The Prodigal Son Returns: Oil and Gas Drillers Return to Pennsylvania with a Vengeance - Are Municipalities Prepared?

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The Prodigal Son Returns: Oil and Gas Drillers Return to Pennsylvania with a Vengeance

Are Municipalities Prepared?

JOHN M. SMITH, ESQ.*

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I. INTRODUCTION

The Prodigal Son has returned with promises of jobs, wealth, and riches, but not everyone has anticipated or prepared for his arrival. In the Nineteenth Century, Pennsylvania was the commercial hub for the oil and gas industry during this nation’s first big “energy boom.” However, just as the energy boom of the late Nineteenth Century brought wealth and development, it also brought pollution and destitution, as production companies sought to capitalize on this “black gold” with essentially no oversight. In time, the industry moved on to other regions, leaving Pennsylvania’s oil and gas fields in relative silence.

That silence, however, was not enduring. With recent technological advances making production from the Marcellus Shale economically feasible, excluding coal, Pennsylvania is now in the midst of its second energy boom.1 Yet, as was experienced more

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more than 150 years ago, accompanying the development of the Marcellus Shale is an entirely new set of concerns. While Pennsylvania has a history of hard lessons from its first energy boom to turn to for answers to these concerns, the onus of applying these answers to protect the communities of Pennsylvania and avoid a repeat of the negative consequences attendant to the development of this resource falls directly on state and local officials. Unfortunately, the solution is just not that simple. Before proper and reasonable oversight can be effectuated and a repeat of history can be avoided, critical issues must first be resolved: who should regulate what, and how should the balance between state and local regulation be reconciled?

This article examines the current relationship between state and local regulation of the oil and gas industry in Pennsylvania and the need for increased local regulatory powers in light of the glaring inadequacies of state law for purposes of Marcellus Shale production and development. Part II introduces and discusses briefly the first Pennsylvania energy boom, while Part III discusses the ongoing development of Marcellus Shale production that comprises Pennsylvania's energy resurgence. Part III also explains some of the salient features associated with Marcellus Shale exploitation and development, as well as what additional concerns this energy resurgence presents for residents, particularly for those residents who are at the front lines of Marcellus Shale operations. Part IV addresses the various concerns concomitant with leasing Marcellus Shale gas rights, with special attention paid to how surface rights can be affected. Part V examines the current state of oil and gas law at both the state and local levels, focusing upon state preemption of local oversight in certain aspects of the industry. Part VI asserts the increasing need for local control over oil and gas regulation, and the superior position afforded to the municipalities to oversee the industry. After arguing for an expansive role for the local government, Part VII explores the permitted role of local government in the overall regulatory scheme. Part VIII concludes this article by considering whether

ters. As municipal solicitor, Mr. Smith drafted the first comprehensive local oil and gas ordinance in Pennsylvania and serves as special counsel to municipalities on oil and gas matters. The author would like to thank Brian A. Lawton, Esq., Christopher W. Rogers, Esq., and Jennifer Fahnestock for their assistance with this article.

legitimate exercises of the power to oversee the industry and local regulation may constitute a regulatory taking.

II. OIL CITY & THE PENNSYLVANIA OIL BOOM

Not since "Colonel" Edwin Drake struck oil in Titusville has Pennsylvania seen an explosion of drilling activity of this magnitude. In 1869, what was once referred to as "Drake's Folly" by the locals who mocked his attempt to extract oil from the ground by drilling a well, later became legendary as oil began to flow, and the well became commercially successful. Like the California gold rush towns before them, towns emerged overnight. Derricks and oilmen dotted the landscape and thousands of speculators set out to make their fortunes in Pennsylvania. An unparalleled frenzy overtook Pennsylvania. Railroads were laid to serve the energy industry and refineries were constructed to process the crude petroleum into products such as kerosene. Drilling tools were needed, which required the erection of several iron works to supply the much-needed material. In 1871, Pennsylvania was home to the first Oil Exchange, and President Ulysses S. Grant witnessed the boom first-hand, visiting Titusville, Pennsylvania. With the advent of the combustion engine creating a critical demand for oil, the region saw decades of economic and population growth. In the early part of the Twentieth Century, Pennsylvania was producing one-half of the world's oil.

However, the downturn took shape in the succeeding years. This took the form of a gradual exodus of industry to the fertile grounds of Texas and the Southwest. Such an exodus had the inevitable effect of reducing the oil and gas industry in Pennsyl-

2. The Story of Oil in Pennsylvania, PALEONTOLOGICAL RES. INST., http://www.priweb.org/ed/pgws/history/pennsylvania/pennsylvania.html (last visited October 29, 2010). Despite popular belief, Edwin Drake was not a true Colonel. Id. He invented the title for himself in order to impress the local citizens in Titusville. Id.
3. Id.
4. Id.
5. Id.
6. Id.
7. Id.
8. Frank Wicks, The Oil Age, MECHANICAL ENGINEERING, Aug. 2009, at 44.
10. Lisa Thompson, Oil Industry Faded, But City's a 'Gold Mine', ERIE TIMES-NEWS, May 1, 2005.
11. PALEONTOLOGICAL RES. INST., supra note 2.
12. Thompson, supra note 2.
vania to a faint pulse during the many lean years. However, with the advent of technology that makes extraction of the natural gas from the Marcellus Shale feasible, the outlook has changed drastically, and Pennsylvania's prospect to once again serve as a center for energy production has been resuscitated.13

III. ROUND TWO—DRILLING THE MARCELLUS SHALE

The Marcellus Shale, named after the town of Marcellus, New York, where the formation outcrops, is a rock formation underlying an approximately 95,000 square mile area (34 million acres of land), including 49 of Pennsylvania's 67 counties, as well as parts of West Virginia, Ohio, and New York.14 This rock formation sits at depths of approximately 6,000 feet below the surface and its potential as a "super giant" gas play has been discovered by those in the industry in recent years.15 Prior to the "Renz" well beginning production in 2004, it was believed that production from the Marcellus Shale would not be economically viable.16 However, armed with higher gas prices; technological advances in drilling and hydrofracturing techniques;17 success in other shale plays across the United States; promising production from early wells; and proximity to the robust gas markets on the East Coast, after a long absence, production companies have returned to Pennsylvania with a vengeance.18 The potential for job growth in the area is vast and many property owners have become millionaires overnight.19 These benefits, however, do not come without a price be-

16. Christie Campbell, Five Years On, Marcellus Shale Play a Booming Business, OBSERVER-REP., Oct. 4, 2009 (explaining that the "Renz" well was the first Marcellus Shale well to be drilled); Hannah Wiseman, Regulatory Adaptation in Fractured Appalachia, 21 VILL. ENVTL. L.J. 229, 240 (2010).
17. Rader, supra note 15, at 32.
19. David Kargbo, Natural Gas Plays in the Marcellus Shale: Challenges and Potential Opportunities, 44 ENVTL. SCI. & TECH. 15, 5679, 5680 (2010); Timothy Considine et. al., An Emerging Giant: Prospects and Economic Impacts of Developing the Marcellus Shale Natu-
ing paid by those who live and work in the vicinity of the facilities
necessary to extract, process, and transport natural gas.

With estimates of the Marcellus Shale having enough gas to
supply the entire United States for years to come, Pennsylvania
once again has the potential to be the energy capital of the United
States. Experts estimate that the potential recoverable gas from
the Marcellus Shale could be as much as 31 trillion cubic feet. By
comparison, American consumption currently stands at about
20 trillion cubic feet annually. At these current rates, geologists
estimate that the Marcellus Shale could become a major energy
source for many years to come.

As of the writing of this article, thousands of Marcellus Shale
gas wells have already been drilled and thousands more are in the
works throughout Pennsylvania alone. The residents in proximi-
ty to these operations have first-hand knowledge of what is truly
required for the large-scale production of natural gas from the
Marcellus Shale. To be certain, while technological advances in
microprocessors, cell phones and computers have resulted in a
trend of decreasing size of most technology we are familiar with,
advances in gas drilling production have resulted in increases in
size in almost every facet of the industry. More importantly,
these advances have occurred at a staggering pace, with changes
taking place almost on a daily basis. Additionally, even though
drilling technology is rapidly advancing, drilling operations pose

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20. Kargbo, supra note 19, at 5679.
21. Potential Development of the Natural Gas Resources in the Marcellus Shale, U.S.
22. Natural Gas Annual 2009, U.S. Energy Information Administration,
pdf/table_001.pdf
24. See Wiseman, supra note 16, at 240. See also PA. DEPT OF ENVTL. PROTECTION,
WELLS DRILLED BY COUNTY SUMMARY 2000-2010 (2010), available at
http://www.dep.state.pa.us/dep/deputate/minres/oilgas/2000-
2010%20Well%20Drilled%20by%20County%20Summary.htm.
dures to many people, ranging from drill site workers to motorists and pedestrians on local roads.  

The well pad is the focus of most activity for Marcellus Shale operations. The pad itself is a flattened, level area of property that normally requires a minimum of at least 5 acres. A single well pad can contain up to 10 wells that will bore horizontally through the Marcellus Shale underlying an area, or drilling unit, of up to 1,600 acres. Including all site production activities, each pad costs millions of dollars to construct. The drill rigs necessary for boring the horizontal wells are small buildings with diesel engines that are brought in by truck and assembled on site. While operating, these rigs run twenty-four hours per day with a crew that often lives on site in trailers for the entire time the rigs remain in operation. These rigs alone can cost approximately $50,000.00 per day to operate.

Because these wells depend upon the hydraulic fracturing process—commonly referred to as “fracking”—in order to extract the natural gas from the Marcellus Shale, a great amount of water is utilized, as much as five million gallons per well or more. This means that, in most cases, large-scale ponds are constructed, commonly called “frac ponds” or impoundments, which can be several acres in size and hold millions of gallons of fresh and/or recycled water. For the fracturing process itself, large diesel pumps are trucked onto the well pad. Chemicals, water, and proppant


27. Kobell, Rona, It’s Getting Harder to See PA’s Once Vast Forests Through Their Fragments, CHESAPEAKE BAY J., Dec. 2009 (“Each drill site requires at least 5 acres for a well pad.”)


29. Kargbo, supra note 19, at 5679.

30. See Considine, supra note 19, at 22 (explaining that 141.1 million dollars have been spent on supplies for drilling rigs).


32. See Rader, supra note 15, at 32.

33. See Rader, supra note 15, at 32.
are mixed on site and this mixture is fed into the pumps, which propel the mixture at very high pressure down into the wells to break, or fracture, the shale and hold it open to allow the natural gas to escape.\textsuperscript{35} Multiply this by up to ten wells on each pad and the massive scale of this operation becomes clear.\textsuperscript{36}

All of this, of course, does not even address other essential facilities, which include condensate tanks, and the additional processes required once the gas is produced from the well. These processes include facilities such as compressor stations, processing plants,\textsuperscript{37} and transmission lines, among others (generally referred to as

\textsuperscript{34} Proppant is the industry term for material used to prop open the fractures created in the shale from the high-pressure fluid. Sand is commonly used for this purpose; see also, Definition of "Proppant", Oil Field Glossary, SCHLUMBERGER LIMITED, http://www.glossary.oilfield.slb.com/Display.cfm?Term=proppant (last visited Feb. 11, 2011).

\textsuperscript{35} Id. See also Kargbo, supra note 19, at 5680.

\textsuperscript{36} The massive scale of a fracking operation is not the only environmental concern. Although chemicals injected into Marcellus wells make up only a small part of the overall volume of fluid used in these operations, the exact chemical "cocktails" used by each operator at each site is often unknown. More concerning is the fact that fracking fluid, cycled through thousands of feet of subterranean rock formations, was exempted from the Safe Drinking Water Act by § 322 of the 2005 Energy Policy Act, commonly referred to as the "Halliburton Loophole." See Energy Policy Act of 2005, 119 Stat. 694 (2005). To close this "loophole," the Fracturing Responsibility and Awareness of Chemicals ("FRAC") Act has been introduced in Congress by elected officials from various states, including Pennsylvania Senator Robert Casey. 111th Cong., H.R. 2766 (2009). However, this legislation has not been passed and the chemicals pumped below ground to stimulate gas wells are still not subject to regulation through the Safe Drinking Water Act. Moreover, oil and gas activities are additionally exempted from other federal environmental statutes. See Clean Water Act, 33 U.S.C. §§ 1251-1274 (2006); National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-4370h (2006); Resources Conservation and Recovery Act of 1976, 42 U.S.C. §§ 6901-7000 (2006); Clean Air Act, 42 U.S.C. § 7401-7671q (2006); Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§ 9601-9675 (2006); Toxic Release Inventory under the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. § 11023 (2006). Recent studies have revealed that in addition to the various chemicals in frac fluids, the wastewater from fracking operations likely also contains elevated levels of radiation from the Marcellus Shale formation. See Ian Urbina, Regulation Lax as Gas Wells' Tainted Water Hits Rivers, THE NEW YORK TIMES, February 26, 2011; see also Don Hopey, Radiation in Fracking Fluid a New Concern, PCH. POST GAZETTE, March 2, 2011. Considering wastewater from many sites of Marcellus Shale fracking operations is being treated and then introduced back into streams and rivers that are often a source for drinking water, the importance of this issue and these proposed laws is clear.

\textsuperscript{37} Natural gas processing plants generally include, among other facilities, condensate tank batteries and glycol dehydration units. Condensate tanks store produced natural gas, and glycol dehydration units remove water vapor from the gas stream. According to the United States Environmental Protection Agency, these features of processing facilities are sources of emissions, which include benzene, toluene, ethylbenzene, and xylenes (BTEX) as well as n-hexane. See U.S. ENVIRONMENTAL PROTECTION AGENCY, Outdoor Air-Industry, Business, and Home: Oil and Natural Gas Production—Additional Information, http://www.epa.gov/air/community/details/oil-gas_addl_info.html (last updated June 5, 2009).
"mid-stream facilities"). These facilities are necessary for moving the gas from the well and transforming it into a condition where it can be sold to the traditional natural gas distributors and piped through their lines. Gas coming straight from the well generally has sufficient pressure to carry it for several miles. However, if the facilities are further than this, compressor stations become a necessity. Although electric compressors exist which result in lower emissions emanating from a compressor site, these facilities are mostly gas-powered pumps that re-pressurize the gas so that it can continue on its route through the pipeline to the processing plant. Processing plants are often necessary because much of the gas produced from the Marcellus Shale in Southwestern Pennsylvania is "wet." This means that when the gas is extracted it is commingled with liquid hydrocarbons. This composition renders the gas unusable for traditional applications without further processing to remove these liquid hydrocarbons. These processing plants generally service several wells and can be significant in size, resembling large industrial buildings. As with any industrial enterprise, a processing facility has a large footprint, requiring an access road, gates, fencing, twenty-four hour per day operation, and generating considerable light, noise and flaring activity. They often generate traffic in the form of

38. These facilities represent industrial activities beyond the scope of this article. However, the Pennsylvania Supreme Court has yet to decide whether regulation of such facilities is preempted by the Act. Until more definitive law has been laid down, the safest approach for a municipality to employ is to locate the industrial activity in an appropriate zoning district by way of conditional use.


41. AM. GAS ASS'N, supra note 39.


43. AM. GAS ASS'N, supra note 39.


45. GOVERNMENT ACCOUNTABILITY OFFICE, Natural Gas Flaring and Venting: Opportunities to Improve Date and Reduce Emissions, http://www.gao.gov/products/GAO-04-809 (last updated July 14, 2004). (noting that flaring is the process by which operators literally burn off portions of the extracted gas in order to remove impurities).
tanker trucks that haul away the liquid hydrocarbons collected and held on-site in condensate tanks.\textsuperscript{46}

Like any other industrial activity, Marcellus gas operations generate light, noise, dust, fumes, traffic, and drastic changes to the land, all of which affect the daily lives of the people living in these communities. Perhaps more impressive, however, is the rate at which these operations change. Since the first successful wells began producing in Southwestern Pennsylvania in 2004, determining the most effective way to extract, process and transport the gas to market has been a work in progress.\textsuperscript{47} Drilling unit sizes have increased from 640 acres in size to 800 and up to 1,600 acres in a matter of months.\textsuperscript{48} Large processing plants were built to handle the newly produced gas seemingly overnight and at times without warning or oversight. Part of the reason for this pattern of constant change is the dynamic nature of shale production, an industry that is still in its infancy. Since the inception of Marcellus Shale production, Pennsylvania's legal and regulatory system has remained static, leaving communities that have to deal with these operations to fend for themselves. Under current Pennsylvania law, the industrial operation that is Marcellus Shale development is treated essentially the same as the small-scale, shallow, vertical driller, whose operation is barely noticeable in comparison.\textsuperscript{49} Fortunately, as discussed below, there are steps local communities can take to protect themselves and their citizens.

IV. SURFACE RIGHTS & CONCERNS FOR LEASEHOLDERS

The "surface lease." The name itself may not mean much, but for those who have signed one without considering the consequences and have witnessed the immense changes that occur to their property as a result of operations, it has come to mean quite a bit. The large-scale industrial operations attendant with Marcellus Shale production occur in the midst of the existing uses of the property, which are often residential and agricultural. If a

\textsuperscript{46} Special Exception Hearing for Compressor Station, Record of Cecil Township Zoning Hearing Board, Jan. 17, 2011, at 32-33.

\textsuperscript{47} Rader, supra note 15.

\textsuperscript{48} See Brian Day, Marcellus Shale Unit or Pool Size Limits, GO MARCELLUS SHALE (Feb. 9, 2010), http://gomarcellusshale.com/profiles/blogs/marcellus-shale-unit-or-pool. See also Elwin Green, Marcellus Shale Could be a Boon or Bane for Landowners, PGH. POST-GAZETTE, Feb. 28, 2010.

\textsuperscript{49} See generally Pennsylvania Oil and Gas Act, 58 PA. STAT. ANN. § 601.205 (West 2010).
landowner signs a lease and has authorized drilling activity on the surface, without prohibitions, the landowner can very well awake to the grim reality that he or she has given the operator a free pass to do whatever the owner may deem necessary to effectively produce the Marcellus Shale gas.\textsuperscript{50}

All too often, however, the individual that owns the surface estate does not own the oil and gas underlying his or her property. In Pennsylvania, ownership of subsurface property interests, including oil, gas, and other minerals, may be severed from the surface estate.\textsuperscript{51} Because of Pennsylvania's history of gas production, it is not unusual for subsurface interests to have been severed generations ago, resulting in the surface estate and oil and gas passing through separate chains of title. The person who owns the oil and gas rights underlying the property has the implied right to use the surface estate to access and extract these natural resources.\textsuperscript{52} Under Pennsylvania law, the gas owner has the implied right to go upon the surface if it is necessary to access and remove the gas.\textsuperscript{53} The Pennsylvania Supreme Court stated,

\begin{quote}
[a]s against the owner of the surface, [the mineral purchaser has] the right, without any express words of grant for that purpose, to go upon the surface to open a way by shaft, or drift, or well, to his underlying estate, and to occupy so much
\end{quote}

\textsuperscript{50} A typical surface lease will contain language similar to the following:
That the Lessor . . . does hereby lease and let exclusively unto the Lessee, for the purpose of drilling, operation for, producing, and removing of oil and gas and all the constituents thereof, and of injecting air, gas, brine and other substances from any source and into any subsurface strata, other than potable water strata, including but not limited to the right to inject any wells on the leasehold property and to otherwise conduct all such secondary or tertiary operations as may be required in the opinion of the Lessee, and to transport by pipelines or otherwise across and through said lands oil, gas, and their constituents from the subject and other lands, regardless of the source of such gas or the location of the wells, which right to transport gas from other properties across the leasehold premises shall survive the term of this lease for so long as the transportation of such gas may be desired by the Lessee, and of placing tanks, equipment, roads and structures thereon to procure and operate for the said products, conduct geophysical activities, together with the right to enter into and upon the leased premises at all times for the aforesaid purposes . . . .

Adapted from Atlas Energy Surface Lease.

\textsuperscript{51} Bundy v. Myers, 94 A.2d 724, 725 (Pa. 1953) (stating that there is a rebuttable presumption in Pennsylvania that "the word 'mineral', when used in a deed reservation or exception, does not include oil or natural gas.") (citing Preston v. S. Penn Oil Co., 86 A. 203 (Pa. 1912)); Silver v. Bush, 62 A. 832, 833 (Pa. 1905); Dunham & Shortt v. Kirkpatrick, 101 Pa. 36, 44 (Pa. 1882).


\textsuperscript{53} Chartiers Block Coal Co., 25 A.2d at 599.
of the surface, beyond the limits of his shaft, drift, or well, as might be necessary to operate his estate, and to remove the produce thereof.\textsuperscript{54}

More recently, the United States District Court for The Western District of Pennsylvania affirmed this principle: "the owner of the mineral rights has [an] unquestioned right to enter upon the property for the purpose of access and extracting his minerals . . . ."\textsuperscript{55} Extending this implied right further, consent from the surface owner is not required before entry onto the property by the mineral owner.\textsuperscript{56} Ultimately, this leaves the surface owner in the potentially unenviable position of having to bear the brunt of Marcellus Shale operations without receiving any of the benefits, suffering loss of use and value of their home and property with little recourse to change things. Consistent with this principle, if governmental bodies own the surface estate but not the gas, the case is no different.\textsuperscript{57}

Because of the scope of Marcellus Shale operations and its impact on the surface estate, issues of concern to the surface owner include the location of the well pad and frac pond, location and maintenance of access roads, removal of standing timber, damage to crops and existing surface features, and placement of facilities and other appurtenances. As operations generally start with the drilling site, where this will be placed on the landowner's property is of critical importance. Under current Pennsylvania law, a well cannot be located within 200 feet from any building or structure.\textsuperscript{58}

The location of activity and other surface protections may be added through the negotiation of lease "addendums."\textsuperscript{59} Despite the

\textsuperscript{54} Id. at 598.


\textsuperscript{56} Clearfield Bank & Trust Co. v. Shaffer, 553 A.2d 455, 457 (Pa. Super. Ct. 1989) In this case, two dissatisfied surface owners argued that the mineral owner could not enter their property without permission. \textit{Shaffer}, 553 A.2d at 455. In ruling for the mineral owner, the Pennsylvania Superior Court concluded, "no such consent is required. To conclude otherwise would render the exception and reservation clause unenforceable and effectively give the surface owners a veto power over the rights reserved to [mineral owners] and its assignees." Id. at 458.

\textsuperscript{57} See Belden & Blake Corp. v. Dep't of Conservation and Natural Res., 969 A.2d 528, 532 (Pa. 2009) (when the government stands as a surface owner, it may not "unilaterally impose additional conditions on [the mineral owner's] right to enter" the parcel).

\textsuperscript{58} Pennsylvania Oil and Gas Act, 58 PA. STAT. ANN. § 601.205.

\textsuperscript{59} Addendums generally are a series of provisions that alter the operator's boilerplate lease document and provide additional protections to the property owner. See BLACK'S LAW DICTIONARY 43 (9th ed. 2009). These addendums, as the name implies, are attached to and incorporated into the form lease.
most advantageous lease terms, the drilling and production activities will inevitably impact property owners, neighbors, and the community in general. In light of the reality that the interplay between gas rights and leases often leaves landowners left with little protection, the necessity for local government to exercise oversight for the health, safety and welfare of its residents becomes readily apparent.

V. STATE LAW & PREEMPTION OF LOCAL REGULATION

Despite the enactment of a seemingly comprehensive oil and gas statute in 1984 with the Pennsylvania Oil and Gas Act (the “Act”), Pennsylvania jurisprudence has failed to provide meaningful regulation to protect local communities or the state as a whole from the emerging oil and gas industry. Moreover, at the state level, Pennsylvania legislators have seemingly ignored the existing templates for legal and regulatory oversight that the recent shale-play states of Texas, Oklahoma, and Colorado have provided. For municipalities dealing with Marcellus operations, the effect of this legislative stagnancy is amplified because the Act contains a provision appearing to preempt local regulation of the gas industry: “all local ordinances and enactments purporting to regulate oil and gas well operations regulated by this Act are hereby superseded.”

This provision purports to preempt “ordinances or enactments” imposing “conditions, requirements, or limitations on the same features” of oil and gas drilling covered by the Act, and additionally purports to cover those local regulations which accomplish the “same purposes” of the Act. However, as discussed below, the fundamental problem with the Act’s purported scheme for statewide oversight in lieu of local regulation is that it fails to provide many basic protections and has, until recently, provided little guidance on what powers municipalities can draw upon.

60. See generally 16 TEX. ADMIN. CODE § 3; FORT WORTH, TEX., ORDINANCE 18449-02-2009 (2009); OKLA. ADMIN. CODE 165:10 (2006); COLO. REV. STAT. ANN. §§ 34-60 (2010); 2 COLO. CODE REGS. 404-1 (2009).

61. 58 PA. STAT. ANN. § 601.602 (West 2010).

62. Id.

63. Id. ("... all local ordinances and enactments purporting to regulate oil and gas well operations regulated by this act are hereby superseded. No ordinances or enactments adopted pursuant to the aforementioned acts shall contain provisions which impose conditions, requirements or limitations on the same features of oil and gas well operations regulated by this act or that accomplish the same purposes as set forth in this act. The Commonwealth, by this enactment, hereby preempts and supersedes the regulation of oil and gas wells as herein defined.").
The "features" of oil and gas production that the Act generally addresses include location relative to structures, protection of water supplies, plugging of wells, permitting, well site restoration and the use of safety devices. Practical issues such as noise, fencing, security, traffic, and dust, among others, are not addressed. Licensing or training is not required for a driller to obtain a permit to drill. Additionally, the Act does not require operators to give notice to local municipalities that will serve as host to drilling activities before beginning operations. In practice, operators have shown their willingness to begin construction of well pads and surface facilities without any notice whatsoever to the municipality in which they plan to operate. Unfortunately, the Act's stated legislative purposes provide little guidance.

In this context, local officials began to push the boundaries of the Act to identify the practical effect of the Act's preemption. It seemed from the recent decisions discussed infra that as long as local ordinances stayed away from regulation of the "same features" or "same purposes," that additional forms of local protection could be provided. However, because of the multitude of issues not addressed by the Act, many officials took it upon themselves to fill in these gaps. With operators taking the position that the Act wholly preempted any local regulation whatsoever, inevitably Pennsylvania's judiciary was called upon to determine the limit of the Act's preemption.

The Pennsylvania Supreme Court's first major foray into the issue of the Act's preemption came in *Huntley & Huntley, Inc. v. Borough Council of Oakmont.* In *Huntley,* the Council of Oak-
mont took the position that the extraction of natural gas was considered "the extraction of minerals," and was permitted in residential areas only as a conditional use as per local regulations. As a natural gas driller, Huntley wanted to begin conducting drilling activities within certain residential areas, but the Oakmont ordinances limited where drilling could occur. After hearings detailing the procedures that would be taken to extract the gas, Huntley was denied permission to drill. In response, Huntley challenged the local ordinance claiming the municipality was preempted from restricting the location of drilling operations by the Act.

Huntley was the first opportunity for the Pennsylvania Supreme Court to address the scope of the Act’s preemption of municipal zoning powers with regard to the location of oil and gas wells. In overruling the Superior Court en banc, the Court held that ordinances which either “[1] imposed conditions, requirements or limitations on the same features of oil and gas activities regulated by the Act, or [2] accomplish the same purposes as set forth in the Act,” will be preempted. The Court explained,

[This limitation of preemption regarding MPC-enabled legislation appears to reflect the General Assembly's recognition[, ] ... that, while effective oil and gas regulation in service of the Act's goals may require the knowledge and expertise of the appropriate state agency, the MPC's authorization of local zoning laws is provided in recognition of the unique expertise of municipal governing bodies to designate where different uses should be permitted in a manner that accounts for the community's development objectives, its character, and the "suitabilities and special nature of particular parts of the community."

More specifically, the Court confronted the meaning of the "same features" side of the Act's two-prong preemption, and held

34 WM. & MARY ENVTL. L. & POL’Y. REV. 999, 1007-1010 (2010) (discussing the extent of municipal regulation found permissible by the Court).
69. Huntley, 964 A.2d at 857.
70. Id.
71. Id. at 858.
72. Id.
73. Id. at 856.
74. Huntley, 964 A.2d at 863.
that the section's reference to the "features of oil and gas well operations regulated by this act," pertained to "technical aspects of well functioning and matters ancillary thereto . . . rather than to the well's location." To clarify, the Court gave three examples of subjects of local regulation that would be considered improper technical regulation: "registration, bonding, and well-site restoration." Location of operations, however, was not one of these technical aspects:

Although one could reasonably argue that a well's placement at a certain location is one of its features in a general sense, it is not a feature of the well's operation because it is not a characteristic of the manner or process by which the well is created, functions, is maintained, ceases to function, or is ultimately destroyed or capped.

In reviewing the purpose of Oakmont's zoning ordinance with those of the Act, the Court noted that while there may be some overlap that exists between the goals of the zoning ordinance and the goals of the Act, the two were not for the same purpose. The primary purpose of Oakmont's zoning ordinance was to preserve the character of residential neighborhoods. To the Huntley Court, this difference was sufficient for Oakmont's ordinance to avoid preemption. However, the Court's determination came with a caveat, "[w]e do not, for instance, suggest that the municipality could permit drilling in a particular district but then make that permission subject to conditions addressed to features of well operations regulated by the Act."

Basing its decision primarily on the fact that Oakmont's ordinance regulated primarily where drilling could take place, as opposed to how, Huntley demonstrated that the Act's preemptive language was not all-encompassing. Municipalities retained their traditional zoning powers with regard to oil and gas drilling despite the Act's preemptive language. Accordingly, municipalities
could identify the nature of oil and gas drilling as a use and potentially could preclude oil and gas drilling entirely in certain zones.\textsuperscript{83}

Though \textit{Huntley} created a seemingly simple framework to implement, it has still required the Pennsylvania Supreme Court to give further guidance. In \textit{Range Resources—Appalachia, L.L.C. v. Salem Twp.},\textsuperscript{84} the Pennsylvania Supreme Court applied the rule from \textit{Huntley} and reached a different result.\textsuperscript{85} In particular, Salem Township enacted a general ordinance that regulated surface and land development directed at the extraction of oil and gas in the area,\textsuperscript{86} "established a fee for permit applications and provided for criminal penalties upon failure to comply with its terms."\textsuperscript{87} Considering whether the ordinance was preempted by the Act, the Court found, among other things, that the ordinance attempted to "establish permitting procedures specifically for oil and gas wells, impose bonding requirements before drilling can begin, regulate well heads . . . and regulate site restoration after drilling operations cease."\textsuperscript{88}

Analyzing this ordinance under the Act's preemption provision, the \textit{Range Resources} Court came to a different result than it had in \textit{Huntley}. Whereas in \textit{Huntley} the ordinance sought only to control the location of wells consistent with established zoning principles,\textsuperscript{89} the ordinance in \textit{Range Resources} imposed "conditions, requirements, or limitations on the same features of oil and gas well operations regulated" by the Act.\textsuperscript{90} The Court found this to be an impermissible attempt to enact a comprehensive regulatory scheme relative to oil and gas development within the municipality.\textsuperscript{91} Purporting to serve the same purposes as the Act, and in some instances imposing requirements more restrictive than the Act,\textsuperscript{92} the ordinance was preempted.\textsuperscript{93}

More recently, in \textit{Penneco Oil Co., Inc. v. County of Fayette},\textsuperscript{94} the Pennsylvania Commonwealth Court applied the principles set forth in \textit{Huntley} and \textit{Range Resources} to uphold a county regula-

\textsuperscript{83} See generally 58 PA. STAT. ANN. § 601.102.
\textsuperscript{84} 964 A.2d 869 (Pa. 2009).
\textsuperscript{85} \textit{Range Resources}, 964 A.2d at 877.
\textsuperscript{86} Id. at 870.
\textsuperscript{87} Id.
\textsuperscript{88} Id. at 875 (citing SALEM TOWNSHIP, PA., ORDINANCES 02-2005 (Sept. 2005)).
\textsuperscript{89} See supra, at note 78.
\textsuperscript{90} Id. at 870 n.1.
\textsuperscript{91} \textit{Range Resources}, 964 A.2d at 876.
\textsuperscript{92} Id. at 875.
\textsuperscript{93} Id. at 877.
tion that dealt with "where" the drilling took place and not "how." In that case, Fayette County adopted a zoning ordinance that permitted oil and gas wells "by right" in agricultural and conservation zoning districts, and as a "special exception" in residential districts, industrial districts, and airport hazard overlay zoning districts. The zoning districts permitting use by special exception required authorization that "may be granted only by the Zoning Hearing Board after a public hearing and in accordance with express standards and criteria specified in this Chapter." Specifically, the Ordinance "provide[d] that an oil or gas well shall be a permitted special exception" subject to additional conditions and standards.

Reviewing the Fayette County ordinance, the Commonwealth Court held that the provisions, "do not pertain to technical aspects of well functioning and matters ancillary thereto . . . . To the contrary, the foregoing zoning provisions pertain to an oil and gas well's location with Fayette County, preserving the character of residential neighborhoods, and encouraging beneficial and compatible land uses." In light of this, the Commonwealth Court held that the Ordinance did not fall within the Act's preemptive scope. Moreover, the mere fact that the Zoning Board could require additional conditions before granting a special exception did not equate to arbitrary authority to deny the permission to drill. Importantly, the Ordinance's provisions "[d]id not reflect an attempt by Fayette County to enact a comprehensive regulatory scheme relative to oil and gas development, but instead reflected traditional zoning regulations that identify which uses are permitted in different areas of the locality." Thus, the court permitted a variable amount of overlap between the stated purposes: "[w]hile there was some overlap between the goals of [the Ordinance] and the purposes set forth in the Act, most particularly in the area of protecting public health and safety, the most salient objectives underlying restrictions on oil and gas drilling in residential districts appeared to be those pertaining to preserving the

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95. Penneco Oil, 4 A.3d at 732.
96. Id. at 730 (citing FAYETTE COUNTY, PA., ORDINANCES 1000-203 (Nov. 1, 2006)).
97. Id. (citing FAYETTE COUNTY, PA., ORDINANCES 1000-108 (Nov. 1, 2006)).
98. Id.
99. Id.
100. Penneco Oil, 4 A.3d at 729.
101. Id. at 730.
102. Id. at 733.
character of residential neighborhoods," as well as each zoning district, and "encouraging beneficial and compatible land uses."\(^{103}\)

The foregoing decisions from the Pennsylvania Supreme Court and Commonwealth Court have provided municipalities with some guidance as to the extent and nature of zoning powers they have over oil and gas drilling activities. The "technical" aspects of drilling which cannot be locally regulated include, for example, "registration, bonding, and well restoration."\(^{104}\) This includes the area of well "operations": "the manner or process by which the well is created, functions, is maintained, ceases to function, or is ultimately destroyed or capped."\(^{105}\) Furthermore, it is clear that a municipality may not establish permitting procedures, provide for criminal penalties, impose bonding requirements, regulate well heads, or require site restoration.\(^{106}\)

VI. THE NEED FOR LOCAL MUNICIPAL CONTROL

The Pennsylvania Supreme Court’s ruling in *Huntley* armed local officials with the power to regulate oil and gas activities in their respective municipalities pursuant to traditional zoning powers. However, those communities that have yet to deal with Marcellus operations may ask, why should a municipality regulate oil and gas operations? Yet for those communities currently dealing with Marcellus operations, the more apt question is how can a municipality *not* regulate?

The Act is the primary law in Pennsylvania governing oil and gas operations, but it was never designed to deal with gas production for deep shale plays. The size and scope of Marcellus Shale production is beyond anything seen before in Pennsylvania, and because of this, its impact goes beyond what was contemplated by the Act.\(^{107}\) The region has already begun to experience some of the

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103. *Id.* at 726.
105. *Id.*
106. *Range Resources*, 964 A.2d at 875.
107. For example, in 2010, the Pa. Dep’t of Envtl. Protection conducted a Short-Term Sampling Report of the air surrounding Marcellus sites. The Report concluded that, “the limited ambient air sampling initiative conducted in the southwest region did not identify concentrations of any compound that would likely trigger air-related health issues associated with Marcellus Shale drilling activities.” However, the Report also stated that, “[t]he Department has not yet determined if the potential cumulative emissions of these pollutants from many natural gas exploration activities will result in violations of the health and welfare based federal standards.” Furthermore, the Report “[d]id not represent a comprehensive study of emissions.” *Southwestern Pennsylvania Marcellus Shale Short-Term Ambient Air Sampling Report*, Pennsylvania Department of Environmental Protection,
harmful effects that can accompany drilling activities.\textsuperscript{108} This leaves some very real problems associated with Marcellus operations seemingly without oversight.

First, consider the issue of notice. Marcellus Shale operations are large, industrial operations. Despite this, the Act provides neither a requirement for an operator to notify the municipality that it is going to begin operations, nor the need to seek permission from a municipality.\textsuperscript{109} In addition to the disruption, this activity can cause increased traffic. The Act does not require local first-responders necessarily responsible in case of an emergency notice that such operations even exist, let alone specific information about what specific activities are underway. Furthermore, the Act prescribes distance requirements designed for small-scale vertical drilling, namely 100 feet for streams, 200 feet for structures, which would include homes and schools,\textsuperscript{110} and 330 feet from non-leased property.\textsuperscript{111} However, considering the scope of Marcellus operations, including the noise, dust, light, and physical impact to the land, these distances provide little solace to residents and businesses. Importantly, while a landowner could conceivably address some of these issues through the lease agreement itself, in the scenario where the surface owner does not own the gas, but the gas has been leased, the available objections are limited.\textsuperscript{112}

\textsuperscript{109} See 58 PA. STAT. ANN. § 601.212 (West 2010).
\textsuperscript{110} 58 PA. STAT. ANN. § 601.205.
\textsuperscript{111} 58 PA. STAT. ANN. § 406 (West 2010).
\textsuperscript{112} In applying for a drilling permit with the Pennsylvania Department of Environmental Protection, a driller must notify landowners within 1,000 feet of the location for that driller's proposed oil or gas well. However, that surface owner has merely four limited bases upon which he or she can object to the location of a well: "(a) the "information on the application is untrue in any material respect;" (b) the well location is within 200 feet measured horizontally from any existing building or existing water well and the owner thereof
Moreover, the Act attempts to address the potential for water contamination by creating a presumption that if water is polluted within 1000 feet of a well, the operator is responsible. In doing so, it would seem that the regulatory scheme adequately deals with the need to test and protect local water supplies of surface owners. Yet, the Act falls short because the presumption that drilling operations caused water pollution extends only six months after completion of drilling. In many cases, the presence of drilling chemicals in water sources may not emerge until well after the six-month presumption period has passed.

Air pollution from well sites, compressor stations, processing plants, condensate tanks, glycol dehydration units, dew-point control facilities and other appurtenances and facilities associated with Marcellus Shale development and production are yet another area of concern. In addition to smog and other fumes, these facilities generate emissions of volatile organic compounds, including benzene, toluene, ethylbenzene, and xylenes (BTEX) as well as n-hexane. Despite this, Pennsylvania has made it very clear that on the state level, air monitoring of these operations will be minimal. In particular, as recently as February 26, 2011 the Pennsylvania Department of Environmental Protection has rescinded a directive of the United States Environmental Protection Agency that required Pennsylvania to consider and regulate the cumulative emissions of Marcellus operations, as opposed to the standard of determining emissions on a site-by-site basis without reference to emissions as a whole for a region or area. Fortunately, however, this may not leave municipalities without recourse. As discussed infra, the Pennsylvania Air Pollution Control Act, 35 P.S. § 4012(a) authorizes municipalities to enact air pollution restrictions so long as they are at least as protective as the Clean Air Act and Pennsylvania's Air Pollution Control Act.

Additional concerns that become readily apparent when Marcellus operations begin are fencing, safety, and security of the drill...
site; location and safety of impoundments and frac ponds; on-site living quarters for workers; education of local emergency responders, emergency procedures, and traffic control, to name a few.116 From a general safety standpoint, there are no licensing requirements for drillers in Pennsylvania, nor are there any required safety programs for operators. In terms of risk and responsibility, the Act places no requirement for insurance. Instead, the Pennsylvania Department of Environmental Protection requires a $2,500.00 bond to be in place prior to approval and issuance of a drilling permit.117 However, considering the size, scale, cost and potential gravity of harm that could occur in the event of a catastrophe at one of these sites, this bond is a formality, providing little incentive to ensure operations are done safely.

One of the most salient features of Marcellus Shale operations is the drastic increase in truck traffic related to almost every phase of the operation. Very recent studies have suggested that “one Marcellus well can generate up to 1,300 round-trips by truck[s] to and from the site.”118 Considering that a single well pad can have up to ten wells, and the fact that most local roads were never built to handle the size and weight of the trucks utilized in Marcellus Shale operations, the result is destroyed roads. Compounding this problem is the fact that while municipalities are entrusted to maintain their roads,119 Pennsylvania permits the use of vehicles that exceed posted weight restrictions if a bond in the amount of $12,500.00 per linear mile is posted.120 However, municipalities can realistically expect to incur costs well above this amount to repair or replace a damaged road.121 Additionally, and perhaps more troubling, is the frequency of safety violations exhibited by the trucks used. In 2010, more than 40% of roadside inspections conducted on trucks connected to Marcellus operations were found to have safety violations ranging from unsecured equipment to overweight vehicles and leaks from tankers.122

The foregoing concerns have addressed the immediate impact of Marcellus Shale operations, but it is the long-term effects of these

116. See Huntley, 964 A.2d 856; see also Penneco Oil, 4 A.3d 722.
119. 75 PA. CONS. STAT. § 4902 (2006).
120. 67 PA. CODE § 189.4.
122. Fontaine, supra note 118.
activities that are of greatest concern and about which the least is known. Unfortunately, the Act does nothing to change this. In particular, the Act does not require any environmental assessment of property used for drilling once operations are completed, other than the need for visual reclamation within nine months of finishing drilling operations. Accordingly, Pennsylvania and federal law permits leachate to contain concentrations of contaminants that greatly exceed levels approved for safe drinking water to remain at the site long after drilling activity has ended.

The list of possible chemicals used in the fracking process contain some known hazardous materials, and current regulations appear to allow this leachate to be buried on site. Despite all of this, there is no legal mechanism by which operators must determine whether their operations will cause long-term environmental damage. This leaves local officials with little recourse other than to potentially commission the assessments themselves—something very few municipalities can afford. Conveniently, in order to encourage development, the oil and gas industry is exempt from hazardous waste regulations, for example, “[d]rilling fluids, produced waters, and other wastes associated with exploration, development, or production of crude oil or natural gas or geothermal energy,” which in most other scenarios would be classified as hazardous waste, but, by law, for drilling purposes are not considered hazardous wastes.

Despite the first well being drilled in 2004, and despite 1,500 violations handed out by the Pennsylvania Department of Environmental Protection to gas drillers between January 2008 and June 2010, the silence and paralysis from the state legislature provides little comfort, but emphasizes the need for local regulation. As it currently stands, there is no significant pending legislation.
garnering support to amend the Oil & Gas Act. In light of the recent 2010 mid-term elections which resulted in a change of the controlling political party, it is unlikely that any meaningful bill will be presented that could potentially change the regulatory landscape, or that the Oil and Gas Act will be updated at any point in the near future.\(^{130}\) The new Pennsylvania Governor-elect ran on a platform pledging that gas companies would not be assessed with any severance taxes or fees.\(^{131}\) The proposed severance tax, House Bill 2435, would have apportioned a percentage of the tax to local municipalities who play host to drilling operations.\(^{132}\) Because of this stance, local municipalities will be left without the budgetary resources to police drillers' operations appropriately. Additional funds are needed to pay for a growing need for local drilling inspectors as the industry expands.\(^{133}\) With an appreciation that a municipality has both the right to enact a regulation and a need to do so, the next logical question is \textit{how} should municipalities regulate?

\section*{VII. HOW TO REGULATE}

As discussed above, recent Pennsylvania decisions have demonstrated that municipalities retain their traditional zoning powers with regard to Marcellus Shale operations.\(^{134}\) This means that, quite simply, zoning is the best available method by which a mu-

\begin{itemize}
\item \bibitem{132} “Proposed Severance Tax,” Pennsylvania House Bill 2435 available at http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=PDF&sessYr=2009&sessInd=0&billBody=H&billTyp=B&billNbr=2435&pn=3573
\item \bibitem{133} Pennsylvania State Rep. Jesse White has proposed the introduction of a Marcellus Municipal Co-op program that would allow municipalities to more effectively enforce local drilling regulations. Municipalities within the co-op would be able to pool their resources to hire a natural gas enforcement officer who would visit drilling sites to ensure regulatory compliance. New Release available at http://www.pahouse.com/PR/046020211.asp?utm_source=Listrak&utm_medium=Email&utm_term=http%3a%2f%2fwww.pahouse.com%2fPR%2f046020211.asp&utm_campaign=A+co-op+to+enforce+local+drilling+regulations; see also Conte, supra note 130.
\item \bibitem{134} See supra Part V.
\end{itemize}
municipality can regulate oil and gas drilling within its borders.\textsuperscript{135} While a comprehensive explanation of zoning is beyond the scope of this article, a general overview of the relevant terms is necessary. As a general matter, zoning revolves around “uses.” When a municipality enacts its comprehensive plan, it divides its land geographically based upon zones, and assigns to each zone the activities, or uses, that can take place within these defined borders.\textsuperscript{136} Because the fundamental goal with zoning is to ensure orderly development, the extent to which a particular activity is allowed depends upon the nature of the zone.\textsuperscript{137} For any given zone there are three levels of allowance that can be given to a proposed use: (1) permitted use, (2) conditional use, and (3) special exception.\textsuperscript{138} A permitted use is precisely that; it is an activity or use that is permitted by right within the zone.\textsuperscript{139} A conditional use, on the other hand, is granted less acceptance than a permitted use within a zone.\textsuperscript{140} Therefore, it requires advertising and public hearings before the municipal planning commission and elected officials, so that, if approved, conditions or restrictions can be recommended and placed on the use for the protection of the health, safety, and welfare of the community.\textsuperscript{141} By definition, a special exception represents “an allowance in a zoning ordinance for special uses that are considered essential and are not fundamentally incompatible with the original zoning regulations.”\textsuperscript{142} A special exception will be authorized so long as the applicant satisfies the Zoning Hearing Board that it will meet the express standards and criteria of the zoning ordinance.\textsuperscript{143} In other words, it is a use that is “expressly permitted in a given zone as long as certain conditions detailed in the ordinance are found to exist.”\textsuperscript{144} Accordingly, the primary distinction between a conditional use and a special exception is the timing of the determination and whether conditions

\begin{itemize}
\item \textsuperscript{135} A municipality may be able to gain another form of control outside of its regulatory powers because of its power to lease its own gas. Those pieces of government owned property that contain gas rights where roads predominately cover the surface could create potential barriers from where oil and gas drilling might occur.
\item \textsuperscript{136} 53 PA. STAT. ANN. § 10301 (West 2010).
\item \textsuperscript{137} \textit{Id}.
\item \textsuperscript{138} Ordinance Provisions, 53 P.S. § 1063 (2008).
\item \textsuperscript{139} 53 PA. STAT. ANN. § 10603(f) (West 2010).
\item \textsuperscript{140} 53 PA. STAT. ANN. § 10603(c)(2) (West 2010).
\item \textsuperscript{141} 53 PA. STAT. ANN. § 10604 (West 2010).
\item \textsuperscript{142} BLACK'S LAW DICTIONARY (9th ed. 2009).
\item \textsuperscript{144} Broussard v. Zoning Bd. of Adjustment of City of Pittsburgh, 907 A.2d 494, 499 (Pa. 2006).
\end{itemize}
necessary for compliance have been met. Under a conditional use, these are not determined by the elected officials until after public hearing and a recommendation by the municipal planning code, whereas under a special exception, the Zoning Hearing Board determines whether the proposed use should be approved and whether conditions are warranted.

Depending on the demographics of the municipality, the first step municipal officials should undertake is to determine whether it should regulate drilling activity by zoning districts. Municipalities have the right to protect the health, safety, and welfare of their residents by authorizing drilling activities in specific zones only. 145 This method of zoning follows traditional zoning methods in that not all uses are compatible to each district. 146 Accordingly, a municipality has the ability to limit the zones in which drilling operations may take place. However, as discussed infra in Part VIII, this may come at the price of constituting a “taking” by the municipality. 147

The second mechanism is to allow oil and gas drilling as a permitted use with conditions in all zoning districts. As the name implies, this mechanism allows gas drilling to take place anywhere in the municipality so long as the set conditions are complied with. In terms of advantages of this mechanism, this method benefits those citizens that have gas rights because they maintain the ability to profit from their ownership by way of bonus payment and royalties. 148 Because no additional approval is necessary and the rules with which they must comply are set and known, this mechanism is also advantageous to operators as they can plan and schedule drilling operations with greater certainty. For municipalities, this mechanism may be useful because it allows municipal officials to set conditions in place in advance of drilling that serve to protect local inhabitants and provides guidance to future elected officials who may not have familiarity with oil and gas drilling operations.

On the downside, designating gas drilling as a permitted use with conditions allows gas companies to essentially operate any-

146. See Penneco Oil, 4 A.3d at 726. See also 53 PA. STAT. ANN. § 10605 (West 2010).
148. See Kargbo, supra note 19, at 5690.
This means that the minimum setbacks set forth in the Act are operative, and despite notice, conditions and safeguards, the possibility that drilling can happen as close as 200 feet from a residence or school does not go away. Furthermore, with conditions set in an ordinance, changing and adding requirements to account for changes in Marcellus operations and procedures becomes difficult. Thus far, Marcellus operations have been characterized by constant change in techniques and procedures, making flexibility important to keep conditions up with those changes. Depending on the timing of an application to drill, the new rules or conditions may not be enacted at the time the driller seeks to begin operations, and they would therefore lack enforceability on the site.

The two other viable methods for approval are the conditional use and the special exception. Because the approval of a special exception is within the province of a municipality's Zoning Hearing Board, as opposed to being a determination of the elected Board, the special exception is a less a viable option. As a general matter, potentially community-changing decisions that can and will have repercussions for generations, should be made by those elected by their peers consistent with the health, safety and welfare of the community. Zoning Hearing Boards are not com-

149. Allowing drilling to occur anywhere could affect people's property values, and by extension, the municipality's tax base. Linda Fields, Houses for Shale, THE PIKE COUNTY COURIER, June 3, 2010.
150. Huntley, 964 A.2d at 864 n.10 ("This is not to say that an ordinance would be enforceable to the extent it sought to increase specific setback requirements contained in the Act."). See, e.g., St. Croix, Ltd. v. Bath Township, 693 N.E.2d 297 (Ohio Ct. App. 1997) (holding that, where the state oil and gas statute prescribed a specific setback distance for oil wells relative to habitable structures, localities were precluded from increasing those distances through zoning). But cf. Hoffman Mining Co., Inc. v. Zoning Hearing Bd. of Adams Twp., 958 A.2d 602, 610 (Pa. Commw. Ct. 2008) (quoting Miller & Son Paving, Inc. v. Wrightstown Twp., 451 A.2d 1002, 1006 (Pa. 1982) ("If a municipality can create a use zone excluding surface mining altogether, then it must surely be able to impose the lesser burden of requiring setbacks for such use in zones in which it is permitted.").
151. Also note that a "permitted use" drilling ordinance could create a problem with the zoning of processing plants and compressor stations. If a municipality allows a driller to drill wherever it deems beneficial, can it later deny the driller the means to get the gas to market by zoning these midstream/production facilities to specific zoning districts that cannot service the well location chosen by the driller?
153. However, when making this evaluation it is important to consider the make-up of the Zoning Hearing Board. More expertise may be appointed to a Zoning Hearing Board, which may be advantageous as compared to the backgrounds of those who sit on an elected Board.
posed of elected officials, but rather appointed officials, and as such, they are not as politically accountable as the elected Board.

In order to retain oversight and to apply appropriate conditions in a given zoning district short of disallowing the use in the district, the conditional use process is the preferable procedural means. A conditional use proceeding requires submission to the municipal planning commission for review and recommendation, and then a public hearing before the elected officials. Through these hearings, the respective Boards can ask questions and receive and introduce evidence regarding a number of issues. Perhaps the most important finding a Board will make is whether the proposed use will be designed, constructed, operated and maintained so as to be harmonious in appearance with the existing or intended character of the general vicinity and will not change the essential character of the same area. Moreover, although a conditional use ordinance can have in place specific criteria for the proposed use, it also allows for the ability to impose additional conditions or safeguards that may be necessary on a site-by-site basis. The flexibility to include conditions based upon the circumstances of current technology, procedures, and the specific needs of the proposed site in addition to the defined conditions is extremely important. Should a Board find that there are no adequate conditions that can be imposed to instill confidence that the community in question would not be adversely affected, the Board has the ability to deny the conditional use request. Furthermore, an aggrieved landowner who disagrees with municipal approval of a drill site or its accompanying features, if identified as a party opponent during the public hearing, retains the ability to appeal the Board’s actions and the conditions imposed.

Presuming that the local legislative body has chosen to enact an ordinance designating oil and gas operations as a conditional use, the inevitable question is: what conditions local should of-

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154. 53 PA. STAT. ANN. § 10903(a) (West 2010).
155. 53 PA. STAT. ANN. § 10603(c)(2) (West 2010).
157. 53 PA. STAT. ANN. § 10603(c)(2) (West 2010).
158. 53 PA. STAT. ANN. §10913.2(b)(3) (West 2010).
159. 53 PA. STAT. ANN. §11003-A (West 2010).
160. The conditions set forth herein apply regardless of the specific zoning mechanism chosen by the municipality (permitted use with conditions, special exception, or conditional use). However, the reader is cautioned that the conditions set forth herein do not address every situation and every nuance that may arise with oil and gas drilling operations in a municipality. This, of course, is the reason the conditional use mechanism is preferred.
ficials place on the activity? While this necessarily varies depending on the circumstances—which is precisely why a conditional use is ideal—there are some conditions that will almost always be of concern. The following list is not meant to be exhaustive, but it provides a basic framework for conditions that are warranted and necessary to address the “where” question.\textsuperscript{161}

It goes without saying that an operator should comply with all state and federal laws, and local oversight in that regard should be limited to requesting permits and other proof of compliance.\textsuperscript{162} To the extent road bonding is in effect, approval should also be premised upon compliance with the local ordinances.\textsuperscript{163} To ensure the safety of its roadways and pedestrians, conditions can be employed requiring that municipal roads remain free of mud, dirt and debris and where necessary, during periods of anticipated heavy or frequent truck traffic, flagmen, signals and other warning measures should be required to ensure the safety of children at bus stops and general pedestrian use of the roadways.\textsuperscript{164}

Most first responders are not familiar with Marcellus drilling operations, the layout of the well pads and other facilities, and the associated risks. Since dealing with spills, fires, and emergencies will be different at each site, a condition should be added that requires site orientation and training of first responders to acquaint themselves with the hazards that may be encountered on site, and for the procedure they will need to utilize if and when an emergency situation arises.\textsuperscript{165} While operators must file a Preparedness, Prevention and Contingency (“PPC”) plan with the Pennsylvania Department of Environmental Protection,\textsuperscript{166} absent a condition, an operator does not have to share the plan with local first responders. Further, in light of the ongoing activity and potential

\begin{itemize}
  \item \textsuperscript{161} When regulating, the location of frac ponds presents a further issue that municipal officials should be aware of. Recently, drillers have begun placing frac ponds in a centralized location to serve multiple wells. Because these ponds stand entirely separate of any single drill site, there may be a need to zone frac ponds independently. The question remains, however, whether a frac pond would be considered an “accessory use”? In that case, it may not stand unconnected to a primary use. For explanation of accessory use, see \textit{AWACS, Inc. v. Zoning Hearing Bd. of Newton Twp.}, 702 A.2d 604, 607 (Pa. Cmwlth. Ct. 1997) (“An accessory use is a use subordinate to and customarily incidental to the principal use.”).
  \item \textsuperscript{162} \textit{See Cecil Twp., Pa., Ordinance No. 2-2010} \textsuperscript{3} § 3 (Mar. 22, 2010).
  \item \textsuperscript{163} \textit{Id.} at § 3(2).
  \item \textsuperscript{164} \textit{Id.} at § 3(3)-(4).
  \item \textsuperscript{165} \textit{Id.} at § 3(6)-(7).
\end{itemize}
hazards at the site, municipalities should require twenty-four hour security to be implemented.\textsuperscript{167}

Once the site is located and operations are underway, municipalities typically should retain the right to approve grading permits for the site and can condition the hours of operation at the site. Marcellus drilling operations typically run twenty-four hours a day, so time restrictions must then give way to additional conditions that seek to minimize impact to residents who live or work near the site.\textsuperscript{168} These conditions should take the form of requiring a plan to use direct-site lighting so as to eliminate glare, dust control features, and fencing of the site.\textsuperscript{169} Moreover, as noise is inherent with Marcellus operations, a condition should be implemented to ensure that adequate measures are in place to minimize noise. These conditions can include sound walls surrounding the site and other features that serve to muffle the sound.\textsuperscript{170}

All municipalities have fencing requirements for swimming pools, but the same is not true for frac ponds.\textsuperscript{171} There is no requirement in the Act that a frac pond, which will hold chemicals and be several acres in size, should be fenced. Accordingly, conditions should be implemented requiring fencing and bird netting to keep people, birds and animals out and away from the potentially harmful frac fluids.\textsuperscript{172}

While the United States Environmental Protection Agency and the Pennsylvania Department of Environmental Protection have provisions in place regulating permissible exposure limits, recent events make it unlikely that either of these agencies will use all available technology and knowledge at their disposal relative to monitoring and controlling emissions from Marcellus Shale operations. Municipalities, however, may not be without recourse. 35 P.S. § 4012(a) and municipalities’ general powers permit them to enact ordinances regulating air quality so long as those ordinances are at least as stringent as the Clean Air Act and the Pennsylvania Air Pollution Control Act.\textsuperscript{173} Accordingly, a municipality may

\textsuperscript{167} CECIL TWP., PA., ORDINANCE NO. 2-2010 § 3(6)-(7).
\textsuperscript{168} Id. at § 3(8)-(11).
\textsuperscript{169} Id. at § 3(10).
\textsuperscript{170} Id. at § 3(16).
\textsuperscript{171} 34 PA. CODE § 403.26 (2009).
\textsuperscript{172} CECIL TWP., PA., ORDINANCE, NO. 2-2010 § 3(14).
\textsuperscript{173} See 35 PA. STAT. ANN. § 4012 (West 2010); see also C.J. Lucas Funeral Home, Inc., and Oak Lane Crematory, Inc. v. Borough of Kulpmont, et al., 4:CV-07-0285, U.S.D.C. Middle District of Pennsylvania (Mar. 27, 2008) [unreported] (acknowledging the Borough’s ability to enact an air pollution control ordinance pursuant to Pennsylvania Borough Code and the Pennsylvania Air Pollution Control Act, 35 P.S. § 4012(a)).
seek to require vapor destruction units, vapor recovery units, updated condensation tanks, or the best technology available in order to capture or eliminate possible harmful emissions. Moreover, a municipality may elect to add conditions to minimize exhaust from internal combustion engines or compressors used in connection with the drilling of any well by requiring exhaust mufflers or an exhaust box to be utilized. Finally, in light of the recent decision by Pennsylvania to not monitor emissions from Marcellus Shale operations on the cumulative or aggregate level, a municipality may choose to enact a more comprehensive air pollution control ordinance that incorporates guidelines similar to those rescinded by the Pennsylvania Department of Environmental Protection, including cumulative emissions control for Marcellus operations in the municipality.

Lastly, the questions of whether on-site housing for workers (often called “bunk housing”) is authorized, or whether an environmental assessment should be completed following drilling, are currently being discussed at the municipal level and litigated. There are many other conditions that may be site-specific based upon the circumstances, but the above conditions should be standard conditions included in conditional use approvals. It is important to keep in mind, however, that whether a particular condition is deemed legal will depend largely upon how Pennsylvania courts continue to interpret the boundary between “where” versus “how.”

VIII. HOW FAR IS TOO FAR?—ZONING & REGULATORY TAKINGS

Restricting drilling activities by zoning districts seemingly employs a zoning method enjoyed by municipal officials for years.


175. See supra at note 174 (explaining the systems that produce exhaust and hazardous emissions).


177. Appeal of Range Resources—Appalachia, LLC from the decision of the Robinson Township Board of Supervisors, Docket No. 2010-8710, Court of Common Pleas, Washington County, Pennsylvania.

The orderly development and protection of citizens and neighborhoods are all laudable goals. However, enacting legislation that restrains oil and gas operations to less than all zoning districts can, and will, certainly place landowners and gas owners at odds. A surface owner who is denied the right to construct a structure or implement a use in a certain district conceivably has the ability to purchase or lease land in a different zoning district within a municipality where the use is authorized. Unlike the surface owner who can simply choose another site for his or her operations, the sub-surface gas owner is geographically and geologically circumscribed. Legislation that prohibits drilling in certain zoning districts may, therefore, result in individuals being denied the ability to exploit their gas rights and profit from the Marcellus boom. Furthermore, when this gas owner is a farmer or family that has barely made a living on 200 acres, who is provided with an opportunity to drastically change their financial situation, the potential dispute on this issue becomes very real. With bonus payments as much as $5000.00 per acre and royalties of 18%, a zoning ordinance eliminating oil and gas drilling from that zoning district means millions of dollars of revenue could go unrealized.

Where individuals and corporations have paid handsome sums for gas rights, but lack any surface ownership, the question of reliance on the absence of local zoning regulations or whether notice of pending or existing zoning ordinance(s) may be critical on this issue. In light of the ruling in Huntley, the timing of the oil and gas lease purchase or lease relative to the existence of a zoning ordinance, whether enacted or pending, may be significant. That


180. See Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1016 n.6 (1992) (holding that "a statute regulating the uses that can be made of property effects a taking if it 'denies an owner economically viable use of his land.'") (emphasis omitted) (quoting Debenedictis, 480 U.S. at 485).

181. Kargbo, supra note 19, at 5680. Horizontal drilling techniques may serve to avoid this conflict as up to 1,600 acres of gas could be accessed from other locations in the municipality where drilling has been permitted. This assumes a restricted district could be reached by a permitted district, that the operator has sufficient contiguous acreage under lease and the operator or owner desires horizontal drilling instead of vertical wells. See also NATURAL GAS LEASE OFFERS TRACKER, http://www.pagaslease.com/natural_gas_lease_offer_tracker_view.php (last visited Feb. 4, 2011).

is, for purposes of a takings challenge, a purchaser or lessee of oil and gas who has notice of a pending or existing zoning ordinance could be afforded less protection than a gas owner who has held gas or even produced shallow gas years prior to the zoning enactment.\textsuperscript{183} Local legislators will implement policies to protect the health, safety and welfare of its citizens that may result in a gas owner being denied the full enjoyment of his or her rights. Although local officials have always made these types of decisions, the considerable influx of revenue from oil and gas operations magnifies the consequences. However, without intercession from the state, this balancing act will continue to be the province of municipalities.\textsuperscript{184}

Allegations of regulatory takings in this context are nothing new, but thus far courts have managed to dispose of these cases on grounds other than the issue of whether zoning oil and gas drilling out of a district is considered a regulatory taking.\textsuperscript{185} As established by the United States Supreme Court, the general rule is that “while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.”\textsuperscript{186} A zoning ordinance goes “too far” when an owner is denied all economically viable use of his land.\textsuperscript{187} In Pennsylvania, oil, gas, and mineral rights represent an entirely separate estate from the surface estate.\textsuperscript{188} Therefore, the argument exists that zoning gas drilling operators out of a certain district would completely prohibit the oil and gas owner from realizing the economic value of that estate.\textsuperscript{189} However, the United States Supreme Court has made clear that there is an “implied limitation” on the use of one’s property subject to governmental regulations.\textsuperscript{190}

\textsuperscript{183} See Palazzolo v. Rhode Island, 533 U.S. 606, 628 (2001) (holding that a municipality’s enactment of a land use regulation prior to a purchase will not be an absolute prohibition to a takings suit).
\textsuperscript{184} 53 PA. STAT. ANN. § 10604.
\textsuperscript{190} Mahon, 260 U.S. at 413.
Perhaps of some comfort to municipalities dealing with this prospect is the United States Supreme Court’s decision in *Keystone Bituminous Coal Ass’n v. DeBenedictis*.\textsuperscript{191} There, the Supreme Court held that a governmental body should not be compelled to provide compensation to a landowner under the guise of a taking if it is enforcing laws that prevent “noxious” use of the surface estate that may be harmful to the public at large.\textsuperscript{192} The Court found that Pennsylvania’s enactment at issue in that case was an attempt “to protect the public interest in health, the environment, and the fiscal integrity of the area” and that Pennsylvania had the ability and right to “abate activity akin to a public nuisance.”\textsuperscript{193}

In Pennsylvania, courts have yet to determine the specific issue of whether local municipalities can zone oil and gas drilling operations entirely out of certain zoning districts, and consequently deprive gas owners within that district from developing his or her gas rights. In light of *Huntley*, a municipality can make a compelling case that all zoning tools at the disposal of local legislatures remain fair game, even when it serves to limit or eliminate a gas owner’s property interest. However, so long as Pennsylvania state law continues to underserve its citizens by employing inadequate setbacks and oversight,\textsuperscript{194} municipalities may have little choice but to restrict zoning districts in order to protect schools, residential areas or other districts essential to public health and safety. Accordingly, the courts should find that this effort is a valid exercise of the police powers conferred to local municipalities.\textsuperscript{195}

**IX. CONCLUSION**

Pennsylvania is regaining its status of the “Energy King” of the United States. There is no doubt that the oil and gas industry is bringing business, jobs and economic growth to the region. As more and more leases are entered into and more drills plunge into the earth seeking the riches offered by Marcellus Shale, inevitably conflicts will arise between competing interests. However, until the Pennsylvania legislature enacts meaningful regulations to help curtail or eliminate conflicts between the right to extract gas and public safety, local municipalities will be forced to perform the balancing act between the competing interests of gas owners and

\textsuperscript{191} 480 U.S. 470 (1987).
\textsuperscript{192} Id. at 491.
\textsuperscript{193} Id. at 488.
\textsuperscript{194} See 58 PA. STAT. ANN. § 601.101 (West 2010).
\textsuperscript{195} 53 PA. STAT. ANN. § 10105 (West 2010).
impact to the community and its residents. Because the municipality's role in this nature will inevitably impact neighborhoods, schools, local businesses and development opportunities, these decisions should not be made in haste. On the other hand, not being prepared for Marcellus operations through local regulation is simply not an option.

The Pennsylvania Supreme Court has opened the door to local oversight of "where" these drilling activities should be undertaken. Using the zoning mechanisms already at their disposal, municipalities can attempt to balance competing interests. Done thoughtfully and carefully, municipalities can balance safety and environmental concern with development of the vast natural resource beneath it and the economic benefits that flow with it.