



Marcellus Shale Groundwater Contamination Claims: A Case Against Class Action Treatment and Assorted Theories of Liability

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I

INTRODUCTION

Recent advances in drilling and hydraulic fracturing techniques have led to dramatic increases in the accessibility of the Marcellus Shale natural gas reserve. Although the benefits of Marcellus Shale production are numerous, increased drilling activity has elevated concerns of potential harm to both public health and the environment. Lawsuits have been filed in Pennsylvania, New York and West Virginia claiming the drilling, storage, and containment process and procedure in the Marcellus Shale have caused contamination of groundwater and/or the water supply. Raising the stakes even higher, plaintiffs in other parts of the country are attempting to aggregate groundwater contamination claims from natural gas drilling activity into class action lawsuits. These cases—which may be a model for class litigation in the Marcellus Shale—propose to certify a putative class of landowners and residents in proximity to natural gas operations. The class plaintiffs seek injunctive relief in the form of “air, soil, groundwater and atmosphere” monitoring for the presence of hazardous chemicals and compounds, as well as medical monitoring “to determine the extent to which Defendants’ operations pose a health risk to persons exposed thereto.”¹

Federal Rule of Civil Procedure 23 authorizes certifications of class actions. Rule 23(a) provides four threshold requirements: (1) that the class be so numerous that joinder of all

members is impracticable; (2) that there are questions of law or fact common to the class; (3) that the claims or defenses of the representative parties are typical of the claims or defenses of the class; and (4) that the representative parties will fairly and adequately protect the interests of the class. As this article explains, it is highly unlikely that Marcellus groundwater contamination plaintiffs can meet these threshold requirements. Even if plaintiffs are able to clear these preliminary hurdles to class certification, they are likely to fail to meet the two conditions for certification under Rule 23(b)(3): (1) that class-wide common issues of fact and law predominate over issues affecting only individual class members; and (2) that the class action is superior to other methods for adjudication.

In the individual actions filed to date, Marcellus Shale groundwater plaintiffs have asserted a number of causes of action typically seen in environmental and toxic tort litigation: trespass, private nuisance, violation of state statutes, negligence, strict liability for abnormally dangerous activity, and diminution of property value. In this article, we examine several claims that we believe plaintiffs will have great difficulty proving under Pennsylvania, West Virginia, and New York law (the most likely jurisdictions for these claims): public nuisance; strict liability for abnormally dangerous activity; medical monitoring; gross negligence; and diminution of property value.

II

THE MARCELLUS SHALE FORMATION AND HYDRAULIC FRACTURING

Pennsylvania—sitting on top of an enormous natural gas reserve called the Marcellus Shale—has been called the “Saudi Arabia of natural gas.”² The formation, which is about the size of Greece, extends from Virginia through the southern half of New York beneath the Appalachian landscape, and contains a significant quantity of natural gas.³ The reserve is so large, in fact, that some experts believe it holds enough gas to supply the heating and electricity needs of the United States (at current consumption rates) for at least the next 15 years.⁴

Advances in hydraulic fracturing—the practice of injecting water, mixed with chemicals and propping agents like sand, under high pressure, into wells to release oil and natural gas trapped in underground rock formations—have led to dramatic increases in the accessibility of this natural gas reserve in recent years.⁵ Drilling production in Pennsylvania’s Marcellus Shale formation during the last half of 2010 exceeded the amount of drilling production for the entire preceding year.⁶ These statistics lead some in the general public and the media to incorrectly conclude that hydraulic fracturing is a “new” and “unsafe” process. It is neither. Hydraulic fracturing has been used safely in Pennsylvania since the 1950s.⁷ In fact, all Pennsylvania wells drilled since the 1980s have been fractured.⁸ In addition to being an established technology, hydraulic fracturing is generally regulated by the state oil and gas boards or state natural resource agencies.⁹ It is also subject to federal oversight, as the EPA regulates many issues relating to hydraulic fracturing under environmental statutes such as the Clean Water Act and the Safe Drinking Water Act.¹⁰

Current drilling practices for natural gas have advanced to the point where it is now not only feasible to drill deeper, but also to drill vertical, horizontal and directional (S-shaped) wells.¹¹ These recent advances in drilling techniques have also led to increases in the required water volumes, typically withdrawn from local surface and groundwater sources.¹² Hydraulic fracturing works as follows: following well construction, hydraulic fracturing fluid is injected into the well, causing the formation to crack and releasing the natural gas. Next the pressure is reduced and the direction of the fluid flow is reversed, allowing the natural gas to flow back to the surface.¹³ A portion of the injected fracturing fluid also returns to the surface.¹⁴ Carried in the returning fracture fluid are fracturing chemicals, salts and naturally occurring radioactive material brought back

from these deep wells.¹⁵ Radioactive levels in the used hydraulic fracturing fluids can and sometimes do exceed the maximum levels allowed by federal drinking water standards.¹⁶ Next, the fracturing liquid is reused or sent to a wastewater treatment unit or an underground injection well. If it is treated in a wastewater plant, the wastewater flow is discharged into surface water pursuant to federal Clean Water Act regulations.

The benefits of drilling in the Marcellus Shale formation are numerous: thousands of new jobs created in Pennsylvania alone, five-figure incomes to residents who lease their land to the drillers and substantial revenue increases for the Commonwealth of Pennsylvania.¹⁷ As is the case with any natural resource development, harnessing the reserves in the Marcellus Shale formation does have some drawbacks, as drilling derricks and waste pits have popped up around the rural landscape. Also, concerns—whether justified or not—regarding groundwater contamination from the fracturing fluid have accompanied the increased drilling. Media reports of landowner complaints alleging contamination of water wells from neighboring Marcellus Shale operations are plentiful.¹⁸ In some instances, these concerns have led to lawsuits claiming the drilling, storage, and containment processes and procedures have caused contamination of groundwater and/or the water supply.

Inevitably, drilling in the Marcellus Shale formation likely will lead to more litigation. In Pennsylvania, for example, 13 Lenox Township families filed a lawsuit in Susquehanna County Court alleging that hydraulic fracturing fluids contaminated their water supply and made them sick.¹⁹ In Dimock, Pennsylvania, 17 families similarly filed suit claiming that drilling and gas well operations near their homes contaminated their drinking water wells with methane and other chemicals.²⁰ In Washington Township, a resident claims that the hydraulic fracturing of gas wells on his property caused elevated levels of arsenic, benzene and naphthalene in groundwater.²¹ Although plaintiffs’ counsel have yet to attempt to aggregate groundwater contamination claims within the Marcellus Shale into a class action lawsuit, such cases have been filed elsewhere in the country. It thus can be reasonably anticipated that class litigation arising out of hydraulic fracturing activity in the Marcellus Shale will be visited upon courts in New York, Pennsylvania and West Virginia.

III

MARCELLUS SHALE GROUNDWATER CONTAMINATION CLAIMS ARE INAPPROPRIATE FOR CLASS ACTION TREATMENT

Class action practice developed to address situations where it was not practical or feasible for a single plaintiff to bring his suit individually, or where it was not feasible for all relevant plaintiffs to be joined in a single action. Class action practice benefits the judiciary by preserving court resources, such as judicial time and preventing piecemeal litigation.²² In light of these concerns and benefits, the 1966 Amendments to the Federal Rules of Civil Procedure established the basis for Federal Rule of Civil Procedure 23, which authorizes certifications of class actions.

Rule 23 provides that one or more members of a class may sue or be sued as representative parties on behalf of all members only if:

- (1) the class is so numerous that joinder of all members is impracticable;
- (2) there are questions of law or fact common to the class;
- (3) the claims or defenses of the representative parties are typical of the claims or defenses of the class; and
- (4) the representative parties will fairly and adequately protect the interests of the class.²³

Beyond meeting the threshold requirements of Rule 23(a), any Marcellus Shale class will need to meet the additional class certification requirements of Rule 23(b)(3). Rule 23(b)(3) has two basic requirements: (1) class-wide common issues of fact and law must predominate over issues affecting only individual class members; and (2) the class action must be superior to other methods for the fair and efficient adjudication of the controversy.²⁴

Class actions have their place in litigation. But that place is not in groundwater contamination litigation relating to natural gas production activity. Rule 23 of the Federal Rules of Civil Procedure, as interpreted by the courts, limits the availability of the class action device where, as here, neither the threshold nor subsidiary requirements for certification are met.

A. Marcellus Shale Groundwater Contamination Cases Are Not Likely to Meet the Numerosity Requirement for Class Certification

A class can only be certified if the purported class members are “so numerous that joinder of all members is impracticable.”²⁵ Although there is no one fixed test for determining

whether the “numerosity” requirement has been met, courts will typically examine the sheer number of members included in the class as well as other factors such as: the geographic dispersion of class members; the ease of identifying and locating class members; and the claimants’ ability to institute individual suits.²⁶ All of these factors weigh against certifying claims based on drinking water contamination allegedly caused by drilling activities in the Marcellus Shale region.

Class size is the most important factor in determining whether joinder is impracticable. There are no hard-and-fast rules regarding the exact number necessary; however, typically a class of 20 or fewer is insufficiently numerous,²⁷ and a class of 41 or more is sufficiently numerous to meet numerosity requirements.²⁸ Because hydraulic fracturing activities in the Marcellus Shale region predominantly occur in rural areas where people draw their water from privately-owned wells, the number of people exposed to purportedly contaminated water supplies will often be small, and therefore insufficiently numerous. Even when the class size is extremely large, courts have held that the numerosity requirements have not been met when other factors mitigate against a finding that joinder is impracticable. For example, a class that might otherwise satisfy the numerosity requirements may not be certified if the presumed class members are all from the same general area and/or easily identifiable.²⁹ When a group of plaintiffs claim that a Marcellus Shale defendant has contaminated their underground drinking water supply, all class members likely will live within a small defined geographic area and, as a result, will be readily identifiable.

The claimants’ ability to institute individual suits also should caution courts against certifying groundwater contamination claims brought against Marcellus Shale defendants. Courts are more likely to certify a claim when each class member would be unlikely to file a separate action because each member’s individual claim involves only a small amount of damages.³⁰ If a claimant has a larger financial stake in the dispute, courts are more likely to conclude that joinder is not impracticable.³¹ In an action filed in the Eastern District of Arkansas, the plaintiffs asked the court to certify as a class all residents who live within a three-mile radius of the defendants’ gas wells and requested compensatory damages of \$1,000,000 and punitive damages of \$5,000,000.³² Given the high stakes alleged

in these types of disputes, courts should conclude that the individual claimants are able to bring suit and that therefore, joinder is practicable.

After considering all the factors relevant to a numerosity determination, courts should conclude that most groundwater contamination claims against Marcellus Shale defendants should not be certified for class action treatment.

B. Individualized Issues of Liability—Not Class-Wide Common Issues—Predominate In Marcellus Shale Groundwater Contamination Cases

Beyond meeting the threshold requirements of Rule 23(a), any Marcellus Shale class will need to meet the additional class certification requirements of Rule 23(b)(3): predominance and superiority. Predominance requires that class-wide common issues of fact and law must predominate over issues affecting only individual class members.³³ Courts have also described the predominance requirement as a test of whether proposed class members are sufficiently cohesive to warrant adjudication by representation.³⁴ By adding the predominance requirement, the Advisory Committee responsible for Rule 23 was attempting to safeguard “procedural fairness” and to avoid “other undesirable results.”³⁵

Marcellus Shale groundwater plaintiffs may attempt to certify medical monitoring claims³⁶ (among other claims) for a class of individual property owners whose groundwater has tested positive for contaminants associated with hydraulic fracturing fluid or increased levels of naturally occurring contaminants or, alternately, individual property owners located in the vicinity of hydraulic fracturing operations who have not had their groundwater tested.³⁷ These proposed classes most likely would include plaintiffs alleging contamination caused by numerous drilling operations in multiple locations.

The predominance requirement is not likely to be met by these proposed classes. A key issue in the Marcellus groundwater contamination cases will be whether a single, proximate cause of contamination applies to each class member and each defendant. As acknowledged by the Pennsylvania Department of Environmental Protection, there are numerous potential impacts to both groundwater and the environment from hydraulic fracturing. Potential pathways for impacts to drinking water from hydraulic fracturing activity include:

- (1) pollution through diminution of water resources;
- (2) surface spills during transport of fracturing material to the well site, container leaks, and/or mishandling at the site;
- (3) leaking pits or tanks;

- (4) cross-contamination with an abandoned well during stimulation;
- (5) fracturing coalbed methane wells with substances other than freshwater and sand;
- (6) defective casing or cementing that permit hydraulic fracturing to occur in unintended zones or formations;
- (7) direction-contamination of groundwater through the target formation.³⁸

Simply demonstrating that Marcellus Shale drilling occurred in the vicinity of the plaintiffs’ property, therefore, will not be sufficient to demonstrate that class-wide, common issues of law and fact predominate over individualized issues.

Beyond these limitations, even if a proposed class of landowners or residents surrounding a singular location is sufficient to meet the numerosity requirement, individual issues will predominate over class-wide issues. For example, each plaintiff will need to identify the unique pathway between the Marcellus Shale gas well and his water well. This will require site-specific modeling of specific pathways of the hydraulic fracturing fluids or natural gas from the drilling location to the water well. These determinations require unique considerations of the materials used in the drilling or production operations, individual examination of gas well records and permits for operational issues, flow rate determinations, and characteristics of rock formations in the area. Other potential sources of contamination will need to be considered. Variations in naturally occurring soil conditions, including naturally occurring radioactive material, are also critical. As noted by the Sixth Circuit, in “complex, mass tort accidents” where “no single proximate cause equally applies to each potential class member and each defendant,” the appropriateness of a class action is doubtful.³⁹ At the heart of any Marcellus groundwater contamination action are complex and varied liability determinations. The Sixth Circuit’s reasoning is equally applicable here.⁴⁰

C. Marcellus Shale Groundwater Contamination Cases Likely Cannot Meet the Superiority Requirement for Class Certification

Marcellus Shale plaintiffs are also likely to fail to meet the class certification requirement of superiority. For a class action to be maintained under Rule 23(b)(3), not only must the court find that questions of law common to class members predominate over individual issues, but it must also find that “a class action is *superior* to other available methods for fairly and efficiently adjudicating the controversy.”⁴¹ In making this determination, courts are called “to balance, in terms of fairness and efficiency, the merits of a class action against those

of ‘alternative available methods’ of adjudication,” and find class action the “superior” method only if “no realistic alternative exists.”⁴² In the context of mass tort cases, the class action is generally not the superior method of adjudication because such cases are often rife with individualized issues of liability.⁴³ Marcellus Shale plaintiffs would most likely discover this to be true in relation to class certification attempts.⁴⁴ Given the prevalence of the individualized issues of causation and damages inherent to drinking water contamination claims, the superior method of adjudicating such claims is through individual cases.

As noted in the “predominance” discussion above, significant, individualized issues exist in relation to proving causation, which would make the class action format impractical. As previously mentioned, there are multiple ways in which groundwater and the environment could be impacted as a result of hydraulic fracturing.⁴⁵ In order to obtain class certification, plaintiffs would need to demonstrate that each member of the purported class experienced groundwater contamination from the same source.⁴⁶ Additionally, even if the alleged contamination could be traced to a single source, individual issues would still predominate over class-wide issues with respect to the question of proximate cause. For instance, it would again be relevant that each plaintiff would be tasked with identifying the unique pathway linking his water well to the Marcellus Shale operations and that the process for making this determination is site-specific.⁴⁷ Moreover, the consideration of other potential sources of groundwater contamination on a site-by-site basis would once more prove relevant to the class certification analysis.⁴⁸

Even if a purported class of Marcellus Shale plaintiffs were able to prove the manner in which causation issues might be addressed on a class-wide basis, it is unlikely that it would be able to demonstrate the same with respect to damages. Individualized issues would pervade measurements of damages, given that each plaintiff would be required to prove actual damages to his person or property, and the extent of that damage, on an individual basis.⁴⁹ For example, as will be discussed in more detail, plaintiffs in pending Marcellus Shale cases are seeking damages for diminution in property value stemming

from alleged groundwater contamination, and future plaintiffs are likely to do the same.⁵⁰ In order to prevail on such a claim, however, these plaintiffs not only must first establish liability, they must also provide proof of actual harm on a parcel-by-parcel basis.⁵¹

Furthermore, measuring damages in an environmental or toxic tort case is generally “not subject to any sort of formulaic calculation,” as each plaintiff in a purported class is likely exposed to a contaminant to a varying degree.⁵² When seeking compensation for personal injuries, the purported class of Marcellus Shale plaintiffs would need to offer individualized proofs as to the different alleged periods and levels of exposure and the different symptoms experienced.⁵³ Measurements for property damages would also require individualized proofs. For instance, calculating remediation damages for contaminated wells and groundwater would require parcel-by-parcel assessments given likely differences in the expected duration of contamination, concentrations of the contaminant and geology and hydrogeology.⁵⁴

The prevalence of individualized issues relating to causation and damages definitively tilts the balance against the class action device as the superior form of adjudicating the likely Marcellus Shale groundwater claims. Also weighing against a finding of superiority is that Marcellus Shale groundwater litigation represents an “immature tort.”⁵⁵ Class action is less likely to be considered the “superior” method for handling a mass tort when it is considered “immature,” meaning the court lacks “a prior record of trials from which [it] can draw the information necessary to make the predominance and superiority analysis required by Rule 23[(b)(3)].”⁵⁶ When such a track record is lacking, the court may not be sure of manageability of the case as a class action that will best preserve judicial resources, and might therefore be reluctant to certify it as such.⁵⁷ Marcellus Shale groundwater claims fall into this category, as a district court will not yet have a track record of cases on which it might rely. Rather, a district court might be more apt to adopt the approach of the *Castano* court, which recognized the advantages of “allow[ing] individual trials to proceed, before a district court engages in the complicated predominance and superiority analysis.”⁵⁸

IV

ESTABLISHED LAW AND SCIENCE SHOULD DEFEAT CERTAIN MARCELLUS SHALE COMMON LAW CLAIMS

As demonstrated in *Fiorentino v. Cabot Oil & Gas Corp.*, Marcellus Shale plaintiffs are likely to pursue various common law tort claims and seek damages for alleged injuries to their person and property.⁵⁹ In this section of the article, we outline the elements required to establish several common law claims that either have been asserted or may be asserted in the future by Marcellus Shale plaintiffs in Pennsylvania, New York and West Virginia courts.⁶⁰ We then provide a brief overview of how defendants in Marcellus Shale litigation can use established law and science to refute these claims.

A. Public Nuisance: Marcellus Shale Plaintiffs Lack Standing

The common law tort of public nuisance has become a highly visible issue in modern tort jurisprudence.⁶¹ Recently, the U.S. Supreme Court reversed the precedent-setting decision in *Connecticut v. American Electrical Power Company, Inc.*,⁶² a public nuisance case seeking to abate carbon-dioxide emissions from fossil-fuel power plants. The *Connecticut* decision had given standing to several U.S. states, the city of New York and private land trusts to sue AEP for public nuisance. The Supreme Court held that any common law rights of the plaintiffs had been displaced by the authority of the federal Clean Air Act and the U.S. Environmental Protection Agency to regulate carbon dioxide emissions.⁶³

Historically, public nuisance has been used by governmental authorities to stop conduct that was considered quasi-criminal because, although not strictly illegal, requiring it to cease was deemed reasonable in view of the conduct's likelihood to injure someone in the general public.⁶⁴ Traditionally, actionable conduct involved the blocking of a public roadway, the playing of loud music in a public place, or the dumping of sewage into a public river.⁶⁵ Governments sought injunctions either enjoining the activity that caused the nuisance or requiring the responsible party to abate the nuisance.⁶⁶ In recent decades, courts and state legislatures have defined public nuisance in imprecise and ambiguous ways, inviting lawsuits seeking liability in a much wider variety of circumstances ranging from environmental harms to activities deemed to violate public peace, comfort and morals.⁶⁷ In the environmental arena, public nuisance cases have been brought in mostly localized controversies traceable to specific actions by identifiable defendants,

such as the discharge of sewage or chemicals into waterways;⁶⁸ emission of noxious fumes from copper foundries that destroyed forests, orchards, and crops;⁶⁹ dumping garbage into the ocean that fouled beaches;⁷⁰ irrigation projects that contributed to flooding;⁷¹ construction bridges that interfered with navigation;⁷² and pollution of lakes by vessels transporting oil.⁷³ As one commentator has noted, public nuisance remains a "tort of choice" for plaintiffs seeking broad relief in environmental litigation.⁷⁴

Thus it can be anticipated that Marcellus Shale plaintiffs will add public nuisance to the bevy of statutory and common law claims they will assert in groundwater contamination litigation arising out of natural gas production activity. In Pennsylvania, New York and West Virginia, however, Marcellus Shale plaintiffs are likely to lack sufficient standing to bring public nuisance claims against shale gas producers, contractors and other defendants. That is because they will find it extraordinarily difficult to establish "special damages" as required for a private citizen to bring a public nuisance claim.

In Pennsylvania, a public nuisance is defined as an unreasonable interference with a right common to the general public.⁷⁵ Unlike a *private* nuisance, a public nuisance is an inconvenience or troublesome offense that annoys a whole community in general.⁷⁶ Although the normal remedy for a public nuisance is in the hands of the state, a public nuisance may also be a private nuisance when it interferes with private land.⁷⁷ When this takes place, a private individual may have standing to bring a public nuisance claim.

In Pennsylvania, a private citizen has standing to complain about a public nuisance only if the citizen is specifically injured by the nuisance over and above the injuries suffered by the public generally or suffers harm of a kind different from that suffered by other members of the public.⁷⁸ Private citizens must "make out a clear case of special damages to themselves, apart from the rest of the public, and of a different character, so that they cannot fairly be said to be a part of the common injury resulting therefrom."⁷⁹

Both West Virginia and New York have similar public nuisance definitions and standing requirements. In West Virginia, a public nuisance is an act or condition that unlawfully operates to hurt or inconvenience an indefinite number of people.⁸⁰ In New York, a public nuisance consists of conduct or omissions

which offend, interfere with, or cause damage to the public in the exercise of rights common to all in a way that offends public morals, interferes with use by the public of a public place, or endangers or injures the property, health, safety, or comfort of a considerable number of people.⁸¹

West Virginia and New York maintain similar standing requirements to those in Pennsylvania for an individual to bring a public nuisance claim. For example, in West Virginia, a private individual bringing a public nuisance suit must establish special damage in a manner different from the general public and that his injury is serious, affecting the substance and value of his property.⁸² The injury must be “special and peculiar” to the plaintiff different in kind or degree from that sustained by the rest of the public.⁸³ In New York, a private party may maintain a suit for public nuisance if the party suffers “special damage” from the nuisance.⁸⁴ The special damage must be of a different kind from the damage suffered by the public at large.⁸⁵ A difference in magnitude alone is insufficient.⁸⁶ The damage must be separate and apart from any injury suffered by the public generally.⁸⁷

Although to date no Pennsylvania, New York, or West Virginia court has addressed the validity of a public nuisance claim based on contamination from hydraulic fracturing in the Marcellus Shale formation, Pennsylvania defendants should benefit from several cases which limited the ability of private individuals to bring a public nuisance claim based on groundwater contamination. For example, the plaintiffs in the Eastern District case of *Philadelphia Electric Co. v. Hercules, Inc.*, alleged a public nuisance claim that is likely to be similar to that which may be alleged by future Marcellus Shale plaintiffs. In this case, PECO brought suit for public nuisance (among other claims) against a prior owner alleging the prior owner’s operation of a chemical plant on the property caused groundwater and river water contamination.⁸⁸ After noting that in an individual action to recover for public nuisance, the individual plaintiff “must have suffered harm of a kind different from that suffered by other members of the public exercising the right common to the general public that was the subject of the interference,” the court rejected PECO’s position that the expenses incurred in cleaning up contaminated water were sufficient to constitute the harm requisite for standing.⁸⁹ The court reasoned that the public right interfered with was the right to “pure water.”⁹⁰ Because the plaintiff could not allege a unique harm, such as use of water for an established business or commercial use, PECO lacked standing to bring a public nuisance claim.⁹¹ The likely Marcellus Shale groundwater contamination plaintiffs (assuming they are able to prove that

their groundwater is, in fact, contaminated) will similarly be unable to show any unique use of their groundwater, which will set them apart from the public at large.

Similarly, two New York cases are instructive as to how a New York court is likely to handle a public nuisance claim by a Marcellus Shale plaintiff. In *Allen v. General Electric Co.*, plaintiffs brought suit for money damages as compensation for reduction in value of their properties because of their proximity to a toxic waste environmental spill and remediation effort near their respective properties and asserted “stigma damages.”⁹² The court reasoned insufficient standing existed to bring a public nuisance claim because the type of harm—diminution of property value—only varied in degree to the harm suffered by other property owners.⁹³ Thus, the Marcellus Shale groundwater plaintiffs will need to show some type of difference in harm beyond merely a difference in the degree of the harm. They will be hard-pressed to do this.

Also instructive is the New York case of *Booth v. Hanson Aggregates New York, Inc.* where the court did, in fact, find sufficient special injury for public nuisance.⁹⁴ In this New York Appellate Division case, the court held plaintiffs sufficiently alleged special injury beyond that suffered by the community at large by alleging injury to their private water wells where the rest of the community relied on public water supply.⁹⁵

Marcellus Shale plaintiffs likely will allege a public nuisance claim based on interference with the public right to “pure water,” like the plaintiffs in *In re Joshua Hill, Inc. and Philadelphia Electric Co. v. Hercules, Inc.* However, absent evidence of an established business relying on uncontaminated groundwater or contamination to a private well where the rest of the community is serviced by a public water supply, the Marcellus Shale groundwater plaintiffs will be unable to allege special damages separate from those alleged by the public at large. Further, mere differences in the degree of contamination are insufficient to establish standing for an individual to bring a public nuisance claim. Without special, unique damages, public nuisance Marcellus Shale groundwater claims should fail in all three jurisdictions—Pennsylvania, New York and West Virginia.

B. Strict Liability—Abnormally Dangerous Activity: Hydraulic Fracturing Is Safe, Appropriate to the Location and Valuable to the Community

In Pennsylvania, New York and West Virginia, strict liability will be imposed on defendants who engage in activities that are determined by the courts to be “abnormally dangerous.”⁹⁶ In all three jurisdictions, courts determine whether an activity

is an abnormally dangerous activity by weighing a list of factors provided in *Section 520 of the Restatement (Second) of Torts*:

- (a) existence of a high degree of risk of some harm to the person, land or chattels of others;
- (b) likelihood that the harm that results from it will be great;
- (c) inability to eliminate the risk by the exercise of reasonable care;
- (d) extent to which the activity is not a matter of common usage;
- (e) inappropriateness of the activity to the place where it is carried on; and
- (f) extent to which its value to the community is outweighed by its dangerous attributes.⁹⁷

Courts in these jurisdictions have yet to definitively address whether hydraulic fracturing is an abnormally dangerous activity.⁹⁸ Both the *Restatement* and prior precedent offer strong arguments against the application of strict liability for Marcellus Shale operations. The *Restatement* explains that it is impossible to reduce abnormally dangerous activities to any one definition and that courts are free to find certain factors outweigh others in making a determination about a given activity.⁹⁹ Thus, by focusing their arguments on the *Restatement* factors that weigh most in their favor—(1) the appropriateness of their activities to the place where they are carried on; and (2) the value of these activities to the community—Marcellus Shale defendants stand an excellent chance of convincing courts to hold that hydraulic fracturing and other extraction activities are not abnormally dangerous.

1. Activities Are Appropriate in the Marcellus Shale Region

When a court is asked to hold a Marcellus Shale defendant strictly liable for its activities, one of the factors the court must consider is the “inappropriateness of the activity to the place where it is carried on.”¹⁰⁰ In making this determination, the court should be guided by comments accompanying the *Restatement*, which provide, “There are some highly dangerous activities, that necessarily involve a risk of serious harm in spite of all possible care, that can be carried on only in a particular place.”¹⁰¹ As an example, the *Restatement* explains, “Coal mining must be done where there is coal; *oil wells can be located only where there is oil*. . . . If these activities are of sufficient value to the community [], they may not be regarded as abnormally dangerous when they are so located”¹⁰²

Thus, the *Restatement* provides Marcellus Shale defendants with a powerful argument against liability. Because oil and gas can only be extracted from communities located above oil and gas reserves, extraction activities, including hydraulic fracturing, should be considered appropriate when defendants engage in those activities above the Marcellus Shale.

2. The Value of Extraction Activities Outweighs the Dangers

The *Restatement* explains that although some activities involve a serious risk of harm that cannot be eliminated with reasonable care, their “value to the community may be such that the danger will not be regarded as an abnormal one.”¹⁰³ As an illustration, the *Restatement* explains, “in Texas and Oklahoma, a properly conducted oil or gas well, at least in a rural area, is not regarded as abnormally dangerous.”¹⁰⁴

Marcellus Shale defendants will have a wide variety of facts to draw upon to highlight the benefits that their activities provide to the communities in which they are based. For example, according to a June 2011 report by the Pennsylvania Department of Labor and Industry, employment is exploding in communities where Marcellus development is taking place.¹⁰⁵ The Department reports that the Northern Tier Workforce Investment Area (WIA) has experienced an increase of over 1,500% in employment rates since 2007 and that the Commonwealth’s Central WIA has experienced an increase of nearly 1,000% over that same period.¹⁰⁶ In addition, according to the Pennsylvania Department of Revenue, companies engaged in natural gas drilling activities have paid over \$1.1 billion in state taxes since 2006, including \$214.12 million in the first quarter of 2011.¹⁰⁷ The Department of Revenue also reports that the industry has contributed billions of dollars to local economies in the nature of infrastructure investments, royalty payments, and permit fees.¹⁰⁸

Furthermore, courts have found that other seemingly dangerous activities should not be considered abnormally dangerous in light of their value to the community. For example, in *Albig v. Municipal Authority of Westmoreland Co.*, the plaintiffs sustained property damage when water escaped from a reservoir owned by Westmoreland County as a result of mining operations conducted beneath the reservoir by a third party.¹⁰⁹ Noting that the reservoir provided a water reserve for the community and enhanced the local fire department’s capabilities, the court concluded that the maintenance of the reservoir was not an abnormally dangerous activity because the “value of the reservoir to the community outweighed its potentially dangerous qualities.”¹¹⁰ Similarly, in *Diffenderfer v. Staner*, the

court held that the storage of pesticides on a farm was not an abnormally dangerous activity, in part because the benefits to the community in terms of lower prices for produce and better crop yields outweighed the dangers.¹¹¹

C. Medical Monitoring: Scientific Evidence Does Not Support Elevated Exposure or Causation

Medical monitoring is a non-traditional common law tort which in recent years has increasingly been used by plaintiffs' attorneys seeking to hold defendants liable for purportedly exposing their clients to hazardous substances.¹¹² Plaintiffs claim this cause of action is necessary because injuries caused by exposure to hazardous substances may take years to manifest themselves physically.¹¹³ They argue that as a result of this exposure, plaintiffs must undergo regular medical testing to facilitate early detection and diagnosis and should not be forced to bear such a burden and expense without compensation.¹¹⁴

Generally, courts in Pennsylvania,¹¹⁵ New York¹¹⁶ and West Virginia¹¹⁷ require a plaintiff to prove the following elements in order to prevail on a claim for medical monitoring: (1) exposure greater than normal background levels; (2) to a proven hazardous substance; (3) caused by the defendant's negligence; (4) as a proximate result of the exposure, plaintiff has a significantly increased risk of contracting a serious latent disease; (5) a monitoring procedure exists that makes the early detection of the disease possible; (6) the prescribed monitoring regime is different from that normally recommended in the absence of the exposure; and (7) the prescribed monitoring regime is reasonably necessary according to contemporary scientific principles. Proof of these elements will require expert testimony.¹¹⁸

No court in Pennsylvania, New York, or West Virginia has been asked definitively to apply these elements to a medical monitoring claim based on a plaintiff's allegations that hydraulic fracturing or other oil and gas production activity has resulted in contamination of a water supply and exposure to hazardous substances. However, because proof of each of the elements in a medical monitoring claim will require expert testimony,¹¹⁹ Marcellus Shale defendants will have many arrows in their quiver if they are faced with such a claim.

For example, if a plaintiff brings a claim based on exposure to contaminated drinking water as a result of a defendant's drilling activities, under the third element discussed above, the plaintiff must prove through scientific evidence that the defendant *caused* the plaintiff to be exposed to a hazard through some tortious conduct.¹²⁰ This will be a particularly difficult obstacle for the plaintiff. In order to prevail, the plaintiff will

have to demonstrate the existence of a potential pathway between the defendant's operations and the water well.¹²¹ To do so, the plaintiff will have to commission studies which model the movement of Marcellus Shale fluids or gas to the water well.¹²² They will also be required to provide reasonable and reliable scientific findings regarding the path that the fluids or gas followed, how that path was created and the rate at which fluids or gas are capable of moving through rock formations or soil.¹²³ In addition, the plaintiff will have to prove the defendant's activities are a source of the contaminants by comparing the contaminants found in the water to materials and compounds found in the Marcellus Shale formation or used in the defendant's operations.¹²⁴ These are obviously difficult undertakings and will provide ample opportunities for defendants to argue that (1) the scientific methods used by the plaintiff are unreliable or not generally accepted in the relevant scientific communities; or (2) the specific findings of the plaintiff's experts are not correct.

In addition, there is a significant body of scientific evidence which Marcellus Shale defendants can utilize to argue affirmatively that their activities did not cause the plaintiff's exposure. For example, the Pennsylvania Department of Environmental Protection (DEP) has stated: "Disruption of water quality or flow in water wells from drilling activities is often rare and generally temporary."¹²⁵ Moreover, according to former DEP Secretary John Hanger, problems with gas migration into water wells are not new, nor are they uniquely caused by Marcellus Shale drilling.¹²⁶

An investigation by the U.S. Environmental Protection Agency (EPA) concluded there is no evidence that fracturing of shallow Coalbed Methane wells contaminated drinking water wells.¹²⁷ Further, the EPA has found that many of the substances which plaintiffs claim are present in their water at elevated levels due to Marcellus Shale operations actually occur naturally or as the result of other common activities such as farming, the handling and disposal of common materials such as gasoline, household trash or sewage, or other industrial activities near the property, including coal mining.¹²⁸

Opponents of hydraulic fracturing have been particularly vocal about the claimed potential harm to health and the environment from chemicals used by hydraulic fracturing companies during the drilling process. Numerous studies have determined, however, that the fluids used in hydraulic fracturing are safe, pose no risk to public health and that engineering practices ensure that they do not enter the water supply.

The main ingredient in fracturing fluid is water, which accounts for approximately 90% of the mixture. Proppants, such

as sand, are used to keep the fractures open and constitute 8-9%. Approximately 1% or less of the fracturing fluid contains generally harmless and common substances such as salt and citric acid, and trace chemicals.¹²⁹ Although some of the chemicals used in fracturing fluid could be toxic if an individual is exposed to high doses, the concentration of these elements is far below the levels necessary to pose a threat to human health.¹³⁰ Moreover, there has never been a documented instance of water contamination caused by hydraulic fracturing fluids.¹³¹ Even if such events occur in the future, in order for Marcellus Shale plaintiffs to prove they suffered bodily harm, they will need to prove that the chemicals used in hydraulic fracturing pose a threat to human health.¹³² No scientific study to date has so concluded, however, and although the EPA is actively engaged in such a study, initial results are not expected until late 2012.¹³³ Until the EPA's results are released, it is premature for anyone to claim that hydraulic fracturing fluid poses a danger to humans.

Marcellus Shale plaintiffs may additionally argue that their health has been put at risk from exposure to radium and other radioactive materials, and that this health risk also warrants medical monitoring. In early 2011, three *New York Times* articles were published which focused on several environmental issues in connection with the development of Marcellus Shale (most notably in Pennsylvania). The most significant environmental claim raised in the Marcellus Shale series was that elevated radium and other radioactive materials (which are naturally present in water coming from oil and gas formations underground) pose a danger to the environment and human health when they are discharged to public wastewater treatment plants and, ultimately, to surface waters which are used as drinking water sources. However, science supports the conclusion that the cause for alarm is unfounded.

The potential threat to health and the environment from Naturally Occurring Radioactive Materials ("NORM") is an established area of science that has been researched for nearly a century. NORM, including radium, is present in our soil, air, and water, and in the rock formations from which oil and gas are produced. Natural gas drilling and production operations can bring formation, or "produced," water (which is wastewater once it is elevated to the surface for disposal) along with the gas. Because all natural radium is radioactive, produced water that contains radium also contains NORM. Admittedly, studies have shown ingesting radium at *extremely* high doses can cause bone and head cancers.¹³⁴ There is, however, no evidence that hydraulic fracturing operations have the potential to expose drinking water to such extremely high doses

of radiation, as the wastewater coming from the wellbore is treated prior to disposal and is not discharged without treatment into drinking water sources. Accordingly, exposure to elevated levels of radiation from drillers' wastewater should be studied in the surface waters where it is discharged following treatment at the wastewater treatment plant.¹³⁵ In this regard, tests of drinking water supplies from the Chester Water Authority in September 2008 and the York Water Company in 2009, both of which are partially downstream from the Susquehanna River, and the discharges of treated wastewater, showed that gross alpha, gross beta, radium-226 and radium-228 were well below the Safe Drinking Water Act limits for those constituents.¹³⁶

Finally, Marcellus Shale plaintiffs may argue that medical monitoring is necessary due to migration of methane into their potable water supply as a result of hydraulic fracturing activity. This claim would, however, be equally unfounded. Methane is not regulated as a contaminant in public water systems by any state nor by the EPA, because methane is not known to affect water's potability.¹³⁷ In fact, methane gas alone does not cause health problems.¹³⁸ Methane is only recognized as a danger in rare situations where a high concentration of the gas is located in a confined and poorly ventilated area, thus creating a risk of explosion or asphyxiation.¹³⁹ Even in these rare situations, however, the danger can often be averted relatively easily and inexpensively through the installation of well vents or aeration techniques.¹⁴⁰

D. Gross Negligence: Evidence of Causation, Actual Damages, and "Reckless Disregard" Will be Elusive

In circumstances in which faulty well construction, breaches in cemented and heavy-steel-encased wellbores and accidents in Marcellus Shale drilling lead to adverse environmental impacts, future plaintiffs may claim that those responsible were grossly negligent. However, case law indicates that claims for gross negligence should fail in Pennsylvania, New York and West Virginia.

It is important to note that, as the *Fiorentino* plaintiffs discovered, Pennsylvania law does not recognize gross negligence as a separate cause of action.¹⁴¹ Therefore, as in *Fiorentino*, any cause of action for gross negligence in Pennsylvania must be dismissed.¹⁴²

Although both New York and West Virginia recognize gross negligence as a separate cause of action, Marcellus Shale plaintiffs would encounter two significant roadblocks in attempting to raise such claims. First, as with any negligence cause of action, plaintiffs suing in New York or West

Virginia would need to establish the elements of causation and actual injury in both states. In addition to the requirement that plaintiffs prove the contamination of their groundwater was directly attributable to hydraulic fracturing,¹⁴³ New York demands concrete proof of “actual injury” in a tort action. The state maintains a clear general standard that “[c]onsequences which are contingent, speculative or merely possible are not properly considered in ascertaining injury, damages and appropriate remedy.”¹⁴⁴ While New York courts will consider a threatened injury to be an actual injury, the courts will only do so on the limited occasions where plaintiffs offer evidence that such a threat is “impending” and “sufficiently real and immediate.”¹⁴⁵ The *Plainview Water Dist. v. Exxon Mobil Corp.* court particularly noted the challenges inherent to scientifically projecting contaminant migration in subterranean groundwater, and predicting whether any potential contaminant impact would indeed be immediate.¹⁴⁶

West Virginia similarly requires a plaintiff alleging negligence or gross negligence to prove that he or she suffered an actual injury that was caused by a defendant’s allegedly negligent conduct.¹⁴⁷ In fact, *Rhodes v. E.I. DuPont de Nemours & Co.*, represents a case highly illustrative of the difficulties Marcellus Shale plaintiffs are likely to encounter in attempting to establish claims of gross, or even traditional, negligence.¹⁴⁸ In *Rhodes*, plaintiffs alleged that the defendant, a water supplier, was grossly negligent in discharging perfluorooctanoic acid (PFOA) into the water supply. Although plaintiffs were able to show that PFOA was detectable in their water supply and present in their blood, the court held that such PFOA presence alone was insufficient to support a negligence claim. The court reaffirmed the grant of summary judgment to defendants, stressing that the plaintiffs failed to produce evidence of a “detrimental effect to the plaintiffs’ health that actually ha[d] occurred or [was] reasonably certain to occur due to a present harm.”¹⁴⁹ Thus, even those Marcellus Shale plaintiffs capable of demonstrating the presence of contaminants associated with fracturing operations in their water or blood would at the very least need to demonstrate that their health is reasonably certain to decline as a result. Given that even a recent congressional report on hydraulic fracturing failed to cite *any* scientific data proving that the chemicals used in fracturing pose a risk to human health, these plaintiffs would likely be unable to produce the definitive scientific evidence required.¹⁵⁰

Likewise, Marcellus Shale plaintiffs likely will not be able to overcome highly demanding gross negligence standards in both New York and West Virginia. New York case law defines “grossly negligent” conduct as that which “evinces a reckless

disregard for the rights of others or ‘smacks’ of intentional wrongdoing.”¹⁵¹ The courts stress that acts merely causing injury attributable to ordinary negligence would not rise to the level of intentional wrongdoing necessary to constitute gross negligence.¹⁵²

Although the West Virginia Supreme Court of Appeals has not provided its own definition of gross negligence, as *Rutecki v. CSX Hotels, Inc.* observes, it has interpreted Virginia law defining gross negligence.¹⁵³ *Rutecki* thus applied the following definition of gross negligence from Virginia case law to a West Virginia-based case: “an utter disregard of prudence, amounting to complete neglect of safety of another, such as to be shocking to reasonable men.”¹⁵⁴

Marcellus Shale plaintiffs would be challenged in meeting this exacting standard. It particularly may not be said that hydraulic fracturing operations suggest a “reckless disregard” for the safety of others “smacking of intentionality,” when operators are compliant with state and federal oil, gas, and environmental regulations, and when water used in fracturing is treated prior to human consumption.¹⁵⁵ Moreover, fracturing operations would not strike the reasonable person as “shocking” given that the hydraulic fracturing technique has been used for decades, and is in no way a “new” or “unsafe” process.¹⁵⁶

E. Property Value Diminution: Marcellus Shale Plaintiffs Will be Challenged to Prove Causation and Actual Harm

Marcellus Shale plaintiffs are also likely to seek damages for diminution of real property value resulting from their properties’ alleged exposure to contaminants. Such plaintiffs may include those whose groundwater or blood contains heightened levels of chemicals or radioactive material associated with hydraulic fracturing—whether genuinely connected to fracturing or not—as well as those simply claiming “stigma” damage, or loss of market value due to public fear of contaminant exposure. As with gross negligence claims, Marcellus Shale plaintiffs will struggle to prove diminution of value claims due to the difficulty of proving causation and actual damages.

In all three jurisdictions, Marcellus Shale plaintiffs would be faced with the initial challenge of proving causation. Property damages in general, whether of the temporary variety or for diminution in value, will not be awarded unless concrete proof is offered that such damages are indeed the result of a defendant’s tortious act.¹⁵⁷ Marcellus Shale plaintiffs would face two specific obstacles relating to causation of property-value diminution. First, each individual groundwater contami-

nation plaintiff would need to identify the specific pathways through which the hydraulic fracturing fluids or natural gas entered his or her groundwater from the drilling site.¹⁵⁸ Secondly, the plaintiffs would have to provide evidence that heightened concentrations of the hazardous substances of which they are complaining actually resulted from Marcellus Shale operations, and did not simply represent substances occurring naturally or as the result of other common activities.¹⁵⁹

Marcellus Shale plaintiffs would likewise need to provide evidence of actual harm to receive damages for diminution in property value.¹⁶⁰ For instance, in West Virginia, each Marcellus Shale plaintiff, even in a class action, will be required to support a diminished value claim with actual proof of the lost value of his or her real property. Damages will not be awarded based on a random sampling of properties belonging to others.¹⁶¹

Moreover, proof of “actual harm” in the case of diminution of property value claims not only requires evidence of the diminished value, but also that this diminished value stems from *physical* damage to the individual property in question.

The prevailing standard in Pennsylvania, New York and nationwide is that plaintiffs must demonstrate something more than merely a defendant’s tortious act caused property value to diminish.¹⁶² They must also provide concrete proof that their property has been physically damaged, or, alternatively in New York, that their use and enjoyment of their property has been unreasonably interfered with.¹⁶³ Moreover, in Pennsylvania, plaintiffs will need to demonstrate that the physical effects suffered are permanent, while in New York, they must demonstrate that the effects cannot be fully remediated or that the cost of remediation would exceed the amount by which the value of the property has been diminished.¹⁶⁴ Thus, it is evident that courts will not be willing to recognize a claim for damages arising solely from the stigma of contamination.¹⁶⁵ Marcellus Shale plaintiffs pursuing claims of diminution of property value must demonstrate that their individual parcels were indeed contaminated by Marcellus Shale operations in some way. Damages for negative publicity alone will not be awarded.¹⁶⁶

V

CONCLUSION

Along with the benefits of Marcellus Shale development come concerns of potential groundwater contamination and associated personal injury and property damage litigation, including class action lawsuits. Regardless of the legitimacy of individual claims, Marcellus groundwater contamination claims should not be aggregated through the class action device. Although all claims will likely allege groundwater contamination caused by Marcellus Shale operations, these actions will be highly individualized and ill-suited for aggregated treatment in the court system.

Marcellus Shale plaintiffs also will not likely recover under a number of common law tort claims traditionally asserted in environmental toxic tort actions. The principal reason the claims should fail is that the environmental and human health

concerns of Marcellus drilling are unjustified and unsupported by reliable scientific evidence. Most well water comes from groundwater no more than 1,000 feet below the surface; migration of contaminants from a natural gas well over a mile deeper is all but impossible, and the trace chemicals used in hydraulic fracturing are diluted with millions of gallons of water. Beyond these facts, a survey of case law from Pennsylvania, New York and West Virginia shows that Marcellus Shale plaintiffs seeking damages grounded in public nuisance, strict liability, medical monitoring, gross negligence, or diminution of real property value are unlikely to be successful in establishing essential elements of the cause of action, such as causation, actual harm and standing. ■

- ¹ See Complaints in *Tucker v. Southwestern Energy Company, et al.*, No. 1:11-CV00044-DPM, E.D. Ark. (filed May 17, 2011) (voluntarily dismissed July 15, 2011); *Berry v. Southwestern Energy Company, et al.*, No. 1-11-cv-0045 DPM, E.D. Ark. (filed May 17, 2011); and *Lester v. Frontier Gas Services, LLC, et al.*, No. 4-11-cv-0420 BRW, E.D. Ark. (filed May 17, 2011).
- ² Chad Pergram, *Pennsylvania District Turns Into 'Saudi Arabia of Natural Gas' Ahead of Tuesday Primary*, FOXNews.com, May 17, 2010, available at <http://www.foxnews.com/politics/2010/05/17/pennsylvania-district-turns-saudi-arabia-natural-gas-ahead-tuesday-primary/> (accessed March 21, 2011).
- ³ Daniel J. Soeder and William M. Krappel, *Water Resources and Natural Gas Production from the Marcellus Shale*, Fact Sheet 2009-3032 (USGS West Trenton Publishing Services Center 2009) at 1.
- ⁴ Andrew Maykuth, *Firms find more gas beyond the Marcellus field; The discovery gives hope to drillers for extending the life of Pa. mining efforts*, PHILADELPHIA INQUIRER, May 23, 2010.
- ⁵ EPA Office of Research and Development, *Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, at 11 (Feb. 7, 2011).
- ⁶ FracTracker, *Updated Pennsylvania Marcellus Shale Production Information*, available at http://www.fractracker.org/2011/02/updated-pennsylvania-marcellus-shale_25.html, accessed Jul. 18, 2011.
- ⁷ Pennsylvania Department of Environmental Protection, *Pennsylvania Hydraulic Fracturing State Review*, at 10 (STRONGER Sept. 2010).
- ⁸ *Id.*
- ⁹ Pennsylvania Department of Environmental Protection, *DEP Marcellus Shale Fact Sheet*, at 1, 3 (PADEP 0100-FS0DEP4217 Jan. 2010), available at <http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-77964/0100-FS-DEP4217.pdf>; Pennsylvania Department of Environmental Protection, *Pennsylvania Hydraulic Fracturing State Review*, at 10 (STRONGER Sept. 2010).
- ¹⁰ EPA Office of Research and Development, *Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, at 12-13 (Feb. 7, 2011).
- ¹¹ *Id.*
- ¹² Pennsylvania Department of Environmental Protection, *DEP Marcellus Shale Fact Sheet*, at 1 (PADEP 0100-FS0DEP4217 Jan. 2010).
- ¹³ EPA Office of Research and Development, *Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, at 11 (Feb. 7, 2011); Ian Urbina, *Regulation Lax as Gas Wells' Tainted Water Hits River*, New York Times, Feb. 26, 2011, available at <http://www.nytimes.com/2011/02/27/us/27gas.html> (accessed Mar. 16, 2011).
- ¹⁴ EPA Office of Research and Development, *Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, at 13 (Feb. 7, 2011).
- ¹⁵ Pennsylvania Department of Environmental Protection, *Hydraulic Fracturing Overview*, at 3 (PaDEP) available at http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/Reports/DEP%20Hydraulic%20fracturing%20overview.pdf.
- ¹⁶ EPA Office of Research and Development, *Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, at 13 (Feb. 7, 2011).
- ¹⁷ Marcellus Shale Coalition – Marcellus Shale, <http://marcelluscoalition.org/marcellus-shale/production-processes/>
- ¹⁸ Lynn Kerr McKay and Laire Alberts Salita, *Marcellus groundwater claims: A case for scientifically informed decisions*, 231 World Oil Online 12 (Dec., 2010).
- ¹⁹ *Suzanne Berish, et al. v. Southwestern Energy Production Co., et al.*, No. 3:10-CV-01981 (M.D. Pa.) (removed from Susquehanna County Court of Common Pleas, Commonwealth of Pennsylvania, No. 2010-1882CP) Complaint, ¶¶ 16 and 18.
- ²⁰ *Fiorentino, et al. v. Cabot Oil & Gas Corp., et al.*, No. 09-CV-2284 (M.D. Pa.); see also *Residents Charge Natural Gas Company with Chemical and Methane Releases*, 24 Toxic Law Rep. (BNA) 1349 (Dec. 3, 2009).
- ²¹ Janice Crompton, *Residents reported gas odors before explosion*, PITTSBURG POST-GAZETTE, Apr. 1, 2010.
- ²² American Law Institute, *Preliminary Study of Complex Litigation*, Report, 61-70 (1967).
- ²³ FED. R. CIV. P. 23(a).
- ²⁴ "The purpose of the predominance requirement is to ensure that the proposed class is sufficiently cohesive to warrant adjudication by representation, and it is a far more demanding requirement than the commonality requirement of Rule 23(a)(2)." *Bell Atlantic Corp. v. AT & T Corp.*, 339 F.3d 294, 301 (5th Cir. 2003), citing *Amchem Products, Inc. v. Windsor*, 521 U.S. 591, 623-24 (1997). The rule provides that the factors a court should consider relevant in deciding these two requirements include: (a) the interest of members of the class in individually controlling the prosecution or defense of separate actions; (b) the extent and nature of any litigation concerning the controversy already commenced by or against members of the class; (c) the desirability or undesirability of concentrating the litigation of the claims in the particular forum; and (d) the difficulties likely to be encountered in the management of a class action. Fed. R. Civ. P. 23(b).
- ²⁵ Fed. R. Civ. P. 23(a)(1).
- ²⁶ *Robidoux v. Celani*, 987 F.2d 931, 935 (2d Cir. 1993); *Ardney v. Federal Kemper Ins. Co.*, 142 F.R.D. 105, 109 (E.D. Pa. 1992).
- ²⁷ See, e.g., *CL-Alexanders Laing & Cruickshank v. Godfeld*, 127 F.R.D. 454, 457-58 (S.D.N.Y. 1989); *Marino v. Sports Auth.*, 940 F. Supp. 792, 796-97 (E.D. Pa. 1996).
- ²⁸ See, e.g., *McMahon Brooks, Inc. v. Willow Grove Assocs.*, 108 F.R.D. 32, 35 (E.D. Pa. 1985); *Rodger v. Electronic Data Sys. Corp.*, 160 F.R.D. 532, 535 (E.D.N.C. 1995).
- ²⁹ *Daigle v. Shell Oil Co.*, 133 F.R.D. 600, 603 (D. Colo. 1990) (numerosity not satisfied in case based on claims for personal injury and property damage allegedly caused by activities associated with toxic waste disposal pond even though plaintiff claimed 4,000 members because the precise geographic boundaries involved made ascertaining the identities of all potential class members not difficult); *Christiana Mortg. Corp. v. Delaware Mortg. Bankers Ass'n*, 136 F.R.D. 372, 377-78 (D. Del. 1991); *Garica v. Gloor*, 618 F.2d 264, 267 (5th Cir. 1980).
- ³⁰ *Phillips Petroleum Co. v. Shutts, et al.*, 472 U.S. 797, 809, 105 S. Ct. 2965 (1985) ("Class actions also may permit the plaintiffs to pool claims which would be uneconomical to litigate individually. For example, this lawsuit involves claims averaging about \$100 per plaintiff; most of the plaintiffs would have no realistic day in court if a class action were not available").
- ³¹ *Block v. First Bloos Assoc.*, 125 F.R.D. 39, 42 (S.D.N.Y. 1989) (joinder of 57 class members practicable where members each claimed between \$50,000 and \$400,000 in damages).
- ³² *Tucker*, No. 1:11-CV-00044-DPM.
- ³³ FED. R. CIV. P. 23(b)(3).
- ³⁴ *Amchem Products, Inc. v. Windsor*, 521 U.S. 591, 623 (1997).

³⁵ *In re LifeUSA Holding Inc.*, 242 F.3d 136, 144 (3d Cir. 2001).

³⁶ Medical monitoring claims generally require plaintiffs to prove the following elements: (1) exposure greater than normal background levels; (2) exposure to a proven hazardous substance; (3) exposure caused by the defendant's negligence; (4) as a proximate result of the exposure, plaintiff has a significantly increased risk of contracting a serious latent disease; (5) a monitoring procedure exists that makes the early detection of the disease possible; (6) the prescribed monitoring regime is different from that normally recommended in the absence of the exposure; and (7) the prescribed monitoring regime is reasonably necessary according to contemporary scientific principles. See Section IV.C for a full discussion of the insufficiency of medical monitoring claims in the context of Marcellus Shale litigation.

³⁷ *In Millett v. Atlantic Richfield Co.*, No. CV-98-555 (Me. Super. Ct., Mar. 2, 2000) (Cole, J.) (unreported decision), a case concerning alleged MTBE contamination of well water in Maine, the plaintiffs attempted to certify two subclasses. The first included those who had an interest in Maine real property, and had had tests performed indicating their groundwater was contaminated with MTBE. *Millett op.*, at 9. The second subclass included those who possessed an interest in Maine real property, but had not had their groundwater tested for MTBE. *Id.* The Marcellus Shale groundwater plaintiffs may attempt to certify similar subclasses in future litigation.

³⁸ Pennsylvania Department of Environmental Protection, *Pennsylvania Hydraulic Fracturing State Review* (Sept. 2010).

³⁹ *Sterling v. Velsicol Chemical Corp.*, 855 F.2d 1188, 1197 (6th Cir. 1988).

⁴⁰ Similarly, in *Thomas v. FAG Bearings Corp., Inc.*, 846 F. Supp. 1400, 1404 (W.D. Mo. 1994), a case involving TCE-contamination of groundwater, the trial court denied class certification because the individual issues of causation and damage were so numerous and complex that they overshadowed the common issues:

The Court anticipates that plaintiffs' proof of causation . . . will require individualized proof for each plaintiff. As an example, a test of the well water of nominal plaintiffs Steven Lee and Rebecca Luebber failed to disclose the presence of TCE. Not only does this indicate that their proof of contamination will be different from other plaintiffs, but it underlines the complex nature of hydrogeology. Because the results vary markedly from well-to-well, expert testimony on the actual source of contamination for each well may be required. Assuming causation is proved, each plaintiff must prove entitlement to damages. The measure of damages is dependent almost exclusively on individual factors. . . . [D]amages claims, such as . . . diminution in property value, loss of use and enjoyment, and annoyance, would also require individualized proof. This would start hundreds or thousands of individual mini-trials on complex causation and damages issues while the only benefit of a class would be that the ruling of several common, but not particularly daunting issues, would be made applicable to the entire class. The Court does not believe that result is consistent with the language or spirit of Rule 23(b)(3)(C), (D).

⁴¹ Fed. R. Civ. P. 23(b)(3) (emphasis added).

⁴² *Millett*, No. C-V-98-555, 2000 Me. Super. LEXIS 39, at *66 (quoting *Georgine v. Amchem Products, Inc.*, 83 F.3d 610, 623 (3d Cir. 1996), *aff'd sub nom. Amchem Products, Inc.*, 521 U.S. 591; *Valentino v. Carter-Wallace*, 97 F.3d 1227, 1234 (9th Cir. 1996)).

⁴³ The Fifth Circuit has advised the following as to the effect of the predominance inquiry on superiority in mass tort cases:

A "mass accident" resulting in injuries to numerous persons is ordinarily not appropriate for a class action because of the likelihood that significant questions, not only of damages but of liability and defenses to liability, would be present, affecting the individuals in different ways. In these circumstances an action conducted nominally as a class action would degenerate in practice into multiple lawsuits separately tried.

Williams v. Union Pacific R.R. Co., No. 2:06-CV-562, 2009 U.S. Dist. LEXIS 29986, at *28 (W.D. La. Jan. 19, 2009) (quoting *Steering Comm. v. Exxon Mobil Corp.*, 461 F.3d 598, 604 (5th Cir. 2006) (quoting Advisory Committee Note, Fed. R. Civ. P. 23 (b)(3))).

⁴⁴ The onus is on plaintiffs to demonstrate the superiority of the class action method and provide the court with a structural proposal as to the manner in which the case could be tried as a class action. See Alan J. Hoffman et al., *Millett v. Atlantic Richfield Co., The Future of MTBE Litigation Is Unlikely to Include Rule 23(b)(3) Classes*, CLASS ACTION LITIGATION, June 23, 2000, at 178-79.

⁴⁵ See *supra* Part III.B (noting such sources as the multiple sites on which drilling operations occur, surface spills during fracturing material transport, and leaking pits or tanks, among others).

⁴⁶ *Cochran v. Oxy Vinyls LP*, No. 3:06-CV-364-H, 2008 U.S. Dist. LEXIS 67389, at *41-42 (W.D. Ky. Sept. 2, 2008) (failing superiority test when individualized testimony was needed to prove defendant-manufacturer's emissions were the cause of the entire class's damages).

⁴⁷ See *supra* Part III.B; *Robertson v. Monsanto Co.*, 287 Fed. Appx. 354, 362 (5th Cir. 2008) (noting that although the alleged cause of plaintiff's injuries was the single incident of a gas leak, each plaintiff still needed to demonstrate that defendant's negligence in causing the leak was proximately connected to the specific injuries complained of).

⁴⁸ See *supra* Part III.B (noting the potential presence of naturally-occurring radioactive material).

⁴⁹ See *Steering Comm.*, 461 F.3d at 602, 604-05 (noting that the predominance of individual issues relating to damages, such as different alleged periods and magnitudes of exposure and different symptoms, "detract[ed] from the superiority of the class action device in resolving [the] claims"); *Perrine v. E.I. DuPont De Nemours & Co.*, 694 S.E.2d 815, 924 (W. Va. 2010) (holding that diminished value claims must be supported with actual proof of the lost value of a specific parcel of property, rather than based on a random sampling of properties belonging to others).

⁵⁰ See, e.g., *Berish v. Southwestern Energy Production Co., et al.*, 2011 U.S. Dist. LEXIS 10626 (M.D. Pa. 2011); see also *infra* Part IV.E.

⁵¹ See *Perrine*, 694 S.E.2d at 924 (holding that diminished value claims must be supported with actual proof of the lost value of a specific parcel of property, rather than based on a random sampling of properties belonging to others).

⁵² See *Robertson*, 287 Fed. Appx. at 362 (quoting *Steering Comm.*, 461 F.3d at 602).

⁵³ See *Steering Comm.*, 461 F.3d at 602, 604-05 (concluding that the predominance of individualized damages issues such as the above-mentioned "detract[]" from the superiority of the class action device in resolving [plaintiffs' compensatory and punitive damages] claims").

⁵⁴ See *Millett*, No. CV-98-555, 2000 Me. Super. LEXIS 39, at *56-58, 67 (finding expert opinion citing these considerations to be persuasive evidence that a class-wide determination of damages for the cost of cleaning up plaintiffs' contaminated wells was impossible).

⁵⁵ See *Wall v. Sunoco, Inc.*, 211 F.R.D. 272, 281 (M.D. Pa. 2002).

⁵⁶ See *Wall*, 211 F.R.D. at 281 (quoting *Castano v. Am. Tobacco Co.*, 84 F.3d 734, 747 (5th Cir. 1996)).

⁵⁷ *Jacobs v. Osmose, Inc.*, 213 F.R.D. 607, 618 (S.D. Fla. 2003) ("With the universe of outcomes for this type of litigation still largely unknown, it would not be appropriate for this Court to make a blind guess as to the matter's manageability.").

⁵⁸ *Castano*, 84 F.3d at 748.

⁵⁹ *Florentino v. Cabot Oil & Gas Corp.*, No. 09-CV-2284, 2010 WL 4595524 (M.D. Pa. Nov. 15, 2010).

- ⁶⁰ Most causes of action typically asserted by plaintiffs in these cases are based upon common law theories or common law which has been codified by statute (such as the theory of contribution under the Uniform Contribution Among Joint Tortfeasors Act). Importantly, there are state and federal statutory causes of actions that may be raised in environmental and toxic tort litigation and which have been typically incorporated in private party complaints in litigation involving the recovery of response costs for releases of contaminants or pollutants into the environment. These statutory claims may include, among others, those arising under: Sections 107 and 113 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. §§ 9607 and 9613; Section 7002 of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6972; and Section 505 of the Federal Water Pollution Control Act ("FWPCA"), 33 U.S.C. § 1365. Additionally, most states have analogs to federal environmental laws such as the Pennsylvania Clean Streams Law (similar to the FWPCA) and the Hazardous Pennsylvania Substances Cleanup Act ("HSCA") (similar to CERCLA), which provide for private party actions. State laws may be more stringent than federal laws with respect to liability for releases of contaminants or pollutants into the environment.
- ⁶¹ Faulk, *Uncommon Law: Ruminations on Public Nuisance*, available at www.nuisancelaw.com/articles/uncommon-law-ruminations-public-nuisance (2010).
- ⁶² *Connecticut v. Am. Elec. Power Co.*, 582 F.3d 309 (2d Cir. 2009).
- ⁶³ *American Electric Power Co., Inc. v. Connecticut*, slip opinion at 10, 564 U.S. __ (2011).
- ⁶⁴ Gray, *Public Nuisance: A Historical Perspective*, available at www.nuisancelaw.com/learn/historical
- ⁶⁵ *Id.*, citing *Restatement (Second) of Torts* § 821A cmt.b (1979).
- ⁶⁶ *Id.*
- ⁶⁷ Gray, *supra* at note 64, citing Donald G. Gifford, *Public Nuisance as a Mass Products Liability Tort*, 71 U. Cinn. L. Rev. 741, 744 n. 4.
- ⁶⁸ See, e.g., *Illinois v. City of Milwaukee (Milwaukee I)*, 406 U.S. 91 (1972).
- ⁶⁹ *Georgia v. Tenn. Copper Co.*, 206 U.S. 230 (1907).
- ⁷⁰ *New Jersey v. City of New York*, 283 U.S. 473, 476 (1931).
- ⁷¹ *North Dakota v. Minnesota*, 263 U.S. 365, 371 (1923).
- ⁷² *Pennsylvania v. Wheeling & Belmont Bridge Co.*, 54 U.S., 518, 526 (1851).
- ⁷³ *United States v. Bushey & Sons, Inc.*, 363 F.Supp. 110, 120-121 (D. Vt. 1973), *aff'd without opinion*, 487 F.2d 1393 (2d Cir. 1973).
- ⁷⁴ Faulk, *supra* at note 61.
- ⁷⁵ *Restatement (Second) of Torts* 821 (B)(1); *Philadelphia Electric Co. v. Hercules, Inc.*, 762 F.2d 303, 315-16 (3d Cir. 1996); *In re Joshua Hill, Inc.*, 199 B.R. 298 (E.D. Pa. 1996), *order aff'd in part, rev'd in part on other grounds*, 151 F.3d 1025 (3d Cir. 1998).
- ⁷⁶ *Feeley v. Borough of Ridley Park*, 551 A.2d 373 (Pa. Cmwlth. 1988).
- ⁷⁷ Prosser, *Private Action for Public Nuisance*, 52 Va.L.Rev. 997, 999 (1966) (footnotes omitted).
- ⁷⁸ *Philadelphia Electric Co.*, 762 F.2d at 315-16; *West Mount Airy Neighbors, Inc. v. Cottman Transmission*, 67 Pa. D. & C.2d 530, 532 (Pa. Commn. Pls. 1974).
- ⁷⁹ *West Mount Airy Neighbors, Inc.*, 67 Pa. D. & C.2d at 532 (citing *Pa. S.P.C.A. v. Bravo Enterprises*, 237 A.2d 342 (1968); *Rhymer v. Fretz*, 206 Pa. 230, 232 (1903)).
- ⁸⁰ *Hark v. Mountain Fork Lbr. Co.*, 127 W.Va. 586 (1945); *Keystone Bridge Co. v. Summers*, 13 W. Va. 476 (1878) (holding to constitute a public nuisance, the act done or duty omitted must affect injuriously some thing or right in which the community at large have a common interest).
- ⁸¹ *Burns, Jackson, Miller, Summit & Spitzer v. Lindner*, 451 N.E.2d 459 (N.Y. 1983); *Copart Indus., Inc. v. Consolidated Edison Co.*, 362 N.E.2d 968 (N.Y. 1977); see also *New York Trap Rock Corp. v. Town of Clarkstown*, 85 N.E.2d 873, 876 (N.Y. 1949) (distinguishing a public nuisance from a private nuisance which results in injury to the enjoyment of private rights of a large number of people).
- ⁸² *Davis v. Spragg*, 79 S.E. 652 (W. Va. 1913).
- ⁸³ *International Shoe Co. v. Hearwole*, 30 S.E.2d 537 (W. Va. 1944); *Davis*, 79 S.E. at 652.
- ⁸⁴ *Copart Indus., Inc.*, 362 N.E.2d 968.
- ⁸⁵ *Burns, Jackson, Miller, Summit & Spitzer*, 451 N.E.2d at 459.
- ⁸⁶ *532 Madison Ave. Gourmet Foods, Inc. v. Finlandia Center, Inc.*, 750 N.E.2d 1097 (N.Y. 2001).
- ⁸⁷ *Spring-Gar Community Civic Ass'n, Inc. v. Homes for Homeless, Inc.* 516 N.Y.S.2d 399 (N.Y. Sup. Ct. 1987).
- ⁸⁸ *Philadelphia Electric Co. v. Hercules, Inc.*, 762 F.2d 303, 306-07 (E.D. Pa. 1996).
- ⁸⁹ *Id.* at 315-16.
- ⁹⁰ *Id.* at 316.
- ⁹¹ *Id.*; see also *In re Joshua Hill, Inc.*, 199 B.R. at 322-23, *order aff'd in part, rev'd in part on other grounds*, 151 F.3d 1025 (holding that "because the plaintiffs clearly intended to make commercial use of the soil and groundwater on the premises where the nuisance is alleged to exist, the resulting injury to plaintiffs was sufficiently unique"); *West Mount Airy Neighbors, Inc.*, 67 Pa. D. & C.2d 530, 533 (stating that although residents used the sidewalks and highways of the area more than nonresidents, this was insufficient to establish injury of a different "character" and "not such as is common to every person who exercises the right that is injured.").
- ⁹² *Allen v. General Electric Co.*, 2003 WL 22433809 (N.Y. Sup. Ct. Sept. 29, 2003).
- ⁹³ *Id.*
- ⁹⁴ *Booth v. Hanson Aggregates New York, Inc.*, 16 A.D.3d 1137, 1138 (N.Y. App. Div. 2005).
- ⁹⁵ *Id.*
- ⁹⁶ See *Melso v. Sun Pipe Line Co.*, 576 A.2d 999, 1003 (Pa. Super. Ct. 1990); *Doundoulakis v. Hempstead*, 368 N.E.2d 24, 27 (N.Y. 1977); *Peneschi v. Nat'l Steel Corp.*, 295 S.E.2d 1, 10-11 (W. Va. 1982).
- ⁹⁷ *Melso*, 576 A.2d at 1003; *Doundoulakis*, 368 N.E.2d at 27; *Peneschi*, 295 S.E.2d at 10-11.

⁹⁸ In two hydraulic fracturing cases pending in the Middle District of Pennsylvania, the court has denied defense motions to dismiss plaintiffs' claims for strict liability—abnormally dangerous activity, reasoning that the determination of whether or not an activity is abnormally dangerous is fact-intensive and better assessed after discovery is complete. See *Berish*, 2011 U.S. Dist. LEXIS 10626 *8; *Fiorentino v. Cabot Oil & Gas Corp.*, 2010 U.S. Dist. LEXIS 120566. The *Berish* court predicted, however, that “meeting the ‘common usage,’ ‘inappropriateness of the activity,’ and ‘value to the community’ prongs of [Restatement] § 520 will likely create difficulty for Plaintiffs at the summary judgment stage . . .”. *Berish*, 2010 U.S. Dist. LEXIS at 10626 *9.

⁹⁹ RESTATEMENT (SECOND) OF TORTS §520 cmt. f.

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ RESTATEMENT (SECOND) OF TORTS §520 cmt. k.

¹⁰⁴ *Id.*

¹⁰⁵ PENNSYLVANIA DEPARTMENT OF LABOR & INDUSTRY, MARCELLUS SHALE FAST FACTS JUNE 2011 Edition (2011), available at www.paworkstats.state.pa.us/.../Marcellus_Shale_Fast_Facts_Viewing.pdf

¹⁰⁶ *Id.*

¹⁰⁷ Press Release, *Pennsylvania Department of Revenue, Drilling Industry Paid More Than \$1 Billion in State Taxes Since 2006* (May 2, 2011)

¹⁰⁸ *Id.*

¹⁰⁹ 502 A.2d 658, 661 (Pa. Super. Ct. 1985).

¹¹⁰ *Id.* at 663-64.

¹¹¹ 722 A.2d 1103, 1107-08 (Pa. Super. Ct. 1998).

¹¹² *Abbateello v. Monsanto Co.*, 522 F. Supp. 2d 524, 536 (S.D.N.Y. 2007).

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ *Redland Soccer Club, Inc. v. Dept. of the Army*, 696 A.2d 137, 145-46 (Pa. 1997) (recognizing claim for medical monitoring).

¹¹⁶ New York's highest court, the New York Court of Appeals, has never addressed the issue of medical monitoring claims. *Abbateello*, 522 F. Supp. 2d at 537. New York's intermediate appellate and trial courts, however, have recognized that asymptomatic plaintiffs can recover for medical monitoring. See e.g., *Askey v. Occidental Chemical Corp.*, 447 N.Y.S.2d 242 (N.Y. App. Div. 1984); *Abusio v. Consolidated Edison Co.*, 656 N.Y.S.2d 371 (N.Y. App. Div. 1997); *Allen v. Gen. Elec. Co.*, 821 N.Y.S.2d 692 (N.Y. App. Div. 2006). In addition, several federal courts have predicted the New York Court of Appeals would recognize a cause of action for medical monitoring and will adopt the elements articulated above. See *Caronia v. Philip Morris USA, Inc.*, 2011 U.S. Dist. LEXIS 12610 (E.D.N.Y. 2011); *Abbateello*, 522 F. Supp. 2d at 536.

¹¹⁷ *Bower v. Westinghouse Electric Corp.*, 522 S.E.2d 424, 431-33 (W. Va. 1999) (holding that West Virginia recognizes a claim for medical monitoring and adopting a substantially similar test to that described above which requires a plaintiff to prove: (1) significant exposure; (2) to a proven hazardous substance; (3) through the tortious conduct of the defendant; (4) as a proximate result of the exposure, plaintiff has suffered an increased risk of contracting a serious latent disease relative to the general population; (5) the increased risk of disease makes it reasonably necessary for the plaintiff to undergo periodic diagnostic medical examinations different from what would be prescribed in the absence of the exposure; and (6) monitoring procedures exist that make the early detection of disease possible).

¹¹⁸ *Redland*, 696 A.2d at 146.

¹¹⁹ *Id.*

¹²⁰ *Bower*, 522 S.E.2d at 433 (the plaintiff must establish underlying liability “based upon a recognized tort—e.g., negligence, strict liability, trespass, intentional conduct, etc”).

¹²¹ Lynn Kerr McKay & Laurie Alberts Salita, *Marcellus groundwater claims: A case for scientifically informed decisions*, World Oil Online, Vol. 231 No. 12 (Dec. 2010), <http://www.worldoil.com/Marcellus-groundwater-claims-A-case-for-scientifically-informed-decisions.html>.

¹²² *Id.*

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ Pennsylvania Department of Environmental Protection, Marcellus Shale Fact Sheet, 0100-FS-DEP4217 (Jan. 2010 rev.) available at http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/marcellus.htm (accessed Apr. 20, 2011).

¹²⁶ Donald Gilliad, *Pennsylvania Department of Environmental Protection chief defends regulation of Marcellus Shale drilling*, THE PATRIOT NEWS, Sept. 11, 2010, available at http://www.pennlive.com/midstate/index.ssf/2010/09/pennsylvania_department_of_env_1.html (accessed Apr. 20, 2011).

¹²⁷ Fact Sheet, United States Environmental Protection Agency, Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs, National Study Final Report 2 (June 2004) available at http://www.epa.gov/safewater/uic/pdfs/cbmstudy_attach_uic_final_fact_sheet.pdf (accessed Apr. 20, 2011).

¹²⁸ See, e.g., United States Environmental Protection Agency, Human Health, U.S. EPA Drinking Water Consumer Information, Private Wells web page, (Aug. 9, 2010) available at <http://water.epa.gov/drink/info/well/health.cfm> (accessed Apr. 20, 2011).

¹²⁹ EPA Office of Research and Development, Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources 11 (Feb. 7, 2011), at 24.

¹³⁰ Blank Rome LLP Marcellus Shale Alert *Congressional Democrats' Report on Hydraulic Fracturing Chemicals Provides No Evidence of Chemicals' Potential Harm to Human Health or the Environment*, April 2011 No. 4, available at www.blankrome.com.

¹³¹ See, e.g., Stephen G. Osborne, *Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing*, Proceedings of the National Academy of Science, 2011, available at <http://www.biology.duke.edu/jackson/pnas2011.html> (finding no evidence of contamination due to hydraulic fracturing fluid). Indeed, while some claim that the environmental perils of hydraulic fracturing include contamination of drinking water, wastewater pollution of rivers, groundwater depletion, air emissions of toxic pollutants and greenhouse gases, radiation and even earthquakes, with the exception of groundwater depletion, no causal connection between hydraulic fracturing itself and of these environmental problems has been demonstrated. White, K., *The Fracas about Fracking – Low risk, high reward – but the EPA is against it*, National Review Online (June, 2011).

¹³² *Id.*

- ¹³³ *Hydraulic Fracturing*, EPA, <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfm> (last visited June 3, 2011).
- ¹³⁴ Fry, S.A., *Studies of U.S. Radium Dial Workers: An Epidemiological Classic*, 150 RADIATION RESEARCH 5, S21-S29 (1998).
- ¹³⁵ As noted previously, wastewater plants do not remove radioactive material to a level that meets federal drinking water standards. That is because wastewater plants are not required and do not attempt to meet federal drinking water standards. Drinking water treatment plants bear that responsibility.
- ¹³⁶ Don Hopey, *High Radioactivity for Marcellus not found in 7 Pa. Rivers*, PITTSBURG POST-GAZETTE, Mar. 7, 2011.
- ¹³⁷ Robert B. Jackson, *Research and Policy Recommendations for Hydraulic Fracturing and Shale-Gas Extraction*, <http://www.biology.duke.edu/jackson/pnas2011.html> (last visited June 3, 2011).
- ¹³⁸ Penn State College of Agricultural Sciences, *Water Fact #24: Methane Gas and Its Removal from Wells in Pennsylvania*, <http://pubs.cas.psu.edu/FreePubs/pdfs/XH0010.pdf> (last visited June 3, 2011).
- ¹³⁹ *Id.*
- ¹⁴⁰ *Id.*
- ¹⁴¹ *Id.* at *7; see also *Spence v. ESAB Group, Inc.*, 623 F.3d 212, 215 n.2 (3d Cir. 2010) (citing *Hunter v. Squirrel Hill Assocs., L.P.*, 413 F. Supp. 2d 517, 520 n.2 (E.D. Pa. 2005) (“While Pennsylvania courts acknowledge differing standards of care, they do not recognize degrees of negligence as separate causes of action.”)).
- ¹⁴² *Florentino*, 2010 WL 4595524, at *7.
- ¹⁴³ See *Kara Holding Corp. v. Getty Petroleum Mktg., Inc.*, No.-99 Civ. V-0275, 2004 U.S. Dist. LEXIS 15864, at *48 (S.D.N.Y. Aug. 13, 2004) (partly dismissing plaintiff-office owner’s trespass claim because no evidence was offered indicating that petroleum found in cellar of building resulted from residual contamination).
- ¹⁴⁴ *Plainview Water Dist. v. Exxon Mobil Corp.*, No. 009975-01, 2006 N.Y. Misc. LEXIS 3730, at *9-10 (Sup. Ct. Nassau Co. Nov. 27, 2006) (quoting *Askey*, 477 N.Y.S.2d at 247).
- ¹⁴⁵ *Id.* at *11.
- ¹⁴⁶ *Id.* at *16.
- ¹⁴⁷ *Rhodes v. E.I. DuPont de Nemours & Co.*, 636 F.3d 88 (4th Cir. 2011).
- ¹⁴⁸ See *id.*
- ¹⁴⁹ *Id.* at *9-10.
- ¹⁵⁰ See *Committee Democrats Release New Report Detailing Hydraulic Fracturing Products*, U.S. HOUSE OF REPRESENTATIVES COMM. ON ENERGY AND COMMERCE (DEMOCRATS) (Apr. 16, 2011), <http://democrats.energycommerce.house.gov/index.php?q=news/committee-democrats-release-new-report-detailing-hydraulic-fracturing-products>.
- ¹⁵¹ *Kara Holding Corp.*, 2004 U.S. Dist. LEXIS 15864, at *50 (citing *Colnaghi, U.S.A., Ltd. v. Jewelers Protection Svcs., Ltd.*, 81 N.Y.2d 821, 823-24 (N.Y. 1993)).
- ¹⁵² *Kara Holding Corp.*, 2004 U.S. Dist. LEXIS 15864, at *50; *Barton v. 157 Chambers Dev. Owner, LLC*, No. 114150/07, 2009 N.Y. Misc. LEXIS 5482, at *4 (Sup. Ct. N.Y. Co. July 30, 2009).
- ¹⁵³ *Rutecki v. CSX Hotels, Inc.*, 290 Fed. Appx. 537, 542-43 (4th Cir. 2008).
- ¹⁵⁴ *Id.* at 543.
- ¹⁵⁵ See *Barton*, 2009 N.Y. Misc. LEXIS 5482, at *5-6 (noting that where defendants took various safety measures, gross negligence could not be sustained, as there would be no fact supporting the allegation of failing “to use even slight care” or “complete[ly] disregard[ing] [] the rights and safety of others”); Lynn Kerr McKay & Laurie Alberts Salita, *Marcellus Groundwater Claims: A Case for Scientifically Informed Decisions*, 231 WORLD OIL ONLINE, at 4 (2010).
- ¹⁵⁶ For instance, fracturing has been used in Pennsylvania since the 1950s, and all Pennsylvania wells drilled since 1980 have been fractured. Pennsylvania Dept. of Environmental Protection, *supra* note 7.
- ¹⁵⁷ See, e.g., *Mehlenbacher v. Akzo Nobel Salt, Inc.*, 71 F. Supp. 2d 179, 183 (W.D.N.Y. 1999) (noting that if A owns a house with a scenic view, and B builds a house blocking that view, B would not be liable to A absent some tortious act on B’s part), *vacated in part on other grounds*, 216 F.3d 291 (2d Cir. 2000).
- ¹⁵⁸ See *Stenger v. Hope Natural Gas Co.*, 80 S.E.2d 889, 892 (W. Va. 1954) (reversing judgment where plaintiffs failed to offer any direct evidence tending to show that gas from any direct source or leak in defendant’s lines or fixtures followed any definite course or channel into the dwelling damaged by explosion); Lynn Kerr McKay & Laurie Alberts Salita, *Marcellus groundwater claims: A case for scientifically informed decisions*, WORLD OIL ONLINE, Vol. 231 No. 12 (Dec. 2010), <http://www.worldoil.com/Marcellus-groundwater-claims-A-case-for-scientifically-informed-decisions.html>.
- ¹⁵⁹ See *Mateer v. U.S. Aluminum*, No. 88-2147, 1989 U.S. Dist. LEXIS 6323, at *13 (E.D. Pa. June 6, 1989) (“When a plaintiff alleges that chemicals have migrated underground from another site, the plaintiff must establish that the second site was in fact the source of the pollutants at issue.”); Lynn Kerr McKay & Laurie Alberts Salita, *Marcellus groundwater claims: A case for scientifically informed decisions*, WORLD OIL ONLINE, Vol. 231 No. 12 (Dec. 2010) (noting that contamination might be the result of farming, handling and disposal of gasoline or waste materials, or other industrial operations near the property).
- ¹⁶⁰ See, e.g., *Fusco v. State Farm Fire and Casualty Co.*, 871 N.Y.S.2d 295, 296 (N.Y. App. Div. 2008) (reversing judgment where plaintiffs relied on an appraisal of their properties alone, rather than providing evidence of sales of properties that had oil leaks compared to properties that did not).
- ¹⁶¹ *Perrine*, 694 S.E.2d at 924.
- ¹⁶² *Gates v. Rohm & Haas Co.*, No. 06-1743, 2008 U.S. Dist. LEXIS 58036, at *7-8 (E.D. Pa. Jul. 31, 2008); *Mehlenbacher*, 71 F. Supp. 2d at 188.
- ¹⁶³ *Gates*, 2008 U.S. Dist. LEXIS 58036, at *7-8; *Mehlenbacher*, 71 F. Supp. 2d at 188.
- ¹⁶⁴ *Gates*, 2008 U.S. Dist. LEXIS 58036, at *12-13; *Mehlenbacher*, 71 F. Supp. 2d at 188.
- ¹⁶⁵ See, e.g., *Mehlenbacher*, 71 F. Supp. 2d at 189 (granting defendant’s motion for summary judgment where plaintiffs presented no evidence of physical surface damage supporting their claim for stigma damages); *O’Neal v. Dep’t of the Army*, 852 F. Supp. at 336-37 (finding that plaintiffs failed to sustain burden with respect to property-value diminution claim where only evidence of diminution was expert testimony referring to stigma damage).
- ¹⁶⁶ *O’Neal*, 852 F. Supp. at 336; *Gates*, 2008 U.S. Dist. LEXIS 58036, at *7-8.