oil in the United States began in 1859 with the first producing well drilled by Colonel E.L. Drake in Titusville, Pennsylvania.[2] By that time, the rules that determined ownership of coal and similar hard-rock mineral deposits which formed strata beneath the surface of the land, were relatively well-evolved.[3] However, both oil and gas possess characteristics inconsistent with the traditional notions of "ownership in place" (or *in situ* ownership) applied to coal and other hard-rock minerals.[4] Oil and gas are fluid, and migrate from areas of high pressure to areas of lower pressure within the reservoir, or pool, where they are found.[5] These natural characteristics led to near-universal adoption of the "rule of capture" by courts of various producing states as the standard to determine oil and gas ownership.

The "pure" rule of capture[6] was elucidated by the Supreme Court of Pennsylvania in its seminal 1889 decision, *Westmoreland & Cambria Natural Gas Co. v. De Witt*.[7] In *De Witt*, the court analogized oil and gas in their

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2 *See* Bruce M. Kramer and Owen L. Anderson, "The Rule of Capture — An Oil and Gas Perspective," 35 *Envtl. L.* 899, 900 (2005)(citing J.E. Brantley, *History of Oil Well Drilling* 153 (1971)).

3 *See* Brown v. Spilman, 155 U.S. 665, 669-70 (1895).

4 *See id.*

5 *See id.*

6 The rule as stated in this paragraph is described as the "pure rule of capture," as distinct from the version of the rule that includes a "correlative rights" component, requiring due respect for the rights of others owning an interest in the common pool. This component was, in varying forms, incorporated into the jurisprudence of a number of producing states, including Indiana, Kentucky, and later, West Virginia and Texas. For a discussion of cases involving this component, and its evolution, *see* Bruce M. Kramer and Owen L. Anderson, "The Rule of Capture — An Oil and Gas Perspective," 35 *Envtl. L.* 899, 911-25 (2005).

7 Westmoreland & Cambria Natural Gas Co. v. De Witt, 18 A. 724 (Pa. 1889).

natural state to wild animals, or "*minerals ferae naturae*," roaming beneath the surface of the earth.[8] The court held that title to land does not necessarily constitute ownership of the oil and gas beneath it.[9] In theory, the oil and gas underlying a tract of land belong to the landowner.[10] However, when they migrate to other areas and are captured and reduced to possession by another owner, title vests in the captor and thereby extinguishes that of the prior owner.[11] This reasoning was endorsed by the U. S. Supreme Court in *Brown v. Spilman*, wherein the Court stated:

> Petroleum gas and oil are substances of a peculiar character, and decisions in ordinary cases of mining, for coal and other minerals which have a fixed *situs*, cannot be applied to contracts concerning them without some qualifications. They belong to the owner of the land, and are part of it, so long as they are on it or in it, or subject to his control, but when they escape or go into other land, or come under another's control, the title of the former owner is gone. If an adjoining owner drills his own land and taps a deposit of oil or gas extending under his neighbor's field, so that it comes into his well, it becomes his property.[12]

In essence, the rule of capture provides that "[t]he owner of a tract of land acquires title to the oil and gas which he produces from wells drilled thereon, though it may be proved that part of such oil or gas migrated from adjoining lands."[13] Therefore, it is largely a rule of self-help under which landowners, suffering from potential drainage, were not awarded a share in

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8 *See id.* at 725.

9 *Id.*

10 *Id.*

11 *Id.*

12 *Spilman*, 155 U.S. at 669-70 (citing Brown v. Vandergrift, 80 Pa. 142, 147 (1875); Westmoreland & Cambria Natural Gas Co. v. De Witt, 18 A. 174 (Pa. 1889)).

13 *See* Robert E. Hardwicke, "The Rule of Capture and Its Implications as Applied to Oil and Gas," 13 *Tex. L. Rev.* 391, 393 (1935)(quoting Eliff v. Texon Drilling Co., 210 S.W.2d 558, 562 (Tex. 1948)).

neighboring wells because they were deemed to have the ability to prevent drainage and protect their interest by drilling their own well.

Once a producing well had been drilled, the rule of capture motivated landowners in the area to protect their potential oil and gas assets by rushing to drill on their own land.[14] Because oil and gas naturally exist in underground reservoirs or pools that often underlie numerous separately owned tracts, the rule of capture left a landowner with two options: he could either drill on his own land to take possession of the oil and gas and thereby perfect ownership; or, he could sit by while neighbors drilled wells that would likely drain those resources. As a practical matter, this meant that in order to ensure recovery of his fair share of production from the "common pool," each owner needed to drill as many wells on his property as quickly as possible.[15] The resultant race to produce led to excessive well density, substantial over-drilling, and waste, which included undue surface waste, waste of economic resources, and waste of oil and gas reserves through premature depletion.[16]

While the consequences of this frenzied production were manifested in virtually every producing state, they are perhaps best illustrated by the events surrounding the famed oil well at Spindletop.[17] Captain Anthony F. Lucas and his drilling team struck oil in the Spindletop salt dome near Beaumont, Texas, on January 10, 1901.[18] The initial "black plume" that shot from Spindletop soared to twice the height of the drilling derrick, and the well set a world record of roughly 800,000 barrels of oil within the first

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14 *See* Rance L. Craft, "Comment: Of Reservoir Hogs and Pelt Fiction: Defending the *Ferae Naturae* Analogy Between Petroleum and Wildlife," 44 *Emory L.J.* 697, 700 (1995).

15 *See* Phillip E. Norvell, "Prelude to the Future of Shale Gas Development: Well Spacing and Integration for the Fayetteville Shale in Arkansas," 49 *Washburn L.J.* 457, 459 (2010).

16 *See id.* at 459-60.

17 *See* Craft, 44 *Emory L.J.* at 701 (1995).

18 *Id.*

nine days of production.[19] A wave of speculators soon followed, and by the end of 1901 there were 440 wells on the 125-acre hill where Spindletop sat.[20] New wells continued to be drilled as "close together as physically possible," and 1,000 wells had been drilled around Spindletop by 1904.[21] However, only 100 of these wells produced oil at a rate of more than 10,000 barrels a day.[22] Captain Lucas lamented over the consequences of this rush to produce, stating that "[t]he cow was milked too hard, and moreover she was not milked intelligently."[23]

[2] — Traditional Concepts of Well Spacing.

The rule of capture yielded results during the early days of oil and gas development that were not contemplated or desired by its authors. In response, various producing states enacted oil and gas conservation statutes near the turn of the Twentieth Century to curb excessive drilling and protect correlative rights.[24] A primary feature of many conservation laws was the imposition of spacing requirements, which limited the number of wells that could be drilled within a specified acreage.[25] It is against this backdrop that

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19 *See id.* (citing Walter Rundell, Jr., *Early Texas Oil: A Photographic History 1866-1936* 36-37 (1977)).

20 *Id.*

21 *Id.* (citing Richard O'Connor, *The Oil Barons: Men of Greed and Grandeur* 81 (1971)).

22 *Id.* (citing O'Connor, at 85).

23 *Id.*

24 *See* 1 Bruce M. Kramer & Patrick H. Martin, *The Law of Pooling and Unitization* § 2.02 (LexisNexis Matthew Bender 2010).

25 *See* Bruce M. Kramer, "Compulsory Pooling and Unitization: State Options in Dealing with Uncooperative Owners," 7 *J. Energy L. & Pol'y* 255, 258 n.10 (1986)(citing R. Sullivan, *Handbook of Oil and Gas Law* 285 (1955)). This chapter identifies other principal methods of oil and gas conservation, including (1) Drilling Operations — The regulation of procedures used in drilling and completing wells; (2) Maximum Efficient Rate — Limiting production to the maximum efficient rate (MER) of the well based on its geological capabilities; and (3) Prorationing — Limiting the amount of oil and gas that can be sold from each well within a common source of supply or reservoir and allocating that amount between the various wells that are producing from that common source.

the concept of pooling tracts together for production first emerged.[26] In order to appreciate this relationship, it is important to have a basic understanding of well spacing. Once one grasps the fundamental concepts of well spacing, it can readily be seen how pooling emerged as a natural next step in the evolution of this aspect of oil and gas law.

In general, spacing requirements govern the location of wells within a given pool or common reservoir.[27] There are two types of spacing rules. First, there are "lineal" rules that prescribe setback distances between a well and other points.[28] Typically, spacing rules will establish a minimum distance between any two wells and from each well to the boundaries of the unit or leasehold upon which it sits. In addition, some states impose setback requirements from dwellings, public roads, or other features.[29] The other principal type of spacing dictates the standard acreage required for a single well and within which no other well may be located.[30] This second type of spacing is often referred to as "density" spacing.[31]

By limiting the number of wells that may be drilled in a given area, lineal and density spacing rules seek to protect correlative rights and prevent waste.[32] In accomplishing these objectives, the spacing rules can also create

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26 *See id.* at 258 ("The concepts of well spacing and pooling go hand in hand.").

27 *See* 1 Kramer & Martin, *The Law of Pooling and Unitization*, § 5.02.

28 *Id.*

29 *See* text *infra* § 13.03.[1] for an exemplary spacing regulation; *see also* Sharon O. Flanery and Ryan J. Morgan, "A National Survey of Statutory Pooling and Unitization," (Steptoe & Johnson PLLC, Working Paper), *available at* http://www.steptoe-johnson.com/know-how/docs/A_National_Survey_of_Statutory_Pooling_and_Unitization.pdf [hereinafter "National Survey"] for further discussion of each state's spacing requirements.

30 These unit areas are commonly set as arbitrary tracts, *e.g.*, 40 acres for oil wells and 640 acres for gas wells. *See*, *e.g.*, Mo. Code Regs. Ann. tit. 10, § 50-2.070 (2011). Conversely, some statutes do not specify acreage, but allow the conservation agency to set spacing units as that area "that can be efficiently and economically drained by one well." *See*, *e.g.*, Neb. Rev. Stat. § 57-908(2)(2010).

31 *See* 1 Kramer & Martin, *The Law of Pooling and Unitization*, § 5.02.

32 Notably, correlative rights protection and waste prevention are the stated policy goals of every state oil and gas conservation agency. *See* "National Survey" for each state's statutory definition of waste.

a situation in which a landowner is prevented from being able to produce the oil or gas underlying the land. It is this situation that pooling is intended to address.[33]

[3] — The Doctrines of Pooling and Unitization.

Most often, the impetus to pool mineral interests is driven by well spacing rules which would otherwise prevent the owners of small tracts from producing the oil and gas underlying their land, as each owns insufficient acreage to obtain a well permit.[34] In simple terms, pooling is merely the grouping together of small tracts or interests therein to form a conjoined production unit in compliance with applicable spacing standards.[35]

In theory, two basic types of pooling exist. The first is voluntary pooling.[36] As the name implies, voluntary pooling involves private arrangements to allow for joint development of the separately owned oil and gas interests within a spacing unit.[37] In modern practice, voluntary pooling is accomplished through several mechanisms, such as (1) community leases that embrace multiple, separately owned tracts or interests to effectuate joint development; (2) lease provisions that authorize a lessee to pool the leased area with nearby tracts; and (3) contractual pooling agreements.[38]

The second type, referred to as compulsory or statutory pooling, arises when applicable spacing requirements necessitate the inclusion of adjacent tracts within the spacing unit that are not commonly owned.[39] This fragmented ownership may be the result of an existing lease to a party other than the proposed operator or unleased owners who fail to

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33 *See* Patrick H. Martin and Bruce M. Kramer, *Williams & Meyers*, *Oil and Gas Law*, § 901 (LexisNexis Matthew Bender 2010).

34 *See* 1 Kramer & Martin, *The Law of Pooling and Unitization* § 1.02.

35 *See id.*

36 *See* Martin & Kramer, *Williams & Meyers*, *Oil and Gas Law*, § 902 ("In some sense, perhaps, virtually all pooling is compulsory rather than voluntary, since it is motivated by the compulsion of economic factors or [by] zoning or spacing regulations.").

37 *See* 1 Kramer & Martin, *The Law of Pooling and Unitization* §§ 7.03-7.05.

38 *See id.*

39 *See* Kramer, 7 *J. Energy L. & Pol'y* at 257-59 (1986).

negotiate satisfactory terms for voluntary inclusion in the unit.[40] In these circumstances, the vast majority of producing states provide a statutory process by which, upon consent from a requisite proportion of the owners or operators in the area to be pooled, an owner or operator may petition the authorized state agency laws for a pooling order.[41] If granted, the order will mandate the inclusion of the interests of non-consenting owners or operators in the pooled area and establish the terms upon which all parties involved will be compensated.[42]

The rationale behind statutory pooling is that an owner or operator of a small tract who cannot drill due to spacing requirements should remain entitled to recover the oil and gas underlying his land. To deny him that right with no opportunity to realize the economic value of his property amounts to the confiscation of his oil and gas interest without remedy or compensation.[43] On the other hand, to permit each owner or operator to drill on his small tract results in inefficient land use akin to the degradation surrounding Spindletop. A statutory pooling process provides a prudent and equitable solution to this dilemma.

As a general concern, it is important to clarify the distinction between pooling and unitization. Although the two concepts are doctrinally similar, there is substantial variation in their treatment among the states.[44] On many levels, the difference between pooling and unitization is primarily one of procedure and is best understood by considering the relationship of each to spacing requirements. As noted above, the term "pooling" most often refers to the integration of smaller tracts and interests therein to obtain a drilling permit in compliance with spacing rules. Unitization, also commonly labeled "unit operations," is "the consolidation of mineral or leasehold interests

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40 *See id*. at 258.

41 *See* text *infra* § 13.03. [2] for a national overview of the variety of pooling and unitization statutes. *See also* "National Survey," for a further discussion of each state's pooling and unitization laws; 1 Kramer & Martin, *The Law of Pooling and Unitization* § 10.00.

42 *See* 1 Kramer & Martin, *The Law of Pooling and Unitization* § 13.04.

43 *See id*. at § 10.01 (citing R.R. Comm'n v. Humble Oil & Refining Co., 245 S.W.2d 488 (Tex. 1952)).

44 *See* "National Survey," for further discussion of each state's pooling and unitization laws.

covering all or part of a common source of supply."[45] The main objective of unitization is to maximize production efficiency from a given reservoir and may be sought in the context of drilling permit applications, as well as currently producing wells and proposed secondary recovery methods.[46] Unitization may also be vital to ensure that correlative rights of the various owners in the pool are protected.[47] Thus, while pooling stems directly from the relevant spacing requirements in an area, unitization exists outside of spacing rules to include a broader scope of joint operations.

Like pooling, unitization is governed by state conservation laws that may address the ability of private parties to voluntarily unitize their interests in all or part of a reservoir; or, a statute may prescribe procedural rules under which an owner or operator may petition the agency for a unitization order.[48] For the purposes of this chapter, the term "pooling" is used interchangeably to signify the general concept of integrating separately owned interests that include both mechanisms. However, pooling and unitization are distinguished when necessary.

§ 13.02. History and Development of Pooling and Unitization.

[1] — A Brief History of Statutory Pooling.

The practice of statutory pooling dates back to 1920s municipal zoning ordinances designed to limit drilling within the boundaries of the locality, the first of which was enacted in Winfield, Kansas in 1927.[49] Soon after, the validity of a similar ordinance was challenged and ultimately upheld

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45 1 Kramer & Martin, *The Law of Pooling and Unitization* § 1.02.

46 *See id.*

47 *See generally* Martin & Kramer, *Williams & Meyers*, *Oil and Gas Law*, § 901 (discussing the effect and purposes of pooling and unitization); *see also*, *e.g.*, Colo. Rev. Stat. § 34-60-103(4)(2010)(defining "correlative rights" to mean "that each owner and producer in a common pool or source of supply of oil and gas shall have an equal opportunity to obtain and produce his just and equitable share of the oil and gas underlying such pool or source of supply").

48 *See* "National Survey," for further discussion of each state's unitization laws.

49 *See* Martin & Kramer, *Williams & Meyers*, *Oil and Gas Law* § 905.1 (citing R. M. Williams, "Compulsory Pooling and Unitization (of Oil and Gas Rights)," *S.W. Legal Found.*, 15 *Ann. Inst. on Oil and Gas L. & Tax'n* 223 (1964)).

in the landmark case of *Marrs v. City of Oxford*.[50] Other municipal ordinances followed throughout Texas,[51] Oklahoma,[52] and other states, which were substantially similar to contemporary statutory pooling laws as they mandated single-well spacing units and the sharing of production therefrom.[53] These local rules were generally affirmed to be valid exercises of police power under U.S. Supreme Court precedent established in *Village of Euclid v. Ambler Realty Co.*[54]

State-wide statutory pooling statutes were first enacted in New Mexico and Oklahoma in 1935.[55] The Oklahoma Well-Spacing Act, sustained in *Patterson v. Stanolind Oil & Gas Co.*[56] and *Croxton v. State*,[57] empowered the state's Corporation Commission to establish drilling or spacing units of a specified acreage and provided as follows:

> In the event a producing well, or wells, is completed upon a unit where there are two or more separately owned tracts, any royalty owner, or group of royalty owners, holding the royalty interest under a separately owned tract, shall share in one-eighth of all of the production from the well or wells drilled within the unit in the proportion that the acreage of their separately owned tract bears to the entire acreage of the unit.[58]

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50 *See generally* Marrs v. City of Oxford, 24 F.2d 541 (D. Kan. 1928), *aff'd*, 32 F.2d 134 (8th. Cir. 1929)(denying that an ordinance requiring well spacing and shared production constituted a violation of local police power and the privileges and immunities clause of the Fourteenth Amendment).

51 *See*, *e.g.*, Tysco Oil Co. v. R.R. Comm'n, 12 F. Supp. 195 (S.D. Tex. 1935).

52 *See* Martin & Kramer, *Williams & Meyers*, *Oil and Gas Law* § 905.1 (LexisNexis Matthew Bender 2010)(citing Am. Bar Ass'n, *Conservation of Oil and Gas: A Legal History, 1948* 391-397 (Murphy ed. 1949).

53 *See id.*

54 *See id.*; *see also* Vill. of Euclid v. Ambler Realty Co., 272 U.S. 365, 395 (1926))("We have nothing to do with the question of the wisdom or good policy of municipal ordinances. If they are not satisfying to a majority of citizens, their recourse is to the ballots — not the courts.").

55 *Id.* (citing N.M. Laws 1935, Ch. 72, § 12; 1935 Okla. Sess. Laws art. 1, ch. 59).

56 Patterson v. Stanolind Oil & Gas Co., 77 P.2d 83 (Okla. 1938).

57 Croxton v. State, 97 P.2d 11 (Okla. 1939).

58 *See Patterson*, 77 P.2d at 87.

The statute further required that a lessee holding a majority interest in the unit allow each minority owner an opportunity to participate as a working interest owner in the development of common acreage to be pooled.[59] This mandate, which laid the foundation for modern pooling statutes, was expressly accepted by the court as within the legislature's power.[60]

In reaching this determination, the Oklahoma court relied upon established U.S. Supreme Court precedent in *Ohio Oil Co. v. Indiana*.[61] There, the Court considered the constitutional validity of a state law which prohibited the flow of oil or gas from a well to escape into open air as a practice constituting physical waste thereof.[62] In upholding the act, the Court acknowledged each state's authority to prevent the waste of oil and gas and to protect correlative rights of all owners through reasonable legislation.[63] Justice White, writing for the Court, offered the following explanation which supports the mechanisms of statutory pooling and unitization today:

> As to gas and oil, the surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property. But there is a coequal right in them all to take from a common source of supply, the two substances which in the nature of things are united, though separate. It follows from the essence of their right and from the situation of the things, as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right, to the detriment of others, or by waste by one or more to the annihilation of the rights of the remainder. Hence, it is that the legislative power, from the peculiar nature of the right and the objects upon which it is to be exerted,

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59 *See id.* at 87-88.
60 *See id.* at 88-90.
61 Ohio Oil Co. v. Indiana, 177 U.S. 190 (1899).
62 *See id.* at 200.
63 *See id.* at 210-12.

> can be manifested for the purpose of protecting all of the collective owners, by securing a just distribution to arise from the enjoyment by them, of their privilege to reduce to possession, and to reach the like end by preventing waste.[64]

In the wake of cases such as *Patterson* and *Croxton*, most producing states enacted statutory pooling statutes, which consistently have been sustained so that no reasonable debate over their constitutionality remains.[65] However, the tension created by spacing and pooling statutes was not merely a constitutional issue, but often created debate over the equitable principles underlying state conservation laws. The following brief history of well spacing and pooling as they developed in Texas illustrates this point and highlights the struggles which led that state to adopt statutory pooling as a means of leveling the playing field between small and large tract owners.

[2] — The Development of Spacing and Pooling Law — The Texas Example.

The Texas Railroad Commission adopted its first lineal spacing rules in 1919.[66] By 1953, the Railroad Commission had adopted density spacing,[67] which effectively prevented small tract owners from producing the oil and gas under their land unless they were able to negotiate a pooling arrangement.[68] To account for the plight of these smaller owners, the Railroad Commission began to treat each oil and gas owner as having the right to locate a well on his tract regardless of its size and offering certain small tract owners an exception to spacing rules.[69] As no small owner would drill if his production

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64 *Id.* at 209-10.

65 *See* Martin & Kramer, *Williams & Meyers*, *Oil and Gas Law* § 905.1.

66 *See* Ronnie Blackwell, "Forced Pooling Within the Barnett Shale: How Should the Texas Mineral Interest Pooling Act Apply to Units for Horizontal Wells?," 17 *Tex. Wesleyan L. Rev.* 1, 2 (2010).

67 *See id.* at 3 (citing Tex. R.R. Comm'n, *Oil and Gas Circular No. 11* (Nov. 26, 1919)).

68 *See id.*

69 *See id.* Mr. Blackwell notes that the Railroad Commission did not offer this exception to owners whose tract was voluntary subdivided after oil and gas was discovered, either by lease or by deed, to circumvent the spacing rules.

were limited to his acreage, the Railroad Commission also refused to limit small tract production.[70]

However, the freedom to produce for small owners unfairly prejudiced adjacent owners in the pool; thus, the Railroad Commission adopted proration formulas to fairly allocate production among wells with a common source of supply.[71] By the early 1960s, the Railroad Commission was commonly using a proration formula for gas wells, known as the one-third to two-third formula.[72] This method meant that "[one-third] of the total field allowable must be divided equally among all the wells in the field and that [two-thirds] of the total field allowable will be divided among all the wells on a per acreage basis."[73] Since a substantial portion of the allowable production was allocated on a per well basis, this formula inequitably favored the small tract owner.

This practice continued until the methodology was challenged in *Atlantic Refining Co. v. Railroad Commission*.[74] In that case, the appellee owned a 0.3-acre tract and obtained a drilling permit in exception from the spacing rules.[75] The appellants presented evidence to show that under the 'one-third to two-third formula,' the appellee would be able to produce many times more gas per acre than an owner of a 320-acre tract.[76] Appellants argued that in light of such evidence, "the proration rule adopted by the Railroad Commission . . . [was] unreasonable, arbitrary and confiscatory,

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70 *See id.*

71 *See* Ernest E. Smith, "The Texas Compulsory Pooling Act," 43 *Tex. L. Rev.* 1003, 1004 (1965).

72 *See* Atl. Ref. Co. v. R.R. Comm'n, 346 S.W.2d 801, 802 (Tex. 1961). At that time, the Railroad Commission employed a "one-half to one-half" formula for oil wells. *See* Ronnie Blackwell, "Forced Pooling Within the Barnett Shale: How Should the Texas Mineral Interest Pooling Act Apply to Units for Horizontal Wells?," 17 *Tex. Wesleyan L. Rev.* 1, 3 (2010)(citing Robert E. Hardwicke and M. K. Woodward, "Fair Share and the Small Tract in Texas," 41 *Tex. L. Rev.* 75, 81-82 (1962).

73 *See Atlantic Ref.*, at 803.

74 *See id.*

75 *See id.* at 803.

76 *See id.*

and [did] not allow appellants to produce their fair share of the gas from the reservoir."[77] The Texas Supreme Court held that the proration method as applied did not "afford each producer in the field an opportunity to produce his fair share of the gas from the reservoir," as it allowed owners of small tracts excepted from spacing rules to drain well beyond their equitable share.[78] The court refrained from imposing any judicial standard beyond what was before it, but maintained that the Railroad Commission had a statutory responsibility "to devise some rule of proration which will conserve the gas in the field . . . and at the same time be fair and just to all parties without depriving any of them of his property."[79]

In the wake of *Atlantic Refining*, the Railroad Commission developed various methods to fairly allocate allowable production and most often employed a formula based solely on proportional acreage.[80] Although the small tract owners continued to receive spacing exceptions, drilling on those parcels became unprofitable without an agreement to pool with the owners of surrounding tracts.[81] Thus, the plight of the small tract owner returned, as larger owners could refuse to pool and drain the oil and gas from the reservoir without compensating the small owners, who were unable to economically drill alone.[82] The legislature responded to this unjust scenario in enacting the Mineral Interest Pooling Act in 1965 to provide a procedure by which the Railroad Commission could compulsorily pool interests under certain conditions.[83]

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77 *Id.* at 805.

78 *Id.* at 811.

79 *Id.* at 812.

80 *See* Blackwell, 17 *Tex. Wesleyan L. Rev.* at 4; *see also* Smith, 43 *Tex. L. Rev.* at 1004.

81 *See id.* at 4-5.

82 *See id.* at 5.

83 *See id.*; *see also* 1965 Tex. Gen. Laws 24 (current version at Tex. Nat. Res. Code Ann. §§ 102.001, *et seq.* (West 2011)).

[3] — A Brief History of Statutory Unitization.

While the concepts of pooling and unitization are similar, the broader scope of unitized operations is mirrored in its initial development at the federal level. The engineering industry was accustomed to the idea of unitized operation by the early 1920s; however, many credit the work of independent oil man Henry L. Doherty as the pre-eminent advocate of its benefits.[84] Despite initial opposition from much of the oil industry, Doherty diligently urged producers and lawmakers to embrace governmental involvement in oil conservation at a national scale.[85] The crux of his arguments targeted the rule of capture as a product of judicial rhetoric that incentivized inefficiency and devastated the industry and rights of owners. Doherty lamented that "[p]ractically every evil of the oil business, and everything about which the public complain, is due to the fact that oil does not follow the usual law of property rights but belongs to the man who can capture it."[86]

In response to such efforts, groups began to investigate the potential for unitization, which eventually became a well-accepted alternative to the inefficient practices Doherty criticized.[87] By 1926, the Federal Oil Conservation Board issued a statement, prophesying that "[t]he unit idea in producing oil is bound to win out because the natural unit is the oil pool . . . [and unitization] means both efficiency in development and operation and the determination of equities among the owners."[88] These remarks, as well as the American Bar Association's 1929 policy statement, which offered a model unitization statute and the support of the newly formed Interstate Oil Compact Commission, prompted broader support of the concept and increased conservation regulation of the industry.[89] However, much of

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84 *See* 1 Kramer & Martin, *The Law of Pooling and Unitization*, § 3.02 (citing R. Hardwicke, *Antitrust Laws, et al. v. Unit Operation of Oil and Gas Pools* 1-13 (1961)).

85 *See id.*

86 *See id.* at n.35 (citing Hardwicke at 179-90).

87 *See id.* (citing Hardwicke at 35-75). Such studies were conducted in 1920s and 1930s by the Federal Oil Conservation Board, the American Petroleum Board, and the ABA's Mineral Law Section, among others.

88 *See id.*

89 *See* 1 Kramer & Martin, *The Law of Pooling and Unitization*, § 3.02.

this state intervention initially focused on prorated production rather than statutory unitization, until Oklahoma enacted the first statute of its kind in 1945.[90] The Oklahoma Act withstood prompt challenge in the courts, as the facial constitutionality was upheld in *Palmer Oil Corp. v. Phillips Petroleum Corp.*[91] Soon thereafter, many oil-producing states followed suit and passed conservation statutes which provided for statutory unitization.[92]

As this brief historical discussion suggests, pooling and unitization, both in their voluntary and statutory forms, are long-standing doctrines that have been adopted by an overwhelming majority of oil and gas producing jurisdictions. Today, the constitutional validity of these regulatory mechanisms is beyond dispute. Further, the public interests of waste prevention and correlative rights protection are best pursued through a comprehensive regulatory scheme that incorporates both statutory pooling and unitization.[93] As the remainder of this chapter will show, while these goals are common among the states, there is substantial variation in how each state addresses pooling and unitization and the procedural requirements each employs to effectuate a pooling or unitization order.

§ 13.03. Current State of the Law — An Overview.

[1] — Spacing Rules.

Spacing rules exist in nearly every state with codified law relating to oil and gas production. Today, there are 34 states which have default spacing rules of some kind written into the law.[94] Each one of these affords the

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90 *See id.* The Oklahoma statute originally codified at Okla. Stat. Ann. tit. 52, §§ 286.1, *et seq.* (1945), authorized the Corporation Commission to unitize all or part of a common reservoir upon petition from lessees owning at least 50 percent of the interests therein.

91 *See generally* Palmer Oil Corp. v. Phillips Petroleum Corp., 231 P.2d 997, 1003–07 (Okla. 1951), *app. denied*, 343 U.S. 390 (1952)(upholding the statute's validity against an array of constitutional challenges).

92 *See* 1 Kramer & Martin, *The Law of Pooling and Unitization*, § 3.02; *see, e.g.*, 1951 Ark. Acts § 134 (current version at Ark. Code Ann. §§ 15-72-310, *et seq.* (2010)).

93 *See* Martin & Kramer, *Williams & Meyers*, *Oil and Gas Law*, Oil and Gas Terms: "Unitization" ("The best results in conservation can be attained only by unitization.").

94 While application varies significantly, the states which provide some level of general spacing requirements are Alabama, Alaska, Arizona, Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Nevada, New Mexico, New York, North Dakota, Ohio, Oklahoma,

controlling agency some, if not total, discretion to reconfigure spacing on a case-by-case basis. This authority is typically exercised through the creation of special rules applicable to a particular pool or field or by a process by which the agency may grant exceptions for certain wells upon application. In addition, seven states do not offer default spacing by statute, but expressly grant full authority to an administrative entity to set unit size and setback requirements for each pool.[95]

Whether controlled by statute or agency regulation, most current spacing schemes include lineal and density spacing requirements. In the modern regulatory framework, the minimum distance required by lineal spacing rules and the minimum area required by density spacing rules will often vary depending upon the mineral produced and depth to which the well will be drilled and completed. Of the 34 states with codified spacing, 30 states specify different lineal or density spacing rules based on the mineral produced from the pool.[96] In addition to each imposing separate default rules for oil and gas wells, a number of states have created spacing laws particular to coalbed methane wells.[97] These rules will often be further differentiated based on the depth of the producing formation.

The general spacing rules in Kentucky exemplify an encompassing framework that shows all levels of distinction:

> Except as provided [by exception or special order], no permits shall be issued for the drilling, deepening, or reopening of any *shallow well for the production of oil*, unless the proposed location of the well shall be at least [330] feet from the nearest mineral boundary of the premises upon which the well is to be drilled, deepened or

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Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, and West Virginia. *See* "National Survey" for further discussion of each state's spacing rules.

95 These seven states are Michigan, Montana, Nebraska, North Carolina, Vermont, Wisconsin, and Wyoming. *See* "National Survey."

96 The four states which do not differentiate general spacing rules based on the mineral produced are Arkansas, California, Ohio, and Utah. *See* "National Survey."

97 Statutory spacing for coalbed methane wells exists in the following states: Alabama, Colorado, Illinois, Indiana, Kentucky, Maryland, Pennsylvania, Virginia, and West Virginia. *See* "National Survey."

> reopened; and, the proposed location must be at least [660] feet from the nearest oil producing well. This subsection shall not be construed to regulate the distance between wells which do not produce oil from the same pool.
>
> Except as provided [by exception or special order], no permit shall be issued for the drilling, deepening or reopening of any *shallow well for the production of gas* unless the proposed location of the well shall be at least [500] feet from the nearest mineral boundary of the premises upon which such well is to be drilled, deepened or reopened; and, the proposed location must be at least [1,000] feet from the nearest gas producing well. This subsection shall not be construed to regulate the distance between wells which do not produce gas from the same pool.[98]

The Kentucky conservation statute sets these differing lineal, shallow well spacing requirements based on the mineral produced and directs the Oil and Gas Conservation Commission to create spacing rules applicable to deep wells via its permitting process. These regulations provide for density spacing of deep wells based on the depth of the target formation. First, a permit applicant must supply a plat aligned with the Commission's default density rules:

> If a permit is requested for a *deep gas well* . . . the application shall include a plat showing a proposed unit comprising a square with sides of 3,500 feet if the well is to be drilled to a depth less than 7,000 feet and with sides of 5,000 feet if the well is to be drilled to a depth of 7,000 feet or more.
>
> If the permit is for a *deep oil well*, the proposed unit plat shall comprise a square with sides of 1,750 feet if the well is to be drilled

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98 *See* Ky. Rev. Stat. Ann. § 353.610 (2011)(emphasis added); *see also id.* § 353.510(15)(defining "shallow well" as "any well drilled and completed at a depth less than [4,000] feet except, in the case of any well drilled and completed east of longitude line 84 degrees 30', shallow well means any well drilled and completed at a depth less than [4,000] feet or above the base of the lowest member of the Devonian Brown Shale, whichever is the deeper in depth.").

> to a depth of less than 7,000 feet and 2,500 feet if the well is to be drilled to a depth of 7,000 feet or more.[99]

In addition, the regulations provide lineal spacing rules in requiring that "no deep gas well drilled to a depth less than 7,000 feet shall be located within 1,072 feet of the boundary of the proposed unit, and no deep gas well drilled to a depth of 7,000 feet or more shall be drilled within 1,532 feet of the boundary of the proposed unit."[100] Further, "no deep oil well drilled to a depth less than 7,000 feet shall be located within 536 feet of the boundary of the proposed unit, and no deep oil well drilled to a depth of 7,000 feet or more shall be drilled within 766 feet of the boundary of the proposed unit."[101]

Rather unique to Kentucky law is the caveat that the Commission may grant exceptions to spacing only to a certain extent. If an exception is necessary due to topographical or geological conditions, the well location remains subject to the following absolute set-back spacing limitations:

> (1) A deep oil well at a depth less than 7,000 feet may be located no closer than 438 feet to the boundary of the proposed unit.
>
> (2) A deep oil well at a depth of 7,000 feet or more may be located no closer than 625 feet to the boundary of the proposed unit.
>
> (3) A deep gas well at a depth of less than 7,000 feet may be located no closer than 875 feet to the boundary of the proposed unit.
>
> (4) A deep gas well at a depth of 7,000 feet or more may be located no closer than 1,250 feet to the boundary of the proposed unit.[102]

Kentucky does not provide distinct distance requirements for horizontal oil and gas wells. However, Commission regulations state that if a permit is issued by the Commission to allow deviated drilling, the "bottom hole

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99 805 Ky. Admin. Regs. 1:100 (2011)(emphasis added).
100 *Id.*
101 *Id.*
102 *Id.*

location or objective shall comply with all minimum distances from unit lines as prescribed by all statewide orders or special field rules."[103]

Yet another wrinkle in Kentucky spacing laws are specific lineal requirements for coalbed methane wells. Unless the proposed well is granted an exception or pursuant to a voluntary pooling order, "no permit shall be issued for a coalbed methane well unless the proposed location of a vertical well shall be at least [750] feet horizontally from the nearest mineral boundary upon which the well is to be drilled and the proposed location shall be at least [1,500] feet horizontally from the nearest coalbed methane well."[104] For horizontal coalbed methane wells, a permit applicant must provide a survey which shows "a dashed line . . . drawn around the intersection length with regard to the spacing requirements" shown above.[105]

Well spacing is done on a state-wide basis by statute or by agency rule or order. For example, the foregoing well spacing standards from Kentucky are referred to as state-wide spacing rules. Also, spacing can be done on a field- or reservoir-wide basis via these same means, although field- and reservoir-wide rules are frequently left to the technical expertise of administering state agencies and are determined in the agencies' discretion. Additionally, these agencies often have the discretion to grant exceptions to the general spacing rules. Exceptions to lineal and density spacing requirements can, under certain conditions, be granted on a well-by-well basis. The spacing laws in Kentucky are more detailed than most in the region, and offer a good example of the various conditions upon which states may allow for alteration or deviation from the standard spacing requirements. These spacing rules are particularly important in shale drilling regions which also have substantial coal production.

[2] — Pooling and Unitization.

In addition to spacing provisions, many states contain laws allowing pooling or unitization of tracts and interests for the development of oil and

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103 *Id.*

104 Ky. Rev. Stat. Ann. § 349.075 (2011).

105 805 Ky. Admin. Regs. 9:070 (2011).

gas. Pooling and unitization are often discussed interchangeably, and almost all states that have statutes providing for one have statutes that provide for both.[106] Most states have regulatory bodies (herein generically referred to as the "board" or "boards") which may compulsorily pool interests in a drilling unit, although owners or operators may also pool their interest by way of voluntary pooling agreements. The procedural mechanisms for setting up such group development is generally the same — *i.e.*, in the absence of a voluntary agreement, the owners or operators must file an application with the board containing a plan including the information required by statute along with appropriate bond and often a degree of approval among interest holders.

Most modern statutory pooling statutes usually have five major elements. First, they have provisions which lay out the prerequisites that must be met before statutory pooling can be invoked, such as formation of a spacing or drilling unit that contains two or more separately owned tracts or interests. Second, statutes often contain provisions identifying or establishing the parties who are authorized, and who have standing, to apply for a statutory pooling order. Third, as previously mentioned, they set out a procedure to apply to the state conservation agency for the desired order. Fourth, they outline the procedure to give notice to the other interested parties and to hold a hearing on the application for statutory pooling. Finally, such statutes provide for issuance of an administrative order, which either denies the application or sets out the terms upon which statutory pooling is granted. In many states, those terms are established, or at least guided, by statute or rule. In other states, they are left largely to the discretion of the conservation agency.

Pooling orders issued by state boards are generally the result of a petition filed either by an interested party or upon a board's own motion.[107] While

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[106] Among states that have both statutory pooling and unitization are Alabama, Arkansas, Florida, Kentucky, Louisiana, North Dakota, Ohio, Oklahoma, and South Dakota; *see* "National Survey," for further discussion of each state's pooling and unitization laws.

[107] *See, e.g.*, Ala. Code § 9-17-81 (2010); *see also* "National Survey," for further discussion of each state's procedural requirements for statutory pooling and unitization.

voluntary agreements have issues of their own — *e.g.*, must the agreement be ratified by 100 percent of the unit's ownership? — statutes allowing for statutory pooling orders contain many provisions, which naturally provide some variety among states.

Statutory pooling orders generally must be approved by the state board. A few states also contain minimum operator or owner controls for pooling orders — that is, a provision requiring the operators or owners of a minimum percentage of interests responsible for costs and of a minimum percentage of all interests entitled to royalty payments to ratify or approve in writing the order promulgated by the board. Far more states only contain these minimum operator or owner controls with regard to unitization orders, discussed below. The relevant percentage, if any, varies by state.

For states with statutory unitization statutes, the minimum operator control provision often dictates that unless a requisite percentage of operators or owners authorize or ratify in writing the unitization order, that order will not become effective.[108] In most cases, this written authorization must take place within a set number of months from the date the order was issued or the order will be automatically revoked unless that time allowance is extended.

Of the 33 states that have statutory unitization, 29 require some form of written authorization by holders of certain types of interest in the unit to satisfy the minimum control requirements.[109] The vast majority of these, 25 states, require authorization by both owners of a percentage of working interest or by those responsible for costs (both groups herein collectively referred to as the "working interest group"), as well as approval by owners entitled to royalties or by owners of similar proceeds from production free of

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[108] *See* "National Survey," for further discussion of each state's minimum control requirements.

[109] These states are Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Illinois, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Montana, Missouri, Nebraska, Nevada, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Utah, Vermont, Washington, and West Virginia. West Virginia's approval requirements pertain only to unitization of secondary recovery oil wells, *see* W. Va. Code § 22C-9-8(a)(4)(2011). *See* "National Survey."

costs (both groups herein collectively referred to as the "royalty group"). The percentage varies between states, but usually it is the same percentage within a particular state as to both the working interest group and the royalty group; it ranges from as low as 51 percent[110] to as high as 80 percent.[111] Sixteen states contain 75 percent approval requirements for at least one group,[112] while 11 states provide numbers between 60 percent and 66.67 percent.[113]

A handful of regulatory unitization structures are unique in that, although they require a certain percentage of approval, they also dictate that if one interest holder has enough interest to approve the order, yet holds less than 100 percent of the interest, at least one other interest holder must vote in favor of the order for it to become effective.[114] The statute may or may not specify that the other interest holder must be unaffiliated with the majority holder. Similarly, one state, New Mexico, requires that if one interest holder has enough interest to defeat the order, yet holds less than 50 percent of the interest, at least one other interest holder must also vote to disapprove the order.[115]

Kansas has a noteworthy structure, which allows for "voluntary" unitization so long as all mineral and royalty owners and not less than 90 percent of the working interest holders approve the voluntary unitization agreement.[116] In the absence of such approval, the state board may issue an order for unit operations. The percent of approval required then depends

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110 *E.g.*, Illinois and Kentucky. *See* "National Survey."

111 *E.g.*, Colorado.

112 These states are Arkansas, California, Florida, Georgia, Kansas, Kentucky, Louisiana, Michigan, Montana, Missouri, Nebraska, New Mexico, Oregon, South Carolina, Washington, and West Virginia. West Virginia's approval requirement pertains only to unitization of secondary recovery oil wells, see W. Va. Code § 22C-9-8(a)(4)(2011). Kentucky's approval requirement appears to pertain only to deep wells, see Ky. Rev. Stat. Ann. § 353.652(1)(d)(2011).

113 Four have 60 percent requirements (Montana, New York, North Dakota, and South Dakota), one has 62.5 percent (Nevada), three have 63 percent (Arizona, Kansas, and Oklahoma), two have 65 percent (Nebraska and Ohio), and one has 66.67 percent (Alabama). *See* "National Survey."

114 Those states are Montana, New Mexico, and North Dakota. *See* "National Survey."

115 N.M. Stat. Ann. § 70-7-8 (2011).

116 Kan. Stat. Ann. § 55-1317(b)(2010).

upon the reason for the order — *i.e.*, it may be due to low production and imminent abandonment of wells in the unit area (in which case only 63 percent of both groups must authorize), or it may be that unitization is merely feasible and would increase ultimate recovery of oil and gas (in which case 63 percent of the working interest group and 75 percent of the royalty group must authorize).[117]

Of the states with minimum operator controls, 21 states specify by statute when the requisite authorization must be secured.[118] Almost unanimously, states give six months to obtain approval of the order to satisfy the minimum operator control requirement. Three states, however, require approval to be shown at the time the application for unitization is submitted to the board,[119] and one state provides 12 months.[120]

Many states provide statutory options by which unleased, non-consenting interests may participate in unit development. The options available vary by states — some statutory schemes provide multiple avenues of participation,[121] while others offer little guidance on how to treat non-consenting interests.[122] Sometimes, a non-consenting owner is given the statutory right to lease or otherwise relinquish its interest, opting instead to receive a one-time per-acre bonus and a fair royalty payment, which is generally a one-eighth percentage of the owner's share of production. Another common royalty level is a one-eighth percentage or the lowest royalty provided by contract in the pool,

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117 *Id.* §§ 55-1304, -1305.

118 These states are Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Illinois, Kansas, Kentucky, Michigan, Mississippi, Nevada, New York, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, and West Virginia.

119 These states are Kentucky, Tennessee, and West Virginia. For example, West Virginia requires that approval be shown prior to the issuance of any unitization order for secondary recovery oil wells, see W. Va. Code § 22C-9-8(a)(4)(2011).

120 Mississippi provides twelve months to show the requisite approval.

121 States that give the non-consenting owner several statutorily available participation options include New York, see N.Y. Envtl. Conserv. Law § 23-0901(3)(c)(McKinney 2011), and Pennsylvania, see 58 Pa. Stat. § 408(c)(2011).

122 States that are either silent as to participation or merely state that the board must provide "just and reasonable terms and conditions" for participation include Georgia, Michigan, Oklahoma, Oregon, and Tennessee. *See* "National Survey."

whichever percentage is greater. The states that provide for transfer of the non-consenting party's working interest vary as to whether the surrender of that interest is permanent or only until the owner's share of costs, or share of costs plus a penalty fee as discussed below, have been recovered out of production.

Instead of leasing, many states allow the owner to retain their working interests, electing varying options to finance those interests, while often allowing the owner to continue to receive their royalty entitlement.[123] At one extreme, owners in some states may elect to participate up-front by paying for their portion of drilling and operating costs at the outset of operations and sharing in the risk and rewards with other operators. For owners who cannot afford to pay the cost initially, some states provide the option for the non-consenting party to have its financial contribution carried, or financed, by the other working interest owners. In those situations, other operators will pay the carried owners' costs and in return will be reimbursed from the proceeds of the carried owners' portion of production, although the owners' royalty entitlements may be exempted from this recapture. Generally, carried participants, who are not vulnerable to the risk of drilling a dry hole,[124] will be charged a "risk penalty," a fee that can be as much as double or triple the actual prorated cost of drilling.[125] Finally, some states allow "free rides" to non-consenting owners, allowing owners to be carried without paying a risk penalty.[126]

The various schemes of working interest participation provide different incentives to non-consenting owners in deciding whether to join a voluntarily

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[123] This is a majority approach in which the statutes convert the unleased owners' interest into a one-eighth royalty interest and a seven-eighths working interest and fit those interests into the states' statutory structure for participation.

[124] Operators may not sue these carried non-participating owners for recovery of their proportionate costs of drilling and operating but may only recover said costs from the proportionate share of production; thus if drilling results in a dry hole or marginal producer, the non-consenting owners are not subject to risk.

[125] States that allow risk penalty charges include Colorado, Louisiana, Nebraska, New Mexico, New York, Texas, Utah, and West Virginia. *See* "National Survey."

[126] These states are Alabama, Alaska, Arizona, Florida, Indiana, Iowa, Missouri, Montana, Nevada, North Carolina, and North Dakota. *See* "National Survey."

pooling agreement. Owners who are statutorily entitled to be carried as a free ride have no incentive to participate up front when they may instead pay over time out of production with no interest charges and no risk penalty. For owners subject to a substantial risk penalty, the incentive to participate up front increases, but only so long as the well is likely to produce and provided that the owner has the capital to participate.

Also, some statutes that provide for the option to carry or otherwise finance non-consenting, unleased owners fail to express that the operator is entitled to retain working interest revenue from production to recover well costs. In lieu of direct entitlement, those statutes give the well operator a lien on the non-consenting owner's share of production until such time as the non-consenting owner's share of costs has been recouped, thereby exposing the operator to increased risk.

Additionally, states differ on whether providing options or offers to the non-consenting owners is a prerequisite to pooling. Some states require the pooling order to include an offer to the non-consenting owners of their option to elect, with a stated number of days within which the operator must respond before he or she will be automatically considered to have chosen the default election option.[127] Other states, however, do not require the pooling order to set out the options available, but instead incentivize the giving of options by, for example, allowing operators to charge more in costs if they can show they have provided the non-consenting party with the option to participate.[128]

The State of Washington provides a comprehensive example of statutory treatment of unleased mineral owners. Washington provides non-consenting owners with several options once a statutory pooling petition has been filed. The first option is a modified seven-eighths to one-eighth option.[129] The unleased owner can be treated as both royalty owner and working interest owner, with the possibility of a royalty greater than one-eighth should the

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127 *See, e.g.*, W. Va. Code § 22-8-11(2011).

128 *See, e.g.*, Miss. Code Ann. § 53-3-7(2)(a)(2011).

129 Wash. Rev. Code Ann. § 78.52.250(4)(2011).

leased royalty owners in the pool have higher royalties, in which case, the remainder is treated as a working interest.[130] As to the unleased owner's working interest share, the usual options are available, including the right to participate and pay pro rata costs and the right to be carried until payout with an appropriate risk penalty.[131] This result may present a better option than leasing if an owner knows his or her tract will be part of a unit which will ultimately be pooled through the statutory process; however, certainty is unlikely in most instances as the operator may redesign a unit to avoid having unleased parties gain such economic benefits.

The second option authorizes the unleased owner to grant a lease to the operator at the current market price for comparable leases.[132] This option may be attractive if the lease bonus in the area is high and the unleased owner will not be able to participate financially as a working interest owner. Protections against unfair leasehold provisions are written into the statute so that the operator cannot force the unleased owner to accept unconscionable terms. The final option allows the unleased owner to treat his or her entire interest as a working interest.[133] The owner would resort to this last option only if the prospects for a very profitable well are high and he or she can afford to participate in drilling costs. The Washington provision also states that if the unleased owner does not make an election within 15 days, he or she is to be treated as having opted for the seven-eighths to one-eighth choice.[134]

Another difference among the states is that some statutes and regulations provide other rights to the individuals or entities who own either the surface or the coal seams, or both, within the pooled acreage. These rights can include requirements that the oil and gas operator notify the relevant entities of pooling hearings and perform surface reclamation, and also allow objections by those entities regarding spacing and well location.

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130 *Id.* § 78.52.250(4)(a).
131 *Id.* § 78.52.250(2).
132 *Id.* § 78.52.250(4)(b).
133 *Id.* § 78.52.250(4)(c).
134 *Id.* § 78.52.250(4).

§ 13.04. Status of Pooling Statutes in Appalachian Shale States.

The current major horizontal shale development areas in Appalachia are Maryland, New York, Pennsylvania, and West Virginia for Marcellus Shale development and, in addition to these states, Ohio for Utica Shale development. Each of these states has adopted conservation statutes.[135] Notwithstanding the adoption of relatively comprehensive statutes by Ohio, New York, Pennsylvania, and West Virginia, each state has unique problems, whether contained within the statute itself or in the utilization or application of the statute for horizontal shale development. These issues are discussed and summarized below:

[1] — Maryland.

In early June, 2011, an executive order was issued by Maryland's governor requiring the Maryland Departments of the Environment (DOE) and Natural Resources to conduct a study, called the Marcellus Shale Safe Drilling Initiative, on the impacts of natural gas drilling in the Marcellus Shale.[136] The final results of that study are not due until August 2014.[137] The order is not a moratorium on permits being issued, but there has been little indication from Maryland that the issuing of permits is likely before the study is completed. Besides environmental issues, the Initiative will study spacing and other rules and regulations impacting oil and gas development.[138]

In addition to the issues associated with this order and its impacts, a key difficulty that Maryland oil and gas law presents for shale gas developers is the lack of a statutory pooling statute. Indeed, the DOE, the state regulatory body, "may not prorate or limit the output of any gas or oil well."[139] The

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135 Each of these states are also members of the Interstate Oil & Gas Compact Commission which serves as a vehicle to assist member states to efficiently maximize oil and natural gas resources through sound regulatory practices while protecting the nation's health, safety and environment. The IOGCC has drafted a model statute for conservation, *i.e.*, the "2004 Model Oil and Gas Conservation Act." *See* http://iogcc.state.ok.us.

136 Exec. Order No. 01.01.2011.11 (June 6, 2011) *available at* http://www.governor.maryland.gov/executiveorders/01.01.2011.11.pdf.

137 *Id.*

138 *Id.*

139 Md. Code Ann., Envir. § 14-103(2010).

DOE is not authorized to order statutory pooling or unitization, even though voluntary pooling and unitization for mutual benefit are acknowledged by statute.[140] For those reasons, waste prevention and protection of correlative rights are primarily sought through spacing requirements. Maryland law does contain linear spacing rules, imposing a 1,000-foot setback between gas or oil wells and boundary lines, unless the owners of adjacent lands have consented to the spacing in writing.[141] The DOE has the authority to prescribe the setbacks between any wells located on the same property.[142] Additionally, the DOE has discretion, after notice and hearing, to allow drilling within the statutory limits if doing so is necessary due to site constraints and if the applicant has notified all landowners and royalty owners within 2,000 feet of the proposed well location by registered mail.[143]

[2] — New York.

New York law contains spacing rules, as well as both voluntary and statutory pooling and unitization provisions. All wells in the state must be drilled in conformity with the spacing requirements,[144] unless the unit otherwise meets the state policy objectives[145] of waste prevention, increased recovery, and protection of correlative rights.[146] The spacing rules differ for oil and gas wells and are based upon target formation and upon direction; they contain both lineal and density spacing requirements.[147] Any party who applies for an oil or gas drilling permit must control, either by ownership, voluntary agreement, or departmental integration order, not less than 60 percent of the acreage in the proposed spacing unit.[148]

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140 *See* Md. Code Regs. 26.19.01.09(J)(2010)(defining "pooled unit" as "an area within which permittees of different tracts in the area have voluntarily agreed to participate in a well drilled within the unit").

141 Md. Code Ann., Envir. § 14-112(a)(1)(2010).

142 *Id.* § 14-112(a)(2).

143 Comar 26.19.01.09(D)(2010).

144 N.Y. Envtl. Conserv. Law § 23-5301 (2011).

145 *Id.* § 23-0503(3)(a).

146 *Id.* § 23-0301.

147 *Id.* § 23-5301.

148 *Id.* § 23-0501(2).

The Department of Environmental Conservation, the governing body, must issue permits if the proposed spacing unit conforms to spacing rules and if it is approximately uniform in shape compared to other units covering the same reservoir. The unit must also either adjoin other units or leave enough space so that additional units may be developed.[149] Prior to issuance of a permit, the Department must publish notice of intent in the Environmental Notice Bulletin.[150] All comments and challenges must be received within thirty days of the notice and must include proposed alternative spacing units, technical justification for the alternative, and the contact information and experience of any witness who supports the alternative.[151] If either no challenges are submitted or no submitted challenges raise substantive issues, then the Department will issue the permit.[152] If significant issues were raised, however, the Department will schedule a hearing on the matter.[153]

As previously noted, New York allows both voluntary[154] and statutory[155] pooling and unitization. Voluntary agreements may be submitted to the Department for approval as being in the public interest or as being reasonably necessary to prevent waste,[156] which approval provides a blanket defense to lawsuits alleging violation of any trust or monopoly laws in the operation of the unit.[157]

In the absence of voluntary agreements to integrate interests within a drilling unit, the Department may mandate pooling or unitization.[158] Before requiring such an order, the Department must find, after notice and hearing, that the order is necessary to carry out the previously mentioned state policies.[159] If the operator does not control all of the interests within

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149 *Id.* § 23-0503(2).
150 *Id.* § 23-0503(2).
151 *Id.* § 23-0503(3)(c).
152 *Id.* § 23-0503(3)(d).
153 *Id.*
154 *Id.* § 23-0701(1).
155 *Id.* § 23-0701.
156 *Id.* § 23-0701(1).
157 *Id.*
158 *Id.* § 23-0901.
159 *Id.* § 23-0901(2).

the unit, either by lease or agreement, the Department must schedule an integration hearing to determine whether integration is in the public interest and necessary to prevent waste.[160] The uncontrolled owners are entitled to thirty days' notice prior to the integration hearing.[161] If those owners are unknown, but the Department grants a spacing unit, the operator must retain the royalties due to said unlocated owners in an interest-bearing account until the owners are located or the property is deemed abandoned.[162]

An election form for uncontrolled interests must accompany the integration hearing notice.[163] The options available to such owners include integration as an integrated participating owner,[164] as an integrated non-participating owner,[165] or as an integrated royalty owner.[166] The uncontrolled owners have 21 days after receipt of notice within which to indicate to the Department the type of ownership status they will elect,[167] and otherwise the default election status is that of an integrated royalty owner.[168]

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160 *Id.* § 23-0901(3).

161 *Id.* § 23-0901(3)(c).

162 *Id.* § 23-0901(3)(c).

163 *Id.* § 23-0901(3)(c)(1).

164 An "integrated participating owner" or "participating owner" is a party who chooses to participate in the initial well, pay the costs associated with participating up front, and comply with any and all requirements for participation. *Id.* § 23-0901(3)(a)(2).

165 An "integrated non-participating owner" or "non-participating owner" is an owner who chooses to reimburse the operator from production proceeds for the owner's proportionate share of the costs of the well. *Id.* § 23-0901(3)(a)(1). Once the operator has recouped the portion of the owner's costs for the well plus a risk penalty, which is equal to 200 percent of the share of the actual well costs allocated to the owner. *Id.* § 23-0901(3)(a)(1). The owner is then entitled to his or her full share of the production attributable to his or her proportionate interest. *Id.*

166 An "integrated royalty owner" is an owner who chooses to be an integrated royalty owner or who does not choose to operate as either of the previously discussed options; the owner will receive a royalty equaling the lowest royalty of the existing leases in the unit, but not less than one-eighth of the owner's share of production, but will have no obligation to the well operator for other charges or fees. *Id.* § 23-0901(3)(a)(3).

167 *Id.* § 23-0901(3)(c)(2).

168 *Id.* § 23-0901(3)(c)(1)(i).

The Department may also order integration, after notice and hearing, upon its own motion or after application is filed by an interested person.[169] The same policies regarding waste prevention and protection of correlative rights are to be considered.[170] Unitization orders must have the written approval of 60 percent of the working interests and 60 percent of the one-eighth royalty interests in the unit area,[171] which approval must be shown within six months of the issuance of the order or it will become ineffective.[172] Orders may be amended in the same way and are subject to the same conditions as the original orders,[173] though only approval of affected interests will be required.[174]

The foregoing shows that New York law provides relatively modern procedures that should promote horizontal shale development. Yet, due to the virtual moratorium in recent months on hydraulic fracturing in New York which prevents horizontal shale development, the statute has been rendered moot. In late June of this year, the Department issued recommendations on mitigating the environmental impacts of high-volume hydraulic fracturing, which would protect the sensitive watershed areas while allowing for development of approximately 85 percent of the Marcellus Shale underlying New York lands.[175] Those recommendations include the following:

(1) High-volume fracturing would be prohibited in the New York City and Syracuse watersheds, including a buffer zone;

(2) Drilling would be prohibited within primary aquifers and within 500 feet of their boundaries;

(3) Surface drilling would be prohibited on state-owned land including parks, forest areas and wildlife management areas;

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169 *Id* § 23-0901(4).
170 *Id.* § 23-0901(2).
171 *Id.* § 23-0901(6).
172 *Id.*
173 *Id.* § 23-0901(7).
174 *Id.* § 23-0901(7)(a).
175 *See* press release, "New Recommendations Issued in Hydraulic Fracturing Review," N.Y. Dep't. of Envtl. Conservation (June 30, 2011), http://www.dec.ny.gov/press/75403.html.

(4) High-volume fracturing will be permitted on privately held lands under rigorous and effective controls; and

(5) DEC will issue regulations to codify these recommendations into state law.[176]

Because these recommendations have not been finally adopted and implemented, whether New York's statute will be entirely satisfactory in the long term to address the unique challenges associated with horizontal drilling is still unknown.

[3] — Ohio.

While Ohio's statute can be used for pooling in all active shale plays, such as the Utica, procedural issues exist. The statute provides exclusive permitting and spacing authority to the Division of Mineral Resources Management of the Department of Natural Resources.[177] The Chief of the Division administers the rules. The Oil and Gas Commission is strictly an appellate body, created by statute to allow those adversely affected by an order to appeal to the Commission.[178] Applications for drilling permits may be denied by the Chief if he determines there is substantial risk that the drilling will violate statutory provisions or that the drilling will put public health and safety or the environment in imminent danger.[179] For permits requested in an urbanized area, longer notice requirements are imposed and more site review is conducted.[180]

Ohio contains spacing requirements that are set by rule.[181] The Chief is permitted to issue special orders providing for spacing over a pool or field.[182] The rules distinguish between the depth to which the well is drilled and include both linear and density spacing rules.[183] The rules, rather uniquely,

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176 *Id.*
177 Ohio Rev. Code Ann. § 1509.02 (2011).
178 *Id.* § 1509.35.
179 *Id.* § 1509.06(F).
180 *Id.* § 1509.06(A)(9); Id. § 1509.06 (I).
181 *Id.*
182 *Id.* § 1509.25.
183 Ohio Admin. Code 1501:9-1-04 (2011).

do not distinguish based upon mineral produced; neither do they differ based upon direction of drilling. In fact, Ohio regulations provide that unless approval is given by the Chief, wells may not "vary unreasonably from the vertical drawn from the center of the hole at the surface."[184]

Pooling applications may be made to the Division for a mandatory pooling order.[185] Also, in order to accommodate horizontal shale well drilling, special field rules may be necessary, as the current spacing rules may not be adequate, although to date, several horizontal wells have been permitted and drilled without any request for special field rules. In the absence of field rules, units must comply with the boundary set-offs of the general spacing rules, even for units of larger size. If the information is complete in an application for a pooling order, the Chief will notify the applicant, the attorneys, and all landowners in the area to be encompassed in the drilling unit of the date of the hearing in front of the Technical Advisory Council (TAC).[186]

The TAC will recommend approving or denying the application based on the information presented in the application and at the hearing. The Chief will review the application, information presented at the hearing and the TAC recommendation and determine whether mandatory pooling is necessary to protect correlative rights and to effectively develop the mineral resources; then, it will enter an order.[187] The order will specify the process whereby any party to the order may appeal the Chief's decision to the Oil and Gas Commission.[188] For owners who do not elect to participate in the risk and cost of drilling, those owners will be designated non-participating owners on a limited or carried basis; applicants who pay for a non-participating owner's portion of costs are entitled to the non-participating owner's share

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184 *Id.* § 1501:9-1-02(H).

185 Ohio Rev. Code Ann. § 1509.27 (LexisNexis 2011).

186 *Id.* The Technical Advisory Council on Oil and Gas was created under Section 1509.38 of the Ohio Revised Code and consists of eight members appointed by the Governor and meets at least once a calendar quarter. Additional meetings are at the request of its chair or two of its members, but such requests have not been used in at least 25 years.

187 *Id.*

188 *Id.* § 1509.36

of production, exclusive of the royalty interest due, until the applicants have been reimbursed the costs expended plus an added percent of the owner's share as the Chief may determine, the total amount of which may not exceed 200 percent of the owner's share of charges.[189]

As for unit operation of a pool, the Chief, either by his or her own motion or by application of 65 percent of the owners of the land overlying the pool, will hold a hearing to decide if a need exists for the operation of the pool as a unit.[190] This provision was intended for application in secondary oil recovery operations, involving the use of multiple wells in the unit, and is not generally applicable to pooled units. Potentially, this could be applied in circumstances involving the use of multiple horizontal boreholes but is better suited for its primary purpose, efficient utilization of secondary recovery technology in oil fields. The Chief should enter the order if it finds that unit operation is reasonably necessary to increase substantially the ultimate recovery of oil and gas and that the added value likely will exceed the added costs.[191] These orders must also contain provisions providing for costs and potential financing options for owners unable to meet up-front costs.[192]

As the foregoing indicates, Ohio's statute is a relatively generic and comprehensive one. However, the major issues with this statute and its application are procedural. For example, each entity is limited to five pooling applications per year, unless further applications are authorized by the Director, and the TAC generally meets only once per quarter.[193] In addition to these procedural restrictions, because the Utica is a recent horizontal shale development play, it is unknown whether Ohio's statute will be entirely satisfactory in the long term to address the unique challenges associated with horizontal drilling.

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189 *Id.* § 1509.27(F).
190 *Id.* § 1509.28(A).
191 *Id.* § 1509.28(A)(1).
192 *Id.* § 1509.28(A).
193 *Id.* § 1509.27.

[4] — Pennsylvania.

Pennsylvania has three statutes that address oil and gas production: the Oil and Gas Act,[194] the Oil and Gas Conservation Law (Conservation Law),[195] and the Coal and Gas Resources Coordination Act (Coal and Gas Coordination Act),[196] which was recently amended by Pennsylvania Act 2 of 2011 ("Amendment"), effective May 13, 2011.[197] The Department of Environmental Protection (DEP) is the regulatory body with authority to carry out the provisions of each act. The Oil and Gas Act is meant to allow for responsible development of Pennsylvania's oil and gas resources and does not restrict its application to any depth.[198] The Coal and Gas Coordination Act requires coordination between gas and coal operators[199] and applies to all gas wells which penetrate a workable coal seam.[200] The Coal and Gas Coordination Act, however, does not apply to gas wells permitted under the Conservation Law or to oil wells.[201]

The Conservation Law is the only act of the three that provides for unitization, and while none of the three Acts address traditional oil and gas spacing, the Coal and Gas Coordination Act, as amended, includes spacing designed to protect coal resources. The Conservation Law provides the DEP with authority to provide for the integration or communitization of interests within a drilling unit[202] to prevent waste. However, it only applies to wells that penetrate the Onondaga horizon or, in those areas in which the Onondaga horizon is nearer to the surface than 3,800 feet, any wells that exceed a depth of 3,800 feet beneath the surface.[203] The Marcellus shale sits

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194 58 Pa. Stat. §§ 601.101-.605 (2011).
195 *Id.* §§ 401-419.
196 *Id.* §§ 501-518.
197 *See* S. 265, 2011 Gen. Assemb., Reg. Sess. (Pa. 2011).
198 58 Pa. Stat. § 601.192.
199 *Id.* § 512.
200 *Id.* § 503(a); *see also id.* § 502 (defining a "workable coal seam" as "a coal seam identified . . . as capable of being mined by underground methods.").
201 *Id.* § 503(b).
202 *Id.* § 405(c)(1)(iv).
203 *Id.* § 403(b)(1).

just above the Onondaga limestone formation,[204] so it is not covered by any statutory pooling provisions in Pennsylvania; the Utica, which is deeper,[205] is covered by the Conservation Law.

For those operators seeking an initial drilling permit in Pennsylvania, they must provide the DEP with their application, which includes the names of all affected surface owners, surface owners and water purveyors whose water supplies are within 1,000 feet of the proposed well location, and the record owner or operator of all known underlying workable coal seams,[206] each of which are entitled to a copy of the plat[207] and who have 15 days within which to file an objection.[208] The application must also state whether the well will substantially deviate from the vertical and which workable coal seams underlie the tract to be drilled.[209]

No spacing rules exist in Pennsylvania under any of the Acts; however, under the Conservation Law, spacing or unit orders can be created by the DEP. The location of any wells drilled subject to the Conservation Law must conform to any applicable spacing or pooling orders issued under the Conservation Law.[210] The orders must, when created, specify the minimum distance from the nearest spacing unit boundary.[211] The location of permitted wells subject to the Conservation Law must be at least 330 feet from the nearest outside lease boundary, which requirement may be waived if landowners outside that area have entered into a voluntary pooling agreement or if the DEP grants an exception to the requirement.[212]

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204 "Marcellus Shale FAQ," W. Va. Geological & Economic Survey (Jan. 7, 2011), http://ims.wvgs.wvnet.edu/mar/marfaq.htm.

205 "Marcellus and Utica Shales Data," Ohio Dept. of Nat. Resources Div. of Geological Survey http://www.dnr.state.oh.us/geosurvey/tabid/23014/Deafult.aspx (last visited Jul. 18, 2011)(stating that the Utica Shale was of the Ordovician age, which is older than the Devonian, in which the Marcellus Shale is found).

206 58 Pa. Stat. § 601.201(b)(2011).

207 *Id.* § 601.201(c).

208 *Id.*

209 *Id.* § 601.201(b).

210 *Id.* § 403(b)(3).

211 *Id.* § 407.

212 *Id.* § 407(6); 25 Pa. Code § 79.11(b)(2011).

The Coal and Gas Coordination Act, as amended, which does not apply to wells subject to the Conservation Law or oil wells, contains spacing rules which were not enacted under traditional oil and gas concepts. Rather, these were enacted to limit the number of wells drilled through coal seams and thereby protect coal reserves. Prior to its Amendment, the Coal and Gas Coordination Act set forth that no permits for gas wells subject to the Coal and Gas Coordination Act may be issued unless the proposed gas well is not less than 1,000 feet from any "other well," which is defined as not including oil, gas, or injection wells that do not penetrate a workable coal seam; oil, gas, or injection wells that have been plugged; nonproducing oil or gas wells drilled and abandoned prior to 1955; and storage wells.[213] Further, while the applicant and the coal seam owner may consent to waive the 1,000-foot spacing requirement, they cannot agree to any distance less than 900 feet.[214] However, where the producing formation is a vertical distance of 1,000 feet or more from the producing formation of any other well and if the applicant and coal owner have consented in writing, the DEP can grant an exception to the 1,000-foot spacing rule.[215]

Thus, prior to the Amendment of the Coordination Act, multi-well horizontal well pads used in Marcellus shale drilling were at risk because a coal seam owner could arguably object to the drilling of such wells due to the close spacing of the wells on the pad. The Amendment makes a major change with respect to spacing in that it provides for 2,000-foot spacing between "well clusters," which are defined as the area of a well pad intended to host multiple horizontal wells (and can be no larger than 5,000 square feet).[216]

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213 58 Pa. Stat. § 507(a)(2011).

214 *Id.* § 507(b).

215 *Id.* § 507(c).

216 The 5,000 square feet limitation may or may not be prohibitive, depending on how an operator spaces its wellbores. This change resolves the uncertainty under the prior Coordination Act as to whether the 1,000-foot spacing for wells barred having more than one horizontal well on a single well pad overlying workable coal, as well as giving coal producers more space in between well clusters than they are entitled to between vertical wells. These changes should lessen the impact of wells drilled through coal on coal reserve recovery.

Also, the Amendment provides that an operator has to obtain the consent as to a well location from all owners of an operating coal mine that will be penetrated by the well.[217] The Amendment expands the definition of "active coal mine" to include "the area of the workable coal seam which may reasonably be expected to be mined and permitted for mining by the operator during the five-year period beyond the projected completion of the mining of the currently permitted area."[218]

For those wells subject to the Conservation Law, parties may obtain spacing orders by submitting an appropriate application to the DEP after an initial discovery well has been drilled.[219] Spacing unit orders must cover all lands believed to be underlain by the pool.[220] If the spacing units contain two or more separately owned tracts or interests, the owners of said interests may decide to integrate for unit development.[221] If parties do not voluntarily integrate their interests, though, the DEP may issue an order, upon application of an operator who holds interest in the tract, which provides for such integration.[222] As part of the order, the DEP must specify the terms and conditions upon which, in the absence of a voluntary agreement and without an order explicitly integrating those interests, royalty interests in the units will be deemed integrated.[223]

The order should also prescribe the manner and time in which the operators may elect to participate in unit operations, as well as provisions for payment by those who elect not to participate in the reasonable actual costs and expense of operations, plus a reasonable supervision charge and interest on past due accounts.[224] If requested, the "order must give just and equitable

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217 *See* S. 265, 2011 Gen. Assemb., Reg. Sess. (2011).
218 *See id.*
219 58 Pa. Stat. § 407(1)(2011).
220 *Id.* § 407(7).
221 *Id.* § 408(a).
222 *Id.* § 408(a).
223 *Id.* § 409.
224 *Id.* § 408(c).

alternatives" for non-participating owners to surrender their leasehold interest on a reasonable basis to participators; the surrender must be in exchange for "reasonable consideration."[225] Otherwise, the order may provide for election to participate on a limited or carried basis.[226] Operators who do the work of drilling or pay for such work for the benefit of a non-participator, are entitled to such non-participating operators' share of production, exclusive of a one-eighth royalty interest, until market price of the production equals 200 percent of the share of such costs payable to the interest.[227]

The obvious problems with the state of the law in Pennsylvania, then, is that statutory pooling is limited to deep wells, which does not include wells drilled for Marcellus development. For those wells that do come under the jurisdiction of the Conservation Law, the DEP has discretion as to a substantial portion of the regulation — *e.g.*, spacing rules and election rights — which might result in uncertainty for various operators, at least until the DEP establishes guidance through its application of this process. Additionally, statutes that regulate deep wells in Pennsylvania do not address the issue of minimum operator controls. The lack of certainty and the lack of a detailed framework may prove problematic as various shale plays are explored in Pennsylvania.

[5] — West Virginia.

West Virginia law contains three rather complicated processes for dealing with oil and natural gas development involving different governing entities, each with its own statutory framework.[228]

The Department of Environmental Protection (DEP), and the Secretary thereof, have general permitting authority for oil and gas development pursuant to the West Virginia Code.[229] The Secretary is vested with

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225 *Id.*
226 *Id.*
227 *Id.*
228 This section is not meant to be a comprehensive coverage of the West Virginia statutes; for complete coverage, see "National Survey."
229 W. Va. Code § 22-6-2 (2010); *see generally id.* §§ 22-6-1 to -41.

statutory authority to perform all the necessary duties relating to exploration, development, production, storage, and recovery of oil and gas.[230]

In addition, the Shallow Gas Well Review Board (Review Board) is the body that reviews coal owner objections regarding shallow gas well placement.[231] The Review Board also has statutory authority to create drilling units and pool interests within those drilling units, albeit in extremely limited circumstances;[232] so limited, in fact, that the Review Board has not issued a single drilling unit or pooling order.[233] As noted, the Review Board's purview is limited, and it does not have authority over deep wells, oil wells and enhanced recovery oil wells, or any shallow well to which no objection is made.[234]

The Chief of the Office of Oil and Gas (Chief) is the state permitting authority for coalbed methane wells,[235] much like the Secretary is the permitting authority for conventional oil and gas wells. The Coalbed Methane Review Board ("CBM Review Board") is the body that hears coal operator objections to the drilling location of a coalbed methane well.[236]

Finally, the Oil and Gas Conservation Commission (Commission) has authority to regulate deep well spacing,[237] and, as relates to deep wells, to approve or deny applications for new well permits, to establish drilling units or special field rules, and to approve or deny applications for the pooling

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230 *Id.* § 22-6-2(c)(12).

231 *Id.* § 22C-8-1(b); *see also id.* §22-6-1(r)(defining "shallow gas wells" as those gas wells drilled and completed above the uppermost member of the Onondaga Group, with an allowance of 20 feet into the Onondaga for logging and completion operations, but in no event may production be had therefrom).

232 *Id.* §§ 22C-8-7 to -11.

233 Telephone conversation with W. Va. DEP Staff (May 17, 2011).

234 W. Va. Code § 22C-8-3 (2011).

235 *Id.* § 22-21-4(b)(2).

236 *Id.* § 22-21-13.

237 *Id.* § 22C-9-4(f); *see also id.* § 22-6-1(g)(defining "deep wells" as those "drilled and completed in a formation at or below the top of the uppermost member of the 'Onondaga Group'").

of interests in a drilling unit.[238] The chapter that provides authority to the Commission supplements and expands upon the statutory requirements set out in article six, chapter 22 of the Code, which includes the Secretary's permitting authority.

West Virginia's general permitting statute[239] contains significant notice requirements and opportunities for objections by affected parties. An applicant seeking to drill an oil and gas well must notify the record owner(s) of the surface tract where the well is to be located and of any surface tracts to be utilized for roads or other surface purposes.[240] Those surface owners have 15 days to submit comments as to the location or construction of the proposed work.[241] In addition, if the proposed well is underlain by a workable coal seam, owners and operators thereof also are entitled to a 15-day notice and objection period.[242] The Secretary may issue the well work permit after reviewing any comments received or once the 15-day comment period has passed with no comment submitted.[243]

Neither article six of chapter 22 nor the applicable state regulations provide spacing rules that apply to shallow wells; however, any coal owner comments received regarding the location of the wells, if not resolved, must be forwarded to the Review Board for hearing.[244] At the Review Board hearing stage, article eight of chapter 22C does contain spacing rules to be applied in response to coal owner objections to shallow well locations. Thus, initial shallow gas well permits are not subject to any spacing rules unless a coal owner objects to well location, prompting the Shallow Gas Well Review Board's jurisdiction.

The Review Board will make a recommendation to the Secretary to refuse the permit or to authorize drilling at the proposed or an alternate

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238 *Id.* § 22C-9-4(h).
239 *Id.* §§ 22-6-1 *et seq.*
240 *Id.* § 22-6-9(a).
241 *Id.* § 22-6-10(a).
242 *Id.* § 22-6-17.
243 *Id.* § 22-6-11.
244 *Id.* § 22-6-17.

location.[245] In making its determination, the Review Board must direct the Secretary to refuse to issue a drilling permit unless the following spacing provisions are followed:

> (1) For all shallow wells with a depth less than [3,000] feet, there shall be a minimum distance of [1,000] feet from the drilling location to the nearest existing well . . .; and
>
> (2) For all shallow wells with a depth of [3,000] feet or more, there shall be a minimum distance of [1,500] feet from the drilling location to the nearest existing well . . ., except that where the distance from the drilling location to such nearest existing well is less than [2,000] feet but more than [1,500] feet and a coal seam owner has objected, the gas operator shall have the burden of establishing the need for the drilling location less than [2,000] feet from such nearest existing well. Where the distance from the drilling location proposed by the operator or designated by the board to the nearest existing well . . . is greater than [2,000] feet, distance criterion will not be a ground for objection by a coal seam owner.[246]

Only after this process has been completed may a party apply for the creation of a shallow drilling unit. Under the Code, the Review Board's authority to establish a drilling unit is conditioned upon the Secretary's prior refusal to permit drilling within the proposed unit acreage because of an order of the Review Board.[247] The royalty owners and gas operators within the drilling unit area must consent to the location therein.[248] If unable to agree, the Review Board will hold a hearing and either issue a written order establishing the drilling unit or dismiss the application.[249] The Review Board may not establish a drilling unit unless it finds the following:

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245 *Id.*
246 *Id.* § 22C-8-8(a).
247 *Id.* § 22C-8-10(c).
248 *Id.* § 22C-8-10(a).
249 *Id.* § 22C-8-10(b).

> (1) The applicant has proved that the drilling location on the drilling unit has been agreed to by all of the owners of the coal seams underlying such drilling location;
>
> (2) The director has previously refused to issue a drilling permit on one of the tracts comprising the drilling unit because of an order of the board;
>
> (3) The drilling unit includes all acreage within the minimum distance limitations provided by section eight of this article, unless the gas operators and royalty owners of any excluded acreage have agreed to such exclusion; and
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> (4) The drilling unit includes a portion of the acreage from under which the well operator intended to produce gas under the drilling permit which was refused.[250]

The complicated structure of such proceedings may help to explain why the Review Board has yet to issue a drilling unit order.[251]

An order to establish a shallow well drilling unit must pool the separately owned interests in the gas to be produced from the unit.[252] Absent a voluntary pooling agreement, the Review Board will integrate such interests during the initial drilling unit hearing.[253] Pooling orders must be just and equitable and provide for the payment of all drilling and operating costs by all those who elect to participate therein, including a reasonable charge for supervision and any outstanding interest owed.[254] Each pooling order also must provide working interest owners the option to either participate or be carried, which option must be exercised within 10 days of the order's entry.[255] By default, non-participating owners will be carried and receive a statutory one-eighth royalty.[256]

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250 *Id.* § 22C-8-10(c).
251 Telephone conversation with W. Va. DEP Staff (May 17, 2011).
252 W. Va. Code § 22C-8-11(a)(2011).
253 *Id.* § 22C-8-11(c).
254 *Id.* § 22C-8-11(d).
255 *Id.* § 22C-8-11(e).
256 *Id.*

Operators seeking coalbed methane well drilling permits undergo a process similar to shallow gas well operators. Those entitled to notice of a coalbed methane permit application include all owners and operators of any coal seam to be penetrated within 750 horizontal feet of any part of the proposed well bore or within 100 vertical feet of the coal seam to be stimulated.[257] In addition, notice must be given to all owners, lessees, and operators of natural gas surrounding the well bore and existing formations above the uppermost member of the Onondaga Group, or less than 6,000 feet deep, whichever is shallower.[258]

In the absence of a pooling order or an order establishing special field rules issued by the CBM Review Board, no permit for a coalbed methane well may be given within 100 feet of the outermost boundary of the coalbed methane tract, leased premises, or unit from which coalbed methane will be produced or within 1,600 feet of an existing coalbed methane well for which a permit application is on file, unless the coalbed methane well operator has received written consent of coal operators of seams to be penetrated or of seams at least 28 inches thick that are targeted for production.[259] Spacing will otherwise be provided by pooling order issued by the Chief, an order establishing special field rules, or an order issued by the CBM Review Board.[260]

Consent to well location must be obtained from each owner or operator of any workable coal seam that is at least 28 inches thick and within 750 horizontal feet of the proposed well bore, if such coal seam is to be stimulated or within 100 vertical feet of any seam that the applicant plans to stimulate.[261] A pre-existing contract or lease with the coal owner or operator for coalbed methane development constitutes waiver of consent requirements.[262] Coal

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257 *Id.* §§ 22-21-6(b)(1)-(2).
258 *Id.* § 22-21-9(a)(4).
259 *Id.* § 22-21-20.
260 *Id.*
261 *Id.* § 22-21-7.
262 *Id.*

owners may also file written objections to the proposed drilling within 15 days of receipt of notice.[263] In addition to objections based on spacing, coal owners may also comment on the effect of the proposed well on operations, safety, and ultimate recoverability of their reserves.[264] The Chief, upon receipt of such objections, will forward the application to the Chairman of the CBM Review Board, who must promptly hold a hearing and provide fifteen days' notice to those who filed objections or comments, to any person entitled to notice of the application, and to the applicant. After the hearing, the CBM Review Board will direct the Chief to refuse the permit or to issue it, either as is or with modifications.[265]

In developing coalbed methane, the statute allows the operator to apply to the Chief in order to pool the separately owned interests of a single or multiple tracts to form a drilling unit for production from one or more wells.[266] Prior to the hearing, the CBM Review Board must provide a conference session between the applicant and all persons entitled to notice who have not yet entered into a voluntary agreement in order to facilitate a voluntary agreement.[267] If agreement is not reached, the CBM Review Board will then hold a hearing, after which time it will grant or deny the application for a drilling unit.[268]

Finally, the West Virginia Conservation Commission is the authority governing the spacing of deep wells.[269] The Commission has the authority to issue or deny permits, to establish drilling units or special field rules, and to approve or deny applications for the pooling of interests within a unit.[270] The statute directing the Conservation Commission provides an important

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263 *Id.* § 22-21-11.
264 *Id.* §§ 22-21-11, -13(b).
265 *Id.* § 22-21-13(d).
266 *Id.* § 22-21-15(a).
267 *Id.* § 22-21-17(a).
268 *Id.* § 22-21-17(c).
269 *Id.* § 22C-9-4(f).
270 *Id.* § 22C-9-4(h).

policy, which dictates that a conflict between the duty to prevent waste and the duty to protect correlative rights should be resolved in favor of waste prevention.[271] Waste includes:

> (ii) – the locating, [and] drilling . . . of any oil or gas well in a manner that causes, or tends to cause, a reduction in the quantity of oil or gas ultimately recoverable from a pool under prudent and proper operations, or that causes or tends to cause unnecessary or excessive surface loss of oil or gas; or
>
> (iii) – the drilling of more deep wells than are reasonably required to recover efficiently and economically the maximum amount of oil and gas from a pool.[272]

An application to establish a drilling unit for a deep well must be preceded by completion of a discovery well into the formation at issue. Upon application to establish the drilling units, the Commission provides all interested parties with notice.[273] The statute does not require a hearing; instead, a hearing must be requested within 15 days of receipt of notice. If no request is submitted, the Commission will proceed to process the application.[274] The Commission has 45 days to either grant or deny the order establishing a drilling unit.[275] If a hearing was held, the order will be final; if no hearing was held, the Commission will issue a proposed order and provide notice to all interested parties of said order. Parties may appeal the order to the full Commission and request a hearing within 15 days of the order's entry, after which time, if no appeal has been filed, the order will become final.[276]

Drilling unit orders must cover all lands determined or believed to be underlain by a pool and exclude all other lands.[277] The statute directs the

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271 *Id.* §§ 22C-9-4(e)–(f).
272 *Id.* § 22-6-1(t).
273 *Id.* §§ 22C-9-7(a)(1)-(2).
274 *Id.* §§ 22C-9-7(a)(1)-(2).
275 *Id.* § 22C-9-7(a)(9).
276 *Id.* § 22C-9-7(a)(11).
277 *Id.* § 22C-9-7(a)(4).

Commission to form units no smaller than the maximum area which can be drained efficiently and economically by one well[278] and no larger than 160 acres for oil wells or 640 acres for gas wells, with a 10 percent variance if a larger area is required for efficient and economical drainage.[279] If adequate information is not available to determine the appropriate area, temporary drilling units may be created until such time that adequate information is obtained.[280] Orders must establish boundary setback requirements.[281]

Separately owned interests within a drilling unit may voluntarily integrate their interests for the development of the unit.[282] In the absence of a voluntary pooling agreement between all affected parties, and upon application of an interested operator in the unit, the Commission will provide notice and a hearing,[283] at which hearing the Commission will order pooling.[284] The pooling order must contain just and reasonable terms and conditions, and under no circumstances may drilling be commenced on the tract of an unleased owner without the owner's written consent.[285] Additionally, the order must provide the time and manner in which all owners of working interest in the pooled tracts may elect to participate therein, along with payment of all reasonable costs of operating and drilling, including a reasonable charge for supervision and for interest on past-due accounts by those who elect to participate.[286]

The Commission lastly has authority over secondary recovery of oil and may provide notice and a hearing to all interested parties upon application of an operator in a pool that is productive of oil to provide for unit operation of the pool in connection with secondary recovery of oil and

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278 *Id.* § 22C-9-7(a)(5).
279 *Id.* § 22C-9-7(a)(7).
280 *Id.* § 22C-9-7(a)(5).
281 *Id.* § 22C-9-7(a)(6).
282 *Id.* § 22C-9-7(b)(1).
283 *Id.*
284 *Id.*
285 *Id.* Valuable consideration must also be given in exchange for the consent and an easement therefor. *Id.* § 22C-9-8.
286 *Id.* § 22C-9-7(b)(3).

unitizing the separately owned tracts in the pool.[287] Operators must have approval of at least three-fourths of all the working interest and three-fourths of all the royalty owners within the proposed unit prior to the order being granted.[288]

As the foregoing shows, West Virginia lacks an adequate structure to provide for statutory pooling in connection with Marcellus shale development as those wells are classified as shallow wells under the statute. The statute that covers shallow gas wells is primarily concerned with resolving conflicts between well operators and coal operators and fails to address statutory integration, the establishment of appropriate units based on the affected reservoir, or the fundamental policy goals of correlative rights protection and waste prevention. The deep well statutes are somewhat more comprehensive, but do not include common provisions such as minimum operator controls or clear and detailed resolution of the rights of non-consenting parties, nor does the statute address spacing rules specifically applicable to horizontal wells.

In summary, the use of New York's and Ohio's Conservation Statutes for large scale horizontal drilling in the Marcellus and Utica Shales is still untested as to whether further modifications are needed, or if such statutes will be sufficient to promote such development. On the other hand, Maryland, Pennsylvania, and West Virginia all need statutes to address horizontal shale development in the Marcellus formation, and because of the varying considerations in each state, such as coal interests, severed interests, and shallow well operators, such statutes should be uniquely tailored to each particular state.

§ 13.05. Recommendations for Statutory Improvements.

Any state conservation statute and implementation thereof needs to address factors that are unique to horizontal development in Appalachia.

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287 *Id.* § 22C-9-8(a).
288 *Id.*

Statutory pooling for horizontal Marcellus and Utica wells will undoubtedly enhance a producer's ability to efficiently recover oil and gas from shale deposits. However, a proper regulatory framework should allow this statutory integration alongside other provisions to ensure that all the various interests, *i.e.*, oil and gas, coal, and surface owners, are appropriately balanced by the new legal structure. Such supplemental provisions must consider the unique nature of horizontal methods and should address the measures discussed below.

[1] — Spacing Rules Tailored to Horizontal Wells.

Unlike traditional vertical drilling, common horizontal industry practice — based on technology and economies of scale — is to drill multiple horizontal wells together from a single well pad. Further, one horizontal well may possess multiple horizontal side laterals to be drilled into the same formation. However, increased well density, *i.e.*, multiple wells spaced and drilled on a well pad, may adversely impact the development of coal reserves because of the potential inability of a coal operator to mine through the vertical sections of such wells. Thus, any statute must address the maximum surface acreage to be utilized for the vertical sections of the horizontal well locations (or "well cluster" as used in Pennsylvania's recently enacted amendment discussed above) on any such multi-well pad; provide adequate minimum spacing distances between the well cluster on one multi-well pad and the well cluster on any other multi-well pad; and restrict or limit the drilling of individual conventional vertical wells between such well clusters in order to both protect coal resources and promote horizontal well drilling.

Horizontal drilling allows significantly less surface disturbance within the encompassed unit area because of the use of multi-well pads. A typical Marcellus multi-well pad is approximately five acres in disturbed surface size.[289] Utilizing this limited surface area for well operations, an operator

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[289] *See*, *e.g.*, "Why Multiple Horizontal Wells from Centralized Well Pads Should Be Used for the Marcellus Shale," *W. Va. Surface Owners' Rights Org.*, http://www.wvsoro.org/resources/marcellus/horiz_drilling.html (last visited July 10, 2011).

can produce more natural gas as compared to development by vertical wells which would require many more conventional vertical well locations and therefore much more surface disturbance. Thus, promoting development of horizontal multi-well pads and providing spacing regulations to govern minimum distances between such well clusters better serves surface owners, as well as environmental and land use interests, because on a macro level there should be much less surface disturbance. In summary, restrictions on the maximum acreage area associated with each well cluster, the minimum distance between well clusters, and the location of conventional vertical wells between well clusters fosters many public policies, while protecting the interests of surface owners and the coal owners and operators.

Unlike a conventional vertical well, a horizontal shale well actually drills through the formation, and its drainage is a limited area beyond the completion locations in the horizontal bore. Furthermore, because of the irregular size of tracts involved in Appalachia and because numerous tracts can be penetrated by the horizontal bore in Appalachia, any effective statute for horizontal shale wells should include not only a combining of drained properties for the sharing of production but also the right to drill through properties. This right to drill through properties is somewhat different from the traditional use of conservation statutes that were originally enacted to address drainage from an off-tract well in addition to addressing over-drilling. Also, because of the continuing developments in horizontal drilling and completion technology, more and more properties may be impacted by each horizontal well. Furthermore, an unleased tract in the middle of a horizontal wellbore design has potentially greater negative impact as it could affect rational development and deprive not only the oil and gas owner and developer of royalties and income but also deprive a jurisdiction of significant revenues from taxes and other direct and indirect economic benefits associated with such well development. Additionally, there is greater potential for stranded unleased tracts that will never be drilled or developed if pooling and unitization principles are not adopted. Any statute should therefore address the right to penetrate or drill through tracts.

[2] — Notice and Approval Requirements.

The need for statutory pooling in Maryland, West Virginia, and Pennsylvania is partially due to the severed land and mineral ownership, as well as the irregularly shaped tracts in the region. To ensure that the rights of surface, coal, and oil and gas owners are sufficiently protected, the statutes should provide specific notice requirements which afford each owner potentially affected by an application for a pooling order notice and an opportunity to voice comments and concerns, *e.g.*, surface owners could be impacted by use of their surface; coal owners could be impacted by increased well density in the unit, and oil and gas owners could be impacted by being statutorily pooled. In addition, such notice and a clear structure of what factors should be considered by the reviewing body when addressing such comments are needed in order to insure that not only are non-oil and gas owners' rights protected, but that the oil and gas owners' rights are protected and that public policy to develop natural resources is fostered. Additionally, a clear structure setting forth the election rights[290] will offer a currently non-consenting oil and gas owner a final chance to negotiate with the applicant for consensual pooling terms. The notice requirements currently in place in West Virginia for well work applications[291] offer an example well-suited to transition to applications for pooling and unitization orders.

Further, the statute should subject any horizontal pooling order to minimum operator control thresholds based on widely accepted standards found in other states. Currently, these thresholds of required consent across the various jurisdictions range from 50 percent of proposed pooled interests to 75 percent or 80 percent consent by relevant owners thereof on a net acreage basis.[292] Most states require between 63 percent and 75 percent consent from working interest and/or royalty owners.[293] A minimum operator control

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290 *See* text *supra* §§ 12.03. [2], 12.05. [3] for further discussion of election rights.

291 *See* W. Va. Code §§ 22-6-1, *et seq.* (2010).

292 *See* "National Survey," for further discussion of each state's minimum control requirements.

293 *See* text *supra* § 12.03. [2] for further discussion.

threshold requiring 75 percent approval on a net acreage basis also provides substantial protection to owners of unleased tracts and smaller independent producers who may have acreage within a proposed unit.[294]

[3] — Allocation of Costs and Election Rights.

Another important aspect of comprehensive pooling statutes is the statutory presence of clear election rights for non-consenting owners who are subject to a pooling or unitization order. When issued by the authorized agency, these orders should provide general terms as to how such non-consenting mineral owners are to be treated. As this chapter shows, there are many ways to structure a statutory election scheme. The most comprehensive of these provides legislative guidance in how these rights should be framed, but also allows agency discretion to set particular terms based on the facts presented at the public hearing.

Severed ownership in Appalachia, coupled with the substantial initial and continuing costs of Marcellus well production, suggests that non-consenting owners should be able to transfer their interests to the operator on reasonable terms or be carried with a marginal risk compensation fee. For example, as total compensation for the expense and inherent risks in commencing drilling operations, a non-consenting owner may owe the operator 200 percent of the unpaid portion of that owner's share of drilling and operating costs. Notably, this payment would come solely from such owner's share of production from the unit and be withheld by the operator exclusive of a

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[294] This process would address the aberrational cotenancy law in West Virginia, which in contrast to the rest of the mineral producing states, treats development by one owner as waste vis-à-vis his or her other cotenants. This law has the perverse effect that an owner of a small fractional interest can enjoin the rest of his cotenants from developing and enjoying the benefit of their mineral property. While this proposal would address this issue for oil and gas development, the owners of other minerals, notably coal, would still require an amendment of the cotenancy law to more fully enjoy and develop their property rights.

royalty guaranteed by statute.[295] This compensation scheme is significantly more generous to non-consenting owners than the law in many states,[296] while retaining a nominal fee to fairly protect horizontal well operators and incentivize smaller lessees and unleased owners to negotiate with operators and feel secure in doing so.

[4] — Surface Use.

Surface owners have emerged as a vocal advocacy group in current policy discussions relating to oil and gas development. In many instances, the oil and gas estate has been severed from the surface and therefore the party desiring to develop the minerals is different from the party occupying the surface. In the normal circumstance, the law deems the mineral estate to be dominant and the mineral owner has the right to make reasonable use of the surface to develop the mineral estate. This circumstance creates an inevitable conflict of interest, as the surface owner who acquired title subject to the mineral owner's rights nonetheless desires to prevent or limit so far as possible the use of the surface property. Some advocates have even requested that the legislature enact laws to summarily alter the existing property law and divest the mineral owners of certain of their vested property rights. Sound policy will require that legislation strike the proper balance between protecting existing property rights of mineral owners and addressing the concerns of surface owners who did not previously appreciate the subservient nature of their surface property ownership. While many of these issues are properly

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295 This proposed risk compensation fee for horizontal shallow wells would mirror those already in place in West Virginia for deep wells. *See* W. Va. Code § 22C-9-11(b)(6)(2011)(establishing that a deep well operator who obtains a pooling order is entitled to production of a carried non-participating owner "until the market value of such non-participating owner's share of the production, exclusive of such royalty, overriding royalty or one-eighth of production, equals double the share of such costs payable by or charged to the interest of such nonparticipating owner").

296 *See* "National Survey," for further discussion of each state's treatment of non-consenting owners or operators.

addressed in the permitting process, related issues arise in the context of statutory integration.

In addition to the protections afforded to an unleased fee simple owner — such as adequate notice, approval, and election schemes — a revised statute tailored to horizontal wells must consider appropriate use of the surface with respect to unleased tracts that will be statutorily pooled in a unit. For example, the horizontal pooling statute could require consent from the owner of the surface overlying an unleased mineral owner before the unit operator may conduct surface operations on said unleased tract. When the surface overlying a tract is owned by a number of cotenants, a statutory requirement could be placed on the operator to secure the voluntary agreement from a supermajority of the undivided interests before surface operations would be permitted on the tract.

Although the owner of the surface overlying a statutorily pooled unleased mineral owner should not be able to unilaterally halt the unit operations of the total unit, traditional standards of equity suggest that he should have some level of control over whether a horizontal well pad is located on the surface overlying unleased acreage, which was statutorily pooled. Likewise, public policy interests require that the unit operator be granted reasonable access to and from operation locations, and provisions could be set forth granting surface and subsurface easements for access across such unleased tract, to access the well site, to drill and transport gas through subsurface laterals, as well as to construct pipelines to transport gas from the unit well to market. Legislation should also codify the operator's right to conduct unit operations on the surface and subsurface of any of the leased tracts for the benefit of developing the mineral estates in the unit, including location of access roads, well sites, laterals, pit locations and pipeline infrastructure.

§ 13.06. Conclusion.

Throughout history, the Appalachian region has supplied the often-overlooked foundation for America's global leadership in energy production and technological advancement. The coal industry in our area has traditionally provided the American public the irreplaceable service of affordable and reliable energy. Today, the vast natural reserves of the Marcellus Shale place

Maryland, West Virginia, and Pennsylvania at the precipice of unprecedented economic growth, with the potential to reshape our nation's energy portfolio, which is crucial to re-capturing fiscal stability here and abroad.

Further, modern innovation of horizontal drilling methods enables production from these reserves with efficiency never-before imagined. The wealth of oil and natural gas underlying our region demands that industrial and independent producers be supported by a comprehensive regulatory framework to foster safe and efficient development of these resources.

As this chapter shows, there is substantial variety among the states in procedural treatment of oil and gas production under conservation laws. However, the inclusion of statutory pooling and unitization is the common trend underlying those regulatory schemes which are well-developed and most sensitive to the various interests involved. In Appalachia, a cohesive regulatory framework must protect the rights of surface, coal, and oil and gas owners; address potential environmental concerns by promoting best industry practices and public education; and capitalize on the unique natural resources of the region. To accomplish these goals, Maryland, West Virginia, and Pennsylvania must advance their respective legal structures to incorporate statutory pooling for all horizontal shale wells. It is inadequate to add a statutory pooling provision for horizontal shallow wells to existing law; rather a sound, well-developed system for pooling and unitization of horizontal wells will require a comprehensive approach.

The recommendations above are not intended to provide an exhaustive list of all-important aspects of this horizontal shale well regulation. However, such provisions will afford benefit to landowners, successfully balance the interests of the coal and natural gas industries so vital to local economies, and prompt more environmentally responsible well location and operation. While the authorized state agency should maintain some level of discretion to determine proper details for each situation, the legislature must empower these bodies to use statutory integration to pool ownership interests so that production will minimize surface use, protect coal resources, enhance oil and gas recovery, and provide otherwise unattainable economic benefit to citizens, owners, and well operators.

This chapter's summary of the various pooling strategies found throughout the nation serves more than an academic exercise or guide for industry actors. It aims to clearly convey that pooling and unitization are developed, long-standing legal doctrines formed and adopted by the overwhelming majority of states to encourage the most efficient and cost-effective means of recovering oil and gas. Further, the constitutional validity of these regulatory mechanisms is beyond dispute. When done properly, these methods will spur economic growth and be a catalyst that places Maryland, West Virginia, and Pennsylvania at the forefront of sustainable energy production through the Twenty-First Century.