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Marcellus Shale and the Ultrahazardous Activity Analysis

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Special to the Legal

Pennsylvania lies over the heart of the Marcellus Shale formation, a rock unit underlying approximately 65-million acres of land from West Virginia to New York. This formation has been estimated to have a resource value of up to 500-trillion cubic-feet equivalents of natural gas, and has spawned a boom of gas-well drilling in the southwest, northcentral and northeastern portions of the commonwealth. Between January and September, the Pennsylvania Department of Environmental Protection issued 2,514 Marcellus Shale drilling permits, and 1,388 wells were reported as having been drilled.

Litigation related to Marcellus Shale development is similarly on the rise. Claims brought by private litigants focus on claimed impacts from well drilling and related activities, including hydraulic fracturing, referred to colloquially as “fracing” or “fracking.” Hydraulic fracturing, in combination with horizontal drilling techniques, enables the extraction of natural gas trapped in shale rock through the use of large amounts of pressurized fluids, consisting primarily of water and sand with limited amounts of chemical additives, to induce small fractures to form in the rock surrounding the well casing within the Marcellus Shale formation. Those fractures, in turn, allow the natural gas in the shale to pass into the well casing and be captured. For wells tapping the Marcellus Shale formation in Pennsylvania, the hydraulic fracturing process is focused on shale that is typically at a depth of between 5,000 and 8,000 feet below the ground surface.

In July, the Governor’s Marcellus Shale Advisory Commission issued a report evaluating the development of Marcellus Shale gas reserves in Pennsylvania. The report assessed many facets of the surge in natural gas development, including well drilling and the use of hydraulic fracturing. With respect to drilling, the Advisory



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Commission noted the potential for poorly constructed gas wells to allow methane to migrate along the outside of the well and impact water supplies. Regarding hydraulic fracturing, the Advisory Commission identified related concerns as surface spills of hydraulic fracturing fluids, well control and lost containment of flowback or produced water on the surface.

The concerns of the Advisory Commission have been reflected in Marcellus Shale-related litigation, where litigants’ claims have raised allegations that their drinking water supplies were contaminated by chemicals in the hydraulic fracturing fluids or by methane gas released by drilling. These lawsuits have asserted numerous causes of action, including for claimed violations of Pennsylvania’s environmental laws such as the Clean Streams Law and the Hazardous Sites Cleanup Act, as well as the typical common law claims for negligence, trespass, nuisance and for claims based in strict liability.

To be successful, a claim based on a common law theory of strict liability must demonstrate that an activity is so abnormally dangerous, or “ultrahazardous,” that liability should be imposed on the person engaged in the activity for any damages caused by their operations whether or not they exercised the utmost care to prevent the harm. Pennsylvania plaintiffs have alleged that Marcellus Shale well drilling and development qualifies as a form of ultrahazardous activity, but no

Pennsylvania court has ruled on the issue to date.

If the drilling and stimulation of shale-gas wells is determined by the courts to be ultrahazardous, liability may be assessed irrespective of fault and the potential liability and associated costs facing the burgeoning Marcellus Shale industry could be significantly increased. A review of the factors typically employed by courts in determining whether to impose strict liability, as well as recent case law touching specifically on the issue of shale drilling, indicates that it is unlikely that the development of natural gas from the Marcellus Shale will be considered an ultrahazardous activity in Pennsylvania.

In determining whether an activity is ultrahazardous, Pennsylvania courts have adopted the *Restatement (Second) of Torts*, which requires the following factors to be considered:

- Existence of a high degree of risk of some harm to the person, land or chattels of others.
- Likelihood that the harm that results from it will be great.
- Inability to eliminate the risk by the exercise of reasonable care.
- Extent to which the activity is not a matter of common usage.
- Inappropriateness of the activity to the place where it is carried on.
- Extent to which its value to the community is outweighed by its dangerous attributes.

Activities that have been found to be ultrahazardous in the past include the collection of large amounts of water in unsuitable or dangerous places, the use of explosives in the midst of a city, pile driving near surrounding buildings and activities such as crop dusting that involve the release of poisonous gas into the air. People engaged in these activities, or any other deemed to be ultrahazardous, are held to be strictly liable for the damages resulting from the activities.

Litigants have attempted to analogize

the alleged risks associated with shale-gas development with those of the activities such as blasting that courts have found to qualify as ultrahazardous. In this regard, litigants have pointed to the fact that a single shale well site can use several million gallons of water mixed with sand and chemical additives, the management of which has prompted a high level of public concern. Also, while the surface land above the Marcellus Shale formation is largely rural, communities and individual residences can be located near shale drilling operations — operations that involve the use of explosive charges deep underground to initially perforate the well casing within the shale before initiating the hydraulic fracturing process.

Risks alleged by litigants are, however, insufficient to characterize an activity as ultrahazardous where the *Restatement* factors on balance do not support that conclusion. For instance, despite the acknowledged risks of operating a petroleum pipeline next to a Bucks County housing development, the Pennsylvania Superior Court in *Melso v. Sun Pipe Line Co.* determined that such an activity did not warrant the imposition of strict liability because it was a common activity required in our highly industrialized society. Other Pennsylvania cases where activities with inherent risks have been found not to be ultrahazardous include the storage of a toxic insecticide in a barn in *Diffenderfer v. Staner* and the storage of gasoline in underground storage tanks in *Smith v. Weaver*.

Consideration of the *Restatement* factors suggests that the activities involved in the development of gas from Marcellus Shale will similarly be found not to be ultrahazardous. First, despite the large number of wells developed and the heightened public attention paid to the issue in Pennsylvania, the Governor's Shale Advisory Commission recently acknowledged that the DEP's experience to date indicates no instances where the hydraulic fracturing process itself has negatively impacted a water supply, and similar experience has been reflected in other natural gas producing states. As noted above, the Commission did raise concerns regarding the potential for methane to migrate along the outside of the well, but this concern was only identified with respect to poorly constructed gas wells. Accordingly, the first three, risk-based prongs of the *Restatement* analysis weigh against any plaintiff asserting strict liability because the risk of water contamination and health impacts from hydraulic fracturing appears to be very limited at this point, and industry has demonstrated an ability to greatly reduce any risk involved in the

drilling of wells through the exercise of reasonable care.

Second, with almost 4,000 Marcellus Shale wells developed in Pennsylvania since 2005 — and more anticipated in the future — plaintiffs bringing strict liability claims will be increasingly hard-pressed

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to argue that shale gas development has not become a matter of common usage, particularly because the common usage prong of the analytical framework under the *Restatement* can take into account usage within a given community and shale gas development is widespread within certain communities in Pennsylvania.

Third, to access natural gas in the Marcellus Shale formation, well operators first must obtain the rights to the natural gas reserves, typically through leases with the owners of the drill site and the owners of those gas reserves (who may also own the surface rights of the land on which the well is located). This contractual agreement may preclude the site owner and the owners of the gas reserves from claiming in any subsequent action that the well development was inappropriate to the place where it was conducted. Even nonparties to gas leases will likely find it much more difficult to argue that drilling to reach the Marcellus Shale formation is analogous to an activity such as using explosives in the middle of a city in terms of its geographic appropriateness.

Finally, estimates of the potential economic benefits anticipated to result from development of the Marcellus Shale gas reserves are varied, but there is clear consensus that such development will produce jobs, tax revenues, secondary

economic activity and significant amounts of natural gas. Moreover, such natural gas represents a domestic energy supply that lessens reliance on foreign sources of energy. In light of the nation's persistent energy demands and high unemployment rates, it will be difficult for plaintiffs to argue that the value to Pennsylvania from shale-gas development is outweighed by any dangerous attributes of the practice.

While no Pennsylvania court has applied the above-factors to date, over the last year two orders issued by the U.S. District Court for the Middle District of Pennsylvania on motions to dismiss in shale-related litigation highlight the challenges facing claims that drilling and stimulating natural gas wells is ultrahazardous. In both *Fiorentino v. Cabot Oil & Gas Corp.* and *Berish v. Southwestern Energy Production Co.*, the court allowed the plaintiffs' strict liability claims to proceed past the pleadings stage, but stressed that the likelihood of success for those claims as the cases proceeded was limited. In *Fiorentino*, the court pointed to precedent rejecting ultrahazardous allegations against activities such as pipeline operation, and in *Berish*, the court noted that "meeting the 'common usage,' 'inappropriateness of the activity,' and 'value to the community' prongs of [the *Restatement* factors] will likely create difficulty for plaintiffs at the Summary Judgment Stage."

The recent orders issued by the Middle District, the high threshold imposed by the *Restatement* factors and the Marcellus Shale industry's safety record to date suggest that those seeking to assert strict liability claims against shale gas development face significant challenges. Such claims will, however, likely continue to be brought until the courts bring clarity to the issue after considering the facts on a complete record. In the meantime, while it is unlikely that these claims will survive summary judgment, companies involved in Marcellus Shale development and the attorneys who counsel them should be aware of the potential for strict liability claims to result from drilling for gas in Pennsylvania. •

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