

Expert Analysis

Landowner Protection from Marcellus Shale Development

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Development of natural gas from the Marcellus Shale should be an economic boom for Pennsylvania. Horizontal drilling and hydraulic fracturing technologies have made extraction of gas from the shale economically viable. Early indications are that a flood of natural gas will be produced from a large number of technologically sophisticated gas wells. However, there are environmental risks associated with drilling and hydraulic fracturing.

While landowners in the Marcellus Shale region stand to benefit financially from the production of natural gas from beneath their property, many will be saddled with the burden of drilling operations on the surface of their land. Others may be fortunate enough to enjoy the rewards of natural gas production without any activity on their property, but they still need to be aware of their neighbors' activities.

The legal options available to landowners to address the environmental risks of Marcellus Shale drilling include common-law remedies, statutory protections, and contractual arrangements between landowners and drillers. These protections are limited and have not been developed with the unique aspects of the Marcellus Shale in mind.

Marcellus Shale is a fine-grained, organic-rich sedimentary rock that contains natural gas. The Marcellus formation is located about a mile below the earth's surface and varies between 50 to 200 feet thick. It extends northeast from West Virginia to New York and lies beneath large portions of Pennsylvania within the Susquehanna River and Delaware River watersheds.¹

To extract natural gas from Marcellus Shale, the rock must be fractured to release the gas. In the process known as hydraulic fracturing, or "fracking," a mixture of water, sand and chemicals is pumped into the shale at high pressure to fracture the rock. A typical Marcellus Shale gas well can use up to 5 million gallons of water and 500,000 pounds of sand in the fracking process. If not managed properly, the fracking fluid can contaminate groundwater supplies and streams.²

Large areas of the Marcellus Shale can be fractured using horizontal drilling, in which a well is drilled vertically to the shale and drilled horizontally for up to a mile along

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the shale plane. Well pads require a footprint of about 5 acres to accommodate the materials and equipment necessary to conduct horizontal drilling and fracking. Multiple wells may be drilled from the same well pad using horizontal drilling.

The Pennsylvania Department of Environmental Protection must issue a permit before a gas well is drilled. A well operator is obligated to report the well's exact dimensions and location to DEP. Although not a direct concern of DEP, a well may only be drilled into land for which an operator has an oil and gas lease or other mineral rights. Anything else is an illegal underground trespass under common law.

DEP does not have the resources to police drilling activities or ensure that the law is always obeyed. There is no easy way to determine if a well has been drilled into property without a lease or mineral rights. A well drilled lawfully in leased land may extract gas from many acres of unleased adjacent land through migration of gas. Landowners must be alert to well drilling activity in their area.

There are many potential environmental consequences of natural gas drilling. These include the effects of well pad construction, water withdrawals, wastewater and solid waste generation from drilling and fracking, air emissions from drilling equipment, hazardous material spills, and logistical support operations (such as truck traffic and pipeline construction).

Land must be cleared and graded to support drilling facilities. Access roads and pipelines must be constructed. Because of the amount of earthwork involved, storm-water management and erosion and sediment control are important to protect land and streams from polluted runoff.

The large water requirements for drilling and fracking require significant freshwater sources. Much of the used fracking water is returned to the surface as "flow-back" through the well bore. Flow-back water can amount to 50 percent or more of the input water volume.

Flow-back water contains a large amount of pollutants, including sand, chemicals and trace radioactive particles found in many geologic formations. Fracking chemicals may include petroleum derivatives, alcohols, acids, heavy metals, and other organic and inorganic compounds. These contaminants can reach water supplies through improper well construction or surface spills. Flow-back water must be treated before being discharged into streams.

Pennsylvania recognizes three distinctive estates in land: a surface estate, a mineral estate (including oil and gas) and a right of support.³ The owner of mineral rights has an implied easement to use the surface estate for extracting the subsurface minerals without unnecessary disturbance to the surface.⁴ Absent some unreasonable behavior by the owner of the mineral estate, landowners are not entitled to compensation for surface damage necessary for the extraction of minerals.

The common-law rule of capture prevails in Pennsylvania. So long as there is no physical trespass, the rule permits an operator of a natural gas well to freely drain the gas from under neighboring tracts of land through migration without paying rent or royalties to the owners of neighboring tracts.

The Pennsylvania Oil and Gas Conservation Law is one of the primary statutes that regulate the extraction of natural gas in the state.⁵ The purpose of the law is to promote the development of Pennsylvania's oil and natural gas resources. How-

ever, it does not apply to Marcellus Shale wells. The law generally only applies to wells that penetrate the Onondaga geologic horizon. Marcellus Shale lies above the Onondaga horizon.

The Oil and Gas Conservation Law provides DEP with the authority to determine the spacing of natural gas wells and to establish drilling units through unitization. Unitization, or pooling, is a legal process through which many adjoining properties are brought together in a carefully designed plan of well development.

Royalty income from the sale of natural gas is fairly allocated among the property owners in the drilling unit. Unitization can promote conservation of natural gas, maximize the recovery of gas and ensure that all landowners receive their fair share of the value of the gas produced. However, compulsory or forced pooling is seen by many as a form of eminent domain by compelling the use of land against an owner's will.

Landowners concerned about their gas being drained through wells on nearby properties can seek a voluntary unitization program by agreement of all the adjacent owners and producer lessees. However, if all parties do not agree to a voluntary plan, a landowner (or a producer lessee) dissatisfied or insecure about his gas holding may get into a potentially wasteful race to drill his own well.

The Pennsylvania Oil and Gas Act is intended to provide for the optimal development of oil and gas resources consistent with environmental protection.⁶ Under the statute, DEP has the authority to issue or deny drilling permits and establish and enforce criteria for locating and operating wells. Wells must be 100 feet from a stream and 200 feet from a building or water well. Well owners and operators must restore well sites and plug wells upon abandonment, and they must restore private water supplies that are negatively affected by drilling. Well water should be tested for contaminants before, during and after nearby drilling activity to assess any impact from the drilling.

The Oil and Gas Act generally preempts local initiatives to regulate oil and gas operations. Local governments do have limited authority under the Pennsylvania Municipalities Planning Code to enact zoning and land development ordinances that are generally applicable to all land use activities, including oil and natural gas operations.⁷ They may exclude from zoning districts the surface use of land for oil and natural gas production because that basic function of zoning is not preempted by the Oil and Gas Act.

The statute addresses the obligations of well owners and operators, but it does not address the potential liability of landowners who permit drilling on their property. For example, a landowner who allows badly managed drilling on his property could be liable for substantial damage to a neighboring property's water supply based on a trespass or nuisance theory.

The Pennsylvania Guaranteed Minimum Royalty Act provides minimum requirements for leases between landowners and gas companies seeking to drill natural gas wells.⁸ The law requires that producer lessees guarantee landowner lessors at least a one-eighth royalty of all oil and natural gas from the subject property.

Interstate compacts for the Susquehanna River and Delaware River watersheds have created the Susquehanna River Basin Commission and the Delaware River Basin Commission. These commissions are charged with regulating the use of the water resources within their respective watersheds.

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The SRBC and DRBC both require review of natural gas extraction projects. The SRBC has an “approval by rule” procedure that requires a producer to file a notice of intent and a public notice for the proposed drilling activity. The SRBC may limit the flow rate and put conditions on the water withdrawal. The DRBC considers the need for the withdrawal, the water source, the effect of the withdrawal and conservation measures.

Oil and gas rights are normally leased from the owner of the surface estate. A mineral lease passes to the lessee an independent and individual property right in the mineral estate and the right to extract and market the minerals.⁹ A lessee is required to return the premises in good condition at the end of the term if the terms of the lease so state.¹⁰

The relationship between a landowner lessor and producer lessee is usually formalized in an oil and gas lease that is proposed by the producer using standard forms for ease of administration. Landowners may lease the right to extract gas from their property to a producer for an upfront payment of potentially thousands of dollars per acre.¹¹ If a successful gas well is developed, landowners may receive royalty payments for as long as marketable gas is produced.

A lease agreement governs nearly all aspects of the relationship between the landowner lessor and the producer lessee. Without a lease agreement, a landowner has little protection from the environmental consequences of the producer’s operations. However, standard oil and gas lease forms must be customized to address landowner concerns.

The ability to amend through negotiation a standard oil and gas lease offered by a producer is directly related to the size and location (that is, desirability) of the subject tract of land. A negotiated lease agreement can provide for:

- Limitations on operations.
- Compensation for damages.
- Requirements for restoration of well sites.
- A limited term of the lease.
- Requirements for lease termination.

The lease agreement may also provide an indemnification clause that holds the lessor harmless from liability arising from the producer lessee’s operations.

The 2009-2010 session of the Pennsylvania General Assembly saw numerous legislative proposals related to natural gas extraction that failed to be enacted into law. These initiatives would have required numerous controls on Marcellus Shale gas production including:

- Compensation for damage to surface property.
- Reporting of drilling and fracking wastewater.
- Disclosure to landowners of the potential liability associated with drilling on their property.
- Indemnification provisions in oil and gas leases to protect landowners from liability.

- Additional protection of underground drinking water supplies.
- Demonstration that horizontal drilling does not enter lands where a lease does not exist.
- Quarterly reviews of erosion and sediment control plans.
- Additional well location restrictions.
- Reporting of fracking chemicals.¹²

The current session of the Pennsylvania General Assembly is expected to see another round of proposals, including reintroduction of previously failed legislation.¹³ Legislators are expected to focus on well location and spacing, as well as the content, handling and treatment of fracking fluid. A number of bills have already been introduced this session to amend the Oil and Gas Act and the Oil and Gas Conservation Law to address regulation and unitization of “unconventional” natural gas resources, including the Marcellus Shale.

In January the Delaware River Basin Commission proposed regulations to protect water resources during the construction and operation of natural gas development projects.¹⁴ The DRBC would require that water used for the projects come from commission-approved water sources. The regulations are designed to protect minimum stream flows and provide a record of water transfers.

The DRBC also would establish well pad site requirements and a requirement for natural gas development plans. A development plan would be required for sponsors of natural gas well pad projects who have a total lease holding in the Delaware River Watershed of over 3,200 acres or who intend to build more than five well pads.

The proposed Surface Owners Protection Act was introduced in the Pennsylvania General Assembly in 2009 to clarify the rights and responsibilities of both the surface owner and the owner of oil and gas rights.¹⁵ The legislation was not approved, but a revised form is expected to be reintroduced. The statute would alter the established common-law relationship between landowners and producers by putting affirmative duties on producers to protect landowners from the negative consequences of oil and gas activities.

The Surface Owners Protection Act would require:

- Landowner notification of drilling activities.
- The provision of landowners with information on drilling operations and environmental protection.
- The establishment of a surface use and compensation agreement between landowners and producers.

The agreement would address drilling operations and facilities, water and wastewater management, surface impacts, site restoration, and landowner liability and compensation for damages.

A landowner would have a prescribed period within which to reach an agreement with a producer. If the landowner does not, the producer with rights to the gas would be permitted to proceed with operations after posting financial security to ensure landowner protection from any liability or damages.

Expect to see another round of natural gas legislation in the Pennsylvania General Assembly this session.

The Conservation Pooling Act has been proposed to provide for the regulated compulsory unitization of Marcellus Shale land and to establish a procedure for compensating landowners forced into a pool.¹⁶ The law would:

- Limit the number of well pads necessary to develop a drilling unit.
- Maximize the opportunity for landowners to obtain full economic benefit from their Marcellus Shale leases.
- Prevent the drainage of natural gas from unleased property without fair compensation through application of the rule of capture.
- Ensure no surface trespass for non-mineral-interest owners who are pooled into a unit.

The legislation would prevent holdout landowners from blocking the development of natural gas from leased properties around them.

Under one proposed version of the Conservation Pooling Act, a producer would need to obtain the rights to drill on 75 percent of the land within a proposed unit area before applying for a pooling order from the state. The statute would define a standard drilling unit as 640 acres, establish a notification and hearing procedure for objectors to pooling, set a royalty of 12.5 percent for the gas produced, and protect an unleased landowner from having any surface impacts from the drilling.

The Conservation Pooling Act would also offer three choices to unleased landowners forced to join a pool:

- Accept the terms of a lease offered to others in the pool.
- Pay their fair share of the cost of developing the well upfront and share in any profits.
- Share in the profits of the well after a risk penalty of 400 percent of their fair share of the cost is deducted from their payments.

To balance the economic benefits of natural gas production with the potential negative environmental consequences of drilling and fracking operations, landowners must stay vigilantly informed about the activities of producers, legislators and their neighbors.

Although the oil and gas industry in Pennsylvania is rapidly developing, landowners should not rush into signing leases for the development of their resources without fully considering their rights and obligations, as well as the protections that may be available to them and their land.

NOTES

¹ Memorandum from Marc Humphries, Coordinator, Cong. Research Serv., to House Committee on Natural Resources, Marcellus Shale Gas Development: Royalty Rates, Surface Owner Protection and Water Issues (Oct. 14, 2008), available at http://www.uppermon.org/Marcellus_Shale/Marcellus%20Shale%20CRS%20report.pdf.

² Improperly constructed wells can release fracking fluid into groundwater sources tapped by water supply wells for drinking water. Spilled fracking fluid can flow into streams and percolate into groundwater.

³ See *Patrick v. Apollo Gas*, 608 A.2d 1074 (Pa. Super. Ct. 1992).

⁴ See *Belden & Blake Corp. v. Commw. Dep't of Conservation & Natural Res.*, 969 A.2d 528 (Pa. 2009), citing *Chartiers Block Coal Co. v. Mellon*, 25 A.2d 597 (Pa. 1893).

- ⁵ Pa. Stat. Ann. tit. 58, §§ 401-419.
- ⁶ Pa. Stat. Ann. tit. 58, §§ 601.101-601.607.
- ⁷ See *Huntley & Huntley Inc. v. Borough Council of the Borough of Oakmont*, 964 A.2d 855 (Pa. 2009).
- ⁸ Pa. Stat. Ann. tit. 58, § 33.
- ⁹ See *Stuart v. Chernicky*, 266 A.2d 259 (Pa. 1970).
- ¹⁰ See *Timblyn v. Brown*, 28 A. 236 (Pa. 1893).
- ¹¹ Upfront bonus payments per acre depend on many factors including the depth and thickness of the shale, expectations for natural gas prices at the time the lease is executed, and whether the site is likely to gain access to nearby pipeline gathering facilities. Bonus payments have typically fallen between \$500 and \$5,000 per acre.
- ¹² H.B. 473 would have created a procedure for landowner compensation for oil or gas drilling damage, and S.B. 1486 would have required disclosure of potential landowner liability for allowing gas drilling and required landowner indemnification provisions in gas leasing agreements.
- ¹³ See Memorandum from State Rep. Mike Hanna to all members of the Pa. House of Reps. (Jan. 26, 2011), stating intent to reintroduce former H.B. 473 with respect to landowner compensation, and Memorandum from State Sen. Stewart Greenleaf to all members of the Pa. Senate (Dec. 9, 2010), stating intent to reintroduce former S.B. 1486 with respect to landowner indemnification.
- ¹⁴ See 76 Fed. Reg. 295 (2011) (to be codified at 18 C.F.R. pt. 410) (proposed Jan. 4, 2011).
- ¹⁵ H.B. 1155, 2009-2010 Reg. Sess. (Pa. 2009).
- ¹⁶ See Memorandum from State Reps. Marc Gergely and Garth Everett to all members of the Pa. House of Reps. (June 15, 2010), and Memorandum from State Sens. Gene Yaw and John Wozniak to all members of the Pa. Senate (June 16, 2010).



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