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COMMENT

I Drink Your Milkshake?: Potential Property Rights Repercussions of Natural Gas Exploration in New York State

JOSHUA M. TALLENT[†]

INTRODUCTION

In a 1962 article in the *New York State Bar Journal*, Olean attorney Robert Diggs suggested members of the New York Bar would do well to acquire at least some familiarity with the law of oil and natural gas.¹ Diggs was articulating what he believed was corollary to an impending explosion in New York's energy sector; new technologies for extraction of oil and gas would allow energy exploration and extraction companies—commonly called “operators”—to tap sources of oil and gas trapped in rock formations previously considered either physically or economically out of reach.² Fifty years after Diggs published his essay, his prophesy seems on the

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1. Robert M. Diggs, *How the Search for Oil and Gas Affects the General Practitioner*, 34 N.Y. ST. B.A. J. 355, 355-57 (1962).

2. *See id.* at 356.

verge of fulfillment. A few brief statistics should serve to set the scene.

In 1962, operators extracted a mere 4.3 billion cubic feet (“bcf”) of New York State natural gas.³ In fact, from a peak of 21.9 bcf in 1937,⁴ New York natural gas output declined steadily until the mid-1970s, when operators began to extract previously unrecoverable gas deposits in the state’s Southern Tier.⁵ Still, gas production remained flat. In 2011, the most recent year for which data are available, operators recovered 31.1 bcf of natural gas from New York wells.⁶ Operators working in nearby Pennsylvania, by contrast, extracted some 3.5 bcf of natural gas in 2011 *per day*.⁷ The sole salient difference: hydraulic fracturing.

Nearly two hundred years after William Hart dug the nation’s first commercial natural gas well (by hand, with a shovel) in the present-day village of Fredonia,⁸ New Yorkers find themselves debating whether to permit what promises to be a dramatic increase in the size, scope, and intensity of the state’s natural gas industry.⁹ For the first time in New

3. U.S. Energy Info. Admin., *Energy Production in Physical Units, New York, 1960–2009*, U.S. DEP’T OF ENERGY, 1 (2010), available at http://205.254.135.7/state/seds/sep_prod/pdf/PT1_NY.pdf.

4. Janet Pearson Mowbray, Comment, *Regulation of Oil and Gas Producers in New York*, 32 ALB. L. REV. 387, 388 (1968).

5. See *New York’s Oil and Natural Gas History*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, 9 (2007), available at http://www.dec.ny.gov/docs/materials_minerals_pdf/nyserda2.pdf.

6. Div. of Mineral Res., *2011 Annual Oil & Gas Production Data*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/36159.html> (last visited Jan. 7, 2013). The reader should note New York consumed nearly 1.2 trillion cubic feet of natural gas in 2010. U.S. Energy Info. Admin., *Natural Gas Consumption by End Use*, U.S. DEP’T OF ENERGY, http://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SNY_a.htm (last visited Mar. 15, 2013).

7. U.S. Energy Info. Admin., *Horizontal Drilling Boosts Pennsylvania’s Natural Gas Production*, U.S. DEP’T OF ENERGY (May 23, 2012), <http://www.eia.gov/todayinenergy/detail.cfm?id=6390>.

8. See *New York’s Oil and Natural Gas History*, *supra* note 5.

9. See Michael Wines, *Drilling Far From Imminent, But Debate Roils a Region*, N.Y. TIMES, Jan. 7, 2013, at A14.

York, operators are seeking state authorization¹⁰ to employ two technologies in combination—horizontal drilling¹¹ and a controversial natural gas extraction technique called high-volume hydraulic fracturing (“HVHF”)¹²—to recover natural gas trapped deep in the Marcellus Shale.¹³ The Marcellus is a dense layer of shale found under large portions of New York, Pennsylvania, and West Virginia, as well as parts of Ohio, Kentucky, Maryland, and Tennessee.¹⁴ According to a recent study, the Marcellus may contain some 84 to 141 trillion cubic feet (“tcf”) of “technically recoverable” natural gas.¹⁵ In other words, while precise estimates remain highly

10. *Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, 2 (Sept. 7, 2011) [hereinafter *Revised dSGEIS*], available at <http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf>.

11. Horizontal or directional drilling is a well drilling technique where the driller drills vertically to a desired depth, then turns the drill bit sideways (“deviates” the bit) to permit the well to continue laterally. For a thorough description, see *id.* at 5-24 to 5-39; see also *infra* notes 51-52 and accompanying text.

12. High-volume hydraulic fracturing is a variant of hydraulic fracturing wherein large quantities of water, sand, and other chemicals are injected at high pressure into the well bore to break apart rock and release natural gas. See *Revised dSGEIS*, *supra* note 10, at 5-91 to 94. This Comment will employ the colloquialism “fracking” to denote this process. Where necessary, the Comment will distinguish between hydraulic fracturing as initially practiced, and its modern, high-volume, and high-pressure variant.

13. See *Marcellus Shale*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/46288.html> (last visited Jan. 7, 2013).

14. *Anschutz Exploration Corp. v. Town of Dryden*, 940 N.Y.S.2d 458, 464 (N.Y. Sup. Ct. 2012).

15. See U.S. Energy Info. Admin., *Annual Energy Outlook 2012 Early Release Overview*, U.S. DEP’T OF ENERGY, 9 (Jan. 2012), available at [http://www.eia.gov/forecasts/aeo/er/pdf/0383er\(2012\).pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2012).pdf). Natural gas is “technically recoverable” as long as existing technology permits for its recovery—economic viability and legal restrictions do not enter into the equation. See Nat’l Energy Tech. Lab., *Modern Shale Gas Development in the United States: A Primer*, U.S. DEP’T OF ENERGY, 15 (Apr. 2009), available at http://www.netl.doe.gov/technologies/oil-gas/publications/epreports/shale_gas_primer_2009.pdf.

variable, the Marcellus Shale may account for a substantial portion of the natural gas reserves in the United States.¹⁶

HVHF—commonly known as “fracking”—is a means to economically recover natural gas from certain subterranean rock formations, including shale layers or “plays” like the Marcellus, that are too dense to allow gas to flow into a non-fractured well.¹⁷ To hydraulically fracture or “frack” a well, operators mix millions of gallons of fresh water with sand and other chemical additives to create fracking fluid.¹⁸ With the assistance of powerful pumps, the operators then inject the fracking fluid into the well, creating enough pressure to fragment—quite literally, break apart or fracture—the gas-bearing rock, allowing the trapped natural gas to flow into the well bore and up to the surface.¹⁹

Fracking is not new a technology. Gas companies have been drilling and fracturing gas wells in hydrocarbon-rich states like Texas and Kansas since the late 1940s.²⁰ In New York, operators began fracturing wells in the 1950s.²¹ What is new, at least in New York, is the proposed combination of horizontal well drilling and high-volume hydraulic fracturing.²² This type of fracking is high-volume (as compared to the kind of hydraulic fracturing used in New York in the second half of the twentieth century) precisely

16. See U.S. Energy Info. Admin., *Annual Energy Outlook 2012*, U.S. DEPT OF ENERGY, 93 (June 2012), available at [http://www.eia.gov/forecasts/archive/aeo12/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/archive/aeo12/pdf/0383(2012).pdf).

17. U.S. Energy Info. Admin., *What is Shale Gas and Why is it Important?*, U.S. DEPT OF ENERGY, http://www.eia.gov/energy_in_brief/article/about_shale_gas.cfm (last visited Mar. 15, 2013).

18. Symposium, ‘Shale’ We Drill? *The Legal and Environmental Impacts of Extracting Natural Gas from Marcellus Shale*, 22 VILL. ENVTL. L.J. 189, 200 (2011).

19. Hannah Wiseman, *Regulatory Adaptation in Fractured Appalachia*, 21 VILL. ENVTL. L.J. 229, 236-38 (2010).

20. See Colleen E. Lamarre, *Owning the Center of the Earth: Hydraulic Fracturing and Subsurface Trespass in the Marcellus Shale Region*, 21 CORNELL J.L. & PUB. POL’Y 457, 459 (2012).

21. *Marcellus Shale*, *supra* note 13.

22. *Revised dSGEIS*, *supra* note 10, at 1.

because it uses vastly greater quantities of fresh water and more chemical additives than its low-volume predecessor.²³ Faced with the potential proliferation of this unfamiliar process, citizens of New York are voicing concerns over, inter alia, the potential for depletion of critical fresh water resources, the apparent dearth of wastewater treatment capacity, the possibility of groundwater contamination²⁴ (both from fracking and from fracking-related surface spills), and the potential for significant increases in heavy truck traffic and infrastructure degradation associated with the widespread use of fracking in New York.²⁵

Common to each of these concerns is a fundamental nervousness about land. Since New York has never been a prodigious producer of natural gas, it comes as no surprise that New York courts have had little call to develop a detailed body of natural gas-related case law. This absence should be viewed as generative. As others have noted,²⁶ now is the ideal time to analyze New York's natural gas jurisprudence with an eye toward determining what rights landowners have in natural gas beneath their properties, what rights landowners relinquish if they sign a natural gas exploration and drilling agreement or "lease," what risks such transfers of rights might entail, and what tools communities may use to prevent—should they so choose—HVHF within their municipal borders.

Part I of this Comment provides a brief overview of the processes of directional drilling and high-volume hydraulic fracturing as they would likely be employed in New York. Part II discusses key background principles animating the law of oil and gas nationally. Part III focuses on oil and gas law as it has developed in New York, and seeks to define the property rights transferred under a typical natural gas

23. *Id.*

24. See *Draft Investigation of Groundwater Contamination Near Pavillion, Wyoming*, U.S. ENVTL. PROT. AGENCY, 33 (Dec. 8, 2011), available at http://www.epa.gov/region8/superfund/wy/pavillion/EPA_ReportOnPavillion_Dec-8-2011.pdf (finding groundwater contaminated with chemicals used in nearby hydraulic fracturing operations).

25. See, e.g., *Revised dSGEIS*, *supra* note 10, at 7-129.

26. See Lamarre, *supra* note 20, at 459.

lease. Part IV discusses potential negative effects on landowners who choose to lease their property for natural gas development, such as liability for environmental degradation and violations of mortgage loan agreements. Part V discusses possible uses of municipal zoning law to control siting of gas wells, or to stop drilling altogether.

I. BACK TO THE FUTURE: HIGH-VOLUME HYDRAULIC FRACTURING DEFINED

Hydraulic fracturing is a natural gas extraction method designed to recover natural gas from dense rock formations, including coalbeds, tight sands, and shale formations like the Marcellus.²⁷ This Part discusses: (1) the physical process of hydraulic fracturing, (2) describes how HVHF is different from the type of hydraulic fracturing used during the mid-to late twentieth century, and (3) explores the framework of regulations applicable to HVHF in New York.

A. *Hydraulic Fracturing: Background Concepts*

Energy companies have been commercially extracting natural gas in New York since the 1820s.²⁸ The quantity of natural gas produced, however, has been and continues to be modest, especially as compared with New York's prodigious energy consumption.²⁹ Since at least the early years of the twentieth century, however, operators have employed various technological enhancements, or what are generally called "secondary recovery methods," to improve oil and gas recovery.³⁰ HVHF is a secondary recovery method designed to break apart or fracture dense, gas-

27. Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 FORDHAM ENVTL. L. REV. 115, 117-18 (2009).

28. *Revised dSGEIS*, *supra* note 10, at 4-1.

29. See *2011 Annual Oil & Gas Production Data*, *supra* note 6 and accompanying text.

30. For a detailed description of an early secondary recovery method known as "flooding," see *Mallory v. McDermott*, 80 N.Y.S.2d 486, 491-94 (N.Y. App. Div. 1948).

containing formations, releasing trapped gas.³¹ Gas wells where secondary recovery methods are required are termed “unconventional”—as opposed to “conventional”—wells.³²

Conventional wells are used to tap into reservoirs that form as natural gas migrates from relatively dense, organic-rich source rock formations, such as shales, to adjacent, more permeable rock formations.³³ When an operator drills into the more permeable rock of the reservoir formation, subterranean pressure forces the gas out of the formation, into the well bore, and up to the surface.³⁴

By the 1930s, gas production from conventional wells in New York was in decline.³⁵ By the 1970s, conventional gas production had peaked nationwide.³⁶ As conventional gas production faltered, operators increasingly turned to new, unconventional extraction techniques to boost flagging production.³⁷ Unlike the conventional gas wells described above, unconventional wells are designed to tap directly into low-permeability rock formations, including shales. While gas is present in these formations in significant quantities, it is either immobile, or attached by adsorption to the rock itself.³⁸ Unconventional wells must rely on secondary recovery methods like HVHF to free trapped gas from its rocky substrate.³⁹ Unsurprisingly, gas trapped in a low-porosity rock formation such as the Marcellus is both more challenging and more expensive to recover than gas pooled in permeable reservoir formations.⁴⁰ Without HVHF, in

31. Wiseman, *supra* note 27, at 118.

32. *Revised dSGEIS*, *supra* note 10, at 4-1; Nat'l Energy Tech. Lab., *supra* note 15 (describing the difference between conventional and unconventional gas extraction).

33. *See What is Shale Gas and Why is it Important?*, *supra* note 17.

34. *See Revised dSGEIS*, *supra* note 10, at 1-1.

35. Mowbray, *supra* note 4, at 388.

36. Wiseman, *supra* note 19, at 233.

37. *Id.*

38. *See* Nat'l Energy Tech. Lab, *supra* note 15, at 15-16.

39. *See What is Shale Gas and Why is it Important?*, *supra* note 17.

40. *See id.*

other words, shale gas would simply not be economically recoverable.⁴¹

Unconventional wells tap into natural gas formations of relatively low permeability.⁴² In shale plays like the Marcellus, gas is trapped in micro-pores, or adsorbed onto minerals or organic matter within the rock formation.⁴³ Increasingly, drillers free this gas by means of horizontally-drilled wells and HVHF.⁴⁴ HVHF is a type of hydraulic fracturing wherein several million gallons of water, sand or other proppants, and friction-reducing chemicals are injected into the well bore at high pressure to break apart the shale formation, forming fractures which allow trapped natural gas to flow into the well bore and ultimately to the surface.⁴⁵ While hydraulic fracturing technology was deployed as early as the 1940s, HVHF, its high-pressure, high-fluid-volume variant, migrated to the Marcellus Shale region only within the last decade.⁴⁶

While superficially straightforward, the process leading up to the actual drilling and fracking of a natural gas well is complex. Before selecting a drilling site, operators crisscross target areas in heavy trucks called “thumpers,” creating vibrations to map subsurface formations.⁴⁷ After identifying a potential well site, the operator must secure drilling

41. *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1, 6-7 (Tex. 2008). *But see* Jeff Brady, *Natural Gas Giant Tries to Shift Gears*, NPR (Aug. 8, 2012), available at <http://www.npr.org/2012/08/08/158378110/natural-gas-giant-tries-to-shift-gears> (noting overproduction has caused a decline in natural gas prices).

42. Nat'l Energy Tech. Lab., *supra* note 15. In addition to shale formations, unconventional sources of natural gas include coal-beds and “tight sands,” or low-porosity sandstone formations. *See Revised dSGEIS*, *supra* note 10, at 4-1.

43. Nat'l Energy Tech. Lab., *supra* note 15.

44. *See Wiseman*, *supra* note 19, at 236-38.

45. For a lengthy description of the HVHF process, including a detailed discussion of various chemical additives used and some potential health effects, see DEC's *Revised dSGEIS*, *supra* note 10, at 5-39 to -79.

46. *See* Nat'l Energy Tech. Lab., *Shale Gas: Applying Technology to Solve America's Energy Challenges*, U.S. DEP'T OF ENERGY, 3 (Mar. 2011), available at http://www.netl.doe.gov/technologies/oil-gas/publications/brochures/Shale_Gas_March_2011.pdf.

47. *Wiseman*, *supra* note 27, at 127.

rights and obtain all necessary permits from the New York State Department of Environmental Conservation (“DEC”) and, where required, from the municipality.⁴⁸ Following site selection, the operator must construct an access road, clear and grade the well pad site, and install necessary utilities.⁴⁹ According to DEC, the projected average area of surface disturbance per well pad for a multi-well HVHF site is a hardly insignificant 7.4 acres.⁵⁰ DEC expects most Marcellus wells in New York will be horizontally drilled; after drilling a vertical well bore to a depth of approximately 500 feet above the target shale formation, the operators will “deviate” the drill bit, drilling laterally for up to several thousand feet through the target formation.⁵¹ As drilling progresses, operators circulate drilling “mud”⁵² through the well bore. This fluid mix ultimately returns to the surface carrying rock pulverized by the drill.⁵³ Operators separate these “cuttings” or waste material from the drilling mud in large surface separation tanks.⁵⁴ Operators either store the cuttings at the well pad and ultimately bury them on-site, or remove the cuttings for disposal at a remote location.⁵⁵

48. This assumes, of course, DEC will at some point complete its environmental study of HVHF and authorize its use in New York. As of this writing, no permits have issued. For further discussion of the potential role of municipalities in the permitting process, see discussion *infra* Part V.

49. See *Revised dSGEIS*, *supra* note 10, at 5-6.

50. *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% of the wells drilled in New York will be drilled on multi-well pads. Multi-well drilling would appear to reduce surface disturbance as compared to multiple, single-well pads. At least from this perspective, multi-well drilling is an advantage of the HVHF process. *Id.*

51. See *id.* at 5-24 to -25.

52. Drilling mud is a fluid used during the well-drilling process to power and cool the drill bit, to stabilize the borehole, and to provide a medium for transmission of sensor readings. See *id.* at 5-32.

53. *Id.*

54. *Id.*

55. *Id.* at 5-32 to -33. There is some controversy regarding the potential for naturally occurring radioactive material (“NORM”) contamination in cuttings from Marcellus wells. While DEC does not believe NORM contamination would be a significant issue, see *id.* at 5-34, it is EPA’s position data have shown

Once the well is drilled and the well bore cased with steel and cement, the HVHF process begins. In “slickwater” fracturing, the operator first uses small explosive charges to perforate the “foot” or lateral well casing in the areas to be fractured, then injects fracking fluid into the well at high pressure.⁵⁶ DEC indicates approximately 2.4 to 7.8 million gallons of fresh water will be injected per well every time a well is fractured (wells may be fractured multiple times).⁵⁷ Significant amounts of sand, ceramic beads, or other proppants are injected into the well along with the water to hold or prop open the cracks formed in the shale.⁵⁸ Water and proppants make up the bulk of the fracking fluid by volume.⁵⁹ In additions to proppants and water, the operator must also inject various chemical additives into the well, including acids, biocides, corrosion inhibitors, friction reducers, and gelling agents.⁶⁰ While certain of these chemicals do not pose direct health risks, others may have deleterious effects on human health.⁶¹ Petroleum distillates, aromatic hydrocarbons such as BTEX (benzene, toluene, ethylbenzene, and xylene), ethylene glycol (antifreeze), and acrylamide have all been used in fracturing fluid, and all have been linked to adverse health effects in humans.⁶²

elevated concentrations of NORM in cuttings from Pennsylvania wells. 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. ENVTL. PROT. AGENCY, 4 (Jan. 11, 2012) [hereinafter *EPA Comments*], available at <http://www.epa.gov/region2/newsevents/pdf/EPA%20R2%20Comments%20Revised%20dSGEIS%20Enclosure.pdf>.

56. See *Revised dSGEIS*, *supra* note 10, at 5-91 to -94.

57. *Id.* at 5-93.

58. See *id.* at 5-5, 5-50.

59. See *id.* at 5-40.

60. *Id.* at 5-94 to -95.

61. *Id.* at 5-79.

62. 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.* at 5-40 to -79; see also Lena Groeger, *What the Frack is in that Water?*, PROPUBLICA (Mar. 7, 2012), <http://www.propublica.org/special/what-the-frack-is-in-that-water> (listing and describing common constituents of HVHF fluid).

Based on industry data, DEC estimates between 9% and 35% of the fracking fluid injected into a typical Marcellus well will return to the surface as “flowback.”⁶³ Given DEC’s fluid-use estimates, this means some 216,000 to 2.7 million gallons of wastewater may be recovered per well each time the well is fractured.⁶⁴ Naturally, flowback—also called “produced” water—contains the same chemicals discussed above.⁶⁵ Because the Marcellus is of marine origin, the produced water is also highly saline.⁶⁶ Further, produced water may contain NORM (naturally occurring radioactive materials) present in the shale.⁶⁷ While other states have—however inexplicably—allowed operators to store produced water in open surface ponds,⁶⁸ DEC’s proposed regulations would require operators to store flowback water in closed tanks at the well site prior to disposal.⁶⁹ Only authorized private or public treatment facilities would be able to accept flowback water for treatment.⁷⁰ It remains unclear whether and to what extent public wastewater treatment facilities will be able to treat produced water.⁷¹

63. *Revised dSGEIS*, *supra* note 10, at 5-99.

64. *Id.*

65. *Id.* at 5-101; *supra* notes 60-62 and accompanying text.

66. *Revised dSGEIS*, *supra* note 10, at 5-101.

67. *See id.* at 5-32 to -33; *supra* note 55 and accompanying text.

68. *See Wiseman*, *supra* note 19, at 263.

69. *Revised dSGEIS*, *supra* note 10, at 5-100.

70. *See id.* at 5-132 to 5-133.

71. *See EPA Comments*, *supra* note 55, at 5-6. As regards to treatment of flowback or produced water, treatment facilities must cope not only with various chemical constituents of drilling fluid, but also with high levels of total dissolved solids (“TDS”). *See Wiseman*, *supra* note 19, at 261-62. New York currently proposes a blanket ban on HVHF in the New York City watershed at least in part because any increase in TDS in New York City’s unfiltered water supply poses a serious threat to the city’s EPA Filtration Avoidance. Should EPA revoke the Filtration Avoidance, New York City would be required to build a treatment facility capable of treating the city’s water supply in its entirety. *See Revised dSGEIS*, *supra* note 10, at 1-5.

B. *The Current Regulatory Framework for HVHF*

1. *Federal Regulations.* As should be clear from the foregoing discussion, HVHF is a water- and land-intensive process, involving the build-out of gas wells, well pads, and related infrastructure, and the high-pressure injection of significant quantities of toxic fluids into the ground, a portion of which will return to the surface as produced water—a polluted, radioactive brine requiring means for safe transport and adequate treatment and disposal. In light of the invasive nature of this process and the risks posed by the chemicals involved, commentary has focused on the potential for harm to ground and surface water resources, including both private and public drinking water supplies.⁷² Researchers have also begun to evaluate and debate the greenhouse gas footprint of the shale gas industry.⁷³ As a corollary to these environmental and health concerns, legal scholars have devoted considerable attention to HVHF's regulatory framework, highlighting HVHF's relation to several marquee federal environmental statutes.⁷⁴ HVHF and its associated drilling activities are subject, for example, to the Clean Water Act's prohibition against any unpermitted discharge of pollutants into the

72. See, e.g., Wiseman, *supra* note 27, at 127-42; Stephen G. Osborn et al., *Methane Contamination of Drinking Water Accompanying Gas-Well Drilling and Hydraulic Fracturing*, 108 PROC. NAT'L ACAD. SCI. U.S. 8172 (2011), available at <http://www.pnas.org/content/108/20/8172.full.pdf+html> (finding significant positive correlation between the presence of deep methane in domestic wells and proximity to HVHF sites).

73. See Robert W. Howarth et al., *Methane and the Greenhouse Gas Footprint of Natural Gas from Shale Formations*, 106 CLIMATIC CHANGE LETTERS 679, 685 (2011) (finding shale gas production releases 22% to 43% more greenhouse gasses than conventional gas production over a twenty-year time horizon). *But see* Lawrence M. Cathles, *Assessing the Greenhouse Impact of Natural Gas*, 13 GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS, 1 (2012), available at <http://www.geo.cornell.edu/eas/PeoplePlaces/Faculty/cathles/Natural%20Gas/Assessing%20the%20greenhouse%20impact%20of%20natural%20gas%20FINAL%20UNFORMTTED.pdf> (finding shale gas production and consumption release less greenhouse gas than coal). For Professor Howarth's response, see Robert W. Howarth et al., *Venting and Leaking of Methane from Shale Gas Development: Response to Cathles et al.*, 113 CLIMATIC CHANGE LETTERS 679, 685 (2012).

74. See Wiseman, *supra* note 19, at 241-46.

navigable waters of the United States.⁷⁵ Oil and natural gas producers may also face liability under the Comprehensive Environmental Response, Compensation, and Liability Act for certain types of site contamination.⁷⁶ HVHF is exempt, however, from the Safe Drinking Water Act's limits on underground injections, from the cradle-to-grave waste tracking requirements of the Resource Conservation and Recovery Act, and from the hazardous substance release reporting rules of the Emergency Preparedness and Community Right to Know Act.⁷⁷

The Environmental Protection Agency ("EPA") recently, exercised its Clean Air Act authority to issue new emissions rules for unconventional natural gas wells and associated transmission infrastructure, including pipeline compressor stations.⁷⁸ EPA has also indicated it is initiating a rulemaking to set discharge standards for produced water from shale gas and coalbed methane wells.⁷⁹ According to an agency fact sheet, EPA anticipates proposed rules for shale gas well flowback water will be released for public comment in 2014.⁸⁰ Finally, at Congress's behest, EPA has engaged in

75. *Id.* at 242; *see also* Federal Water Pollution Control (Clean Water) Act, 33 U.S.C. §§ 1311, 1362(7), 1362(12), 1362(14) (2006). The Clean Water Act proscribes unpermitted discharges from discrete or "point" sources into "navigable waters," defined by the Supreme Court as all "relatively permanent, standing or flowing bodies of water," to the exclusion only of "transitory puddles or ephemeral flows." *Rapanos v. United States*, 547 U.S. 715, 732-33 (2006).

76. Wiseman, *supra* note 19, at 242. For further discussion of CERCLA's so-called "petroleum exclusion" see Lawrence P. Schnapf, *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), in ENVIRONMENTAL ISSUES IN BUSINESS TRANSACTIONS 42-43 (Lawrence P. Schnapf ed., 2011).

77. Wiseman, *supra* note 19, at 243-45.

78. *See* 40 C.F.R. §§ 60.630 to 60.648 (2012). Note, however, EPA's new regulations will not take effect until January, 2015. John M. Broder, *U.S. Caps Emissions in Drilling for Fuel*, N.Y. TIMES, Apr. 18, 2012, at A20.

79. Nicholas Kusnetz, *EPA Plans to Issue Rules Covering Fracking Wastewater*, PROPUBLICA (Oct. 20, 2011, 5:01 PM), <http://www.propublica.org/article/epa-plans-to-issue-rules-covering-fracking-wastewater>.

80. *EPA Initiates Rulemaking to Set Discharge Standards for Wastewater from Shale Gas Extraction*, U.S. ENVTL. PROT. AGENCY (Oct. 2011), available at <http://water.epa.gov/scitech/wastetech/guide/upload/shalereporterfactsheet.pdf>.

a multi-year study designed to assess potential groundwater contamination risks associated with directional drilling and HVHF.⁸¹ Like the wastewater discharge rules, however, the results of the groundwater contamination study will not be released until 2014. Absent further action by Congress, regulation of HVHF and related natural gas exploration and extraction activities in the Marcellus will remain largely the province of affected states.⁸²

2. *New York's Evolving Regulatory Process.* The federal HVHF regulatory landscape is in a state of flux. As a result, states in the Marcellus region are working to implement their own sets of rules and regulations.⁸³ This decentralized approach has spawned very different levels of activity in different Marcellus states. Pennsylvania was the first Marcellus state to embrace HVHF; operators drilled an HVHF well in the Commonwealth in 2003.⁸⁴ In 2012, the state's Department of Environmental Protection issued over 2200 well permits; operators drilled over 1200 wells—all of which were or will be hydraulically fractured.⁸⁵ New York's approach to HVHF has been comparatively circumspect. In 1992—long before operators began using HVHF in the Marcellus Shale—New York's DEC undertook to analyze potential environmental impacts associated with increased natural gas drilling in New York, ultimately concluding that permitting new natural gas wells posed no significant environmental threat under most circumstances.⁸⁶ In 2008, however, recognizing that its initial impact study had not accounted, *inter alia*, for HVHF's substantial water usage, DEC prepared a supplemental environmental impact

81. Gianna Cricco-Lizza, *Hydraulic Fracturing and Cooperative Federalism: Injecting Reality into Policy Formation*, 42 SETON HALL L. REV. 703, 710 (2012).

82. Wiseman, *supra* note 19, at 249-50.

83. *Id.*

84. *Id.* at 240.

85. *Unconventional Well Permits Issued and Wells Drilled*, PA. DEP'T OF ENVTL. PROT., 10 (2013) ("Wells Drilled Locations—November-January 2012"), available at <http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/2012/2012Wellspermitted-drilled.pdf>.

86. *See Revised dSGEIS*, *supra* note 10, at 3-2.

study.⁸⁷ The supplemental study, completed in September, 2009, elicited an obstreperous public response.⁸⁸ DEC issued a revised draft impact statement in September, 2011, accompanied by proposed amendments to New York's oil and gas law⁸⁹ and changes to DEC's gas well permitting regulations.⁹⁰ In the four-month public comment period following the release of the revised impact statement and regulations, DEC received over 66,000 comments.⁹¹ The department is now reviewing and responding to comments. If necessary, DEC will modify its impact statement (and the proposed regulations) as warranted by the public comments the agency received. Until the environmental review process is complete, no HVHF drilling permits will issue.

II. OF BROOKS AND BOAR: SOME CRITICAL BACKGROUND PRINCIPLES OF OIL AND GAS LAW

Teetering as it is on the brink of authorizing widespread unconventional gas extraction, New York is in an ideal position to evaluate oil and gas law in general, and previous New York law as it relates to oil and gas property rights and leasing in particular,⁹² in order to make informed decisions about the future, or the future effects, of HVHF in New York.⁹³ It would be logical to ask, as a threshold

87. *Id.* at 3.

88. See *Marcellus Shale*, *supra* note 13.

89. See *id.* New York's Oil, Gas, and Solution Mining Law may be found at N.Y. ENVTL. CONSERVATION LAW §§ 23-0101 to 2402 (McKinney 2012).

90. See *Marcellus Shale*, *supra* note 13.

91. Mary Esch, *DEC Chief: No Decision Imminent on Fracking*, PRESSCONNECTS.COM (Apr. 19, 2012, 6:55 PM), <http://www.pressconnects.com/viewart/20120419/NEWS01/204190384/DEC-chief-No-decision-imminent-fracking> (last visited Mar. 21, 2013).

92. See discussion *infra* Part III.A.

93. See, e.g., Harry Cohen, *Property Theories Affecting the Landowner in a New Oil and Gas Producing State*, 10 ALA. L. REV. 323, 323-24 (1958) (suggesting the potential for new oil and gas production in a state with little prior law on point is the ideal moment to reassess rules and regulations governing oil and gas extraction in order to learn from other states' missteps); see also Maurice H. Merrill, *The Evolution of Oil and Gas Law*, 13 MISS. L.J. 281, 282 (1941).

question, what rights the landowner has in oil and gas in place—that is, beneath the surface of the landowner’s property.⁹⁴ Since most landowners, understandably, are not in a position to prospect for and produce oil or natural gas themselves, it is customary to transfer rights of extraction to a third party operator.⁹⁵ The nature of the landowner’s rights in oil and gas under his or her property will consequently affect the manner in which those rights may be transferred to entities seeking to extract the resource and may affect the remedies available to the landowner should a problem arise.⁹⁶ This Part will undertake to define profits à prendre, and to distinguish the profit from licenses and from easements. This Part will then proceed to describe the two central theories undergirding oil and gas ownership: Non-ownership and ownership-in-place.

A. *Profits à Prendre*

In England and elsewhere in Europe, from roughly 800 to 1800 C.E., villagers allocated farmland by dint of a part-public, part-private, common- or open-field system.⁹⁷ In this property arrangement, villagers divided the village’s arable land into two or more large open fields.⁹⁸ Each villager was assigned certain parcels (“furlongs”) of land, associated with which were certain common rights, such as rights of pasturage after the harvest, or the right to remove wood or game for personal use.⁹⁹ The right to take from the land what is considered part of the land is a profit à prendre. *Black’s Law Dictionary* defines the profit à prendre as “a

94. For a discussion of the confusion often accompanying this basic question, see W. Lewis Roberts, *Inconsistencies Under the “Ownership in Place” Theory of Oil and Gas*, 29 KY. L.J. 3, 3 (1940).

95. See Diggs, *supra* note 1, at 358; Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1371-72 (1993) (noting property owners’ lack of specialized skills may render them willing to divest themselves of certain “sticks” in their bundle of property rights).

96. See Lamarre, *supra* note 20, at 461-62.

97. DUKEMINIER ET AL., PROPERTY 765 (7th ed. 2010) [hereinafter DUKEMINIER]; see also Ellickson, *supra* note 95, at 1388.

98. Ellickson, *supra* note 95, at 1388.

99. DUKEMINIER, *supra* note 97, at 765.

right or privilege to go [onto] another's land and take away something of value from its soil or from the products of its soil (as by mining, logging, or hunting)."¹⁰⁰ While the inaugural *Restatement of Property* assimilated profits to its discussion of easements generally,¹⁰¹ the *Restatement (Third) of Property* abandoned this conflation, reinstating the profit à prendre as a unique form of servitude.¹⁰² The *Restatement (Third)* tells us that, unlike easements, profits à prendre could be held in gross—that is, by an individual, and not associated with a parcel of land—at English law.¹⁰³ While this distinction no longer applies in the American context (both easements and profits à prendre may be held in gross under current law), profits à prendre differ essentially from easements in that they create a right to enter and use land in possession of another for certain, limited purposes (as does an easement), *but also* a privilege to remove or sever something of value—a “profit”—from the land.¹⁰⁴

100. BLACK'S LAW DICTIONARY 1227 (7th ed. 1999).

101. See RESTATEMENT (FIRST) OF PROP. § 450 special note (1944) [hereinafter RESTATEMENT (FIRST)] (“In phrasing the rules applicable to [easements and profits] it has been found . . . that in no case was there a rule applicable to one of these interests which was not also applicable to the other.”).

102. See RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 1.2 cmt. a (2000) [hereinafter RESTATEMENT (THIRD)]. In the *Restatement (Third)*'s revised vernacular, a profit is an “easement ‘plus’”: the profit groups together the right to enter and use land in the possession of another with the right to remove some object from that land. See *id.* at §1.2 cmt. e.

103. *Id.* For a discussion of the difference between easements and profits à prendre held in gross versus easements and profits à prendre said to be appurtenant—that is, attached to a specific parcel of land, see *Saratoga State Waters Corp. v. Pratt*, 125 N.E. 834, 838-39 (N.Y. 1920).

104. RESTATEMENT (THIRD), *supra* note 102, at § 1.2 (“A profit à prendre is an easement that confers the right to enter and remove timber, minerals, oil, gas, game, or other substances from land in the possession of another.”); see also Wesley Newcomb Hohfeld, *Faulty Analysis in Easement and License Cases*, 27 YALE L.J. 66, 97-98 (1918) (“[A] profit consisting of the so-called ‘right’ to dig for and carry away minerals involves a ‘grant’ of an aggregate of jural relations including, *inter alia*, the *legal powers* of vesting ownership of the [minerals removed] in the profit owner . . .”).

Profits à prendre, like easements (but unlike licenses, at least generally speaking),¹⁰⁵ are interests in land and so fall within the Statute of Frauds.¹⁰⁶ Profits à prendre to sever oil or natural gas from another's land may be acquired by written grant or, like easements, by prescription.¹⁰⁷ It is important to note that a profit à prendre may not confer upon its holder a bona fide *estate* in subsurface oil or gas.¹⁰⁸ The profit is a nonpossessory interest in land, otherwise known as an "incorporeal hereditament."¹⁰⁹ While the holder of a profit à prendre has the privilege to enter upon another's property for the purposes of, say, identifying and extracting oil or natural gas, the profit-holder is entitled only to make such use of the property as is reasonably necessary for the profit-holder to accomplish his or her tasks.¹¹⁰ The owner of the property retains the privilege of making any and all uses of the property so long as those uses do not interfere with the purposes (the uses) for which the profit à prendre was transferred (in this example, to explore for and extract oil or gas).¹¹¹ It is possible that the profit-holder's valid use of the property is such that the owner in possession may in effect make no use at all of the property, or at least no use not unreasonably burdensome to

105. See discussion *infra* Part III.B.

106. DUKEMINIER, *supra* note 97, at 768; see also N.Y. GEN. OBLIG. LAW § 5-703(1) (2012) (requiring that any lease for more than a year creating an "estate or interest" in real property be conveyed by a written deed).

107. Roberts, *supra* note 94.

108. *Id.* at 4. *But see infra* note 185 and accompanying text.

109. See RESTATEMENT (THIRD), *supra* note 102, at § 1.2 cmt. d; see also Oliver S. Rundell, *Easements and Licenses*, in 2 AMERICAN LAW OF PROPERTY § 8.22 (A. James Casner et al. eds., 1952) ("Historically the term 'estate' is associated with the seisin of land. In so far as it has this association it cannot be appropriately applied to incorporeal interests."). Rundell does indicate that, where the term "estate" is used solely to measure the durational aspect of interests in land, it may be properly applied to easements and profits. *Id.* *But see infra* note 185 and accompanying text.

110. See RESTATEMENT (THIRD), *supra* note 102, at § 1.2 cmt. d.

111. *Id.*

the profit-holder.¹¹² Should the owner interfere with the profit-holder's authorized use, the profit-holder has the legal right to sue to protect the use and stop the interference.¹¹³ Further, unlike most possessory or corporeal estates, profits à prendre can be unilaterally terminated by abandonment.¹¹⁴ Profits à prendre may not be adversely possessed.¹¹⁵ At common law, whether the profit à prendre constituted an interest in real or personal property was a function of the durational qualities of the interest.¹¹⁶ Where the profit endured indefinitely, it was a fee interest, or real property.¹¹⁷ Where the profit endured but for a term of years, it was a nonfreehold estate or a chattel real.¹¹⁸

B. *Revocable and Irrevocable Licenses*

A license gives the licensee a privilege to do something on land in another's possession, which the licensee would be barred from doing without the license.¹¹⁹ Like a profit à prendre or an easement, a license gives the licensee the privilege of using land in the possession of another. The licensor (the grantor of the license) may give her licensee the privilege to enter on her property for the purposes of repairing a leaking pipe, for example, or for sharing a home-cooked meal. A license is an interest in land in but the limited sense that the licensor is giving the licensee a privilege to do something on the licensor's property.

112. *See id.* ("Easements and profits may authorize the exclusive use of portions of the servient estate, and may involve uses that make any actual use of the premises by the transferor unlikely.").

113. *See* Hohfeld, *supra* note 104, at 98-99.

114. RESTATEMENT (THIRD), *supra* note 102, at § 1.2 cmt. d.; *see also* HOWARD R. WILLIAM & CHARLES J. MEYERS, OIL AND GAS LAW § 212 n.2 (Patrick H. Martin & Bruce M. Kramer eds., 1999) (citing *Gerhard v. Stevens*, 442 P.2d 692, 711-14 (Cal. 1968)).

115. *See* Rundell, *supra* note 109, at § 8.9.

116. WILLIAM & MEYERS, *supra* note 114, at § 212 ("[A]t common law, the basis for distinguishing personal from real interests in land was duration.").

117. *See id.*

118. *Id.*

119. *See* Rundell, *supra* note 109, at § 8.109.

Nevertheless, the licensor's interest is of such limited scope that it is frequently considered not to be an interest in land at all.¹²⁰ Licenses also differ critically from easements and profits à prendre in that they may, with very few exceptions, be unilaterally revoked by the licensor.¹²¹ To the extent licenses may be revoked at will, they are of little value to the licensee who seeks in some way to invest in the licensor's real property. Licenses may become irrevocable where they are coupled with an interest. According to the *Restatement (First)*, a license coupled with an interest is a license "incidental to the ownership of an interest in a chattel personal located on the land with respect to which the license exists."¹²² While such a license is similar to an easement, or a profit à prendre, it only entitles the licensee to a privilege incidental to, or contiguous with, a chattel personal located on the land of the licensor; where the privilege of use is incidental to a true interest in land (such as an easement or a profit à prendre), it is distinguishable from an irrevocable license.¹²³

C. *Theories of Ownership and the Rule of Capture*

The genesis of oil and gas law in the United States owes much, it turns out, to a mistake.¹²⁴ Mining law—the law of static, solid minerals—historically treated minerals in place on private land as part of the fee.¹²⁵ The landowner, having

120. *Id.* at § 8.110.

121. *Id.*

122. RESTATEMENT (FIRST), *supra* note 101, at § 513.

123. *Id.* at § 513 cmt. b. By way of example, the *Restatement (First)* describes a situation where A, the owner of Whiteacre, give to B "the privilege of entering upon Whiteacre and taking as much coal as B needs for his smelter" A has given B an easement—or more properly a profit à prendre—rather than a license coupled with an interest. Where, however, A sells B a quantity of coal already mined and located on Whiteacre, B has a license coupled with an interest to enter Whiteacre for the purposes of removing the coal. *Id.* at § 513 cmt. b., illus. 2, 3. *But see* DUKEMINIER, *supra* note 97, at 774 (noting a profit à prendre given for the removal of timber on another's land carries with it an irrevocable license).

124. *See* Cohen, *supra* note 93, at 327.

125. *See* Victor H. Kulp, *Oil and Gas Rights*, in 2 AMERICAN LAW OF PROPERTY § 10.1 (A. James Casner et al. eds., 1952).

ownership of the land from the center of the earth up to the heavens—*cujus est solum, ejus est usque ad coelum*¹²⁶—was said to have title to the (solid) minerals in place beneath his land.¹²⁷ Asked to determine property rights in oil and gas, however, nineteenth-century courts failed to adopt a unified or doctrinally consistent approach.¹²⁸ Some courts held that interests in oil and gas were governed by the rules applying to solid minerals. Other courts recognized that oil and gas were fundamentally unlike hard rock minerals like copper or coal.¹²⁹ Yet, lacking a nuanced understanding of the geophysical forces relevant to the formation and extraction of oil and natural gas, these courts opted to adjudicate matters concerning rights in subsurface oil and gas by analogy to common law principles governing “percolating waters” and wild animals.¹³⁰ Revisiting briefly that “wild and uninhabited, unpossessed . . . land” that was the setting for “uncourteous” Pierson’s vulpine victory, recall one possesses the fox not merely by pursuit, but by manifesting “an unequivocal intention of appropriating the [animal]” for personal use.¹³¹ The requisite manifestation of intent, of course, requires the subject beast be brought within “certain control”—either by capture or kill or, at the margin, via net or snare.¹³² So too in the realm of “percolating waters,” where the common law rule permitted nineteenth-century landowners autonomy to withdraw—that is, reduce to “certain control”—unlimited quantities of water, without

126. Lamarre, *supra* note 20, at 462.

127. See A.W. Walker, Jr., *Nature of the Landowner’s Interest in Oil and Gas*, 17 MONT. L. REV. 22, 23 (1956).

128. See *id.*

129. For a discussion of the evolution of the term “mineral” as used in oil and gas law, see RICHARD W. HEMINGWAY, *THE LAW OF OIL AND GAS* § 1.1 (3d ed. 1991); see also Walker, *supra* note 127, at 23 (describing how other courts compared oil and gas to liquids or wild animals).

130. Walker, *supra* note 127, at 23.

131. *Pierson v. Post*, 3 Cai. 175, 175-79 (N.Y. 1805).

132. *Id.* at 178.

regard for the negative effects suffered by neighboring landowners.¹³³

An example illustrates this confusion: In *Westmoreland & Cambria Natural Gas Co. v. DeWitt*, Pennsylvania's Supreme Court, adumbrating the "peculiar attributes" of oil and natural gas, likened them, in the mold of *Pierson*, to "minerals *ferae naturae*."¹³⁴ Having "the power and tendency to escape without the volition of the [landowner]," water, oil, and natural gas could not, the court determined, be governed by the rules applicable to hard rock minerals.¹³⁵ As was the case with wild animals, held the court, ownership of the surface was not sufficient to infer possession of subsurface oil and natural gas.¹³⁶ Instead, a landowner had the right to possess oil or natural gas beneath her property by extracting the oil or gas herself. Subsurface natural gas belonged, in other words, to she who first reduced the gas to possession by extraction.¹³⁷ On this view, surface ownership cannot prevent adjacent landowners from drilling oil or gas wells on their own properties, even if the drilling of such wells causes fugacious oil or gas to drain from beneath the properties of adjacent, first-in-time owners.¹³⁸ In a related decision, the Pennsylvania high court later held no liability attached to a landowner who draws oil or gas from beneath the properties of adjacent landowners, nor could adjacent landowners by injunction stop such drainage.¹³⁹

133. See *Wisconsin v. Michels Pipeline Constr., Inc.*, 217 N.W.2d 339, 343, 349-50 (Wis. 1974) ("If the waters simply percolate through the ground . . . they belong to the realty in which they are found, and the owner of the soil may divert, consume, or cut them off with impunity.") (quoting *Huber v. Merkel*, 94 N.W. 354, 354-55 (Wis. 1903)).

134. *Westmoreland & Cambria Natural Gas Co. v. DeWitt*, 18 A. 724, 725 (Pa. 1889) ("Water and oil, and . . . gas, may be classed by themselves, if the analogy be not too fanciful, as minerals *ferae naturae*. In common with animals, and unlike other minerals, they have the power and the tendency to escape.").

135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

139. *Barnard v. Monongahela Natural Gas Co.*, 65 A. 801, 802 (Pa. 1907) ("[E]very landowner or his lessee may locate his wells wherever he pleases,

This, in other words, is the “rule of capture.” According to the rule, a landowner has no property interest in fugitive oil or gas beneath the surface prior to extraction, and may not prevent nearby owners from draining oil and gas from beneath the surface property.¹⁴⁰ Note, however, it cannot be said that a surface owner has *no* property right in oil or gas beneath the property.¹⁴¹ As Professor Walker pointed out in an essay on property rights in oil and gas, the United States Supreme Court, in *Ohio Oil Co. v. Indiana*, highlighted the imperfection inherent in the analogy of oil and gas with wild animals.¹⁴² Further, to the extent the rule of capture makes self-help (that is, the aggressive counter-extraction of oil or gas) a landowner’s best defense against neighboring owners’ drainage of subsurface oil or gas, it effectively incentivizes the wasteful proliferation of oil or gas wells, sparking what one commentator called a “madly acquisitive scramble for nature’s bounties.”¹⁴³

Unsurprisingly, states have undertaken to mitigate the harsh consequences of the rule of capture by enacting laws designed to prevent physical and economic waste of oil and gas resources.¹⁴⁴ In *Ohio Coal Co. v. Indiana*, the Supreme Court upheld an Indiana statute designed to prevent waste by prohibiting (at least after a short initial period) the uncontrolled flow of oil or venting of natural gas into the environment.¹⁴⁵ The Court, recognizing that a common privilege existed to extract oil and gas amongst all landowners within an oil or gas field, held government regulations designed to prevent damage by one landowner

regardless of the interests of [adjoining landowners]. . . . What then can the neighbor do? Nothing; *only go and do likewise.*”) (emphasis added).

140. See HEMINGWAY, *supra* note 129, at § 1.3.

141. See Walker, *supra* note 127, at 23-24.

142. *Id.* at 24.

143. Merrill, *supra* note 93, at 283, 285; see also *In re W. Land Servs., Inc. v. Dep’t of Env’tl. Conservation*, 804 N.Y.S.2d 465, 466 (N.Y. App. Div. 2005); Lamarre, *supra* note 20, at 465.

144. See Kulp, *supra* note 125, at § 10.2.

145. See *Ohio Coal Co. v. Indiana*, 177 U.S. 190, 210 (1900). Unbelievably, emissions rules for natural gas drilling continue to spark controversy. See *supra* note 78 and accompanying text.

to the rights of all landowners within the field did not constitute an impermissible taking.¹⁴⁶ On the contrary, while the surface owner may not possess title to oil and gas beneath her property, she does have a vested right—a privilege—to explore for and extract subsurface oil and gas.¹⁴⁷ While the notion of correlative rights first announced in *Ohio Coal* initially found rather limited application, most states have since passed pooling and unitization statutes designed to protect the correlative rights of each landowner within a defined oil and natural gas field, and to prevent waste of valuable energy resources and damage to oil and gas reservoirs resulting from overzealous and unnecessary drilling.¹⁴⁸

Presently, states' approaches to property rights in oil or gas divide into two main categories.¹⁴⁹ States that recognize no ownership right in fugitive subsurface petroleum, known as non-ownership states, generally recognize only the right to search for and extract oil or gas.¹⁵⁰ As required by the rule of capture, the owner or her assignee gains a property interest in oil or gas only upon possession. While a surface owner owns the right to extract oil and gas, she does not ipso facto own the substances themselves. The right to extract is thus nonpossessory in nature. In so-called

146. See *Ohio Coal Co.*, 177 U.S. at 209-10.

147. *Id.*

148. See Kulp, *supra* note 125, at § 10.5; see also WILLIAM & MEYERS, *supra* note 114, at § 901 (2012) ("The purpose, and usual effect, of pooling is to prevent the physical and economic waste that accompanies the drilling of unnecessary wells. A second, equally important purpose, is to protect the correlative rights of landowners over a reservoir."); *W. Land Servs.*, 804 N.Y.S.2d at 466-67 ("New York has modified the 'law of capture' and adopted the doctrine of 'correlative rights,' whereby each landowner is entitled to be compensated for the production of the oil or gas located in the pool beneath his or her property regardless of the location of the well that effects its removal."). New York's well spacing, pooling, and unitization statutes may be found at N.Y. ENVTL. CONSERVATION LAW §§ 23-0501 to 0901 (McKinney 2012).

149. HEMINGWAY, *supra* note 129, at § 1.3; see also Cohen, *supra* note 93, at 332.

150. Lamarre, *supra* note 20, at 469.

ownership-in-place states like Pennsylvania¹⁵¹ and Texas, however, the surface owner is said to own subsurface oil and gas much like one would own solid minerals.¹⁵² In these states, the owner has a corporeal or possessory right, and may transfer a fee interest in subsurface oil and gas. Thus the concept of a “split estate”—that is, a parcel of land wherein title to the surface has been severed or split from title to subsurface oil and gas, is logically possible only in an ownership-in-place jurisdiction.¹⁵³

Whether a state has chosen to adhere to an ownership-in-place or a non-ownership theory of oil and gas ownership undoubtedly affects any attempt to determine the nature of rights held by a landowner or by the landowner’s lessee in subsurface oil and gas. In ownership-in-place jurisdictions, the landowner has a possessory or corporeal interest in any oil and gas beneath her land.¹⁵⁴ As such, she is capable of giving a similar possessory interest by grant to a third party. Similarly, she may reserve a mineral estate to herself in the context of a conveyance of the surface estate to a third party.¹⁵⁵ As with corporeal interests in general, the severed mineral estate may be granted in fee simple, as a life estate, or for a lesser duration, as specified by the parties in their agreement to sell.¹⁵⁶

Several states, however, adhere to the above-described non-ownership theory, whereby landowners may retain or transfer to a third party operator the right to search for and ultimately to extract oil and gas.¹⁵⁷ As dictated by the rule of capture, any oil or gas so extracted is thereby reduced to possession, and therefore ownership, by the party that is successful in extracting it. While not an insignificant degree

151. Pennsylvania, however strangely given the above-described evolution of the rule of capture, has come to recognize the validity of split surface and mineral estates. *See supra* notes 134-39 and accompanying text.

152. *See* HEMINGWAY, *supra* note 129, at § 1.3.

153. WILLIAM & MEYERS, *supra* note 114, at § 209.

154. *See* Lamarre, *supra* note 20, at 469.

155. HEMINGWAY, *supra* note 129, at § 1.3.

156. *Id.*

157. *Id.*

of confusion seems to surround the exact nature of this right to explore and extract, at least some commentators readily liken it to a *profit à prendre*.¹⁵⁸ The rights created by the landowner in an operator have also been classed, *inter alia*, as a license, a servitude, and a chattel real.¹⁵⁹ While these interests are not wholly dissimilar, it remains possible that differences in classification may affect the bundle of rights transferred from a landowner to a third party.¹⁶⁰ That is, for a specific jurisdiction—and especially a jurisdiction with relatively undeveloped oil and gas case law—it is critical to know as precisely as possible not only what property rights have been transferred, but also exactly what privileges and liabilities may result.¹⁶¹

III. NEW YORK'S OIL AND GAS LAW

As discussed above, states choosing to adhere either to an ownership-in-place or to a non-ownership theory differ in their treatment and classification of property rights in subsurface oil and gas.¹⁶² Treatise-writers generally agree that New York has adopted the non-ownership theory.¹⁶³ The first, most obvious consequence of this decision should be that it is not possible to create a valid split estate in oil and gas in New York. After all, *nemo dat qui non habet*: one cannot sell what one does not own.¹⁶⁴ But returning momentarily to the essay with which this Comment began—Robert Diggs's 1962 article on oil and gas law in

158. *Id.* (“Rather than effecting a severance or removal of a corporeal interest from the rest of the land, such a grant or reservation has subjected the land to the burden of an outstanding right to enter and remove oil and gas, which is usually spoken of as a *profit à prendre*.”).

159. *Id.*

160. See Cohen, *supra* note 93, at 334; see also Lamarre, *supra* note 20, at 461.

161. Cohen, *supra* note 93, at 335.

162. See discussion *supra* Part II.C.

163. See WILLIAM & MEYERS, *supra* note 114, at § 203.1 (classifying New York as a non-ownership jurisdiction); D. Edward Greer, *The Ownership of Petroleum Oil and Natural Gas in Place*, 1 TEX. L. REV. 162, 170 (1923); Bruce M. Kramer, *Property and Oil and Gas Don't Mix: The Mangling of Common Law Property Concepts*, 33 WASHBURN L.J. 540, 542 (1993);

164. See *supra* notes 151-53 and accompanying text.

New York—it seems the author there suggested owners of real property in New York could in fact sever title to subsurface oil and gas from title to the surface property. That is, Diggs apparently classified New York as an ownership-in-place state, like Pennsylvania or Texas.¹⁶⁵ If title to underground oil and gas does not vest until the oil or gas is reduced to possession (as is the case in a true non-ownership state), New York law should *not* recognize as valid any instrument purporting to convey title to oil and natural gas in place. Resolving this ambiguity is the first, necessary step toward a fuller understanding of natural gas rights in New York. This part will explore New York case law dealing with rights in natural gas, and will conclude that New York is in fact a non-ownership jurisdiction, that an instrument transferring an interest in oil or gas creates what under New York law is properly termed a profit à prendre, and that the property owner who transfers this profit à prendre in effect relinquishes a significant interest in his or her real property.

A. *New York is a Non-Ownership Jurisdiction*

1. *Corporeal or Incorporeal?* In grouping New York among the non-ownership states, treatise-writers point to the 1885 New York appellate court opinion in *Shepherd v. McCalmont Oil Co.* as proof of New York's position.¹⁶⁶ In *Shepherd*, the plaintiff asked the court to interpret an instrument purporting to “grant[] and convey[]” the exclusive right to enter upon a property for the purpose of

165. Diggs, *supra* note 1, at 357 (“Like hard minerals, the ownership of the oil and gas can be severed from the ownership of the surface.”); *see also* Watters v. New York, 195 N.Y.S.2d 785, 787-88 (1960) (describing transfer of real property by deed where the transferor successfully reserved one-half interest in all minerals, oil, and gas in place); Hughes v. United Pipe Lines, 119 N.Y. 423, 426 (1890) (“The oil in the earth belonged to [the defendant], and when taken therefrom by a [wrongdoer] . . . he could pursue and reclaim it.”).

166. *See, e.g.*, WILLIAM & MEYERS, *supra* note 114, at § 203 (providing a chart with ownership theory classifications drawn from various commentators; New York is classified as non-ownership in every text surveyed). The authors note, however, that “the opinions of the courts are not always clear as to the theory espoused and may not always be consistent with the adoption of one . . . theory.” *Id.*

searching for and extracting oil.¹⁶⁷ The plaintiff was the assignee of the party to whom the right to enter and extract was originally granted; the defendant, McCalmont Oil Company, was the last in a line of grantees to whom the original fee owner had sold his interest in the property.¹⁶⁸ The complication was this: In the original instrument, the plaintiff's assignor agreed to commence drilling operations on the property within a year.¹⁶⁹ However, neither the original holder of the interest nor his assignee made any attempt to exercise his rights under the instrument until some sixteen years later—at which time the suit arose.¹⁷⁰ McCalmont argued the plaintiff's long period of inactivity was akin to a forfeiture.¹⁷¹ The plaintiff argued that the instrument granting the rights in the property was a deed "of all the oil underlying the land mentioned; that the oil [was] a corporeal hereditament, and that the title thereto in fee passed to him; [and] that . . . no forfeiture can be worked . . . by abandonment or non-user on the part of the [plaintiff]"¹⁷² The plaintiff argued, that is, that the original interest granted in the oil was a fee—in other words, that the instrument created a split estate such as would be found in an ownership-in-place jurisdiction.¹⁷³

The court, however, disagreed, writing: "We do not understand that there can be any property in rock or mineral oil, or that title thereto can be divested or acquired until it has been taken from the earth."¹⁷⁴ Necessary to the court's holding is an understanding of subsurface oil, or oil in place, as *not* belonging to the surface fee owner until such time as the oil has been extracted. The court rejected the plaintiff's argument that his interest in the subsurface oil was a possessory (corporeal) interest—by necessary

167. *Shepherd v. McCalmont Oil Co.*, 38 Hun 37, 38-39 (N.Y. Gen. Term 1885).

168. *Id.*

169. *Id.* at 39.

170. *Id.*

171. *Id.* at 40.

172. *Id.*

173. *Id.*

174. *Id.*

implication, then, the court appeared to class the interest as nonpossessory, or incorporeal.¹⁷⁵ It follows that, if the interest held by a mineral grantee or a lessee in subsurface oil (or natural gas) in New York is nonpossessory, state law recognizes that the grantee or lessee has taken the right to enter the property to search for and extract a profit—in other words, a profit à prendre.

2. *License, Easement, or Profit à Prendre?* Note, however, that the *Shepherd* court does not employ the language of profits; rather, the court terms the plaintiff's oil interest a *license*.¹⁷⁶ But, is this truly the case? Classifications of this nature surely matter inasmuch as they describe legal consequences.¹⁷⁷ A license is personal to the licensee, is not assignable, and is not inheritable.¹⁷⁸ The same is true of an easement held in gross.¹⁷⁹ Profits à prendre, however, differ in certain key respects. The case of *Saratoga State Waters Corp. v. Pratt* clarifies the relevant rules.¹⁸⁰ In *Pratt*, the New York Court of Appeals undertook to delineate what interests the State of New York gave the plaintiff under a lease agreement allowing them to enter upon state land in Saratoga for the purposes of bottling and selling (removing) spring water. The state argued the lease constituted a mere license, and as such was revocable at any time.¹⁸¹ The court disagreed, holding that the lease “invested the plaintiff with an interest of some character in the lands” in question.¹⁸² A license, wrote the court, “is revocable and carries no interest in the land in or over which it is to be enjoyed.”¹⁸³ “The right of taking profits in

175. *See id.*

176. *Id.*

177. *See WILLIAMS & MEYERS, supra* note 114, § 208.

178. *See Webster v. Ragona*, 776 N.Y.S.2d 347, 350 n.1 (N.Y. App. Div. 2004).

179. *Id.*

180. 125 N.E. 834 (N.Y. 1920).

181. *See id.* at 838.

182. *Id.*

183. *Id.* The court also noted the granting of a license will estop the licensor from bringing an action in trespass against the licensee for acts done pursuant to the license. *Id.*

another's land," the court continued, "is commonly called [a] profit[] a prendre."¹⁸⁴ The court's opinion is worth quoting at some length:

[A profit à prendre] is in the nature of an easement in the land. It is, however, something more. One of the distinguishing features of a pure easement is the absence of all right to participate in the profits of the soil charged with it; the existence of a privilege without profit. *The distinguishing feature of profit a prendre is the right to appropriate and take from the land charged with it a part of the soil or product of it in which there is supposable value. . . .* Each is incorporeal real property. 'Incorporeal real property' is defined to be a right issuing out of or annexed to a thing corporeal, and consists of the right to have some part only of the produce or benefit of the corporal property, or to exercise a right or have an easement or privilege or advantage over or out of it. Each may be and commonly is attached to or exists for the benefit of land (known as the 'dominant tenement') other than that charged, known as the 'servient tenement.' If held by reason of the ownership or possession of the dominant tenement, it is regarded and defined as 'appurtenant' to such dominant tenement, and is, of course, assignable and inheritable. Each may, however, be held and enjoyed by an individual or party distinct from any ownership of any lands or dominant tenement, and is then regarded as held and enjoyed in gross. A pure easement in gross is, generally speaking, neither assignable nor inheritable and is personal to the grantee. While an easement for a specified period always implies an interest in the land in or over which it is to be enjoyed, *the right of profit a prendre, if it belongs in gross to a party, takes the character of an estate in the land itself*, rather than that of a proper easement in or out of the same. . . . The right of profit a prendre in gross is assignable and inheritable. The power to grant to a party by apt language the right, appurtenant or in gross, to enjoy, possess, and use for profit the land of the grantor, is undoubted. It includes such rights as those of severing and taking grass, clay, sand, or ice, of pasturing livestock, of taking oil or minerals from the soil, or taking water that has been artificially accumulated, as in wells or cisterns, of cutting ice and of hunting and fishing. Such is the law of this jurisdiction.¹⁸⁵

Given the Court of Appeals' recapitulation of the law of licenses, easements and profits à prendre in *Pratt*, it would seem the *Shepherd* court was: (1) right that the interest in subsurface oil created by the instrument was incorporeal or

184. *Id.*

185. *Id.* at 838-39 (citations omitted) (emphases added).

nonpossessory; but (2) mistaken that the interest so-created was a mere license.¹⁸⁶ In point of fact, an instrument giving a party the privilege to enter upon the grantor's land for the purpose of prospecting for and extracting oil or natural gas, and giving the party the privilege to sever the oil or gas, and the legal power to vest title in him- or herself by so-severing is most aptly termed (and should be termed in New York) a profit à prendre. As *Pratt* indicates, the interest should then be both assignable and inheritable.

3. *Real or Personal Property?* It should be beyond dispute that a profit à prendre is an interest in land.¹⁸⁷ Oil or gas itself becomes personal property of the operator at such time as the oil or gas is extracted.¹⁸⁸ Whether the oil and gas interest created by the profit à prendre is real or personal property is controlled—at least in part—by statute in New York. In enacting Chapter 372 of the Laws of 1883, the legislature classified all “rights held under and by virtue of any lease or contract or other right or license to operate for or produce petroleum oil” as personal property for all purposes save real property ad valorem taxation.¹⁸⁹ In the case of *Broman v. Young*, an appellate court speculated that the legislature likely intended Chapter 372 to “protect the lessee in respect to the structures he should put on leased lands . . . as well as to enable his creditors to reach those structures, etc.”¹⁹⁰ In other words, the oil lessee would be assured under the statute that any appurtenance she placed on the land would remain her personal property, and would not become part of the realty.¹⁹¹ Additionally, the lessee's creditors would be able to attach the appurtenances at the

186. See discussion *supra* Part III.A.1.

187. See *Pratt*, 125 N.E. at 839 (holding a profit à prendre held in gross creates an estate in land); see also *Post v. Pearsall*, 22 Wend. 425, 433 (N.Y. 1839).

188. See WILLIAM & MEYERS, *supra* note 114, at § 212.

189. The present-day iteration of the 1883 statute, in nearly identical form, can be found at N.Y. GEN. CONSTR. LAW § 39 (McKinney 2003).

190. *Broman v. Young*, 35 Hun. 173, 181 (N.Y. Gen. Term 1885).

191. Parker Bailey, *Oil and Gas Interests in New York: Statutory Conflicts*, 25 CORNELL L.Q. 18, 18 (1940).

well site, any produced oil, also the right of extraction itself.¹⁹²

On its face, section 39 of the General Construction Law applies only to oil rights, fixtures, and appurtenances.¹⁹³ The question remains whether the statute applies to natural gas wells. If the statute applies to oil rights but not to gas, then the question whether an interest in natural gas in place is real or personal property must be settled with reference to New York common law principles.¹⁹⁴ The New York Court of Appeals' decision in the case of *Wagner v. Mallory* is helpful.¹⁹⁵ In *Wagner*, the plaintiffs claimed they held a lease to extract oil beneath a certain property by virtue of a deed conveying the original lessee's *real property* interests to the plaintiffs.¹⁹⁶ Key to the plaintiffs' argument, that is, was the presumption that the rights transferred by the lease were to be classified as real, not personal, property. The court took a different view, concluding that the original lessor's interest was personal property.¹⁹⁷ The lease gave "no grant of the oil as it exist[ed] in the earth."¹⁹⁸ Rather, the lessee's right was but the right to enter on the property to "produce or extract" subsurface oil and gas.¹⁹⁹ The *Wagner* court further classified the right as incorporeal or nonpossessory.²⁰⁰ Making reference to the 1883 statute, the court held the original lessee's oil interest did not pass to the plaintiffs by virtue of a deed conveying the lessee's real property.²⁰¹

But imagine the lease were for the right to explore for and extract natural gas and not oil. If the 1883 statute were

192. *Id.*

193. N.Y. GEN. CONSTR. LAW § 39 (McKinney 2003).

194. *See* Bailey, *supra* note 191, at 22.

195. *Wagner v. Mallory*, 62 N.E. 584, 585 (N.Y. 1902).

196. *Id.*

197. *Id.* at 586.

198. *Id.*

199. *Id.* at 585.

200. *Id.*

201. *Id.* at 585-86.

found not to apply, and the lease interest were to be classified (as it should be) as a profit à prendre, would not the rules explicated in *Pratt* require a (potentially) different result? *Pratt* clearly defines the profit à prendre held in gross as an “estate in land.”²⁰² At common law, the duration of the estate determined its character as real or personal property.²⁰³ So, under *Pratt*, whether the interest is real or personal would depend on its duration; if the profit à prendre lasts but for a term of years, it is a chattel real, or personal property. If the profit à prendre lasts indefinitely (or, say, for as long as gas is produced in paying quantities), the interest would be real property instead.²⁰⁴ It should be clear that the result reached by the *Wagner* court might well have been different had the lease in question been for the right to search for and extract natural gas instead of oil. Since the only difference stems from the applicability of General Construction Law section 39, a legislative fix may be desirable.

4. *Confusion Reigns.* As noted above, the definition or classification of oil and gas interests may have a significant effect on the rights and responsibilities of the parties involved. Where courts appear to confuse the nature of the interests involved, odd litigation results often follow. The case of *Watters v. New York* is instructive. In *Watters*, the plaintiffs granted a parcel of land in Allegheny State Park to a banking corporation, reserving a one-half interest in the oil and gas rights to themselves.²⁰⁵ The bank then transferred the property to New York State, subject still to the plaintiffs’ reservation.²⁰⁶ When it became clear the state could not develop its share of the oil and gas, the plaintiffs sued for partition.²⁰⁷ The court held the plaintiffs and the

202. *Saratoga State Waters Corp. v. Pratt*, 125 N.E. 834, 839 (N.Y. 1920).

203. WILLIAM & MEYERS, *supra* note 114, at § 212; *see also* *Nellis v. Munson*, 15 N.E. 739, 739 (N.Y. 1888).

204. WILLIAM & MEYERS, *supra* note 114, at § 212.

205. *Watters v. New York*, 195 N.Y.S.2d 785, 788 (N.Y. Sup. Ct. 1960), *aff’d*, 210 N.Y.S.2d 39 (N.Y. App. Div. 1961).

206. *Id.*

207. *Id.* at 789.

state were tenants in common, and that the oil and gas rights were real property susceptible to partition.²⁰⁸ It is true, under *Pratt*, that the interest in oil or gas is an estate in land; it is also true that the estate, because perpetual, is an estate in fee simple.²⁰⁹ But the estate is also, according to *Shepherd* and *Wagner*, nonpossessory. The partition statute in effect at the time of the *Watters* decision made possession a prerequisite for partition.²¹⁰ New York's current partition statute, located in Article 9 of the Real Property Actions and Proceedings Law, follows suit: "A person holding and *in possession of real property* as joint tenant or tenant in common, in which he has an estate of inheritance, or for life, or for years, may maintain an action . . ." for partition thereof.²¹¹ New York courts have held the party seeking partition must have a right to possession of the property, either actual or constructive.²¹² If New York is a non-ownership state, and so oil and gas interests are nonpossessory, it seems impossible that the holder of a partial interest in oil and gas could sue for partition.²¹³

B. *The Contemporary Debate*

Given the high degree of interest in natural gas-related issues in New York currently, old arguments about property rights are, so to speak, new again. A pair of recent essays in the *New York Bar Association Journal* are illustrative of the trend. In an article entitled *Homeowners and Gas Drilling Leases: Boon or Bust?*, Hudson Valley attorney Elizabeth Radow makes two major property-related claims: (1) property owners who sign gas leases may unwittingly burden their properties with ill-defined, potentially

208. *Watters*, 195 N.Y.S.2d at 788.

209. See *Nellis v. Munson*, 15 N.E. 739, 739 (N.Y. 1888).

210. New York Civil Procedure Act § 1012, in *CLEVENGER'S NEW YORK PRACTICE* 465 (Joseph R. Clevenger ed., 1922).

211. N.Y. REAL PROP. ACTS. LAW § 901(1) (McKinney 2008) (emphasis added).

212. See, e.g., *Donlon v. Diamico*, 823 N.Y.S.2d 483, 484 (N.Y. App. Div. 2006).

213. Perhaps this confusion stems from the fact that a profit à prendre to enter on a property to extract a profit necessarily entails some degree of possession. See *Saratoga State Waters Corp. v. Pratt*, 125 N.E. 834, 839 (N.Y. 1920).

indefinite easements; and (2) property owners who sign gas leases may violate the “no transfer” clauses in their home mortgage agreements, leading to a technical default.²¹⁴

In his essay, *The Marcellus Shale: A Game Changer for the New York Economy?*, Binghamton-area attorney Scott Kurkoski responds that fears of a rash of mortgage defaults are overblown.²¹⁵ Kurkoski’s critique relies on two concepts: (1) a gas lessee’s rights under a typical lease agreement are a type of *license* (and not an easement or a profit à prendre), and (2) licenses have no effect on the lessor’s property.²¹⁶ The result, he concludes, is that signing a natural gas lease does not offend the lessor’s mortgage (assuming it contains a “no transfer” clause proscribing all transfers of property rights without the mortgagee bank’s consent).

Two responses to this argument seem in order. The first relates to the nature of interests in oil and gas under New York law. True, the *Shepherd* court called such an interest a license.²¹⁷ However, the Court of Appeals in *Pratt* took great pains to define an interest giving the interest-holder a right to enter upon a property in another’s possession to remove a profit (like oil or gas) from the property; that interest is not a license, but a profit à prendre.²¹⁸ The rights a natural gas lessee gives over to the operator are more than the “fleeting shadow of an interest”;²¹⁹ the interest includes the privilege

214. Elizabeth N. Radow, *Homeowners and Gas Drilling Leases: Boon or Bust?*, N.Y. ST. B.A. J., Nov./Dec. 2011, at 18-21. Radow is not the only commentator to have raised this issue. See Ian Urbina, *A Rush to Sign Leases for Gas Runs into Mortgage Restrictions*, N.Y. TIMES, Oct. 19, 2011, at A1, A22 [hereinafter Urbina, *A Rush to Sign*]; Ian Urbina, *Learning Too Late of Perils in Gas Well Leases*, N.Y. TIMES, Dec. 2, 2011, at A1 [hereinafter Urbina, *Learning Too Late*].

215. See Scott R. Kurkoski, *The Marcellus Shale: A Game Changer for the New York Economy?*, N.Y. ST. B.A. J., Jan. 2012, at 14.

216. *Id.*

217. *Shepherd v. McCalmont Oil Co.*, 38 Hun 37, 40 (N.Y. Gen. Term 1885).

218. See *Saratoga State Waters Corp. v. Pratt*, 125 N.E. 834, 838-39 (N.Y. 1920).

219. *Schnipper v. Flowood Realty Corp.*, 113 N.Y.S.2d 842, 852 (N.Y. City Ct. 1952) (“[A] license is scarcely the fleeting shadow of an interest in real property, coming and going with the person to whom it attaches, indivisible and inseparable from him and liable to be immediately dissipated upon withdrawal

to enter upon the property, the right to sue a landowner or a third party who interferes with the lessee's reasonable uses of the land, and legal powers to vest title to gas extracted by the lessee in the lessee and to assign the rights held under the lease agreement.

The second response is a simple one: in general, licenses are unilaterally revocable by the licensor.²²⁰ One imagines very few operators would willingly invest in substantial and costly infrastructure upgrades on the lessor's property (even if the fixtures and appurtenances are the operator's personal property²²¹) where the lessor reserves the right simply to revoke the lease! Natural gas operators should all desire—and potential property owners should all realize they could be giving away—an interest in the leased property that is in fact a *bona fide* estate in land.²²² Despite arguments to the contrary, property owners who lease the right to explore for and extract natural gas on their land are leasing away some of the sticks in their proverbial bundles.

IV. MORTGAGE-RELATED AND OTHER OWNER LIABILITY

Homeowners who are considering leasing their land for natural gas exploration may face some degree of insecurity regarding the effects of the leases on their properties. This part examines two potential problems: (1) whether leasing a property subject to a residential mortgage could result in a default under the terms of the mortgage; and (2) whether a landowner could face strict liability for petroleum pollution on the property even if a natural gas operator is responsible for the pollution.

or extinguishment of the source, from which it is cast, the will of the licensor. A license is not a grant and gives no right, corporeal or incorporeal in real property.”).

220. See *Pratt*, 125 N.E. at 838.

221. See *supra* notes 191-92 and accompanying text.

222. See, e.g., *Pratt*, 125 N.E. at 839.

A. *Residential Mortgages and Natural Gas Drilling*

Both attorneys²²³ and journalists²²⁴ have suggested that homeowners who sign natural gas leases may inadvertently violate terms in their residential mortgage contracts. When a property owner leases drilling rights to a gas operator, she extinguishes certain of her legal rights in the property, and transfers them to the operator-lessee.²²⁵ Property ownership is not simply a state of physically possessing a defined area of land; “[o]wnership consists not of the physical property itself, but of a complex group or bundle of legally enforceable rights, powers[,] and privileges with respect to that physical property.”²²⁶ Property owners’ rights, duties, and remedies depend on who holds various sticks in their legal bundle.²²⁷

Assuming New York courts interpret the interest in gas given by owner to operator as a *profit à prendre*, the lessee possesses, *inter alia*, the privilege to enter upon the lessor’s property to explore for and extract natural gas, and also the right to sue the landowner or any third party who interferes with that privilege.²²⁸ The lease agreement may authorize a lessee to use undesignated portions of the property for well pad construction, as well as the construction of access roads, utility lines, above- and underground pipelines, and other appurtenances.²²⁹ The lease may authorize chemical or fuel storage on-site. The lease may also allow the lessee to store

223. See, e.g., Radow, *supra* note 214, at 20-21.

224. See, e.g., Urbina, *A Rush to Sign*, *supra* note 214, at A22; Urbina, *Learning Too Late*, *supra* note 214, at A1.

225. See discussion *supra* Part III.A.3.

226. Walker, *supra* note 127, at 22.

227. See Lamarre, *supra* note 20, at 461-62.

228. See discussion *supra* Part III.A.3.

229. See Radow, *supra* note 214, at 16. The *New York Times* has collected over 3,000 gas leases recorded in New York, all of which have been made freely available on the paper’s website. Ian Urbina et al., *Drilling Down: Oil and Gas Leases*, N.Y. TIMES (2011), <http://www.nytimes.com/interactive/2011/12/02/us/oil-and-gas-leases.html> (last visited Mar. 21, 2013).

natural gas under the property subject to the lease, whether or not the gas was extracted from the property.²³⁰

It should be clear from the foregoing that signing a gas lease entails a limitation of the landowner's legal rights and a corresponding augmentation of the operator's rights vis-à-vis the property in question. If the property is encumbered by a mortgage, then the mortgage too may be affected. The Federal Home Loan Mortgage Corporation ("Freddie Mac") standard residential mortgage security instrument for New York includes several relevant clauses, dealing generally in the following subject areas: (1) the physical condition of the property, (2) property insurance, and (3) transfers of rights in the property.²³¹

In paragraph seven of the mortgage agreement, the borrower covenants to maintain the property.²³² The borrower also agrees to protect the property from physical harm, and to "keep the property in good repair so that it will not deteriorate or decrease in value."²³³ The borrower also agrees to allow the lender to inspect the property, upon reasonable notice, to ensure it is being properly maintained.²³⁴ In paragraph twenty-one, the borrower covenants not to violate, and not to allow any third party to violate, any state or federal environmental law.²³⁵ In this clause, the borrower also covenants not to permit hazardous substances to be present on the property. The term "hazardous substance" is broadly defined as encompassing all substances considered toxic or hazardous under state or federal environmental law, including "toxic petroleum products" and radioactive materials.²³⁶ Disposal of drill

230. Radow, *supra* note 214, at 16.

231. See, New York--Single Family--Fannie Mae/Freddie Mac Uniform Instrument, FREDDIE MAC, ¶¶ 2, 3, 5, 7, 9, 21, http://www.freddiemac.com/uniform/unifsecurity.html#master_short (last visited Mar. 16, 2012) [hereinafter Mortgage Agreement] (follow "Form 3033 New York Mortgage" hyperlink).

232. *Id.* at ¶ 7(a).

233. *Id.*

234. *Id.* at ¶ 7(b).

235. *Id.* at ¶ 21.

236. *Id.*

cuttings contaminated with NORM in an on-site pit could be a violation of this provision.²³⁷ The presence of the chemical constituents of fracking fluid is most certainly a violation of this provision. Further, any spill or other accident resulting in remediation is a violation of this provision.²³⁸

In paragraph five of the mortgage agreement, the borrower covenants to secure sufficient insurance to “cover all buildings and other improvements that now are, or in the future will be, located on the [p]roperty.”²³⁹ Homeowner’s policies may not cover the manifold risks associated with HVHF.²⁴⁰ Failure to obtain adequate property insurance is a violation of the mortgage’s insurance clause.²⁴¹

Finally, paragraph eighteen of the mortgage agreement allows the lender to accelerate the mortgage and demand payment in full should “all or any part of the [p]roperty, or . . . any right in the [p]roperty, [be] sold or transferred without [the lender’s] prior written permission.”²⁴² As discussed above, a natural gas lease likely transfers property rights from the landowner to the operator.²⁴³ While this Comment takes no position on the likelihood that a lender will accelerate a loan on this basis alone, it is this Comment’s position that a gas lease is a transfer of property rights within the meaning of this “no transfer” mortgage clause.

237. See *Revised dSGEIS*, *supra* note 10, at 5-129 to -130. Based on the draft impact statement, DEC would only allow on-site disposal of drill cuttings where drilling mud does not contain petroleum products. See *supra* notes 52-55 and accompanying text.

238. Mortgage Agreement, *supra* note 231, at ¶ 21.

239. *Id.* at ¶ 5.

240. See Radow, *supra* note 214, at 19; see also Ann M. Waeger, *Current Insurance Policies for Insuring Against Environmental Risk*, in ENVIRONMENTAL ASPECTS OF REAL ESTATE AND COMMERCIAL TRANSACTIONS 395, 396 (James B. Witkin ed., 2011).

241. Mortgage Agreement, *supra* note 231, at ¶ 5.

242. *Id.* at ¶ 18.

243. See discussion *supra* Part III.A.3.

B. *Property Owner Liability for Petroleum Discharge: The Oil Spill Act*

New York's Oil Spill Act may represent another possible source of liability for owners who lease property to a natural gas operator. Codified as Article 12 of the Navigation Law, the Oil Spill Act imposes strict liability on "any person who has discharged petroleum" onto the land or into the waters of the state.²⁴⁴ While the statute manifestly applies only to "petroleum," it defines the term broadly to encompass "oil or petroleum of any kind and in any form including, but not limited to oil, petroleum, fuel oil, oil sludge, oil refuse, oil mixed with other wastes and crude oils, gasoline and kerosene."²⁴⁵ While natural gas may not be a covered substance under the Oil Spill Act, some covered materials are likely to be present at any HVHF site. Drilling mud employed during the horizontal drilling phase may be oil-based.²⁴⁶ While the mud will likely be stored on the surface in closed tanks, leaks or spills may occur. Fracking fluid may also contain petroleum products, including kerosene and mineral oils.²⁴⁷ Much like drilling mud, these chemical additives will be transported to and stored on the drill site; mixed with fresh water; injected into the well under pressure; and recovered post-injection in significant quantities.²⁴⁸ In addition, heavy equipment used to construct well pads and access roads, tanker trucks, and pumps all require diesel fuel; if stored in on-site containers, the possibility for spills or leaks exists.

In the case of *New York v. Green*, the New York Court of Appeals extended Oil Spill Act liability to the corporate owner of a mobile home park where a lessee's kerosene tank tipped over, spilling kerosene on the ground.²⁴⁹ Noting that "[n]othing in the statutory language requires proof of fault

244. N.Y. NAV. LAW § 181(1) (McKinney 2013).

245. *Id.* § 172(15).

246. *Revised dSGEIS*, *supra* note 10, at 5-32.

247. *Id.* at 5-75.

248. *See supra* notes 56-62 and accompanying text.

249. *New York v. Green*, 754 N.E.2d 179, 181-82 (N.Y. 2001).

or knowledge,” the court held that a landowner “who [has] both control over activities occurring on their property and reason to believe that their tenants will be using petroleum products” is strictly liable as a petroleum discharger.²⁵⁰ The court noted landowner liability does not extend to petroleum spills that are wholly unforeseeable, as might result from an errant traffic accident.²⁵¹ However, where a landowner knows petroleum products are present on the property, liability for spills may follow.²⁵² While it is true the party responsible for the spill in *Green* was the landowner’s lessee under a space lease, the precise contours of the legal relationship between the landowner and the person who caused the spill were not crucial to the court’s holding. It was enough that the owner be in control of the property, that it reasonably expect that petroleum substances would be on the property, and that it benefit from the state’s clean-up action.²⁵³ Given the holding in *Green*, it seems possible that a landowner who leases his or her natural gas rights to an operator may be held strictly liable if the operator discharges petroleum products on the property. While it is certainly true that an oil and gas lease is not the same as a space lease, this difference should not change the Oil Spill Act analysis.

V. MUNICIPAL ZONING AUTHORITY

Proponents of the rule of capture often argue the rule is justified because it promotes an efficient use of resources by ensuring clear and unimpeachable title.²⁵⁴ It is equally true that many states embracing the rule of capture have altered or supplemented the rule to reflect a heightened awareness of the rights of surface owners over a shared resource pool—

250. *Id.* at 182.

251. *Id.*

252. *Id.*

253. *Id.* at 183. Note however that a faultless landowner would be able to sue the party who caused the discharge for contribution. *See id.* (citing *White v. Long*, 650 N.E.2d 836, 838 (N.Y. 1995)).

254. *See Carol M. Rose, Possession as the Origin of Property*, 52 U. CHI. L. REV. 73, 78, 81 (1985).

i.e., correlative rights.²⁵⁵ While New York has enacted laws designed to attenuate the harshest effects of the rule's "go and do likewise" injunction,²⁵⁶ this part focuses on another, more decentralized locus of modification: municipalities' authority to control, or even prevent, construction of natural gas wells via local zoning and land use planning powers.

Local government law has long viewed municipalities as creations of their states.²⁵⁷ It is axiomatic in this area of law that municipal "state creatures" may exercise none but the powers expressly delegated by the legislature.²⁵⁸ Declaring both "effective local self-government and intergovernmental cooperation" to be in the public weal, Article IX of the New York State Constitution directs the legislature to enact a statute of local governments, conferring upon the state's municipalities certain powers.²⁵⁹ The duly-enacted Statute of Local Governments gives cities, villages, and towns the powers, inter alia, to "perform comprehensive . . . planning work"²⁶⁰ and also to "adopt, amend, and repeal zoning regulations."²⁶¹ Parallel provisions of the Town, Village, and General City Laws further define municipalities' zoning and planning powers.²⁶²

Given the geographical extent of the Marcellus Shale in New York, the town law is likely the most relevant.²⁶³ The

255. See *supra* notes 144-48 and accompanying text.

256. *Id.*

257. See *Hunter v. City of Pittsburg*, 207 U.S. 161, 178 (1907) ("Municipal corporations are political subdivisions of the state, created as convenient agencies for exercising such of the governmental powers of the state as may be intrusted to them.").

258. *Kamhi v. Town of Yorktown*, 547 N.E.2d 346, 347 (N.Y. 1989). This principal, now known as Dillon's Rule, was definitively set forth in John Dillon, *THE LAW OF MUNICIPAL CORPORATIONS* (1873).

259. N.Y. CONST. art. IX, § 2.

260. N.Y. STAT. OF LOCAL GOV'TS § 10(7) (McKinney 2013).

261. *Id.* § 10(6).

262. N.Y. VILLAGE LAW § 7-700 (McKinney 2011); N.Y. GEN. CITY LAW §§ 20(24)-20(25) (McKinney 2003); N.Y. TOWN LAW § 261 (McKinney 2004).

263. See *Revised Rural Area Flexibility Analysis*, N.Y. DEP'T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/regulations/87430.html> (last visited Jan. 30, 2013). *But see* Mose Buchele, *Oil and Gas Related Earthquakes? Texas*

law authorizes towns to enact zoning regulations consonant with their comprehensive or master plans.²⁶⁴ Among other purposes, towns may use their zoning power to promote the general health and welfare, to reduce traffic congestion, and to ensure adequate access to such public goods as water and parks.²⁶⁵ For purposes of the law's planning provision, "land use regulation" includes any and all "law[s] enacted . . . for the regulation of any aspect of land use and *community resource protection*."²⁶⁶ Some commentators interpret this provision as authorizing towns to use their zoning and planning powers to enact laws protective of environmental resources.²⁶⁷ While the parameters of the zoning power as a mode of localist environmental protection are beyond this Comment's scope, it is crucial to note that municipalities across New York have expressed their concern about HVHF by using their zoning authority to prophylactically curtail natural gas development.²⁶⁸

At present, over forty municipalities in New York State have used their zoning authority to enact bans on HVHF.²⁶⁹ At the time of this writing, only two zoning ordinances have been subject to judicial review. In both instances, the courts upheld the towns' authority to regulate land use to prohibit HVHF over challenges that the ordinances were preempted

Regulators Speak No Evil, NPR (Jan. 18, 2013), available at <http://stateimpact.npr.org/texas/2013/01/18/oil-and-gas-related-earthquakes-texas-regulators-speak-no-evil> (noting Fort Worth, Texas passed an ordinance banning HVHF-related wastewater injection wells after scientists linked the wells to a series of earthquakes).

264. N.Y. TOWN LAW § 263 (McKinney 2004).

265. *Id.*

266. *Id.* § 272-a(2)(b) (emphasis added).

267. See, e.g., John R. Nolon, *In Praise of Parochialism: The Advent of Local Environmental Law*, in *NEW GROUND: THE ADVENT OF LOCAL ENVIRONMENTAL LAW* 3, 14 (John R. Nolon ed., 2003).

268. See *Anschutz Exploration Corp. v. Town of Dryden*, 940 N.Y.S.2d 458, 458 (N.Y. Sup. Ct. 2012); *Cooperstown Holstein Corp. v. Town of Middlefield*, 943 N.Y.S.2d 722, 723 (N.Y. Sup. Ct. 2012).

269. See *Current High Volume Horizontal Hydraulic Fracturing Drilling Bans and Moratoria in New York State*, FRACKTRACKER, <http://www.fracktracker.org/maps/ny-moratoria> (last visited Jan. 20, 2013).

by the Oil, Gas, and Solution Mining Law (“OGSML”).²⁷⁰ In *Anschutz Exploration Corp. v. Town of Dryden*, an operator holding natural gas leases in the town challenged the town’s zoning ordinance, claiming: (1) the ordinance was preempted by the OGSML’s express supersedure clause; or, in the alternative, (2) the ordinance conflicted with the OGSML.²⁷¹ The court held a provision in the town ordinance purporting to invalidate duly-issued state drilling permits within the town’s borders was conflict-preempted.²⁷² On the broader question whether the town had the authority to ban natural gas drilling using its zoning powers, the court held the supersedure clause in the OGSML did not expressly preempt municipal zoning.²⁷³ The court relied for authority on a pair of Court of Appeals decisions interpreting the supersedure language in the New York State Mined Lands Reclamation Act (“MLRA”).²⁷⁴ The MLRA’s supersedure clause preempts any state or local law “relating to the extractive mining industry.”²⁷⁵ In *In re Frew Run Gravel Prods., Inc. v. Town of Carrol*, the Court of Appeals held this clause has no preemptive effect on a town zoning ordinance limiting land use for mining purposes:

The purpose of a municipal zoning ordinance in dividing a governmental area into districts and establishing uses to be permitted within the districts is to regulate land use generally. In this general regulation of land use, the zoning ordinance inevitably exerts an incidental control over any of the particular uses or businesses which, like sand and gravel operations, may be allowed in some districts but not in others. But, this incidental control resulting from the municipality’s exercise of its right to regulate land use through zoning is not the type of regulatory enactment relating to the “extractive mining industry” which the

270. *Anschutz*, 940 N.Y.S.2d at 465-66; *Cooperstown Holstein Corp.*, 943 N.Y.S.2d 729-30.

271. *Anschutz*, 940 N.Y.S.2d at 459.

272. *Id.* at 470.

273. *Id.* at 459.

274. *Id.* at 467-68; see also *In re Gernatt Asphalt Prods. v. Town of Sardinia*, 664 N.E.2d 1226 (N.Y. 1996); *In re Frew Run Gravel Prods., Inc. v. Town of Carroll*, 518 N.E.2d 920 (N.Y. 1987).

275. N.Y. ENVTL. CONSERVATION LAW § 23-2703(2) (McKinney 2007).

Legislature could have envisioned as being within the prohibition of the statute.²⁷⁶

The OGSML purports to supersede “all local laws or ordinances *relating to* the regulation of the oil, gas and solution mining industries”²⁷⁷ The court in *Anschutz*, noting that this supersedure language is nearly identical to the supersedure clause in the MLRA, held that *Frew Run* supplied the rule of decision.²⁷⁸ In other words, local zoning ordinances seeking to regulate *where* operators drill their wells—and not seeking to regulate *how* the wells are drilled—will not run afoul of the OSGML’s supersedure clause. Facing a similar question, the court in *Cooperstown Holstein Corp. v. Town of Middlefield* followed the *Anschutz* analysis and reached the same conclusion.²⁷⁹

The Appellate Division has yet to review the holdings in *Anschutz* and *Cooperstown Holstein*. Still, in light of the Court of Appeals’ decisions in *Frew Run* and *In re Gernatt Asphalt Prods. v. Town of Sardinia* (where the high court built on *Frew Run* to uphold a town’s use of its zoning power to totally ban surface mining²⁸⁰), a municipality may well legitimately use its zoning and land use planning authority to decide for itself whether, and, if so, where HVHF and related activities will be allowed to take place. Should this authority remain unchallenged, towns (and cities and villages) across New York will be able to make land use choices that reflect the will of their residents on a highly controversial issue. To the extent land use decision-making authority has shifted from local to state bodies since the 1970s,²⁸¹ this localist turn may be a sign that the situs of

276. *Frew Run*, 518 N.E.2d at 922.

277. N.Y. ENVTL. CONSERVATION LAW § 23-0303(2) (McKinney 2007) (emphasis added).

278. *Anschutz*, 940 N.Y.S.2d at 459, 461.

279. *Cooperstown Holstein Corp. v. Town of Middlefield*, 943 N.Y.S.2d 722, 723 (N.Y. Sup. Ct. 2012).

280. *In re Gernatt Asphalt Prods. v. Town of Sardinia*, 664 N.E.2d 1226, 1235 (N.Y. 1996).

281. Philip Weinberg, *Overcoming the Preemption Problem*, in *NEW GROUND: THE ADVENT OF LOCAL ENVIRONMENTAL LAW* 147, 147 (John R. Nolon ed., 2003).

concern for (and action on) environmental and natural resource protection—as well as related quality-of-life and economic issues—may soon shift (at least on this critical issue, and at least in New York²⁸²) from the state to its municipalities. While this shift may seem benighted from an efficiency perspective, it should not signal a return to the old, parochial, and often ineffective land use planning of yesteryear.²⁸³ While HVHF may be weakly regulated on the federal level,²⁸⁴ and while states may implement somewhat uneven regulations,²⁸⁵ New York will implement—if HVHF is approved—a relatively strict regulatory regime. In other words, municipalities would exercise their zoning powers in a controlled environment, wherein state “how” regulations form a backstop or bulwark against irresponsible activities, and local “where” regulations are simply the product of local democratic processes.

CONCLUSION

This Comment began with a straightforward premise: HVHF is controversial, at least in part, because it bears on the bundle of rights commonly associated with real property ownership. The theories of ownership subtending the law of oil and natural gas nationwide seem to have been taken up

282. Pennsylvania is grappling with a similar issue. In 2009, the Pennsylvania Supreme Court held the state's Oil and Gas Act does not in fact preempt municipalities' authority to enact "where-not-how" zoning regulations affecting natural gas extraction. *Huntley & Huntley, Inc. v. Oakmont*, 964 A.2d 855, 864-66 (2009) (holding a local ordinance regulating gas well siting did not conflict with the state law regulating technical features of natural gas extraction); see also *Range Resources-Appalachia, LLC v. Salem Twp.*, 964 A.2d 869, 875 (2009) (holding municipal zoning ordinances purporting to regulate specific aspects of natural gas extraction were preempted by the state Oil and Gas Act). In response to the Supreme Court's decisions, the state legislature amended the Oil and Gas Act to preempt local zoning authority as concerns natural gas wells. 58 PA CONS. STAT. ANN. § 3302 (West 2013). Municipalities and citizens' groups promptly sued to challenge the constitutionality of the law. *Robinson Twp. v. Pennsylvania*, 52 A.3d 463, 480-81 (Pa. Commw. Ct. 2012).

283. See 1 PATRICIA E. SALKIN, N.Y. ZONING LAW AND PRACTICE § 2:02 (5th ed. 2012).

284. See discussion *supra* Part I.B.1.

285. See Wiseman, *supra* note 19, at 249-51.

in sometimes contradictory manners by New York courts. As this Comment has endeavored to show, however, the law of this state seems to indicate that rights to explore for and produce natural gas granted by lease are substantial rights in property. Because the no-transfer clauses in most home mortgages preclude transfer of property rights without the lender's consent, homeowners who sign a natural gas lease may unwittingly commit technical defaults under the terms of their mortgages. In addition, homeowners who consent to HVHF activities on their property may risk strict liability for any discharge of petroleum-containing materials under the state's Oil Spill Act.