

# The Empire Fracks Back: The Case for Hydraulic Fracturing Strict Liability in New York

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*The possibility that New York will allow high-volume hydraulic fracturing in the near future raises the issue of liability for environmental and other extraction-related harms. Given the potential risk, New York courts should consider treating natural gas exploration under a strict liability regime. Natural gas producers facing strict liability for drilling mishaps would be forced to internalize the environmental and other social costs inherent in the drilling process, thus incentivizing producers to exercise a maximum of care.*

## INTRODUCTION

Natural gas derricks at the Pennsylvania border are casting a long shadow over New York politics. As many New Yorkers are acutely aware, substantial quantities of natural gas lie trapped in ancient shales deep below the surface of central and southern New York.<sup>1</sup> Widespread use of horizontal drilling and a relatively new extraction technique known as hydraulic fracturing have catapulted these so-called unconventional natural gas resources to the forefront of

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<sup>1</sup>The Department of Energy estimates the Marcellus Shale play may contain some 84 to 141 trillion cubic feet of “technically recoverable” natural gas. U.S. Energy Information Administration, “Annual Energy Outlook 2012 Early Release Overview, Department of Energy,” January 2012, 9, [http://www.eia.gov/forecasts/aeo/er/pdf/0383er\(2012\).pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2012).pdf). “Technically recoverable” natural gas is gas estimated to be recoverable using existing technology—economic viability and legal restrictions notwithstanding. See National Energy Technology Laboratory, “Modern Shale Gas Development in the United States: A Primer,” Department of Energy, April 2009, 15, [http://www.netl.doe.gov/technologies/oil-gas/publications/EPreports/Shale\\_Gas\\_Primer\\_2009.pdf](http://www.netl.doe.gov/technologies/oil-gas/publications/EPreports/Shale_Gas_Primer_2009.pdf). Recoverable gas projections have fluctuated of late. “USGS Releases New Assessment of Gas Resources in the Marcellus Shale, Appalachian Basin,” U.S. Geological Survey, <http://www.usgs.gov/newsroom/article.asp?ID=2893> (accessed April 28, 2012).

the American energy scene.<sup>2</sup> As New York weighs whether or under what circumstances to authorize hydraulic fracturing,<sup>3</sup> it behooves us to contemplate the legal ramifications of widespread gas extraction in areas heretofore unaccustomed to intensive energy exploration and development. This article will argue New York would do well to treat hydraulic fracturing as an abnormally dangerous activity, thereby imposing strict tort liability for harms caused by hydraulic fracturing, including harms to sources of drinking water in close proximity to drill sites. Should New York courts be required to pass on the question whether hydraulic fracturing constitutes an abnormally dangerous activity, the seminal case of *Doundoulakis v. Town of Hempstead* provides a sound template for the imposition of strict liability.

## I. BACKGROUND AND (IN)APPLICABLE LAW

In gas-producing shale formations, natural gas is stored in micro-pores, or adsorbed onto minerals or organic matter within the formation.<sup>4</sup> Increasingly, this gas is freed from its substrate by means of horizontally-drilled wells and high-volume hydraulic fracturing (HVHF).<sup>5</sup> HVHF is a variant of hydraulic fracturing wherein millions of gallons of water, sand, or other proppants and friction-reducing chemicals are injected into the wellbore at high pressure to break apart the shale formation, forming fractures that allow trapped natural gas to flow into the wellbore and ultimately to the surface.<sup>6</sup> While HVHF permits the extraction of otherwise unattainable natural gas,<sup>7</sup> the process poses risks of groundwater and soil contamination.<sup>8</sup> HVHF-related risks are not limited, however, to the extraction process itself; before a well is drilled, the driller must select a site, clear and grade an access road, clear a well pad, and install requisite utilities.<sup>9</sup> According to the New York State Department of Environmental Conservation (DEC), the average surface disturbance per well

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<sup>2</sup> U.S. Energy Information Administration, "Annual Energy Outlook 2011," Department of Energy, April, 2011, 37, [http://www.eia.gov/forecasts/archive/aeo11/pdf/0383\(2011\).pdf](http://www.eia.gov/forecasts/archive/aeo11/pdf/0383(2011).pdf).

<sup>3</sup> See David A. Patterson, Exec. Order No. 41 (2010), <http://www.dec.ny.gov/energy/46288.html> (accessed January 21, 2013) (ordering revision of New York's 2009 Draft Supplemental Generic Environmental Impact Statement analyzing potential adverse environmental effects of horizontal drilling and hydraulic fracturing).

<sup>4</sup> See National Energy Technology Laboratory, *supra* note 1.

<sup>5</sup> See Hannah Wiseman, "Regulatory Adaptation in Fractured Appalachia," *Villanova Environmental Law Journal* 21 (2010), 229, 237–238.

<sup>6</sup> For a thorough description of the HVHF process, including an in-depth discussion of various chemical additives used and some potential health effects, see *Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program*, Department of Environmental Conservation, September 7, 2011, 5–39 to 5–79, <http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf> [hereinafter *Revised Draft SGEIS*].

<sup>7</sup> Hannah Wiseman, "Fracturing Regulation Applied," *Duke Environmental Law & Policy Forum* 22 (2012), 361, 364.

<sup>8</sup> See *id.*, 365–367.

<sup>9</sup> See *Revised Draft SGEIS*, 5–6.

pad for a multiwell site is a not inconsiderable 7.4 acres.<sup>10</sup> When the well is drilled, cuttings are produced; the cuttings must be separated from the drilling mud and either stored on the surface for eventual transport and disposal, or simply buried on-site.<sup>11</sup>

Once the well is drilled and the wellbore cased with steel and cement, the HVHF process begins. In so-called *slickwater* fracturing, the operator first perforates the lateral well casing in the areas to be fractured, and then injects water, proppants such as sand or ceramic beads, and a proprietary mix of chemicals into the well at high pressure.<sup>12</sup> DEC indicates approximately 2.4 to 7.8 million gallons of fresh water are injected each time a single well is fractured.<sup>13</sup> DEC further estimates between 9 and 35 percent of the fracturing fluid injected into a typical Marcellus well returns to the surface as flowback, or *produced water*.<sup>14</sup> Based on DEC's estimates, this means some 216,000 to 2.7 million gallons of wastewater may be recovered per well each time the well is fractured. Naturally, the wastewater is contaminated with the same chemicals initially injected, including petroleum distillates, aromatic hydrocarbons such as benzene, toluene, ethylbenzene, and xylene, ethylene glycol, and acrylamide.<sup>15</sup>

Given the invasive nature of HVHF and the health risks posed by the chemicals involved, much commentary has focused on the potential for harm to ground and surface water resources, including private and public drinking water supplies.<sup>16</sup> Despite the potential for contamination of water sources,

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<sup>10</sup> *Id.* For a single-well site, the average area of surface disturbance is estimated to be approximately 4.8 acres. Citing industry estimates, DEC suggests approximately 90 percent of the wells drilled in New York will be drilled on multiwell pads.

<sup>11</sup> *Id.*, 5–32 to 5–33. There is some controversy regarding the potential for NORM contamination in well cuttings from Marcellus wells. While DEC does not believe NORM contamination is significant, see *id.*, 5–34, EPA asserts data show high concentrations of NORM in cuttings from wells in Pennsylvania. See *EPA Comments on Revised Draft NYSDEC Revised dSGEIS for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs*, U.S. Environmental Protection Agency, January, 11, 2012, 4, <http://www.epa.gov/region2/newsevents/pdf/EPA%20R2%20Comments%20Revised%20dSGEIS%20Enclosure.pdf> (noting samples of produced water from Pennsylvania gas wells where HVHF has been used show elevated levels of radioactivity).

<sup>12</sup> See *Revised Draft SGEIS*, supra note 6, 5–91 to 5–94.

<sup>13</sup> *Id.*, 5–93.

<sup>14</sup> *Id.*, 5–99.

<sup>15</sup> For a relatively detailed inventory of fracturing fluid chemical components, their uses, and their potential health effects (to the extent health effects are known), see *id.*, 5–40 to 5–79. See also Lena Groeger, “What the Frack is in that Water?,” *ProPublica*, March 7, 2012, <http://www.propublica.org/special/what-the-frack-is-in-that-water> (accessed January 21, 2013) (listing and describing common constituents of HVHF fluid).

<sup>16</sup> See, e.g., Hannah Wiseman, “Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation,” *Fordham Environmental Law Review* 20 (2009), 115, 116 (discussing potential groundwater contamination); Stephen G. Osborn et al., “Methane Contamination of Drinking Water Accompanying Gas-Well Drilling and Hydraulic Fracturing,” May 17, 2011, 2 <http://www.pnas.org/content/108/20/8172.full.pdf+html> (accessed January 21, 2013) (finding significant positive correlation between the presence of deep methane in domestic wells and proximity to HVHF sites).

however, HVHF is exempt from regulation under several marquee environmental laws, including the underground injection regulations of the Safe Drinking Water Act, the solid waste tracking requirements of the Resource Conservation and Recovery Act, and the hazardous substances release reporting requirements of the Emergency Preparedness and Community Right to Know Act.<sup>17</sup> While USEPA (U.S. Environmental Protection Agency) recently exercised its § 111 authority to issue new emissions rules for HVHF under the Clean Air Act,<sup>18</sup> regulation of HVHF and associated extraction activities is—at least for the time being—largely a matter of state law.<sup>19</sup>

## II. STRICT LIABILITY

What recourse for the star-crossed homeowner whose property abuts a well pad, and who finds her groundwater contaminated? The Clean Water Act prohibits unpermitted discharges into navigable waters from any point source.<sup>20</sup> Should drillers unwittingly spill flowback water, fuel, chemicals, or other pollutants into an adjacent stream, a Clean Water Act citizen suit might lie.<sup>21</sup> If, however, the homeowner's well turns surreptitiously turbid when a nearby natural gas well is hydraulically fractured, but no apparent spill has occurred, the homeowner is left to pursue what remedy she may under state law.<sup>22</sup> New York has imposed strict liability for petroleum discharge by statute;<sup>23</sup> unfortunately, attempts to enact a similar law applying strict liability to HVHF have been rebuffed.<sup>24</sup> Absent a statutory remedy, the homeowner's only remaining option is to sue in tort. Should the homeowner bring a suit alleging negligent pollution of groundwater, however, the New York courts have required that she demonstrate: (1) the drillers failed to exercise due care; and (2) the drillers had actual or constructive knowledge their negligent

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<sup>17</sup> Wiseman, *supra* note 5, 243–245.

<sup>18</sup> See “Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews,” U.S. Environmental Protection Agency, April 17, 2012, 1, <http://www.epa.gov/airquality/oilandgas/pdfs/20120417finalrule.pdf>; see also 42 USC § 7411 (2012).

<sup>19</sup> Wiseman, *supra* note 5, 249–250.

<sup>20</sup> Federal Water Pollution Control Act, 33 USC §§ 1311(a), 1362(7), 1362(12), 1362(14) (2012).

<sup>21</sup> See *id.* § 1365(f).

<sup>22</sup> There seems to be some dispute whether the Clean Water Act applies to subsurface discharges of pollutants. See Hannah Coman, Comment, “Balancing the Need for Energy and Clean Water: The Case for Applying Strict Liability in Hydraulic Fracturing Suits,” *Boston College Environmental Affairs Law Review* 39 (2012), 131, 140.

<sup>23</sup> See Oil Spill Prevention, Control, and Compensation Act, New York Navigation Law § 181 (*McKinney's Consolidated Laws of New York*; St. Paul, Minn.: Thomson Reuters, 2012). Given the possible presence of petroleum distillates in produced water, one wonders whether § 181 might eventually form the basis for imposing strict liability in the HVHF context. See Joshua M. Tallent, “I Drink Your Milkshake?: Potential Property Rights Repercussions of Natural Gas Exploration in New York,” *Buffalo Law Review* (forthcoming 2013).

<sup>24</sup> See Assemb. A02108, 2011 Leg., Reg. Sess. (N.Y. 2011).

action could result in the contamination of the homeowner's groundwater supply.<sup>25</sup>

Alternatively, where an activity poses a grave risk of harm, and that risk remains despite the exercise of due care by those engaging in the activity, the homeowner may ground her claim in strict liability.<sup>26</sup> Where strict liability applies, the court does not inquire into the actor's intent, or whether the actor breached a duty to the plaintiff by failing to meet an applicable standard of care.<sup>27</sup> While some courts have refused to apply strict liability to natural gas drilling, two recent federal suits in Pennsylvania suggest strict liability may be a viable claim in the HVHF context. In both *Berish v. Southwestern Energy Production Co.* and *Fiorentino v. Cabot Oil & Gas Corp.*, plaintiffs allege HVHF and related activities at nearby well sites contaminated their well water.<sup>28</sup> In both suits, the defendant gas companies moved to dismiss plaintiffs' strict liability claims. The courts denied defendants' motions, holding the question whether Pennsylvania state courts would treat HVHF as abnormally dangerous (and thus subject to strict liability) required further factual elaboration.<sup>29</sup>

Like Pennsylvania, the New York courts have recognized a common law cause of action for strict liability where actors engage in abnormally dangerous activities.<sup>30</sup> In *Doundoulakis v. Town of Hempstead*, where the municipality's ill-considered act of hydraulic dredging damaged plaintiffs' properties, the court of appeals adopted the multipart balancing test propounded by the *Restatement (Second) of Torts*.<sup>31</sup> The balancing test considers: (1) the existence of a great risk of harm to third parties; (2) the likelihood the harm would be severe; (3) whether the actor may reduce the risk of harm by exercising reasonable care; (4) whether the activity is commonplace; (5) whether the activity is appropriate for its location; and (6) whether the activity's community value outweighs its dangerousness.<sup>32</sup> While an "abnormally dangerous" determination involves multiple factors, "[a]nalysis of no one factor is determinative."<sup>33</sup> Whether or not an activity will be considered abnormally dangerous is within the court's discretion, and will be determined on a case by case basis.<sup>34</sup>

<sup>25</sup> See *Fetter v. DeCamp*, 600 N.Y.S.2d 340, 342 (N.Y. App. Div. 1993); see also *Phillips v. Sun Oil Co.*, 121 N.E.2d 249, 251 (N.Y. 1954), *Strand v. Neglia*, 649 N.Y.S.2d 729, 730 (N.Y. App. Div. 1996).

<sup>26</sup> See Clifford Rechtschaffen and Denise Antolini, *Creative Common Law Strategies for Protecting the Environment* (Washington, DC: Environmental Law Institute, 2007), 35.

<sup>27</sup> See *Restatement of Torts (Third)*, § 20 scope note (2001).

<sup>28</sup> *Berish v. Southwestern Energy Production Co.*, 763 F. Supp. 2d 702, 704 (2011); *Fiorentino v. Cabot Oil & Gas Corp.* 750 F. Supp. 2d 506, 510 (2010).

<sup>29</sup> See *Berish*, 763 F. Supp. 2d at 706; *Fiorentino*, 750 F. Supp. 2d, 512.

<sup>30</sup> See *Doundoulakis v. Town of Hempstead*, 368 N.E.2d 24, 27 (N.Y. 1977) ("[S]trict liability will be imposed upon those who engage in an activity [that] poses a great danger of invasion of the land of others").

<sup>31</sup> *Id.*, 27; see also *Restatement of Torts (Second)* §§ 519–520 (1977).

<sup>32</sup> *Restatement of Torts (Second)* § 520.

<sup>33</sup> See *Doundoulakis*, 386 N.E.2d, 27.

<sup>34</sup> See *id.*

The deafening absence of natural gas drilling in New York has deprived our courts—for the moment—of the opportunity to evaluate whether HVHF is an abnormally dangerous activity for strict liability purposes. To date, New York courts have refused to impose strict liability for, *inter alia*, residential propane gas,<sup>35</sup> residential delivery and storage of heating oil,<sup>36</sup> mere storage of gasoline,<sup>37</sup> and the transmission of electricity.<sup>38</sup> The court of appeals has, however, imposed strict liability in the paradigm context of blasting,<sup>39</sup> and seemed poised to do so in *Doundoulakis*, where a municipality pumped huge volumes of water and sand onto a site adjacent to several residential structures.<sup>40</sup> While the *Doundoulakis* court ultimately remanded the case for further deliberation, it quoted approvingly from so much of the appellate division’s opinion as found the town’s dredging abnormally dangerous. “It matters little,” wrote the court, “whether the force used is dynamite . . . or pressure created by accumulating, massing, and diverting large amounts of water by means of hydraulic pumps . . . , or whether the invasion [of plaintiffs’ property] is by objects projected by explosion, or *water forced . . . underneath and through the earth.*”<sup>41</sup> In the wake of this eerily prescient pronouncement, it is at least conceivable New York courts would be willing to classify HVHF as an abnormally dangerous activity susceptible to a strict liability analysis.

### III. STRICT LIABILITY SHOULD APPLY TO HYDRAULIC FRACTURING

As noted above, the *Restatement (Second)*’s balancing test requires not only a threshold determination that negligence does not apply (that is, no amount of care would avoid the harm), but a determination that the activity in question is uncommon, ill-suited to its site, and of limited social utility.<sup>42</sup> As various scholars have noted, the *Restatement (Second)*’s common usage and social utility factors not only permit wide judicial discretion, but may lead to unjust results.<sup>43</sup> It is difficult to imagine how HVHF becomes less dangerous as the density of well pads surrounding one’s home increases. The site and

<sup>35</sup> *Searle v. Suburban Propane Div. of Quantum Chemical Corp.*, 700 N.Y.S.2d 588, 591 (N.Y. App. Div. 2000).

<sup>36</sup> *Snyder v. Jessie*, 565 N.Y.S.2d 924, 929 (N.Y. App. Div. 1990), superseded by statute, New York Navigation Law § 181(5) (*McKinney’s Consolidated Laws of New York*).

<sup>37</sup> *750 Old County Road Realty Corp. v. Exxon Corp.*, 645 N.Y.S.2d 186, 187 (N.Y. App. Div. 1996).

<sup>38</sup> *Farina v. Niagara Mohawk Power Corp.*, 438 N.Y.S.2d 645, 647 (N.Y. App. Div. 1981).

<sup>39</sup> *Spano v. Perini Corp.*, 250 N.E.2d 31, 33 (N.Y. 1969).

<sup>40</sup> *Doundoulakis v. Town of Hempstead*, 368 N.E.2d 24, 27 (N.Y. 1977).

<sup>41</sup> *Id.*, 28 (emphasis added).

<sup>42</sup> See *Restatement of Torts (Second)* § 520.

<sup>43</sup> See Rechtschaffen and Antolini, *supra* note 26, 38; see also Coman, *supra* note 22, 151–152; William K. Jones, “*Strict Liability for Hazardous Enterprises*,” *Columbia Law Review* 92 (1992), 1705, 1711–1712 (“Suppose the common practice in a community is to burn trash in open fires . . .”).

social utility factors are notably absent from the *Restatement (Third)*'s abnormally dangerous activities test.<sup>44</sup> Under the *Restatement (Third)*, an activity is abnormally dangerous where: (1) it creates a “foreseeable and highly significant risk of physical harm even when reasonable care is exercised by all actors; and (2) [it] is not one of common usage.”<sup>45</sup> Rather than engage in a case-by-case evaluation of, for example, the value to specific communities of nearby natural gas extraction, the New York courts should adopt the *Restatement (Third)*'s approach and base a finding of abnormal dangerousness on the high degree of risk and the potentially disastrous effects of HVHF and the apparent inability of drillers to prevent water well contamination in all instances. As regards common usage, courts should bear in mind that HVHF, should it be permitted in New York, would in many instances occur in relative proximity to residential structures. While propane storage tanks are of necessity relatively common fixtures in and about the country home, natural gas derricks certainly are not.

Ultimately, imposition of strict liability for natural gas extraction in New York is a matter of sound public policy. As Professor Jones notes, “progress exacts a price.”<sup>46</sup> To the extent gas producers are allowed to externalize the true costs of their activities on a random basis—that is, by forcing disproportionate risk upon those whose wells happen to become contaminated—any attempt to assess HVHF's value to the community will be canted in favor of the industry. Should the courts impose strict liability, the costs associated with HVHF's potential harms would shift to the actors. Imposition of strict liability thus succeeds doubly—first, by forcing gas producers to decide where and when to drill, if at all, based on more accurate economic data, and second, by affording those hurt by gas extraction a viable remedy in our courts of law.

## CONCLUSION

This article has argued the potential for environmental and other damages associated with widespread unconventional natural gas production in relatively populated areas of New York can be mitigated to some extent should New York courts be willing to treat HVHF as an abnormally dangerous activity subject to strict liability in tort. Such treatment, while undoubtedly distasteful to natural gas producers, would serve the ends of environmental justice by forcing producers to internalize the true costs of unconventional natural gas production.

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<sup>44</sup> See *Restatement of Torts (Third)* § 20.

<sup>45</sup> *Id.* § 20(b).

<sup>46</sup> Jones, *supra* note 43, 1711.