

A REVIEW OF THE IMPLIED COVENANT OF DEVELOPMENT IN THE SHALE GAS ERA

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I. INTRODUCTION

Although there is no shortage of case law or commentary on the covenant of reasonable development implied in oil and gas leases,¹ its scope and application may have a renewed significance in the shale gas era. Over the past decade or so, production companies have entered into new oil and gas leases with landowners or have acquired older leases long held by production from shallow or more conventional formations in the Appalachian Basin² for the opportunity to produce natural gas and other hydrocarbons from vast shale formations like the Marcellus³ and Utica located predominately in Pennsylvania, Ohio, and West Virginia.⁴

In these and most oil and gas producing jurisdictions around the country, courts recognize that, in the absence of express language to the contrary, there are some circumstances in which a lessee may be bound by an implied covenant to develop the leased premises. Most of the cases on the implied development covenant were decided during the times of more conventional oil and gas development. What might this implied covenant of

¹ See, e.g., OWEN L. ANDERSON ET AL., *HEMINGWAY OIL AND GAS LAW AND TAXATION* § 8.1, at 401–02 (4th ed. 2004); JOHN S. LOWE, *OIL AND GAS LAW IN A NUTSHELL* 316–352 (5th ed. 2009); MAURICE H. MERRILL, *THE LAW RELATING TO COVENANTS IMPLIED IN OIL AND GAS LEASES* § 69, at 176 (2d ed. 1940); 5 HOWARD R. WILLIAMS & CHARLES J. MEYERS, *OIL AND GAS LAW* §§ 831–856.3, at 214.3–388 (rev. ed. 1998); Patrick H. Martin, *Implied Covenants in Oil and Gas Leases—Past, Present & Future*, 33 *WASHBURN L.J.* 639, 644–653 (1994); see generally George A. Bibikos & Jeffrey C. King, *A Primer on Oil and Gas Law in the Marcellus Shale States*, 4 *TEX. J. OIL GAS & ENERGY L.* 155 (2009); Keith B. Hall, *The Continuing Role of Implied Covenants in Developing Leased Lands*, 49 *WASHBURN L.J.* 313 (2010); Bruce M. Kramer, *The Interaction Between the Common Law Implied Covenants to Prevent Drainage and Market and the Federal Oil and Gas Lease*, 15 *J. ENERGY NAT. RESOURCES & ENVTL. L.* 1 (1995); James W. McCartney & John C. LaMaster, *The Implied Covenant of Exploration in Texas and Arkansas*, 13 *U. ARK. LITTLE ROCK L. REV.* 25 (1990).

² For information on the history of early development targeting non-shale formations in the Appalachian Basin states, including Pennsylvania, Ohio, and West Virginia, see JAMES W. ADAMS ET AL., *PENNSYLVANIA OIL AND GAS LAW AND PRACTICE* §§ 1.1–1.2, at 1-1 to -4 (2012); OHIO OIL & GAS ASS'N, *Ohio Crude Oil & Natural Gas Producing Industry*, <http://burchfieldcraig.org/FamLib/FamBus/OilGasGeneral/OhioOilandGasIndustryOverview-OOGA.pdf> (last visited Mar. 19, 2013); R.T. Ryder, *Appalachian Basin Province (067) 1–5*, available at <http://certmapper.cr.usgs.gov/data/noga95/prov67/text/prov67.pdf>; W. Va. Geological & Econ. Survey, *History of WV Mineral Industries—Oil and Gas*, <http://www.wvgs.wvnet.edu/www/geology/geoldvog.htm> (last updated July 16, 2004).

³ For example, the Marcellus Shale covers roughly 48,000 square miles. See John A. Harper, *The Marcellus Shale—An Old “New” Gas Reservoir in Pennsylvania*, 38 *PA. GEOLOGY* 2, 2 (2008).

⁴ These shale formations underlie many other states including New York, Kentucky, Maryland, Tennessee, and Virginia, and parts of Ontario, Canada (in the case of the Utica). See Hobart King, *Utica Shale—The Natural Gas Giant Below the Marcellus*, *GEOLOGY.COM*, <http://geology.com/articles/utica-shale> (last visited Mar. 19, 2013). Much of the current development activity is taking place in Pennsylvania, Ohio, and West Virginia.

development mean in the shale gas context given the potential for commercial natural gas production from shale formations using new technologies?

The goal of this Article is to revisit some of the general principles regarding the implied covenant of development in states to the west and in the northeast where shale gas development is off and running. To that end, Part II of this Article provides an overview of some of the general features of shale gas development. Part III reviews case law and commentary on the implied covenant of reasonable development and the so-called “further exploration” covenant, with a particular emphasis on several factors that may be relevant in the shale gas context and on remedies recognized by the courts if a lessor establishes a breach. Part IV summarizes the case law on the implied development covenant in Pennsylvania, Ohio, and West Virginia and identifies some scenarios in which lessors may assert claims. Part V provides a brief conclusion.

II. SHALE GAS DEVELOPMENT

As noted above, most of the case law over the past century involves claims that lessees breached the implied covenant in the context of more conventional oil or gas development. Shale gas development is different from conventional development⁵ in ways that may be relevant to courts when they resolve disputes over whether a lessee has complied with any implied covenant of developing a leasehold. Although there are similarities, shale gas development tends to be a little more complicated than its conventional counterpart, tends to take a little more time, and tends to cost a lot more money.

A. *Geology*

Shale formations like the Marcellus and Utica are sedimentary rocks of varying thickness rich in organic matter. They are located at some points thousands of feet beneath the surface of the Earth.⁶ The hot subsurface temperatures, subsurface pressure, and lack of oxygen in the formation, coupled with a series of chemical reactions over time, transforms the organic matter in the shale into hydrocarbons such as oil or natural gas.⁷

Until fairly recently, production companies did not target shale formations for natural gas development given the complexity and cost of the

⁵ *Traditional Oil and Natural Gas Industry*, PA. INDEP. OIL & GAS ASS'N, <http://www.pioga.org/pa-oil-gas/traditional> (last visited Mar. 19, 2013) (“These segments of the industry have a number of similarities, along with a number of differences.”).

⁶ See Harper, *supra* note 3, at 8 (noting varying depth and thickness of the Marcellus).

⁷ See, e.g., JOHN S. LOWE ET AL., *CASES AND MATERIALS ON OIL & GAS LAW* 5–7 (6th ed. 2013); MARTIN S. RAYMOND & WILLIAM L. LEFFLER, *OIL AND GAS PRODUCTION IN NONTECHNICAL LANGUAGE* 56–57 (2006).

venture and the lack of technology that would make production commercially viable.⁸ Most producers targeted more “conventional” shallow formations like sandstones overlying the Marcellus Shale in Western Pennsylvania as depicted in Figure 1 below.

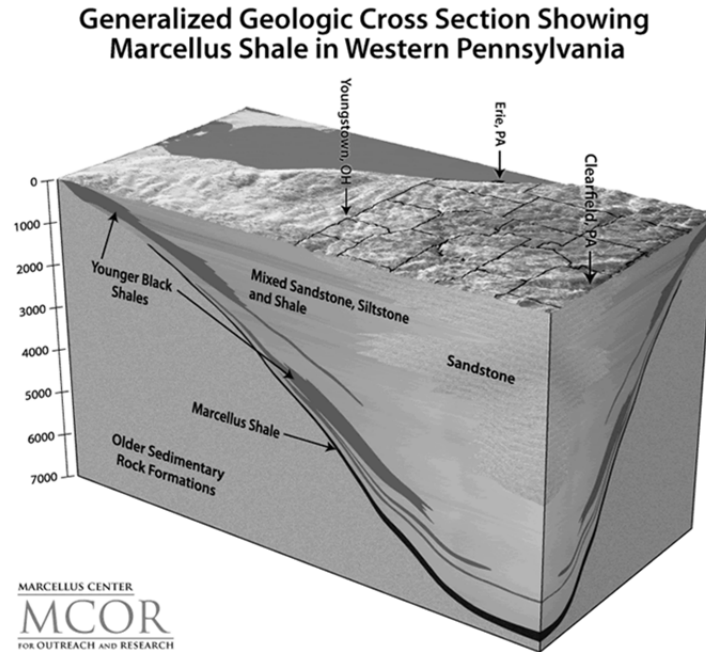


Figure 1: Location of Shale Relative to Other Formations

Image Courtesy of Marcellus Center for Outreach and Research⁹

Yet, given its potential as an energy source, public and private entities gained interest beginning in the mid-1970s with the “Eastern Gas Shales Project,” a federally funded program designed to evaluate the potential for natural gas production from the Devonian and Mississippian shale formations in the Appalachian Basin.¹⁰ In 1981, George Mitchell’s company (Mitchell Energy, later acquired by Devon Energy Corporation) drilled a well targeting

⁸ Harper, *supra* note 3, at 2 (“In reality, the Marcellus has been a known gas reservoir for more than 75 years. What has made it newsworthy, besides much hyperbole, is that the oil and gas industry has both new technology and price incentives that make this otherwise difficult gas play economical.”).

⁹ *Generalized Geologic Cross Section Showing Marcellus Shale in Western Pennsylvania*, MCOR, <http://www.marcellus.psu.edu/images/3D-section.gif> (last visited Mar. 21, 2013).

¹⁰ ROBERT G. PIOTROWSKI & JOHN A. HARPER, BLACK SHALE AND SANDSTONE FACIES OF THE DEVONIAN “CATSKILL” CLASTIC WEDGE IN THE SUBSURFACE OF WESTERN PENNSYLVANIA 6–8 (1979). The report is available at the National Energy Technology Laboratory website at <http://www.netl.doe.gov/kmd/cds/disk7/disk1/EGS%5CBlack%20Shale%20and%20Sandstone%20Facies%20of%20the%20Devonian%20%27Catskill%27%20.pdf> (last visited Mar. 19, 2013).

the Barnett Shale in Texas. Despite his engineers telling him, “[y]ou’re throwing your money away,” Mitchell and his team spent the next two decades researching, developing, and refining techniques (including horizontal drilling and hydraulic fracture stimulation) that make shale gas development potentially economical for some production companies.¹¹ Range Resources Corporation and other producers pioneered the development in the Marcellus Shale region.¹²

This “unconventional” development of natural gas targets the hydrocarbons in the shale formation itself.¹³ Because shale is a “tight” formation that may have sufficient porosity¹⁴ for the accumulation of hydrocarbons but low permeability,¹⁵ oil and gas cannot flow through shale with relative ease as compared to common reservoir rocks.¹⁶ In addition, the productive zones of shale formations may be located far deeper in the ground than some more conventional reservoirs.¹⁷ Given the depth of the shale and its geophysical characteristics, different drilling and completion techniques are required to extract economically viable quantities of hydrocarbons from these formations, and shale gas extraction operations tend to be much greater in complexity and scale than their conventional counterparts.

B. The Life Cycle of a Shale Gas Well

The life cycle of a well targeting a shale formation begins with preliminary work, such as acquiring a sufficient amount of acreage to support larger scale operations and deep drilling; conducting larger scale seismic testing to examine the subsurface of a geographic area that includes the leased

¹¹ See Jesse Bogan, *The Father of Shale Gas*, FORBES (July 16, 2009), <http://www.forbes.com/2009/07/16/george-mitchell-gas-business-energy-shale.html>.

¹² Range Resources geologist William A. Zagorski has been referred to as the “Father of the Marcellus.” See *Newsroom, Range Geologist Bill Zagorski To Be Honored By AAPG*, RANGE RES., <http://www.rangeresources.com/Media-Center/Featured-Stories/Range-Geologist-Bill-Zagorski-To-Be-Honored-By-AAP.aspx> (last visited Mar. 19, 2013).

¹³ For a good summary of shale gas history and development, see GOVERNOR’S MARCELLUS SHALE ADVISORY COMM’N REPORT § 3.1, at 13–15 (July 22, 2011), available at http://files.dep.state.pa.us/publicparticipation/marcellusshaleadvisorycommission/marcellusshaleadvisoryportalfiles/msac_final_report.pdf.

¹⁴ Porosity refers to the spaces between the grains in the rock in which hydrocarbons may accumulate. The higher the porosity, generally the higher the potential for the presence of hydrocarbons. NORMAN J. HYNÉ, NON-TECHNICAL GUIDE TO PETROLEUM GEOLOGY, EXPLORATION, DRILLING, AND PRODUCTION 512 (2d ed. 2001).

¹⁵ Permeability measures the ability of hydrocarbons to flow through a rock. *Id.* at 510.

¹⁶ *Id.* at 152, 156–59.

¹⁷ OFFICE OF FOSSIL ENERGY & NAT’L ENERGY TECH. LAB., U.S. DEP’T OF ENERGY, MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES: A PRIMER E-2 (2009), available at http://www.fossil.energy.gov/programs/oilgas/publications/naturalgas_general/ShaleGasPrimer_Online_4-2009.pdf.

properties; obtaining necessary regulatory approvals for drilling the well and constructing the well pad—some of which are specific to shale gas development as opposed to conventional drilling; surveying the property; siting well pad and well locations; staking well pad sites; and developing a drilling and operations plan.¹⁸ This process can take many months or years.

Once a production company decides on the location of a well, it constructs a well site. That involves clearing the well pad area; mobilizing earthmoving equipment to the site; engaging in earth moving activities to construct access roads and well pads; building impoundments for storing water; building other structures; and engaging in other construction activities. Although there are fewer of them, well pads sufficient to support shale gas operations are typically larger than well pads that support conventional operations. Moreover, shale well pads often involve multiple wells drilled on each pad, reaching down and then out horizontally in a pattern to extract gas over a large area. Again, this process may take a considerable amount of time.

The key features of shale gas development include horizontal drilling at greater depths and hydraulic fracture stimulation techniques to crack and prop open the low-permeability shale formation to release the hydrocarbons.¹⁹ This is essential to shale gas development.²⁰

To summarize the process, natural gas producers first drill a vertical wellbore several thousand feet below the surface of the Earth until they reach an area above the target shale formation.²¹ At that “kickoff” point, they then turn the drill gradually to penetrate and bore through the shale formation horizontally, typically for approximately 2,000 feet or more, as depicted in Figure 2 below.²² As illustrated in Figure 3 below, multilateral drilling allows operators to branch off from one well or surface location in different directions to target different subsurface areas and recover resources at different depths or zones.

¹⁸ George A. Bibikos, *Interpreting Oil and Gas Leases in Pennsylvania’s Shale Gas Era*, LEGAL INTELLIGENCER, July 31, 2012, at 2.

¹⁹ OFFICE OF FOSSIL ENERGY & NAT’L ENERGY TECH. LAB., *supra* note 17, at ES-3 to ES-4.

²⁰ David E. Pierce, *Developing a Common Law of Hydraulic Fracturing*, 72 U. PITT. L. REV. 685, 685 (2011) (“[H]ydraulic fracturing is absolutely necessary to profitably develop oil and gas from shale rock formations and other ‘tight’ formations.”).

²¹ Bruce M. Kramer, *Pooling for Horizontal Wells: Can They Teach an Old Dog New Tricks?* 55 ROCKY MTN. MIN. L. INST. § 8.01, at 8-3 (2009).

²² For a review of lateral lengths for different shale formations, see HALLIBURTON CO., U.S. SHALE GAS: AN UNCONVENTIONAL RESOURCE. UNCONVENTIONAL CHALLENGES 5 (2008), available at http://www.halliburton.com/public/solutions/contents/shale/related_docs/H063771.pdf.

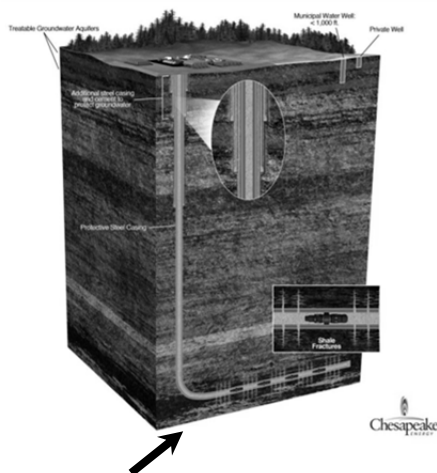


Figure 2: A Horizontal Well
Image Courtesy of Chesapeake Energy²³

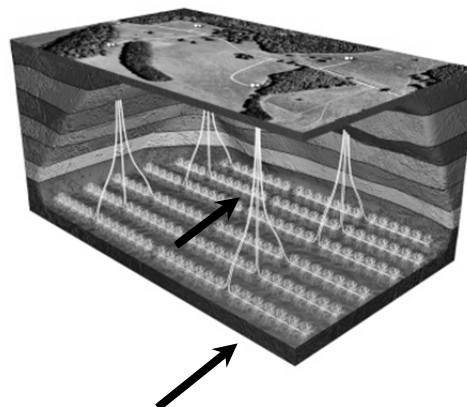


Figure 3: Multilateral Wells
Image Courtesy of Statoil²⁴

After installing steel and cement in the wellbore at various stages of this drilling process pursuant to state regulations and industry practice,²⁵ producers perforate the horizontal wellbore to expose the shale. They then inject large amounts of water (or sometimes other fluid) and a small percentage of sand and other “proppant” into the wellbore under extremely high pressure to fracture the shale formation and prop open the cracks, as illustrated in Figure 4 below. This allows the gas to flow to the wellbore such that it can be recovered at the surface.²⁶

²³ *Hydraulic Fracturing Facts: The Process*, HYDRAULICFRACTURING.COM, <http://www.hydraulicfracturing.com/Process/Pages/Information.aspx> (last visited Mar. 19, 2013).

²⁴ *Statoil Strengthens U.S. Shale Gas Position*, STATOIL (Mar. 26, 2010, 10:16 AM), <http://www.statoil.com/en/NewsAndMedia/News/2010/Pages/26MarMarcellus.aspx>.

²⁵ For regulatory provisions in Pennsylvania, Ohio and West Virginia, see OHIO REV. CODE ANN. §§ 1509.03, 1509.17 (LexisNexis 2012); OHIO ADMIN. CODE 1501:9-1-08, 9-12-01 (2012); 58 PA. CONS. STAT. ANN. §§ 3217–18 (West 2012); 25 PA. CODE §§ 78.72–73, 78.83, 78.83(c), 78.84–85 (amended 2011); W. VA. CODE ANN. § 22-6A-24 (LexisNexis Supp. 2011). For a cogent summary of the casing and cementing process, see Jeffrey C. King et al., *Factual Causation: The Missing Link in Hydraulic Fracture-Groundwater Contamination Litigation*, 22 DUKE ENVTL. L. & POL’Y F. 341, 351–52 (2012).

²⁶ OFFICE OF RES. & DEV., U.S. ENVTL. PROT. AGENCY, HYDRAULIC FRACTURING RESEARCH STUDY (2010), available at <http://www.epa.gov/safewater/uic/pdfs/hfresearchstudyfs.pdf>; OFFICE OF FOSSIL ENERGY & NAT’L ENERGY TECH. LAB., *supra* note 17, at ES-3 to ES-4, 56–64; Bruce M. Kramer, *Coastal Oil & Gas Corp. v. Garza Energy Trust: Some New Paradigms for the Rule of Capture and Implied Covenant Jurisprudence*, 30 ENERGY & MIN. L. INST. ch. 11, at 331–32 (2009).

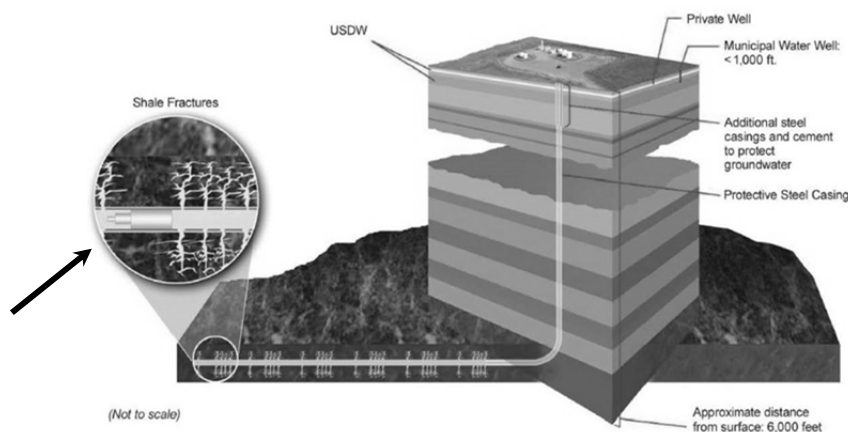


Figure 4: Close-up Illustration of Fractures in Shale Formation

Image Courtesy of U.S. Department of Energy National Energy Technology Laboratory²⁷

Whereas a good conventional gas well in Appalachia might account for several hundred or several thousand cubic feet of gas per day,²⁸ a shale gas well in the Marcellus (for example) initially may produce several million cubic feet of gas per day.²⁹ However, production rates tend to decline rapidly for shale gas wells and may require several stages of hydraulic fracture stimulation to enhance recovery.³⁰

C. Costs of Shale Gas Development

The costs of shale gas development tend to be much higher than conventional operations.³¹ Among other costs, drilling and completions account for a great portion of investment in shale gas development. Reports vary, but a

²⁷ See, e.g., *Schematic of Hydraulic Fracturing*, U.S. DEPT. ENERGY, http://www.fossil.energy.gov/images/programs/oilgas/hydraulic_fracturing_large.jpg (last visited Mar. 22, 2013).

²⁸ Tom Yerace, *Amid Natural Gas Drilling Boom, Conventional Wells Hold Edge*, TRIBLIVE, Nov. 18, 2012, <http://triblive.com/neighborhoods/yourallekiskivalley/2912294-87/gas-wells-brown-weaver-natural-marcellus-companies-conventional-business-lot#axzz2N56t5upw> (recounting interviews with operators estimating conventional well production).

²⁹ Rafael Sandrea, *Evaluating Production Potential of Mature US Oil, Gas Shale Plays*, OIL & GAS J. (Dec. 3, 2012), <http://www.ogj.com/articles/print/vol-110/issue-12/exploration-development/evaluating-production-potential-of-mature-us-oil.html>.

³⁰ *Id.*

³¹ For an economic analysis, see Ryan Duman, *Economic Viability of Shale Gas Production in the Marcellus Shale; Indicated by Production Rates, Costs, and Current Natural Gas Prices 23* (2012) (unpublished M.A. thesis, Michigan Technological University) (on file with J. Robert Van Pelt and John and Ruanne Opie Library, Michigan Technological University), available at <http://services.lib.mtu.edu/etd/THESIS/2012/Business&Economics/duman/thesis.pdf>.

safe estimate is that one shale gas well with one lateral might cost anywhere from five to ten million dollars when considering costs of well pad construction, drilling and casing, and hydraulic fracture stimulation operations.³² The costs may increase depending upon the number of horizontal legs drilled from a well or surface location or the need for additional fracture stimulation after initial production. Given the high costs of development, natural gas prices may influence business decisions to drill and complete a well or more wells.

III. IMPLIED COVENANT OF REASONABLE DEVELOPMENT

With that background in mind, the question then becomes how the implied covenant of reasonable development may play a role in resolving disputes over whether operators have performed their obligations under an oil and gas lease. This may be a significant issue given the opportunities that shale gas development presents for production companies and their lessors in the form of royalties.

As a threshold matter, a lease is a transaction mixed with concepts of property and contract law.³³ Under the express terms of a typical oil and gas lease, a lessor (usually a landowner) conveys his or her oil and gas interests to a lessee (usually a production company) in exchange for the opportunity to receive royalties on production. The lessee, in turn, takes the cost-bearing, “working interest”³⁴ in the oil and gas and bargains for the right (but not the obligation) to produce the resources for as long as it is profitable to do so.³⁵ Although there are a variety of provisions, particularly in modern lease forms, the agreement may not always specify all the details of a particular part of the relationship.³⁶ Over time, absent express language in the agreement, courts have, under certain circumstances, implied certain covenants into the lease.

³² For a summary of cost data regarding horizontal wells, see generally Taha Murtuza Husain et al., Penn State, Final Project Report: Economic Comparison of Multi-Lateral Drilling over Horizontal Drilling for Marcellus Shale Field Development § 1.8, at 50 (Jan. 5, 2011) (unpublished report) (on file with Derek Elsworth, Pennsylvania State University), available at http://www.ems.psu.edu/~elsworth/courses/egge580/2011/Final%20Reports/fishbone_report.pdf. See generally, Duman, *supra* note 31.

³³ Bibikos & King, *supra* note 1, at 160–61.

³⁴ The “working interest” is “[t]he operating interest under an oil and gas lease. The owner of the working interest has the exclusive right to exploit the minerals on the land.” 8 WILLIAMS & MEYERS, *supra* note 1, at 1191. For example, in a lease calling for a one-eighth royalty on production, the working interest is seven-eighths. *Id.*

³⁵ LOWE, *supra* note 1, at 170.

³⁶ Gary B. Conine, *Speculation, Prudent Operation, and the Economics of Oil and Gas*, 33 WASHBURN L.J. 670, 674 (1994) (“For all its importance, the typical lease is relatively brief and the terms of the grant are contained in a few express clauses.”).

The sections that follow revisit the general rules regarding the lessee's implied standard of performance in a lease, the general rules regarding the implied covenant of development, and several factors that courts have evaluated over the years that may have some significance in contemporary disputes.

A. *Lessee's Standard of Performance*

Courts in most oil and gas producing jurisdictions have concluded that a lessee is bound by a certain standard of performance.³⁷ Under the "prudent operator" standard of performance followed by many states,³⁸ including West Virginia and Ohio,³⁹ a lessee must perform under the lease as would a reasonable and prudent operator in the same or similar circumstances, recognizing the "special skills and expertise regarding oil and gas operations."⁴⁰ The prudent operator standard generally requires that a lessee perform its obligations pursuant to the lease in good faith, competently, and with due regard to the interests of both the lessor and the lessee.⁴¹

Courts in other states, particularly Pennsylvania, have taken a more narrow, subjective approach and have focused on a particular lessee's good faith judgment in performing under the lease rather than a hypothetical prudent

³⁷ 5 WILLIAMS & MEYERS, *supra* note 1, § 802, at 3–6; *see, e.g.*, *Brewster v. Lanyon Zinc Co.*, 140 F. 801, 814 (8th Cir. 1905). *See generally* *Sauder v. Mid-Continent Petroleum Corp.*, 292 U.S. 272 (1934); *Stoddard v. Emery*, 18 A. 339 (Pa. 1889).

³⁸ Among others, Arkansas, California Colorado, Idaho, Illinois, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, and Texas have adopted the "prudent operator" standard. 5 WILLIAMS & MEYERS, *supra* note 1, § 806.3, at 36–40; *see Amoco Prod. Co. v. Ware*, 602 S.W.2d 620 (Ark. 1980); *Hartman Ranch Co. v. Assoc. Oil Co.*, 73 P.2d 1163 (Cal. 1937); *Mountain States Oil Corp. v. Sandoval*, 125 P.2d 964 (Colo. 1942); *Alumet v. Bear Lake Grazing Co.*, 732 P.2d 679 (Idaho Ct. App. 1986); *Daughetee v. Ohio Oil Co.*, 105 N.E. 308 (Ill. 1914); *Kan. Baptist Convention v. Mesa Operating L.P.*, 864 P.2d 204 (Kan. 1993); *McMahan v. Boggess*, 302 S.W.2d 592 (Ky. 1957); *Caddo Oil & Mining Co. v. Producers' Oil Co.*, 64 So. 684 (La. 1914); *Compton v. Fisher-McCall, Inc.*, 299 N.W. 750 (Mich. 1941); *Sw. Gas Producing Co. v. Seale*, 191 So. 2d 115 (Miss. 1966); *Fey v. A. A. Oil Corp.*, 285 P.2d 578 (Mont. 1955); *George v. Jones*, 95 N.W.2d 609 (Neb. 1959); *Libby v. De Baca*, 179 P.2d 263 (N.M. 1947); *Olson v. Schwartz*, 345 N.W.2d 33 (N.D. 1984); *Harris v. Ohio Oil Co.*, 48 N.E. 502 (Ohio 1897); *N. Am. Petroleum Co. v. Knight*, 321 P.2d 964 (Okla. 1958); *Tex. Pac. Coal & Oil Co. v. Barker*, 6 S.W.2d 1031 (Tex. 1928); *Goldstein v. Lindner*, 648 N.W.2d 892 (Wis. Ct. App. 2002).

³⁹ *Jennings v. S. Carbon Co.*, 80 S.E. 368, 369–70 (W. Va. 1913); *see also* *Harris v. Ohio Oil Co.*, 48 N.E. 502, 505 (Ohio 1897); *St. Luke's United Methodist Church v. CNG Dev. Co.*, 663 S.E.2d 639, 645–46 (W. Va. 2008) (recognizing the prudent-operator rule in West Virginia).

⁴⁰ ANDERSON ET AL., *supra* note 1, at 433.

⁴¹ LOWE, *supra* note 1, at 311.

operator.⁴² Courts applying this standard defer to the lessee's good faith judgment in performing its obligations under the contract unless the lessor demonstrates bad faith or fraud.⁴³

Whichever standard applies, a lessee is under no obligation to operate at a loss. To the contrary, the lessee is entitled to a reasonable return on its investment.⁴⁴ As the Court of Appeals for the Eighth Circuit in *Brewster v. Lanyon Zinc Co.*⁴⁵ explained long ago in one of the first implied covenant cases:

The large expense incident to the work of exploration and development, and the fact that the lessee must bear the loss if the operations are not successful, require that he proceed with due regard to his own interests, as well as those of the lessor. No obligation rests on him to carry the operations beyond the point where they will be profitable to him, even if some benefit to the lessor will result from them.⁴⁶

The principle espoused in *Brewster* and cases that followed over the past century⁴⁷ makes sense. From a purely economic perspective, the lessor's position can only get better with further development of the leasehold by the lessee. The lessor's royalty interest is not cost-bearing.⁴⁸ The lessor stands to

⁴² T.W. Phillips Gas & Oil Co. v. Jedlicka, 42 A.3d 261, 276–78 (Pa. 2012); Colgan v. Forest Oil Co., 45 A. 119, 121 (Pa. 1899); Young v. Forest Oil Co., 45 A. 121, 123 (Pa. 1899).

⁴³ Adams v. Stage, 18 Pa. Super. 308, 312 (1901) (“If the judgment of the defendant was exercised in good faith, and involved no manifestly fraudulent use of opportunities, we cannot say that he failed to discharge any duty to the plaintiff arising out of his contract and the operations thereunder.”).

⁴⁴ ANDERSON ET AL., *supra* note 1, § 8.3, at 407. In the context of the development covenant, [t]he lessee is not required to further develop unless it will be profitable. Because the lessor has retained a royalty interest (free of the cost of production) any development that results in production should be regarded as profitable to the lessor. On the other hand, the lessee bears the direct costs of drilling and development and assumes the direct risk of dry holes or unprofitable production. Thus, the lessee generally has no duty to further develop if the lessee is unlikely to achieve a profitable production.

Id.

⁴⁵ 140 F. 801 (8th Cir. 1905).

⁴⁶ *Id.* at 814.

⁴⁷ See *id.* See generally *Sauder v. Mid-Continent Petroleum Corp.*, 292 U.S. 272 (1934).

⁴⁸ The lessor's royalty interest means that the lessor “is entitled to a share of production, if, as and when there is production, free of the costs of production.” 8 WILLIAMS & MEYERS, *supra* note 1, at 952. The lessor does not share in production costs. The lessee bears those expenses. “Production activities . . . include all the activities necessary to extract oil or gas from the earth and bring it to the wellhead on the surface. These include exploring, drilling, installing, and maintaining a well; reworking a well; hydraulic fracturing . . . for natural gas; and other upstream activities.” Bibikos & King, *supra* note 1, at 168.

receive production royalties free of production costs and will be no worse off if the lessee's investment yields no return. In other words, if it were solely up to the lessor, the lessee would be required to operate at all costs.

In contrast to the lessor's economic position, the lessee's position may get better if exploration and development is profitable, but it may get worse if the efforts yield nothing. The lessee's interest is cost bearing, and the lessee is not interested in activities that have no realistic expectation of profit. The law on implied covenants accounts for the reality that the lessee is not the lessor's fiduciary⁴⁹ or agent,⁵⁰ and the lessor cannot demand that his lessee be a "perpetual wildcatter"⁵¹ or be the sole arbiter of the lessee's performance obligations given the expectation of both parties to profit from the relationship.

B. Reasonable Development

In addition to a lessee's implied standard of performance, courts have recognized a number of specific implied covenants, such as the duty to protect against drainage or the duty to market production.⁵² One of the more frequently litigated issues has been the implied covenant of reasonable development. Simply stated, absent lease language to the contrary, a lessee is under an implied obligation to develop the leased premises with reasonable diligence.⁵³

1. Limitations

Properly understood, an implied covenant to develop only arises after a lessee obtains production from a proven formation that yields oil or natural gas

⁴⁹ See *Crim Truck & Tractor v. Navistar Int'l Transp. Corp.*, 823 S.W.2d 591, 594 (Tex. 1992); *Tex. Oil & Gas Corp. v. Hagen*, 31 TEX. SUP. CT. J. 140, 142 (1987); *Atl. Richfield Co. v. Long Trusts*, 860 S.W.2d 439, 439–44 (Tex. App. 1995); *Wellman v. Bobcat Oil & Gas, Inc.*, No. 3:10-0147, 2010 WL 2720748, at *6 (S.D. W. Va. 2010) (finding that the lessee is not a fiduciary).

⁵⁰ *Atl. Richfield Co.*, 860 S.W.2d at 445.

⁵¹ MERRILL, *supra* note 1, at 176.

⁵² See, e.g., *Martin*, *supra* note 1, at 641–44 (reviewing the drainage covenant, among others); David E. Pierce, *Exploring the Jurisprudential Underpinnings of the Implied Covenant to Market*, 48 ROCKY MTN. MIN. L. INST. 10-1, at § 10.05 (2002) (discussing the marketing covenant); Bibikos & King, *supra* note 1, at 160–67 (reviewing drainage, development, and marketing covenants in case law from the Marcellus Shale states).

⁵³ See, e.g., 5 WILLIAMS & MEYERS, *supra* note 1, § 832, at 221 & n.1 (citing *Standard Oil Co. of La. v. Giller*, 38 S.W.2d 766 (Ark. 1931); *State ex rel. Shell Petroleum Co. v. Worden*, 103 P.2d 124 (N.M. 1940); *Goldstein v. Lindner*, 648 N.W.2d 892 (Wis. Ct. App. 2002)); see also *ANDERSON ET AL.*, *supra* note 1, § 8.3, at 405 & n.1 (citing *Berry v. Wondra*, 246 P.2d 282 (Kan. 1952); *McMahan v. Boggess*, 302 S.W.2d 592 (Ky. 1957); *Coats v. Brown*, 301 S.W.2d 932 (Tex. Civ. App. 1957); *Tex. Pac. Coal & Oil Co. v. Stuard*, 7 S.W.2d 878 (Tex. Civ. App. 1928)).

in paying quantities.⁵⁴ The development covenant does not compel the lessee to drill an exploratory well during the primary term.⁵⁵ Once a lessee elects to drill a well and a formation yields production in paying quantities, the lessee generally is under an implied obligation to drill a sufficient number of additional wells in order to extract the oil and gas from that “proven” formation.⁵⁶

The implied covenant may be limited by the express terms of the lease or by payments in lieu of development. As noted by courts and commentators, one of the reasons for implying certain covenants in a lease is that the parties cannot possibly express all the details of the transaction and that courts should fill in the gaps in the lease with implied promises that both parties must have contemplated given the nature of their agreement.⁵⁷

However, if the express terms of a lease limit the application of any implied covenant of reasonable development, the express terms should control.⁵⁸ The lease may disclaim the implied development covenant

⁵⁴ 5 EUGENE KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS § 58.1, at 66–67 (1991) (noting that most jurisdictions have concluded there is an implied duty to further develop after production has been established).

⁵⁵ An “exploratory well” is different from a “development well.” An exploratory well is [a] well drilled in unproven or semi-proven territory for the purpose of ascertaining the presence underground of a commercial petroleum deposit. To be contrasted is the term development well . . . which refers to a well drilled with the expectation of producing from a known productive formation, and which is located in accordance with spacing regulations and field development requirements.

⁸ WILLIAMS & MEYERS, *supra* note 1, at 367. Although once recognized, any implied duty to drill an exploratory well is obsolete in light of modern lease provisions that give lessees the opportunity to pay for the right to keep the lease alive during the primary term without drilling any well.

⁵⁶ See 5 WILLIAMS & MEYERS, *supra* note 1, § 832, at 221 & n.1 (citing *Standard Oil Co. of La. v. Giller*, 38 S.W.2d 766 (Ark. 1931); *State ex rel. Shell Petroleum Co. v. Worden*, 103 P.2d 124 (N.M. 1940); *Goldstein v. Lindner*, 648 N.W.2d 892 (Wis. Ct. App. 2002)); see also ANDERSON ET AL., *supra* note 1, § 8.3, at 405–06 & nn.1, 3 (citing *Berry v. Wondra*, 246 P.2d 282 (Kan. 1952); *McMahan v. Boggess*, 302 S.W.2d 592 (Ky. 1957); *Coats v. Brown*, 301 S.W.2d 932 (Tex. Civ. App. 1957); *Tex. Pac. Coal & Oil Co. v. Stuard*, 7 S.W.2d 878 (Tex. Civ. App. 1928)); 5 KUNTZ, *supra* note 54 (noting that most jurisdictions have concluded there is an implied duty to further develop after production has been established).

⁵⁷ For an excellent explanation of why courts imply certain covenants in leases, and why they sometimes should not, see *Pierce*, *supra* note 52.

⁵⁸ ANDERSON ET AL., *supra* note 1, § 8.1, at 402 (“To the extent these matters are addressed in a lessee-oriented lease, express provisions tend to limit what would otherwise be the implied obligation.”).

altogether.⁵⁹ If the covenant is disclaimed, courts should enforce the agreement as written and not read an otherwise disclaimed provision into the lease.⁶⁰

If not expressly disclaimed, the implied covenant of development may be limited if it conflicts with other provisions of the lease. For example, many leases—particularly older leases—may specify the number of wells that the lessee agreed to drill.⁶¹ If a provision in the lease specifies the number of wells, that number should control, and there should be no implied covenant to drill more.⁶²

In addition, courts have held that there is no implied duty to develop while a lessor receives certain payment in lieu of development.⁶³ For example, most leases give lessees the option to keep a lease alive during the primary term (and thus maintain the exclusive right but not the obligation to drill a well) by payment of delay rentals. The delay-rental payment “is uniformly held to bar implication of a covenant to reasonably develop the land.”⁶⁴ Similarly, many leases may provide for other forms of compensation in lieu of active development, such as storage payments,⁶⁵ to compensate the lessor during times of non-development.

⁵⁹ For an example provision, see JOHN S. LOWE ET AL., FORMS MANUAL TO ACCOMPANY CASES AND MATERIALS ON OIL AND GAS LAW 157–58 (5th ed. 2008).

⁶⁰ *Bodcaw Oil Co. v. Atl. Ref. Co.*, 228 S.W.2d 626, 634 (Ark. 1950) (recognizing that the lease disclaimed the obligation to produce to maintain the lease, the court did “not feel warranted in reading into the lease and agreement an intention directly opposite to that expressed by the parties”).

⁶¹ Some regulatory programs created by state conservation laws may specify the number of wells a lessee may drill and, thus, limit any implied covenant to drill additional wells.

⁶² See, e.g., *Lundin/Weber Co. v. Brea Oil Co.*, 11 Cal. Rptr. 3d 768, 774 (Ct. App. 2004) (“[T]he express provisions of the 1995 Lease conflict with the implied covenant of further exploration. . . . [W]here parties have chosen not to extend the obligation to explore for oil or gas beyond the discovery and development of paying quantities, a court should not insert obligations in direct conflict with the limitation expressed by the parties.”); *Stoddard v. Emery*, 18 A. 339, 339 (Pa. 1889) (stating that when the lease provides for a fixed number of wells to be drilled, no implied covenant is needed to further develop); *Gulf Prod. Co. v. Kishi*, 103 S.W.2d 965, 969 (Tex. Comm’n App. 1937) (stating that because the lease specified the number of wells, the court would not imply any obligation to drill more).

⁶³ *Jacobs v. CNG Transmission Corp.*, 772 A.2d 445, 455 (Pa. 2001); *Hutchinson v. Sunbeam Coal Corp.*, 519 A.2d 385, 389 (Pa. 1986) (noting that the implied duty to develop will not be imposed when the lease provides for payment in lieu of development); *Iafolla v. Douglas Pocahontas Coal Corp.*, 250 S.E.2d 128, 132 (W. Va. 1978) (noting that in a coal case, minimum royalty payments excused development); cf. *Ionno v. Glen-Gery Corp.*, 443 N.E.2d 504, 505–07 (Ohio 1983) (stating that the minimum royalties for clay/coal mining did not preclude a claim of forfeiting lease for breach of development covenant).

⁶⁴ 5 WILLIAMS & MEYERS, *supra* note 1, § 835–835.1, at 255–56 (citing *Harris v. Ohio Oil Co.*, 48 N.E. 502 (Ohio 1897); *Carper v. United Fuel Gas Co.*, 89 S.E. 12 (W. Va. 1916)).

⁶⁵ See, e.g., *Penneco Pipeline Corp. v. Dominion Transmission, Inc.*, Civ. Nos. 05-49, 05-537, 2007 WL 1847391 (W.D. Pa. June 25, 2007). *But see* *Jacobs v. CNG Transmission Corp.*,

2. Factors

Absent express limitations in the lease or a payment in lieu of development, courts have entertained claims that a lessee breached an implied covenant to develop. Although the courts usually consider the totality of circumstances, some of the recurring questions are: (1) how long has it been since the lessee drilled the last producing well targeting the proven formation?; and (2) would drilling an additional well or wells targeting the proven formation be prudent and profitable to the lessee? Another consideration may be the advent of new technology for development. The ultimate job for the courts resolving disputes is to “strike a balance between the number of development wells necessary to withdraw the minerals at a fair rate to the lessor and the number of wells the lessee can afford to drill and still receive a fair return for the risk he takes on the investment he makes.”⁶⁶

Thus, if a significant amount of time has passed since the last producing well, that may suggest to lessors that the producer has not pursued further development of the proven formation with due diligence. Mere delay, however, is almost always insufficient in itself to establish a breach of the implied development covenant.⁶⁷ Courts have refused to grant the lessor any relief in cases involving delays in development from anywhere between several years⁶⁸ and several decades.⁶⁹

Another consideration that factors into whether further development is “prudent” is the advent of new technology since completion of the last producing well or wells. Some courts have suggested that the implied covenant may require that lessees utilize improved technologies to enhance recovery from a proven formation.⁷⁰

332 F. Supp. 2d 759, 773 (W.D. Pa. 2004) (stating that the storage payment was insufficient to overcome the duty to develop).

⁶⁶ 5 WILLIAMS & MEYERS, *supra* note 1, § 832.2, at 232.

⁶⁷ In Oklahoma, courts have held that if a significant amount of time has passed since the last development well, the burden shifts to the lessee to justify the delay, but mere delay is not enough. *Crocker v. Humble Oil Ref. Co.*, 419 P.2d 265, 270 (Okla. 1965) (“While a long delay in development is not in and of itself sufficient basis for cancellation of an oil and gas lease, it is incumbent upon the lessee to adequately explain such delay. Even a prudent operator must excuse his unreasonable delay.” (citing *Trust Co. of Chi. v. Samedan Oil Corp.*, 192 F.2d 282 (10th Cir. 1951)); *see also* *Blythe v. Sohio Petroleum Co.*, 271 F.2d 861, 864 (10th Cir. 1959).

⁶⁸ *Sun Oil Co. v. Frantz*, 291 F.2d 52, 54 (10th Cir. 1961) (stating that a lapse of time is “not [at] all controlling” and citing cases finding no breach of development covenant for lapse of time ranging from nine to fourteen years).

⁶⁹ *Jensen v. Rudman P’ship & Hess Corp.*, No. 4:10-cv-00027, 2011 WL 1791102, at *7 (D. N.D. May 10, 2011) (stating that an alleged unreasonable delay of sixty years, without more, was insufficient to cancel a lease).

⁷⁰ *Wadkins v. Wilson Oil Co.*, 6 So. 2d 720, 721 (La. 1942) (explaining that the lessee breached covenant for not developing wells “in accordance with the new and successful methods of development used by others in this . . . oil field”); *Waseco Chem. & Supply Co. v. Bayou*

However, given that implied covenants are designed to assure that both parties benefit from development of the leasehold, the key question usually is whether the lessor can meet the burden of proving that the proposed additional development would be profitable to the lessee.⁷¹ In this context, “profitability” means production from the well sufficient to repay the operator its capital investment and operating costs plus a reasonable profit.⁷² If a lessor is unable to prove that the proposed development is such that the lessee can recoup the costs of its investment plus a reasonable profit, the lessor is not entitled to relief.

Suppose, for example, that a lessee acquires a lease on a fifty-acre tract, constructs a five-acre well pad, and drills one horizontal well that produces from a shale formation. If the circumstances are such that additional stages of fracturing, additional laterals, or additional wells would result in a loss to the lessee, neither the prudent operator standard nor the subjective good faith standard requires further development of the producing formation even though the additional development may well generate more royalties for the lessor.

3. Remedy

If a lessor establishes a breach of the implied covenant of reasonable development, to what remedy is the lessor entitled? The vast majority of courts, including courts in Pennsylvania, Ohio, and West Virginia,⁷³ agree that damages are the usual remedy for a breach of the implied development covenant.⁷⁴ The usual measure is lost royalties as a result of the breach offset

State Oil Corp., 371 So. 2d 305, 306, 310–12 (La. Ct. App. 1979) (explaining that the lessee’s failure to use the fireflood method of oil recovery constituted a “failure to diligently develop the leased premises as a reasonably prudent operator”); Cynthia M. Frazier, Note, *The Prudent Operator Standard: Does It Include a Duty to Use Enhanced Recovery?*, 40 LA. L. REV. 974, 984 (1980).

⁷¹ Clifton v. Koontz, 325 S.W.2d 684, 693–694 (Tex. 1959).

⁷² 5 WILLIAMS & MEYERS, *supra* note 1, § 832.1, at 225.

⁷³ See, e.g., Moore v. Adams, No. 2007AP090066, 2008 WL 4907590, at *3 (Ohio Ct. App. Nov. 17, 2008) (“Ohio courts have recognized that forfeiture is an appropriate remedy when legal damages resulting from a contractual breach are inadequate; upon a breach of implied covenants; upon a claim of abandonment; or when necessary to do justice.”); Girolami v. Peoples Natural Gas Co., 76 A.2d 375, 377 (Pa. 1950) (noting that damages, rather than forfeiture, is the adequate remedy for breach of covenant to pay royalties); St. Luke’s United Methodist Church v. CNG Dev. Co., 663 S.E.2d 639, 642 n.14 (W. Va. 2008).

⁷⁴ See, e.g., Meaher v. Getty Oil Co., 450 So. 2d 443, 447 (Ala. 1984) (“After reviewing the recognized authorities on the subject, we are of the opinion that the majority view is the most persuasive. Accordingly, we hold that an action for damages is the proper remedy for breach of the implied covenants to develop, produce, market, and prevent drainage. Only in the extraordinary circumstances where damages are wholly inadequate as a remedy will our courts, exercising equity jurisdiction, subject the lease to cancellation.”); Alford v. Dennis, 170 P. 1005

against future production and royalties to prevent the lessor from recovering the same royalties twice.⁷⁵

Courts generally view the alternative remedy that lessors frequently seek—cancellation of an oil and gas lease—as an extreme remedy. There are two reasons. Compliance with any implied development covenant is not a condition on the continuation of the lease. Rather, it addresses a complaint of lessors that the lessee breached an implied promise to develop the leased premises with reasonable diligence under the circumstances. Second, the law abhors a forfeiture. Cancellation would amount to a forfeiture of a protected interest in real property and substantial investments in production pursuant to an oil and gas lease.⁷⁶

C. Further Exploration

Although not widely recognized as a separate covenant and not adopted in Pennsylvania, Ohio, and West Virginia,⁷⁷ Professor Charles Meyers suggested, long before the shale gas revolution, a separate implied covenant that would require a lessee to “further explore” the leased premises to discover and ultimately produce from unproven or possibly deeper strata.⁷⁸ Under the so-called further exploration covenant, a lessee would have an implied duty (absent express language to the contrary) to explore potentially productive but unproven strata on the leased premises.⁷⁹

The rationale advocated for this implied exploration covenant is essentially two-fold. First, courts have suggested that lessees should not hold leases indefinitely solely for speculative purposes. Second, courts have suggested that a lessor should not be bound indefinitely by some production on the leased premises when known, untested, and potentially productive formations may generate additional royalties for the lessor.⁸⁰

(Kan. 1918); *Sw. Gas Producing Co. v. Seale*, 191 So. 2d 115 (Miss. 1966); *Waggoner Estate v. Sigler Oil Co.*, 19 S.W.2d 27 (Tex. 1929).

⁷⁵ *Cotiga Dev. Co. v. United Fuel Gas Co.*, 128 S.E.2d 626, 638–39 (W. Va. 1962) (adopting the lost royalties damage model subject to lessee given credit against future production in order to prevent double recovery); *Kramer*, *supra* note 26, at 369–70.

⁷⁶ *See, e.g., Superior Oil Co. v. Devon Corp.*, 604 F.2d 1063 (8th Cir. 1979); *Lowery v. May*, 104 So. 5 (Ala. 1925); *HNG Fossil Fuels Co. v. Roach*, 656 P.2d 879 (N.M. 1982); *Ionno v. Glen-Gery Corp.*, 443 N.E. 2d 504 (Ohio 1983); *Sinclair Oil & Gas Co. v. Bishop*, 441 P. 2d 436 (Okla. 1967); *Penn-Ohio Gas Co. v. Franks' Heirs*, 185 A. 280, 281 (Pa. 1936); *Batex Oil Co. v. LaBrisa Land & Cattle Co.*, 352 S.W. 2d 769 (Tex. Civ. App. 1961).

⁷⁷ *See discussion infra* Part IV.

⁷⁸ Charles Meyers, *The Implied Covenant of Further Exploration*, 34 TEX. L. REV. 553, 557 (1956).

⁷⁹ 5 WILLIAMS & MEYERS, *supra* note 1, § 831, at 214.3.

⁸⁰ Meyers, *supra* note 78, at 558–60 (citing *Doss Oil Royalty Co. v. Tex. Co.*, 137 P.2d 934, 938 (Okla. 1943) (recognizing the implied covenant of further exploration of unproven areas as

The further exploration covenant is controversial, particularly because Professor Meyers suggested there is no need for the lessor to prove that further exploration would be profitable.⁸¹ As noted above, the standards of performance, and the reasonable development covenant, require the lessor to prove that additional wells will yield a profit above production and operating costs. To many, it would seem questionable that a lessee would be under an implied obligation to put significant funds at risk to explore the potential for producing from unproven formations, while under a lesser duty as a prudent operator to expand production in existing formations only when proven profitable. Courts in prominent oil and gas producing jurisdictions such as Texas and Oklahoma have flatly rejected a separate covenant of further exploration given that the prudent operator standard demands an evaluation of profitability to the lessee.⁸²

1. Limitations

Whatever the controversy over the existence of a separate covenant to explore or the extent of the profitability element,⁸³ the reality for operators is that many courts—including courts in jurisdictions that have expressly disavowed a separate further exploration covenant—have long entertained claims that a lessee should further explore other unproven or deeper strata on the leased premises if it would be profitable to do so.

However, the usual threshold issues may limit the applicability of any covenant to explore further. As noted above, the express terms of the contract

necessary to prevent operators from holding leases for speculative purposes)); *see also* *Sauder v. Mid-Continent Petroleum Corp.*, 292 U.S. 272, 281 (1934) (holding that a lease for speculative purposes breaches the prudent-operator rule).

⁸¹ *See* James A. Boone, *Implied Covenant for Additional Development*, 31 *Miss. L.J.* 34, 42–44 (1960) (recounting the vigorous debate between Professor Meyers and Earl Brown, a lawyer who eschewed any implied covenant of further exploration that would impose additional burdens on lessees).

⁸² *Schnell v. Hudson*, 490 N.E.2d 1052, 1061 (Ill. App. Ct. 1986); *Mitchell v. Amerada Hess Corp.*, 638 P.2d 441, 449 (Okla. 1981) (“We thus hold there is no implied covenant to further explore after paying production is obtained, as distinguished from the implied covenant to further develop.”); *Sun Exploration & Prod. Co. v. Jackson*, 783 S.W.2d 202, 204 (Tex. 1989); *Clifton v. Koontz*, 325 S.W.2d 684, 696–97 (Tex. 1959) (“We hold that there is no implied covenant to explore as distinguished from the implied covenant to conduct additional development after production in paying quantities has been obtained. . . . This theory [of a separate further exploration covenant] is untenable and is diametrically opposed to our established ‘prudent operator’ rule where expectation of profit is an essential element.”).

⁸³ Commentators have noted that even under Professor Meyer’s theory, economic factors still play a significant role in determining whether a lessee has an implied duty of further exploration or has breached any such duty. *LOWE, supra* note 1, at 324–30.

should control, as should payments in lieu of active development.⁸⁴ In addition, courts have held that, in the context of assignments of oil and gas leases, the implied covenant of reasonable development is not divisible after a lessee assigns rights to another;⁸⁵ the covenant applies to the lease as a whole such that satisfying the covenant by one assignee for one part of the leased premises should satisfy the covenant for the entire leased premises⁸⁶ (presumably both vertically and horizontally).⁸⁷

2. Factors

If a further exploration covenant applies, the test generally has been stated as very fact-intensive, focusing on whether the operator unreasonably refrained from exploring unproven or deeper formations within the bounds of the leased premises under all the circumstances, including evidence of proven formations in the area, the amount of time that lapsed since discovery of a proven formation in the area or elsewhere on the property, and the feasibility of further exploration and development.⁸⁸

As with the reasonable exploration covenant, delay in further exploring the leased premises may be a relevant factor, but it is not dispositive. For example, if a lessee has produced from shallow formations since 1950 and a lessor sues in 2013 for failure to explore and develop the Marcellus or Utica Shale, the lessor cannot claim that the lessee failed to explore the shale formation for over sixty years given that horizontal drilling and hydraulic fracture stimulation techniques have only recently been utilized for commercial development of deep shale formations in the northeast and elsewhere.⁸⁹

⁸⁴ See *supra* notes 33 & 43 and accompanying text; see also *Lundin/Weber Co. v. Brea Oil Co.*, 11 Cal. Rptr. 3d 768, 774 (Ct. App. 2004) (discussing how express terms conflicted with any implied covenant of further exploration); *Smith v. Long*, 578 P.2d 232 (Colo. App. 1978) (explaining how a uranium lode lease expressly excused any duty of further exploration).

⁸⁵ See, e.g., *Oag v. Desert Gas Exploration Co.*, 659 N.Y.S.2d 654 (App. Div. 1997).

⁸⁶ See, e.g., *Atl. Richfield Co. v. Gruy*, 720 S.W.2d 121, 124 (Tex. App. 1986) (holding that a lapse of twenty-six years did not result in breach of development of deep rights under the assigned lease); *Labbe v. Magnolia Petroleum Co.*, 350 S.W.2d 873, 878 (Tex. Civ. App. 1961) (“Oil having been discovered in paying quantities on a part of the lease, it is thereby perpetuated as long as oil or gas is produced in paying quantities, and the lease cannot be regarded as abandoned as to parts of the lease where no wells have been drilled, or as to any lower strata not developed.”).

⁸⁷ See, e.g., *Felmont Oil Corp. v. Pan Am. Petroleum Corp.*, 334 S.W.2d 449, 453 (Tex. Civ. App. 1960) (“[T]he law of Texas is well settled that the lessor may not subdivide or separate the single unified obligation, and thus impose a subsequent burden on his lessee greater than the burden assumed by such lessee when he accepted the lease.”).

⁸⁸ 5 WILLIAMS & MEYERS, *supra* note 1, § 841, at 267–68 (collecting factors from cases).

⁸⁹ *Crocker v. Humble Oil Ref. Co.*, 419 P.2d 265, 274 (Okla. 1965) (The court refused to cancel lease for failure to develop additional wells before hydraulic fracturing techniques but cancelling the lease for lessee’s failure to develop wells after advent of hydraulic fracture

Likewise, courts have been reluctant to find a breach if the lessee has expressed at least some interest in testing or developing unproven or deeper strata.⁹⁰ Courts have concluded that there is no breach for failure to further explore parts of a leasehold if a lessee engages in any number of activities short of drilling an exploratory well, such as exploring the possibility of targeting other unproven or deeper formations,⁹¹ pursuing farmout⁹² arrangements for test wells targeting the unproven formation,⁹³ or engaging in geophysical testing.⁹⁴

If an implied covenant of further exploration applies, the particular lessee's circumstances may be very significant in determining the feasibility of testing unproven strata. This may be a key issue in the Marcellus and Utica Shale states.

Some lessees, for example, may have leases held by production from shallow formations on small tracts that are unsuitable for larger operations or have scattered acreage throughout a region such that they cannot be combined to form a larger unit to support a more vigorous drilling program.⁹⁵ Similarly, if new technology available to a shallow gas operator allows theoretical recovery

stimulation techniques given lessee's use of the technology on other leases in the area. The court stated that "[t]he defendant admits the use and value of sandfracing. During the years 1957–1961 the defendant sandfraced 100 wells. The defendant cannot offer any reasonable excuse in its failure to utilize the sandfracing process for further development of the cancelled portion of the lease"; *see also* Sunbelt Exploration Co. v. Stephens Prod. Co., 896 S.W.2d 867 (Ark. 1995) (explaining that there was no evidence that extant technology would have revealed commercial quantities of natural gas).

⁹⁰ Sun Oil Co. v. Frantz, 291 F.2d 52, 55 (10th Cir. 1961) ("The record shows that lessee has not been indifferent to the possibilities of development. . . . There is no indication of reluctance to proceed further with exploratory work. Diligence demands orderly development and does not require reckless development.").

⁹¹ West v. Sun Oil Co., 490 P.2d 1073, 1075 (Okla. 1971) ("[T]his Court has disapproved cancellation when the lessee demonstrated a willingness to investigate or test for other producing formations.") (citing Union Oil Co. of Cal. v. Jackson, 489 P.2d 1073 (Okla. 1971); Shell Oil v. Howell, 208 P.2d 661 (Okla. 1953); Ferguson v. Gulf Oil Corp., 137 P.2d 940 (Okla. 1943); Skelly Oil Co. v. Boles, 142 P.2d 969 (Okla. 1943)).

⁹² A "farmout agreement" is a "very common form of agreement between operators, whereby a lease owner not desirous of drilling at the time agrees to assign the lease, or some portion of it (in common or in severalty) to another operator who is desirous of drilling the tract." 8 WILLIAMS & MEYERS, *supra* note 1, at 376.

⁹³ Baker v. Collins, 194 N.E.2d 353, 356 (Ill. 1963) (holding that there was no breach of the further exploration covenant given in the farmout to the other operator to test unproven formations that ultimately proved unproductive).

⁹⁴ Blythe v. Sohio Petroleum Co., 271 F.2d 861, 864 (10th Cir. 1959) (holding that there was no breach of covenant for failure to test deep sands given the lessee's activities short of drilling a test well).

⁹⁵ *See, e.g.,* Reynolds v. Smith, 331 S.W.2d 112, 115–16 (Ark. 1960) (holding that there was no breach of an implied covenant where the lessee did not have enough acreage to justify a test well to deeper sands).

from a particular formation, but it is uncertain whether a well will produce sufficient quantities of oil or gas to pay for the high expense of the new technology, that may factor into the equation on whether the particular lessee breached any further exploration covenant. Finally, even if a lessee holds acreage within a particular region with proven shale formations such as the Marcellus and Utica, the thickness of the formation coupled with its depth and geologic history on that particular leasehold might indicate that the availability of commercially productive wells are less certain.

In short, even in states that apply the prudent operator rule, the particular lessee's situation may play an increased role in the implied covenant analysis. As one commentator has noted, "the application of the rule does differ and is flexible as applied to the facts and circumstances relating to the development of particular tracts and fields."⁹⁶

3. Remedy

With respect to remedies for breach of any further exploration covenant, lessors often claim that damages are inadequate because the harm is the lost opportunity to test another formation for the possibility of production that may generate additional royalties. Consequently, lessors often request cancellation so that they may make arrangements for development of the unproven formation with another lessee.

Still, the usual starting point should be whether the lessor can prove that he has suffered actual damages, as courts remain reluctant to cancel leases outright even if they hold a lessee liable for failing to further explore the premises. In those states that have entertained cancellation as a remedy, virtually all of them require as a condition to bringing suit that the lessor provide adequate notice to the lessee and a reasonable opportunity to cure the alleged breach,⁹⁷ except in those rare circumstances where the lessor can prove either that notice is futile or that the lessee intentionally abandoned the

⁹⁶ ANDERSON ET AL., *supra* note 1, § 8.3, at 409; *see also* Jennings v. S. Carbon Co., 80 S.E. 368, 370 (W. Va. 1913) ("Of course to the judgment of the operator, when, and where, and how many wells he shall drill, deference is justly due. But the judgment must be an honest, not an arbitrary, judgment.").

⁹⁷ *See* Superior Oil Co. v. Devon Corp., 604 F.2d 1063, 1069–70 (8th Cir. 1979) (Concluding that under Nebraska law, "[a]n oil and gas lease is a recognized and protected property interest. A cancellation of an oil and gas lease effects a forfeiture of that interest. The law abhors a forfeiture. Therefore, an oil and gas lease will not be cancelled for breach of an implied covenant without the lessor having first given the lessee notice of the breach and demanding that the terms of the implied covenant be complied with within a reasonable time"); AG Servs., Inc. v. T.W. Phillips Gas & Oil Co., No. CIV.A. 91-0650, 1994 WL 762150, at *14 (W.D. Pa. Jan. 19, 1994); St. Luke's United Methodist Church v. CNG Dev. Co., 663 S.E.2d 639, 647 (W. Va. 2008).

leasehold.⁹⁸ The rationale underlying the notice requirement is that the lessee should be given an opportunity to address the alleged breach, take whatever steps it deems necessary in light of the allegation, and inform the lessor whether it intends to forfeit or abandon the lease.⁹⁹

In addition, courts in states that entertain cancellation as a remedy have readily given lessees reasonable amounts of time to engage in further development on the leased premises or submit plans for future development.¹⁰⁰ If the lessee complies with the court-imposed condition, then cancellation is unavailable.

Some states require that, before ordering any cancellation of the leasehold, the lessor prove with sufficient evidence the existence of another operator ready, willing, and able to develop the undeveloped areas or formations.¹⁰¹ In particularly active plays in which production companies have not yet fully staked out their acreage positions, there may be willing operators in a geographic area to which the lessor can point to support a claim that partial cancellation of the lease (i.e., cancellation as to particular strata) is a proper remedy (assuming the other operator, in fact, is ready, willing, and able). If, on the other hand, production companies for the most part have staked out their acreage positions in a play and the rate of lease acquisitions has subsided, it may be difficult for a lessor to find a willing lessee to take on a lease or any undeveloped portion of the property.

Finally, if a lessee is producing part of the leased premises, the court will almost never order a total cancellation of the leased premises absent exceptional circumstances, such as a true and unequivocal abandonment of the

⁹⁸ *Lewis v. Kan. Prod. Co.*, 199 P.3d 180, 186 (Kan. Ct. App. 2009) (“Also, two apparent exceptions to the demand-for-compliance rule exist: futility and ‘true abandonment.’”).

⁹⁹ *Superior Oil Co.*, 604 F.2d at 1069–70 (“The lessee is in effect given a choice of development or forfeiture.”). Many leases contain forfeiture clauses providing that cancellation of the lease for breach of covenants is unavailable and sometimes expressly require a notice and cure procedure before a lessor can pursue a forfeiture claim in court.

¹⁰⁰ *See Gillete v. Pepper Tank Co.*, 694 P.2d 369, 372 (Colo. App. 1984) (adopting the further exploration covenant without requiring proof of profitability and upholding portion of trial court order conditionally cancelling a lease unless operator submitted a plan of development for non-producing areas within sixty days), *overruled on other grounds by Davis v. Cramer*, 808 P.2d 358 (Colo. 1991) (en banc); *Lake v. Ohio Fuel Gas Co.*, 207 N.E.2d 659 (Ohio. Ct. App. 1965) (finding that partial cancellation was conditioned on failure to drill exploratory well to proven strata within one year after court’s ruling).

¹⁰¹ *See Baker v. Collins*, 194 N.E.2d 353, 356 (Ill. 1963) (explaining that testifying about the lease to “people” who had called upon the plaintiffs was vague and insufficient evidence); *Slaaten v. Amareda Hess Corp.*, 459 N.W.2d 765, 769 (N.D. 1990) (“We add to these [factors regarding further exploration as] evidence of the willingness of another operator to drill on the tract in question.”).

entire leasehold¹⁰² or an admission by the lessee that it will not further develop any part of the leased premises.¹⁰³

IV. THE MARCELLUS AND UTICA SHALE STATES

Having outlined the general rules regarding the implied development covenant against the backdrop of shale gas development, the question then becomes if and how the courts in Pennsylvania, Ohio, and West Virginia have handled some of these claims. The case law on the implied covenant of development dates back many years, and the courts in the northeast have yet to address the issue directly in the context of deep shale gas development.

A. *Scenarios and Claims*

In the shale gas context, lessees holding leased acreage by production from conventional wells tapping shallow formations may be pressed by their lessors to further explore deeper strata using unconventional techniques (horizontal drilling and hydraulic fracturing). Other lessees that have acquired new leases that are producing from the Marcellus Shale or Utica Shale may be pressed by their lessors to drill and complete additional laterals or wells to generate more royalties. Similarly, lessees actively producing from the Marcellus Shale may be pressed by their lessors to further explore the underlying Utica. These are merely a few of the potential scenarios.

The claims may take a variety of forms. They may include, among others, allegations of unreasonable delay since the last producing well, failure to use technologies available to enhance production from proven formations and tap resources in deeper strata, and failure to use advanced exploration technology like seismic testing to reveal potentially productive strata underlying a leasehold that lessees are impliedly obligated to pursue in order to maximize royalties.

B. *Rules Regarding Implied Development Covenant*

It is difficult to predict how the courts will resolve these types of claims, particularly given the relatively modest body of case law on implied covenants. The reality is that there are many roadblocks to a successful claim based on the jurisprudence that has developed in states to the west of

¹⁰² See *Jacobs v. CNG Transmission Corp.*, 332 F. Supp. 2d 759 (W.D. Pa. 2004) (explaining that abandoned production equipment, lack of payment in lieu of development, and storage payment was insufficient to maintain the lease).

¹⁰³ *Stevenson v. Barnes*, 702 S.W.2d 787, 788 (Ark. 1986) (refusing to cancel the shallow sands lease but cancelling the deeper sands lease based on lessee's admission that he would not test or develop the deeper sands).

Appalachia.¹⁰⁴ The case law in Pennsylvania, Ohio, and West Virginia is similar and therefore presents similar challenges to lessors claiming breach of an implied development covenant.

As a threshold matter, courts in Pennsylvania, Ohio, and West Virginia recognize that the express terms of a contract control.¹⁰⁵ Using ordinary rules of contract interpretation, most cases may be decided based on the lease language (and sometimes as a matter of law without the need for protracted discovery or litigation). In addition, with the possible exception of Ohio (at least in the coal context),¹⁰⁶ the courts recognize the usual rules regarding payments in lieu of development that stay the implied covenant.¹⁰⁷

If the lessor states a viable claim for breach of any implied covenant that survives a motion to dismiss, courts in Pennsylvania, Ohio, and West Virginia will view it through the lens of the standard of performance adopted in the jurisdiction. All three states recognize a standard of performance built into the lease, whether it be the prudent operator standard as recognized in West Virginia¹⁰⁸ and Ohio¹⁰⁹ or the good faith test recently invoked by the Pennsylvania Supreme Court.¹¹⁰ The courts in the northeastern shale states recognize that the lessor's interests in further development or further exploration (and thus more opportunities for royalties) must be balanced

¹⁰⁴ Kramer, *supra* note 26, at 367–68 (“The implied covenant of reasonable development is rarely invoked because it requires a court to ‘second-guess’ an operator’s decision to drill or not drill additional wells. There is a built-in bias on behalf of operators not to drill additional wells since they are bearing 100% of the cost and receiving something less than that in terms of revenue.”).

¹⁰⁵ See Harris v. Ohio Oil Co., 48 N.E. 502, 506 (Ohio 1897); Smith v. N.E. Natural Gas Co., No. 86 AP 030016, 1986 WL 11337, at *6 (Ohio Ct. App. Sept 30, 1986); Jacobs v. CNG Transmission Corp., 772 A.2d 445, 455 (Pa. 2001) (explaining that express terms may render implied covenant inoperative); Willison v. Consol. Coal Co., 637 A.2d 979, 982 (Pa. 1994) (“While recognizing that a variety of approaches have been followed in other jurisdictions, we shall adhere to our established precedents requiring that the plain meaning of language used by the parties be given effect.”); St. Luke’s United Methodist Church v. CNG Dev. Co., 663 S.E.2d 639, 643 (W. Va. 2008).

¹⁰⁶ Ionno v. Glen-Gery Corp., 443 N.E.2d 504, 505–07 (Ohio 1983) (finding that minimum royalties for clay/coal mining did not preclude a claim of forfeiting a lease for breach of a development covenant).

¹⁰⁷ See Jacobs, 772 A.2d at 455; Iafolla v. Douglas Pocahontas Coal Corp., 250 S.E.2d 128, 132 (W. Va. 1978).

¹⁰⁸ Jennings v. S. Carbon Co., 80 S.E. 368, 369–70 (W. Va. 1913); see also *St. Luke’s United Methodist Church*, 663 S.E.2d at 645–46.

¹⁰⁹ Harris, 48 N.E. at 505.

¹¹⁰ T.W. Phillips Gas & Oil Co. v. Jedlicka, 42 A.3d 261, 276–78 (Pa. 2012); Colgan v. Forest Oil Co., 45 A. 119, 121 (Pa. 1899); Young v. Forest Oil Co., 45 A. 121, 123 (Pa. 1899).

against the lessee's interest in pursuing profitable development of the leased premises.¹¹¹

Although all three states recognize an implied covenant of reasonable development,¹¹² none of them have recognized a separate, further exploration covenant as proposed by Professor Meyers. As of the date of this writing, with the exception of one federal court in Pennsylvania,¹¹³ courts in these northeastern shale play states have yet to address directly any claims that lessees have breached any potential implied covenant to explore deeper shale formations.

C. *Remedy*

The ultimate issue for the courts in the northeastern shale states may be fashioning an appropriate remedy if a lessor ever establishes a breach of an implied covenant to develop or further explore. In some cases, lessors may demand damages. In other cases, lessors may demand cancellation of the lease or at least partial cancellation of the deep strata with the hopes (but not the guarantee) of re-leasing with another operator for a higher signing bonus or better royalties.

Courts in Pennsylvania, Ohio, and West Virginia generally acknowledge that the usual remedy for breach of covenants is damages¹¹⁴ absent exceptional circumstances.¹¹⁵ This may be a particularly important issue

¹¹¹ See *supra* notes 35, 38; *Grass v. Big Creek Dev. Co.*, 84 S.E. 750, 753 (W. Va. 1915) (discussing profitability for both lessor and lessee).

¹¹² See, e.g., *Harris*, 48 N.E. at 502; *Jacobs*, 772 A.2d at 445; *Appeal of Baird*, 6 A.2d 306 (Pa. 1939); *Highfield Co. v. Kirk*, 93 A. 815, 817 (Pa. 1915); *Kleppner v. Lemon*, 35 A. 109, 109 (Pa. 1896); *McKnight v. Mfrs. Natural Gas Co.*, 23 A. 164 (Pa. 1892); *St. Luke's United Methodist Church*, 663 S.E.2d at 643 n.3; *Adkins v. Huntington Dev. & Gas Co.*, 168 S.E. 366, 367-69 (W. Va. 1933).

¹¹³ See *Delmas Ray Burkett, II Revocable Trust v. EXCO Res. (PA), LLC*, No. 2:11-cv-1394, 2012 WL 1019025 (W.D. Pa. Mar. 26, 2012). In *Burkett*, the court seemed to express doubt about the viability of a claim to cancel a lease as to strata below the currently producing horizon but denied a motion to dismiss the claim, noting that the plaintiff satisfied pleading standards.

¹¹⁴ See *Moore v. Adams*, No. 2007AP090066, 2008 WL 4907590, at *3 (Ohio Ct. App. Nov. 17, 2008) ("Ohio courts have recognized that forfeiture is an appropriate remedy when legal damages resulting from a contractual breach are inadequate; upon a breach of implied covenants; upon a claim of abandonment; or when necessary to do justice."); *Girolami v. Peoples Natural Gas Co.*, 76 A.2d 375, 377 (Pa. 1950) (noting that damages, rather than forfeiture, are the adequate remedy for breach of covenant to pay royalties); *St. Luke's United Methodist Church*, 663 S.E.2d at 643 n.3.

¹¹⁵ See *Beer v. Griffith*, 399 N.E.2d 1227, 1230 (Ohio 1980) (explaining that a partial cancellation is appropriate where evidence demonstrated that lessee was financially incapable of operating the leased premises such that the court presumed it could not satisfy a damage award); *St. Luke's United Methodist Church*, 663 S.E.2d at 647 (finding that an equitable remedy of partial cancellation is only appropriate if damages are wholly inadequate).

given that many lessees in Appalachia have maintained their leases by production from shallow formations or by a well targeting the Marcellus or Utica and have been perfectly compliant with their lease obligations, but nonetheless may face allegations from lessors that they have not done enough.

Should the courts simply cancel the lease? The answer should be no. Courts should be hesitant to hastily cancel leases in whole or in part at the request of lessors and should reserve that remedy only for the most egregious of circumstances given the complexity and expense of exploration and development of shale gas and the volatility of gas prices, all of which (among other things) drive a company's business decisions on where to drill wells, to what depths, and when.

V. CONCLUSION

In light of the opportunities presented by shale gas development, litigation over the implied development covenant is inevitable. Some lessors in Pennsylvania, Ohio, and West Virginia may raise claims that their lessees have breached implied covenants in their lease in an attempt to reap more benefits or cancel all or portions of the lease with the hope (but not the guarantee) of re-leasing to others on better terms.

Notwithstanding the shale gas phenomenon, the implied covenant of development remains limited by a number of factors, including the express language of the lease, payments in lieu of development, and requirements to prove the lessee's ability to profit from any additional development demanded by the lessor. Other significant factors include the extent and high expense of new technology, the location of shale gas formations with production zones suitable for commercial recovery, and the high burden of proving that a lessee must place considerable funds at risk to satisfy any implied covenant in a lease. With respect to remedies, it may be one thing to claim that production companies should pursue their development activities with more diligence, but a breach of an implied covenant of development should not be used to justify a forfeiture of protected property interests in a lease.

Given that shale gas development is relatively new in the northeast, the courts may be sorting through these thorny issues and resolving disputes over the implied development covenant for many years to come.