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Critical Legal Issues: WORKING PAPER SERIES

**SHALE DRILLING IN OHIO:
A CASE STUDY IN BALANCING
PUBLIC AND PRIVATE INTERESTS**

by

Michael J. Zimmer
Thompson Hine LLP

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To receive information about previous WLF publications, contact Glenn Lammi, Chief Counsel, Legal Studies Division, Washington Legal Foundation, 2009 Massachusetts Avenue, NW, Washington, D.C. 20036, (202) 588-0302.

ABOUT THE AUTHOR

Michael J. Zimmer focuses his practice on natural gas and electricity regulation, energy issues, corporate acquisitions and project finance transactions. He has been involved in mergers, acquisitions, construction and project financing assignments in the power generation, renewables, natural gas and electric, cogeneration and independent power, energy and emissions trading, and manufacturing industries. These transactions have included acquisitions, debt restructuring or project financing for some of the largest undertakings in the United States in these industries, with a composite value exceeding \$14 billion.

With more than 35 years of legal service, Mr. Zimmer has worked with domestic and international companies, gas and electric utilities and their unregulated subsidiaries, advanced energy technology and industrial companies, energy project developers, construction companies, trade associations, financial institutions and energy technology funds, universities and embassies in more than 35 states and 20 countries. His work has centered during his career on industry challenges including shale energy, renewable energy, distributed generation, energy infrastructure, public private partnerships, air emissions and GHG management, LNG and energy efficiency.

Mr. Zimmer has advised the Cogeneration and Independent Power Coalition, Clean Coal Coalition, Natural Gas Vehicles Coalition, American Council on Renewable Energy, Industrial Energy Consumers of America, Ohio Fuel Cell Coalition, Ohio Manufacturers' Association and Aluminum Association of America on a wide range of energy, carbon management, capital formation and advanced energy technology issues. He has also provided counsel to the USGBC, ASTM, Capital Markets Partnership, Green Standard, Americans for Community Development, and Biomass Coordinating Council on renewables, finance, green buildings and resilience issues over the past decade. Mr. Zimmer has represented clients before the U.S. Department of Energy, FERC, SEC, EPA, congressional committees, various federal departments and agencies, and state commissions and agencies on electric energy, renewable energy, natural gas and energy tax proposals. In Ohio, he has focused on issues related to state energy policy, greenhouse gas emissions policy, manufacturing and energy management, GHG reporting, shale energy supply chain and production, energy efficiency, and water and food production.

SHALE DRILLING IN OHIO: A CASE STUDY IN BALANCING GROWTH AND REGULATION

by
Michael J. Zimmer
Thompson Hine LLP

INTRODUCTION

Vertical oil and gas drilling has thrived in Ohio and other states for well over 100 years. Technological advances in fracturing capabilities in the past decade have raised a number of opportunities with concerns for Ohio industry, government agencies, communities and citizens. In Ohio, more than 71,000 wells have used some form of “fracking,” and over 80 percent of all new wells use the technique.¹ The supportive business and operating climate sought by the oil and gas companies, and the pipeline and storage industries must be balanced with citizens’ concerns about the land, water, air, toxic substances, safety and public health. Ohio has been playing catch-up to the recent influx of natural gas development, and the state’s older oil and gas statutes left multiple issues unaddressed or outdated. Concerns about hydraulic fracturing, forced pooling, water management, waste disposal, well design and construction, chemicals used, trade secrets and air quality have ignited much public discussion in Ohio. This WORKING PAPER explores the concerns about shale

¹ State Progress, Ohio (<http://groundwork.ioGCC.org/topics-index/hydraulic-fracturing/state-progress>).

energy development and how its responsible pursuit can lead to community development and economic revitalization in the state.

I. REGULATION OF SHALE DRILLING

All issues related to the production of oil and gas within Ohio (including condensate) are managed by the state's Division of Oil and Gas Resources Management (Division) and administered by a Division chief.² The Division's delegated authority includes the permitting, location and spacing of oil and gas wells and production operations within Ohio.³ It has adopted rules for the administration and enforcement of the oil and gas chapter of the Ohio Revised Code⁴ and issues orders that are maintained in a database.⁵

Other state agencies that oversee aspects of oil and gas production include the Ohio Environmental Protection Agency (Ohio EPA), which generally regulates water and air pollution; the Public Utilities Commission of Ohio, which regulates natural gas pipelines, excluding gathering lines, raw natural gas liquids or finished product natural liquids; and the Ohio Power Siting Board, which retains jurisdiction over major utility facilities, (including natural gas pipelines longer than 500 feet that have an outside diameter exceeding nine inches and transport natural gas at pressures greater than 125 psi).

² Ohio Rev. Code Ann. § 1509.02 (West 2012).

³ *Id.*

⁴ *Id.* § 1509.03 (A).

⁵ *Id.* § 1509.04-041.

Ohio defines a “well” as a borehole, whether drilled or bored, within the state for production, extraction, or injection of any gas or liquid mineral.⁶ This includes wells created by horizontal drilling. The definition specifically excludes potable water from being used in drilling, but includes natural or artificial brines and oil field waters.⁷ No wells may be drilled, reopened, deepened, plugged or converted to another use without a permit issued by the Division.⁸ A permit application must include information regarding the well and its operations⁹ as well as a sworn statement verifying the provision of notice to each property owner within 500 feet of the well’s surface location and to the municipal corporation where the well is to be located.¹⁰

Fees for permits in Ohio increase in correlation with the population surrounding the new well location. Any application for a permit that requires mandatory pooling must be accompanied by an additional \$5,000 fee.¹¹ A road use maintenance agreement must also be developed for horizontal drilling.

In addition, Ohio requires that a plan for restoring the land surface disturbed by drilling operations be submitted with each new application.¹² The plan must include a provision or file a request for a waiver allowing a release of responsibility to perform any and all restoration of the disturbed area with

⁶ *Id.* § 1509.01 (A).

⁷ *Id.*

⁸ *Id.* § 1509.05.

⁹ *See id.* § 1509.06.

¹⁰ *Id.* § 1509 (A)(9).

¹¹ *Id.* § 1509.06 (G)(4).

¹² *Id.* § 1509.06 (A)(10).

written consent of the landowner and approval of the Division.¹³ The Division chief may deny any waiver if it would likely result in substantial damage to the adjoining property, contamination of water sources, or substantial erosion and sedimentation.¹⁴

Voluntary and mandatory pooling is a traditional concern of landowners in shale producing states, including Ohio. Ohio allows the Division to adopt rules on minimum acreage requirements for drilling units and minimum distances for new wells relative to boundaries, drilling units and other wells.¹⁵ The owners of adjoining tracts in Ohio may agree to pool the tracts to form a drilling unit that conforms to all applicable distance and acreage requirements established by the Division.¹⁶ Mandatory pooling may be requested by a mineral owner if the tract of land is of insufficient size or shape to meet the requirements for drilling and the owner has been unable to voluntarily form a drilling unit.¹⁷

The location of a well in Ohio is subject to certain spacing and setback restrictions, which normally can be avoided with the written consent of the affected landowner. The Division chief shall not approve the written consent if the deviation is within 100 feet of the restricted area.¹⁸ The Division may authorize a well located inside the 100-foot minimum if the applicant provides

¹³ *Id.* § 1509.072 (B).

¹⁴ *Id.*

¹⁵ *Id.* § 1509.24.

¹⁶ *Id.* § 1509.26.

¹⁷ *Id.* § 1509.27. *See also* Ohio Admin. Code § 1501:9-1-04 (West 2012).

¹⁸ *See id.* Ohio Rev. Code Ann. § 1509.021.

a written statement indicating that locating the well closer will reduce impact to the landowner or to the immediate surface environment.¹⁹ The surface location of a new well cannot be within 100 feet of another well or within 50 feet of a public road or railroad track.²⁰ Ohio allows the surface location of a new well that will be drilled using directional drilling to be located on a parcel of land that is not in the “drilling unit” of the well,²¹ which is defined as a minimum acreage on which one well may be drilled.²²

An Ohio well owner must obtain liability insurance coverage of not less than \$5 million for personal injury and property damage resulting from any stage of oil and gas production.²³ The policy, which must also include coverage for any environmental endorsement, must be maintained for the life of the well. A well owner must execute and file a surety bond or deposit cash in an amount equal to the surety bond with the Division chief to show it is complying with all applicable requirements set forth by the Division.²⁴ Nevertheless, Landowners may be exposed to liability under CERCLA if their land becomes contaminated with hazardous waste resulting from a shale lease. While CERCLA exempts petroleum from regulation, it does not, however, exempt materials that are mixed with petroleum waste products from natural gas

¹⁹ *See id.* § 1509.021 (D).

²⁰ *Id.* § 1509.021 (I), (M).

²¹ *Id.* § 1509.022.

²² *Id.* § 1509.01 (G).

²³ *Id.* § 1509.07 (A) (2).

²⁴ *Id.* § 1509.07 (B) (2).

drilling or chemicals used in such drilling.²⁵ CERCLA does not mention natural gas.

Casing and cementing requirements impose construction and permit obligations that seek to keep injection brines from reaching Ohio's water supplies. Brine is defined as all saline geological formation water resulting from, obtained from or produced in connection with exploration, drilling, well stimulation, production or plugging of a well.²⁶ Ohio provides that no brine shall be placed in any water or surface that might reasonably be anticipated to cause water used for consumption to exceed the standards of the Safe Drinking Water Act.²⁷ Any damage to public health, safety or the environment should be avoided in brine management as well.²⁸ Basic requirements address the mud, cuttings and other waste substances that may result from oil and gas production, while also providing brief guidance regarding containment, storage pits and tanks to be used for such waste.²⁹ Rules have been promulgated that provide more specific guidance regarding saltwater and enhanced recovery injection projects.³⁰ Ohio broadens its brine management coverage by requiring brine transporters to obtain registration certificates and identification numbers from the Division.³¹ It also requires a minimum of

²⁵ *United States v. Gurley*, 43 F.3d 1188, 1199 (8th Cir. 1994).

²⁶ *Id.* § 1509.01 (U).

²⁷ *Id.* § 1509.22 (A) (1).

²⁸ *Id.* § 1509.22 (A) (2).

²⁹ *See id.* § 1509.22. (C) & (C x 2)

³⁰ *See* Ohio Admin. Code § 1501:9-3; § 1501:9-5.

³¹ Ohio Rev. Code Ann. § 1509.222(A)(1) (West 2012).

\$300,000 in liability insurance for property damage and \$300,000 for personal injuries that may result from the brine.³²

Ohio began regulating hydraulic fracturing operations in 2010 under the statutory term “well stimulation,” which means the process of enhancing well productivity.³³ Well stimulation must not endanger underground sources of drinking water.³⁴ Ohio requires that the well permit application contain information regarding the geological formation to be used as the injection zone and the composition of the liquid to be injected.³⁵ An oil and gas resources inspector must be notified at least 24 hours prior to stimulating a well under state regulations.³⁶ Required disclosures should be made on material safety data sheets, and the data will be maintained on a state website. The stimulation must be terminated and the Division immediately notified if the casing or cement is damaged during well stimulation.³⁷ The Division chief will determine whether the well may be completed through remedial measures or must be plugged and abandoned due to irreparable damage.³⁸ To verify the casing or cement integrity, the Division may require the owner of the well to submit cement evaluation logs, temperature surveys, pressure tests or any

³² *Id.* § 1509.222(A)(2).(d).

³³ *Id.* § 1509.01(Z).

³⁴ *Id.* § 1509.19.

³⁵ *Id.* § 1509.06(A)(6)(b).

³⁶ *Id.* § 1509.19.

³⁷ *Id.*

³⁸ *Id.*

combination of these to support an evaluation.³⁹ Ohio mandates that no owner shall construct a well, or permit a defective casing in a well to leak fluids or gases, that causes damage to other permeable strata, underground sources of drinking water, or the surface of the land or that threatens the public health and safety or environment.⁴⁰

II. WATER MANAGEMENT

Ohio oil and gas wells must not be located within 50 feet of a stream, river, watercourse, water well, pond, lake, or other body of water⁴¹ and must be constructed in a manner approved by the Division chief.⁴² The producer must use materials that comply with industry standards for the type and depth of the well and the anticipated fluid pressures expected from the well.⁴³

New fracking fluid disclosure rules and water supply and testing requirements became effective in 2012. The well must be constructed using sufficient steel or conductor casing to protect and isolate all underground sources of drinking water as defined by the Safe Drinking Water Act.⁴⁴ Each time cementing of any casing is required, a Division inspector should be notified.⁴⁵ Within 60 days after completion, an owner is required to submit to

³⁹ *Id.*

⁴⁰ *Id.* § 1509.12 (A).

⁴¹ *Id.* § 1509.021(L).

⁴² *Id.* & 1508.21; *see also* Ohio EPA, Ohio's Regulations: A Guide for Operators Drilling in the Marcellus and Utica Shales (Mar. 2012), at 3.

⁴³ *Id.* § 1509.17(A).

⁴⁴ *Id.*

⁴⁵ *Id.* § 1509.17(C).

the Division chief information validating the integrity and quality of the cementing.⁴⁶

If an oil and gas operation disrupts another property owner's water supply, the state requires the owner of the oil and gas operation to either physically replace the water supply or make a payment of fair market damages for the loss of water supply to the property holder.⁴⁷

If construction of a well site impacts wetlands, streams or other Ohio waters, the operator must obtain a Section 401 permit pursuant to the Clean Water Act and a Section 404 permit from the U.S. Army Corps of Engineers to authorize the impacts.⁴⁸

III. WASTE DISPOSAL

Drill cuttings managed on the site are regulated by the Ohio Department of Natural Resources (Ohio DNR). Drill cuttings coming into contact with drilling mud, oils or other sources of contaminants that are sent off-site for disposal are classified as solid wastes under Ohio EPA regulations⁴⁹ and must be sent to a licensed solid waste landfill.⁵⁰

⁴⁶ *Id.*

⁴⁷ *Id.* § 1509.22(F).

⁴⁸ Ohio EPA, Draft General Permit for Shale Gas Exploration Surface Water Impacts Fact Sheet (Dec. 2011) (<http://www.epa.ohio.gov>).

⁴⁹ *Id.* Ohio EPA, Ohio's Regulations: A Guide for Operators /Drilling in the Marcellus and Utica Shales (Mar. 2012), at 7.

⁵⁰ *Id.* 42 U.S.C. §9607 (a)(1) and (2).

Ohio DNR recently announced new standards for transporting and disposing of hydraulic fracturing brine,⁵¹ which include prohibition of drilling into Precambrian basement rock formation, mandatory submission of geological data before drilling, mandatory shut-off switches and data recorders, and required updates for pressure and volume monitoring.⁵² A monitoring system for brine haulers and what they do with these wastes will be implemented in Ohio as well.⁵³

IV. AIR QUALITY

These issues are addressed by the Ohio EPA through the issuance of general permits. The draft general permit for such drilling covers a variety of emissions sources found at most shale gas well sites, including internal combustion engines, generators, dehydration systems, storage tanks and flares. The draft permit contains emissions limits, operating restrictions, and monitoring, testing and reporting requirements. General permitting allows all the terms and conditions to be developed in advance.⁵⁴ A potential applicant reviews the general qualifying criteria and applies if required by the criteria. The Ohio EPA notes that the main goal behind the program is to increase the timeliness of permit issuance. With the detailed analysis, the Ohio EPA plans

⁵¹ Ohio EPA, Air General Permit for Shale Gas Well Sites Fact Sheet (Feb. 2012) (<http://www.epa.ohio.gov>).

⁵² *Id.*

⁵³ *Id.*

⁵⁴ Ohio EPA, Air General Permit for Shale Gas Well Sites Fact Sheet (Feb. 2012) (<http://www.epa.ohio.gov/portals/47/nr/2012/february/airgp2-1-12.pdf>).

to issue these general permits for shale producers in a matter of weeks following receipt of applications.⁵⁵

V. COMMUNITY DEVELOPMENT

One of the lessons learned from prior development efforts is that almost 90 percent of the impact of shale drilling is felt in the local communities where leases lie. As development takes hold, communities and counties should consider the following actions and ideas:

- Organize and have a logical plan for growth.
- Carefully manage stewardship and sale of city-owned lots and other properties. Prudently value sewer, water, curb, gutter and street investments early.
- Marshal, annex and purchase adjoining lands for future housing, schools and industrial development. Prices should ideally reach levels slightly higher than agricultural prices.
- Include in plans for land use the costs and strategies for new infrastructure. The city should drive street, sewage and water construction until the developer relinquishes utilities.
- Temporary housing is not a solution as it causes zoning issues, a services drain, tax base erosion, service impacts, and socio-economic and safety challenges. The only winners are outside investors, not the community.
- Permanent housing strategies foster lasting solutions, infrastructure, schools and retail growth with more lasting legacies of community value.
- Hire and staff properly for planning, enforcement and inspections, codes compliance and permitting management.
- Properly manage health, public safety, fire and police requirements.
- Wisely finance community investments. Have developers pay for infrastructure and price it properly. Be cautious about special assessments and grants.
- Diversify the town for community value, incorporating amenities such as retail establishments, a renaissance zone for revitalization, school and community centers, fitness facilities and recreation parks.

⁵⁵ *Id.*

VI. CHALLENGES AHEAD AND CONCLUSION

As with much of America's industrial heartland, Ohio has seen its manufacturing core seriously erode over the past two decades, losing millions of jobs. While there is considerable discussion of a manufacturing "rebirth," actual examples of new manufacturing investment, on-shoring and entrepreneurial startups are still relatively few in number, but growing. Tax proceeds for sales of goods and equipment have increased but jobs remained flat from the shale energy boom through 2012. To capitalize on the emerging economic momentum coming into view as part of Ohio's manufacturing revitalization from shale energy development, the state must take action now.

Protect jobs still at risk by capitalizing on a diverse set of energy opportunities, especially unconventional energy sources such as shale gas, to "re-industrialize" an aging manufacturing sector. Develop a pipeline strategy for transmission and distribution infrastructure, storage and new growth industries like gas processing and fractionalization to establish demand and economics for commercial production. Organize state job training more centrally with better scale.

Work with JobsOhio, other state agencies, and stakeholders to expand existing economic prosperity across the state, not just in a limited few counties, preparing workers with the STEM, technology, information and technical skills required in the Ohio workforce for the future.

Train and position the Ohio workforce to pursue opportunities in the energy value chain like welding, trucking and O&M equipment repairs.

Reorganize and incentivize the state government, colleges, labor and community college infrastructure to support workforce goals and seek industry support for more effective permanent training solutions.

Attract private equity and venture capital to energy, midstream and downstream projects and technology startups to foster a separate manufacturing, innovation and commercialization strategy in Ohio.

Engage stakeholders and the local communities to provide stewardship and resilience, local and regional capital and supply chain support with regard to economic, equipment and environmental choices. Buy in state and from the region if possible to retain the value proposition of the energy development.

Ensure a stable, common-sense policy environment that seeks to minimize uncertainty in the face of enormous capital investment with a stable tax and environmental regulatory structure for a decade

Develop and maintain more robust supply chains or better support in both traditional and new manufacturing sectors. Inventory state and regional companies with capacity, and get them certified. Transportation and logistics support should be communicated.

Focus on Ohio's regional strengths, while recognizing the challenges of those regions that have been left behind in earlier industrialization efforts. Spreading new wealth more evenly across the state – regional dispersion – is best accomplished using state and regional banking,

transportation and logistics to retain that wealth in the state and not merely exporting it without expanding value creation.

Having practical, effective laws and regulations governing shale energy development in place will help create lasting value that will benefit the entire state for the longer term with permanent community benefit.

TABLE: Key Provisions of Ohio Shale Energy Regulation	
1. Drilling Permits	No new wells unless operator obtains a permit. Notice of application must be provided to property owners/municipalities within 500 feet of the well's surface location. Fee structure increases in correlation with population surrounding the well.
2. Pooling	Voluntary pooling is allowed if the agreement conforms to certain requirements. Mandatory pooling may be requested if land is insufficient size or owner is unable to voluntarily pool.
3. Well Spacing	The surface location of a new well shall not be within 100 feet to another well.
4. Setbacks	A new well shall not be within: <ul style="list-style-type: none"> • 100 feet of restricted area • 50 feet to a public road or railroad track • 150 feet to occupied dwelling • 200 feet to occupied dwelling and 150 feet to property subject to mandatory pooling
5. Insurance and Bonds	Liability insurance of not less than \$1 million. If in urban area, not less than \$3 million. A surety bond must be executed and filed in order to comply with Division requirements.
6. Well Casing and Cementing	Division chief may shut down well if defective casing is found. Evaluation logs, surveys and test may be required for the cementing used at wells.
7. Hydraulic Fracturing Operations Standards	Fluids used must not endanger ground water. The geologic formation and fluid composition used must be submitted to division.
8. Water Management	No wells shall be located within 50 feet of stream, river, etc. U.S. Clean Water Act 401 permits are required if impact to wetlands, streams, etc. Water disrupted shall be restored or the landowner appropriately compensated.
9. Waste Disposal	Department recently promulgated more stringent rules for waste disposal; rules are available at its website. The Department handles on-site waste disposal. Ohio EPA handles off-site waste disposal.
10. Air Quality	General permitting conducted by Ohio EPA in order to grant speedy review of shale well permits.

Source: WVU College of Law, "Marcellus Shale Drilling Comparative White Paper ("Spring 2012), at 15