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Regulation of Hydraulic Fracturing, 49 J. Marshall L. Rev. 271 (2015)

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REGULATION OF HYDRAULIC FRACTURING

DAVID L. CALLIES*

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The U.S. Department of Energy’s Energy Information Administration (EIA) estimated that the U.S. has over 2,214 trillion cubic feet of recoverable shale gas reserves.¹ By 2020, the

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EIA projects that shale gas will comprise over 20% of the total U.S. gas supply.² Thus, the “hydraulic fracturing (fracking)” process has been touted in the U.S. as the key to a clean energy future and ending dependence on foreign oil.³ Hydraulic fracturing is a process whereby fracturing fluids—a combination of sand, water and chemical additives—are pumped into wells under high pressure to generate fractures in underground formations.⁴ Recent technological advancements in hydraulic fracturing have enabled the oil and gas industry to extract “shale gas”—natural gas produced from hydrocarbon-rich shale formations.⁵

Despite the potential benefits of fracking, many have raised concerns about the impact of fracking on underground water resources, public health, and other environmental effects in the locale of these shale gas extraction facilities.⁶ The sudden pervasiveness of fracking, in conjunction with communities and environmentalists’ concerns, has raised the issue of who regulates fracking.⁷ Because fracking is not regulated under federal law, legal battles ensued between state and local governments over who has the power to regulate fracking. A patchwork of regulations evolved in various states across the nation as legislators and municipalities struggled to cope with the competing concerns of environmentalists and the oil and gas industry.⁸

updated version of Callies & Stone, *Regulation of Hydraulic Fracturing*, 1 J. INT’L & COMP. L. 1 (2014). Thanks to Jacob Garner, Comment Editor of the UNIVERSITY OF HAWAII LAW REVIEW, for his research assistance in this revision.

1. Mason Inman, *Estimates Clash for How Much Natural Gas in the United States*, NAT’L GEOGRAPHIC NEWS (Mar. 2, 2012) <http://news.nationalgeographic.com/news/energy/2012/03/120301-natural-gas-reserves-united-states>.

2. U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2009: WITH PROJECTIONS TO 2030, at 37.

3. *See id.* at 2 (citing foreign oil dependence as a pressure on energy costs).

4. ENVIRONMENTAL PROTECTION AGENCY (EPA), POTENTIAL RELATIONSHIPS BETWEEN HYDRAULIC FRACTURING AND DRINKING WATER RESOURCES 1 (2010) [hereinafter HYDRAULIC FRACTURING AND DRINKING WATER]. *See also* Beth E. Kinne, *The Technology of Oil and Gas Shale Development*, in BEYOND THE FRACKING WARS: A GUIDE FOR LAWYERS, PUBLIC OFFICIALS, PLANNERS, AND CITIZENS 3 (Erica L. Powers & Beth E. Kinne eds., 2013).

5. Jason B. Hutt & Salo L. Zelermyer, *The Shale Gale: Storming Towards Energy Independence*, in ALI-ABA SHALE DRILLING AND HYDRAULIC FRACTURING: A PRIMER FOR NON-SPECIALISTS 17 (Am. Bar Ass’n 2012 http://files.alle.org/thumbs/datastorage/skoobesruoc/pdf/VCT0508_chapter_02_thumb.pdf).

6. HYDRAULIC FRACTURING AND DRINKING WATER, *supra* note 4, at 1.

7. *Cf.* NATHAN RICHARDSON, ET AL., THE STATE OF STATE SHALE GAS REGULATION 1, 6 (2013) (discussing heterogeneity of hydraulic fracturing regulation amongst states and interplay between federal and municipal levels).

8. *See* Rachel Degenhardt, *Hydraulic Fracturing and Groundwater Contamination: Can Disclosure Rules Clarify What’s in Our Groundwater?*, 39 ECOLOGY L. CURRENTS 39, 40 (2012) (examining recent disclosure rules in

I. OVERVIEW OF SHALE GAS AND HYDRAULIC FRACTURING

Natural gas⁹ is an attractive asset that plays an important role in our nation's clean energy future.¹⁰ Natural gas burns cleanly and releases fewer potentially harmful emissions than coal and oil.¹¹ "Eighty-four percent of the natural gas consumed in the U.S. is produced in the U.S., and ninety-seven percent of the gas used in this country is produced in North America."¹² Shale gas, therefore, has the ability to reduce greenhouse gas emissions¹³ and simultaneously curtail the nation's dependence on foreign sources of oil.¹⁴ As rosy as this energy future may appear, fracking has been challenged on many levels,¹⁵ bringing the regulation of shale gas extraction to the forefront. To understand the complex interplay of regulations currently in place, it is first important to understand two bases for regulations: the natural (and unnatural) resources used in fracking and the potential environmental effects of fracking.

A. *The Technical Process of Hydraulic Fracturing*

Fracking is not a new process. It was initially developed in the 1940s to increase the production of oil reserves.¹⁶ The rate of fracking operations expanded significantly in the 1980s and

Texas and Colorado); *see also* U.S. Dep't Energy, *Modern Shale Gas Development in the United States: A Primer* 25-27 (2009) [hereinafter *Modern Shale: A Primer*] (providing an overview of state laws that address fracking).

9. "Natural gas is a mixture of light-end, flammable hydrocarbons primarily composed of methane (CH₄), but also containing lesser percentages of butane, ethane, propane, and other gases. It is odorless, colorless, and, when ignited, releases a significant amount of energy." J. Daniel Arthur, Bruce Langhus & David Alleman, *An Overview of Modern Shale Gas Development in the United States*, ALL Consulting 2008, at 1 (citations omitted).

10. EPA, *Natural Gas Extraction-Hydraulic Fracturing*, www.epa.gov/hydraulicfracturing [hereinafter *NATURAL GAS EXTRACTION*] (last accessed Apr. 4, 2016).

11. Arthur, Langhus & Alleman, *supra* note 9, at 1.

12. *Modern Shale: A Primer*, *supra* note 8, at 5.

13. Robert B. Jackson, et. al. *The Environmental Costs and Benefits of Fracking*, 39 ANNU. REV. ENVIRON. RESOUR. 327, 346 (2014).

14. Charles F. Mason, et. al., *The Economics of Shale Gas Development*, Resources for the Future (2015) at 11-12, www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-14-42.pdf.

15. Michael Goldman, *A Survey of Typical Claims and Key Defenses Asserted in Recent Hydraulic Fracturing Litigation*, 1 TEX. A&M L. REV. 305, 306 (2013).

16. Leonard Dougal & Jacob Arechiga, *Shale Play Hydraulic Fracturing: Emerging Water Resource and Regulatory Issues*, Water Quality & Wetlands Comm. Newsl. (A.B.A.), Mar. 2012, at 3.

through the 1990s to reach coalbed methane (CBM) deposits.¹⁷ The demand for natural gas, advancing fracturing technologies and federal tax credits for nonconventional energy production in the 1980s led to prominent growth in CBM, from fewer than 100 coalbed wells in 1984 to nearly 8,000 coalbed wells in 1990.¹⁸ The boom in CBM led to the use of hydraulic fracturing on other sources of fuel, such as shale gas.¹⁹ The Energy Information Administration (EIA), part of the U.S. Department of Energy (DOE), reports that production from shale formations is the fastest growing source of natural gas.²⁰

Since the extraction technique was introduced in 1949, nearly 2.5 million fracturing treatments have been executed worldwide.²¹ Fracking is employed as “formation stimulation practice,” which increases permeability by allowing more gas to flow to the wellbore.²² Horizontal wells—drilled down vertically over 5,000 feet beneath the earth’s surface, then extending horizontally—act as the means for reaching the shale formations.²³ The increased use of fracking is due to certain technological advances in horizontal drilling which allows fracking to be applied to extract more natural gas from coal beds, tight gas sands and, most importantly here, shale formations.²⁴ Modern fracking has substantially increased recoverable reserves of oil and gas, by 30% and 90% respectively.²⁵ The Interstate Oil and Gas Compact Commission estimates that more than 90% of oil and natural gas wells in the U.S. rely on hydraulic fracturing to stimulate production.²⁶

17. Mary Tiemann & Adam Vann, CONG. RES. SERV., *Hydraulic Fracturing and Safe Drinking Water Act Regulatory Issues 2* (2013). “CBM production through wells began in the 1970s, largely as a safety measure in coal mines to reduce the explosion hazard posed by methane.” *Id.* Coalbed methane refers to methane that is found in coal seams and is another source of unconventional gas. *Unconventional Coalbed Methane Extraction Industry*, EPA, www.epa.gov/leg/coalbed-methane-extraction-industry (last accessed Apr. 8, 2016). “CBM is naturally created during the geologic process of converting plant material to coal (coalification). To extract the methane, CBM operators drill wells into coal seams and pump out ground water . . . [and] the water removal reduces the pressure and allows the methane to release from the coal[.]” *Id.*

18. Tiemann & Vann, *supra* note 17, at 2.

19. *Id.*

20. *Id.*

21. Carl T. Montgomery & Michael B. Smith, *Hydraulic Fracturing: History of an Enduring Technology*, J. PETROLEUM TECH., Dec. 2010, at 27.

22. Modern Shale: A Primer, *supra* note 8, at 56.

23. U.S. Dep’t Energy, *Shale Gas: Applying Technology to Solve America’s Energy Challenges 5* (2011) [hereinafter *Applying Technology*].

24. See Dougal & Arechiga, *supra* note 16, at 3 (indicating that because of where the pockets of natural gas are located, the further a company can “dig” horizontally, the more natural gas that can be exploited).

25. Montgomery & Smith, *supra* note 21, at 27-28.

26. Mary Tiemann & Adam Vann, *Hydraulic Fracturing and Safe Drinking Water Act Regulatory Issues*, Congressional Research Service 7-5700,

According to EIA studies, the U.S. contains over 827 trillion cubic feet (tcf) of *recoverable* shale gas reserves.²⁷ Due to the abundance of shale gas, the EIA projects that shale gas production will triple over the next 25 years, from 5 tcf in 2010 to 13.6 tcf in 2035.²⁸ To provide some context, “[o]ne tcf of natural gas is sufficient to heat 15 million homes for one year, generate 100 billion kilowatt-hours of electricity, or fuel 12 million natural-gas-fired vehicles for [one] year.”²⁹ Seven shale regions in the U.S. have been targeted as the most prolific for shale gas production: Bakken, Eagle Ford, Haynesville, Marcellus, Niobrara, Permian, and Utica.³⁰ Although shale resources are found in many states, these seven regions accounted for all natural gas production from 2011-2014.³¹ The abundance of natural gas reserves, however, is without value if it cannot be safely and economically extracted. Hydraulic fracturing, enhanced by technological advancements, is purportedly the long sought-after tool for accessing shale gas.³²

Hydraulic fracturing is the only economically viable means of extracting shale gas. Shale gas is found within shale formations, which act as the reservoir for the gas.³³ Shale gas is created when organic matter deposited within the rock generates natural (methane) gas and the gas itself is located throughout the shale formation in the fine pores of the shale rock.³⁴ The fine pores of the shale rock are not naturally permeable.³⁵ Hydraulic fracturing extracts the natural gas by injecting, through the wells, large volumes of a fracturing fluid under high pressure to permeate microscopic perforations in shale formations.³⁶ Fracturing fluid is a water-based liquid containing a proprietary blend of chemical additives that help to carry a propping agent, such as sand, through the fractures in the shale.³⁷ Upon stopping the forceful pumping of fluids, the sand (or other propping agent) remains

at 2, July 13, 2015, www.fas.org/sgp/crs/misc/R41760.pdf.

27. Applying Technology, *supra* note 23, at 4.

28. Hutt, ‘The Shale Gas: Storming Towards Energy Independence’ (n 6) 17.

29. Applying Technology, *supra* note 23, at 4.

30. *Petroleum & Other Liquids: Drilling Productivity Report*, U.S. Energy Info. Admin. (Mar. 7, 2016), www.eia.doe.gov/petroleum/drilling/#tabs-summary-1 (reporting that five of the seven produce over 2,000 cubic square feet of gas at each rig).

31. *Id.*

32. Natural Gas Extraction, *supra* note 10.

33. Modern Shale: A Primer, *supra* note 8, at 14.

34. *Id.* at 15.

35. *Id.* at 56.

36. Applying Technology, *supra* note 23, at 5. *See also* Tiemann & Vann, *supra* note 17, at 1 (using “specialized chemicals under enough pressure to fracture low-permeability geologic formations containing oil and/or natural gas”).

37. Modern Shale: A Primer, *supra* note 8, at 56.

within the fractures in the shale and “props” open the fracture to allow gas to escape the dense rock formation.³⁸ More than 10 million gallons of water may be used in a shale well during the fracking process.³⁹ Fluid in the well must be pumped out of the well before extraction of gas can take place.⁴⁰ This process is called “flowback,” which refers to “the process of allowing fluids to flow from the well following a treatment.”⁴¹

In sum, the extraction of natural gas from shale formations has transformed the natural gas industry by exponentially increasing natural gas production and energy reserve levels to unprecedented levels.⁴² Although the brisk growth of the use of hydraulic fracturing and horizontal drilling for shale gas has enabled the industry to expand remarkably, a host of concerns have arisen regarding the potential environmental impacts of fracking on natural resources such as groundwater.⁴³ Modern fracking operations have come under scrutiny for these potential adverse impacts, and the public is demanding regulation—either on a state level, federal level, or both—of fracking operations and their potential effects.

B. Potential Environmental Concerns Attributed to Hydraulic Fracturing

Although the focus of this article is not on the potential environmental impacts of fracking, much of the existing federal regulatory scheme originates from the environmental law arena. According to the EPA, fracking operations can conceivably cause the following environmental impacts: “[s]tress on surface and ground water supplies from the withdrawal of large volumes of water used in drilling and hydraulic fracturing; [c]ontamination of underground sources of drinking water and surface water resulting from spills . . . ; [a]dverse impacts from discharges into surface waters or from disposal to underground injection wells; and [a]ir pollution resulting from the release of volatile organic compounds, hazardous air pollutants, and greenhouse gasses.”⁴⁴

The possibility that fracking fluid may contaminate underground drinking water sources is of great concern to residents and municipalities surrounding fracking operations.⁴⁵

38. *Id.*

39. Applying Technology, *supra* note 23, at 5.

40. Tiemann & Vann, *supra* note 17, at 1.

41. *Id.* at n.6.

42. Hutt, ‘The Shale Gas: Storming Towards Energy Independence’ (n 6) 17.

43. See Tiemann & Vann, *supra* note 17, at 4 (noting that private wells and drinking water supplies are particularly susceptible).

44. Natural Gas Extraction, *supra* note 10.

45. U.S. Environmental Protection Agency, Review of State and Industry

Again, in any given fracking operation, millions of gallons of fracking fluids—containing chemicals, water, and propping agent materials—are pumped into shale formations in just one fracking treatment.⁴⁶ The greatest cause for contamination concerns is the unknown concoction of chemicals and additives that compose fracturing fluids.⁴⁷ The overall concentration of additives is small, relative to the amount of water used, in a typical fracking procedure: between 0.5%-2% additives and 98%-99.5% water.⁴⁸ However, given the vast amounts of fracking fluids that are utilized in each fracking well operation,⁴⁹ the small percentage of additives can be extrapolated to over 500,000 gallons of additives. Not surprisingly, much of the existing regulatory scheme has been driven by the fear that fracking operations will lead to a contaminated ground water supply. To alleviate public concern,⁵⁰ the Federal government commissioned a report on the chemical additives used in fracking fluids.⁵¹

In early 2010, the Committee on Energy and Commerce launched an in-depth investigation into the practice of hydraulic fracturing and the chemical makeup of fracturing fluids.⁵² Fourteen industry leaders engaged in fracking were invited to disclose the types, volumes, and chemical compositions of the fracking fluid they used in their respective operations.⁵³ The Committee found that between 2005 and 2009, “the [fourteen] oil and gas service companies used more than 2,500 hydraulic fracturing products containing *750 chemicals* and other components. Overall, these companies used 780 million gallons of hydraulic fracturing products—not including water added at the well site[.]”⁵⁴ Even more problematic for regulation was that a majority of the companies refused to disclose selected chemicals and additives used in the fracking fluids because it was deemed proprietary or a trade secret.⁵⁵

Spill Data: Characterization of Hydraulic Fracturing (2015) at 4, www.epa.gov/sites/production/files/2015-05/documents/hf_spills_report_final_5-12-15_508_km_sb.pdf.

46. Modern Shale: A Primer, *supra* note 8, at 61.

47. *Id.*

48. *Id.*

49. See Applying Technology, *supra* note 23, at 5 (using as much as 420,000 gallons of water mixed with one pound of sand per gallon at each stage).

50. See Ian Urbina, *Regulation Lax as Gas Wells’ Tainted Water Hits Rivers*, NY TIMES (Feb. 26, 2011) (reporting on the lack of regulation despite a number of potential risks).

51. U.S. H.R. Comm. on Energy and Commerce Minority Staff, *Chemicals Used in Hydraulic Fracturing 1* (2011).

52. See generally *id.* (summarizing the Committee’s findings).

53. *Id.*

54. *Id.* (emphasis added).

55. *Id.* at 12.

Fracking operations—including everything from well site construction to processing facilities, to pipeline right-of-ways, and access roads—have also been targeted as causing various surface-level effects.⁵⁶ Fracking also exacerbates natural fissures in the earth's crust that can lead to the migration of gasses into subsurface potable water aquifers and eventually surface water.⁵⁷ The fracking operation, in itself, has impacts such as “fragmentation of forest ecosystems through the creation of open spaces where there were once trees . . . increased potential for sediment runoff from cleared sites to streams . . . creation of corridors for invasive species, and alteration of the viewscape.”⁵⁸

The abundance of shale gas in the U.S. is leading to an influx of drilling and production operations in areas that have not previously experienced gas development.⁵⁹ Hydraulic fracturing operations' ability to affect masses of people (not previously exposed to oil and gas production practices) means the process and its providers are exposed to public criticism. Concerns regarding fracking are flooding legislatures, town halls, and municipalities' offices alike; the spotlight is on the suitability of the current regulatory scheme to effectively manage shale gas development.

II. THE FEDERAL REGULATORY FRAMEWORK

There is a considerable amount of substantive activity over the regulation of fracking at the federal level, even though most such *actual* regulation is at the state and local government levels.⁶⁰ As of 2012, the hydraulic fracturing process itself is exempt from federal regulation under seven different statutes.⁶¹ Nevertheless, there is indirect federal regulation affecting local land use regulation, and if commentators and the environmental community win the next round in Congress, fracking will be heavily regulated by the federal government primarily through two major pieces of legislation including the Safe Drinking Water Act and the Clean Water Act.⁶² What follows is a summary of the

56. DOE, Modern Shale Gas Development in the United States: An Update 58 (2009) [hereinafter *Modern Shale: An Update*].

57. *Id.* at 60-61.

58. *Id.* at 58.

59. Arthur, Langhus & Alleman, *supra* note 9, at 5.

60. See Rebecca Jo Reser & David T. Ritter, *State and Federal Legislation and Regulation of Hydraulic Fracturing*, *The Advocate* (Winter 2011), at 31 (2011) (addressing proposed legislation to regulate fracking).

61. See Renee Lewis Kosnik, *The Oil and Gas Industry's Exclusions and Exemptions to Major Environmental Statutes*, Oil and Gas Accountability Project, 2007 Report, www.earthworksaction.org/files/publications/PetroleumExemptions1c.pdf?pubs/PetroleumExemptions1c.pdf (for a list of the seven statutes that hydraulic fracturing is exempt from).

62. See Reser & Ritter, *supra* note 60, at 31-33 (summarizing the various federal legislation in the pipeline).

major federal legal regimes and recent cases dealing with the regulation of fracking.

A. *The Safe Drinking Water Act*

The Safe Drinking Water Act (SDWA) was originally enacted in 1974 to ensure the safety of public drinking water, in part, through the establishment of regulations monitoring and controlling the underground injection of fluids.⁶³ The complex series of programs and regulatory schemes comprising the SDWA are astonishingly comprehensive, but initially failed to play a role in the regulation of fracking. However, a Federal Court decision in 1997 determined that fracking was within the purview of the statute and prompted investigations into its effects and the amendment of the SDWA.⁶⁴ A brief overview of the SDWA provides a foundation for the subsequent discussion of the SDWA's regulation of hydraulic fracturing.

The SDWA provides a regulatory scheme for safeguarding “underground sources of drinking water” (USDW) by prohibiting underground injection of fluids without a permit.⁶⁵ Pursuant to the SDWA, the Environmental Protection Agency (EPA) implemented minimum inspection, monitoring, recordkeeping and reporting requirements for state Underground Injection Control (UIC) programs.⁶⁶ Additionally, the state programs must prohibit all underground injections, except those specifically exempted, unless such injections are authorized; and the program must ensure that permitted injections do not endanger drinking water resources.⁶⁷

Under the ordinary and plain meaning of the activities regulated under the SDWA, fracking is and would be regulated by

63. Safe Drinking Water Act (SDWA), Pub. L. No. 95-523 § 2(a), 88 Stat. 1661 (1974) (codified as 42 U.S.C. §§ 300f to 300j-26).

64. Legal Env'tl. Assistance Found. v. EPA (*LEAF I*), 118 F.3d 1467, 1471 (11th Cir. 1997).

65. SDWA § 300h(b)(1)(a). The SDWA directs the EPA to protect against endangerment of an “underground source of drinking water.” *Id.* A USDW is defined as

an aquifer or its portion:

- (a)(1) Which supplies any public water system; or
- (2) Which contains a sufficient quantity of ground water to supply a public water system; and
 - (i) Currently supplies drinking water for human consumption; or
 - (ii) Contains fewer than 10,000 mg/l total dissolved solids; and
- (b) Which is not an exempted aquifer.

Underground Injection Control Program, 40 C.F.R. § 144.3 (2011).

66. SDWA § 300h(b)(1)(c). *See also* Tiemann & Vann, *supra* note 17, at 7-9 (summarizing the key requirements of the SDWA).

67. § 300h.

the Federal government. After all, the majority of public water systems and “nearly all rural residents rely on” USDW.⁶⁸ Given that the SDWA directs and requires the EPA to regulate the underground injection of fluids to protect USDW, it should follow naturally that the SDWA would regulate hydraulic fracturing.⁶⁹ In other words, there is a strong argument that the national regulatory program for USDW necessarily includes the oversight and limitation of any underground injections that could affect aquifers or other USDW.⁷⁰

The SDWA states that the EPA “may not prescribe requirements [for state UIC programs] which interfere with or impede [any underground injection for the recovery of oil or natural gas] . . . *unless such requirements are essential to assure that underground sources of drinking water will not be endangered by such injection.*”⁷¹ In addition, the SDWA contains an endangerment standard.⁷² UIC regulations must “contain the minimum requirements for effective programs to prevent underground injection which endangers drinking water sources.”⁷³ This endangerment standard focuses on the protection of groundwater that is or will be used for the public water supply, and thus plays a key role in the regulation of underground injections.⁷⁴ However, this language raises the issue of whether EPA regulations extend only to water used in public systems, excluding private, residential wells.⁷⁵

States can submit an application to the EPA to obtain primary enforcement responsibility of their UIC programs, or “primacy.”⁷⁶ Once approved, states are primarily responsible for issuing injection permits and monitoring the effect of injections of the quality of USDW.⁷⁷ However, in the absence of an approved state UIC program, or in the absence of competent management, federal control and management is permissible.⁷⁸

68. Tiemann & Vann, *supra* note 17, at 7.

69. The SDWA authorized the UIC program at the EPA. UIC provisions are contained in the SDWA, 42 U.S.C. §§ 300h-300h-5.

70. Tiemann & Vann, *supra* note 17, at 7.

71. 42 U.S.C. § 300h(b)(2) (emphasis added).

72. § 300h(b)(1). *See also* Tiemann & Vann, *supra* note 17, at 9 (calling it a “major driving force in EPA regulation of underground injection”).

73. § 300h(b)(1).

74. Tiemann & Vann, *supra* note 17, at 9.

75. *Id.*

76. Primary Enforcement Authority for the Underground Injection Control Program, Env'tl. Prot. Agency, www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program [hereinafter Primary Enforcement Authority] (last accessed Apr. 10, 2016).

77. § 300h(b)(1)(B).

78. *See* Tiemann & Vann, *supra* note 17, at 8 (noting that the EPA must step in whenever a state chooses not to implement a UIC program). In order to ensure compliance with the Act, certain provisions of the SDWA grant broad powers to the EPA Administrator. *Id.* For example, Section 1431 gives the

Each state UIC program must also ensure that underground injection wells meet certain performance criteria, depending on the type of well.⁷⁹ The EPA delineated six classifications for underground injection wells, distinguished by the nature of material injected into the ground.⁸⁰ Class I wells allow for deep-water injection of industrial hazardous or non-hazardous waste materials, or municipal wastewater beneath the lowermost underground source of drinking water.⁸¹ These wells, which include approximately 800 wells in the U.S., are subject to the most stringent regulations.⁸² Class II wells permit the injection of certain fluids associated with oil and natural gas production beneath the lowermost source of drinking water.⁸³ Approximately 18,500 Class III wells permit the injection of fluids used in the mining of minerals, such as salt and uranium, beneath the lowermost underground source of drinking water.⁸⁴ In contrast, fewer than 32 Class IV wells permit the injection of hazardous or radioactive wastes.⁸⁵ Class V is the catch-all category and includes all other injection wells and any experimental wells.⁸⁶ More than 650,000 Class V wells exist and regularly inject non-hazardous fluids.⁸⁷ In addition, in 2010, the EPA issued a rule for Class VI wells to be used for the geologic sequestration of carbon dioxide.⁸⁸

Before granting primacy, the EPA requires that states' UIC programs require Class II wells to be effective in preventing

EPA Administrator the power to issue emergency orders and commence civil actions to protect USDW and public water systems. § 300i(a). Section 1449, authorizes *citizens'* civil actions against anyone whom allegedly violates the SDWA, or even against the EPA if they fail to perform their duties. § 300j-8(a).

79. General Information About Injection Wells, Env'tl. Prot. Agency, www.epa.gov/uic/general-information-about-injection-wells (last accessed Apr. 11, 2016).

80. *Id.*

81. *Class I Industrial and Municipal Waste Disposal Wells*, Env'tl. Prot. Agency, www.epa.gov/uic/class-i-industrial-and-municipal-waste-disposal-wells (last accessed Apr. 11, 2016).

82. *Id.*

83. *Class II Oil and Gas Related Injection Wells*, Env'tl. Prot. Agency, www.epa.gov/uic/class-i-industrial-and-municipal-waste-disposal-wells (last accessed Apr. 11, 2016).

84. *Class III Injection Wells for Solution Mining*, Env'tl. Prot. Agency, www.epa.gov/uic/class-iii-injection-wells-solution-mining (last accessed Apr. 11, 2016).

85. *Class IV Shallow Hazardous and Radioactive Injection Wells*, Env'tl. Prot. Agency, www.epa.gov/uic/class-iv-shallow-hazardous-and-radioactive-injection-wells (last accessed Apr. 11, 2016).

86. See *Basic Information About Class V Injection Wells*, Env'tl. Prot. Agency, www.epa.gov/uic/basic-information-about-class-v-injection-wells (last accessed Apr. 11, 2016) ("includ[ing] any wells that are not already classified as Classes I-IV or Class VI wells").

87. *Id.*

88. *Class VI - Wells Used for Geologic Sequestration of CO₂*, ENVTL. PROT. AGENCY, www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-co2 (last accessed Apr. 11, 2016).

endangerment of USDW.⁸⁹ So far, thirty-four states have assumed primacy for the UIC program.⁹⁰ In ten states, the EPA implements the program, and in the remainder of the states, the authority is shared.⁹¹ With primacy granted under section 1425, states regulate Class II wells using their own program requirements rather than following the EPA regulations, providing significant regulatory flexibility to the states.⁹²

Fracking became increasingly controversial as the EPA insisted it had no role in its regulation because oil and gas production processes (including fracking) were exempt from the SDWA and other federal statutes, including the Clean Water Act,⁹³ the Resource Conservation and Recovery Act,⁹⁴ the Clean Air Act,⁹⁵ the National Environmental Policy Act,⁹⁶ and the Comprehensive Environmental Response, Compensation, and Liability Act^{97,98}. As fracking became more prevalent, litigation over regulation and enforcement flooded the judicial system, initially leaving courts to determine the extent of federal regulation. Although the SDWA exempted the regulation of oil and gas activities, two related cases make it clear that the federal government still has the power to regulate hydraulic fracturing.

1. *The Federal Government Could Regulate Fracking Directly: The LEAF Decisions*

When the SDWA was enacted in 1974, federal and state governments and regulatory agencies such as the EPA had a mutual understanding that fracking was exempt from regulation under the SDWA.⁹⁹ The presumption that fracking was exempt

89. Other requirements for state UIC programs are contained in 40 C.F.R. §§ 144-147.

90. *Primary Enforcement Authority*, *supra* note 76. Information on each state may be found at 40 C.F.R. § 147.

91. *See* Tiemann & Vann, *supra* note 17, at 14 (displaying a map showing the states (and territories) that have achieved Class II primacy).

92. *Accord LEAF I*, 118 F.3d at 1478 (determining that the EPA's view that "underground injections" excluded fracking was inconsistent with Congressional intent and granting a review of primacy); *Legal Env'tl. Assistance Found. v. EPA (LEAF II)*, 276 F.3d 1253, 1264-65 (11th Cir. 2001) (granting in part a review of Alabama's revised UIC program).

93. Clean Water Act, 33 U.S.C. §§ 1251-1388 (2014).

94. Resource Conservation and Recovery Act, 82 U.S.C. §§ 6901-6992k (2014).

95. Clean Air Act, 42 U.S.C. §§ 7401 – 7671q (2014).

96. National Environmental Policy Act 42 U.S.C. §§ 4321 – 4370h (2014).

97. Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675 (2014).

98. Shawna Bligh & Chris Wendelbo, *Hydraulic Fracturing: Drilling into the Issue*, GPSOLO, Sept./Oct. 2013, at 72.

99. 151 CONG. REC. S7267-01 (daily ed. Jun. 23, 2005). The EPA argued in *LEAF I* that the SDWA did not apply to hydraulic fracturing operations because, among other reasons, the purpose of fracking is not disposal, most of

from federal regulation under the SDWA left fracking unregulated for decades. This presumption was challenged in 1994.

In 1982, the EPA approved Alabama's UIC program for Class II wells, and the State Oil and Gas Board of Alabama then had responsibility for administering the program.¹⁰⁰ In 1983, the EPA approved Alabama's UIC program for the remainder of well classes to be administered by the Alabama Department of Environmental Management (DEM).¹⁰¹ State agencies administering these programs did not consider that wells used for hydraulic fracturing in Alabama coalbeds fell within the definition of any wells regulated by the SDWA.¹⁰² At the time that *Legal Environmental Assistance Foundation, Inc. v. U.S. EPA (LEAF I)* was heard, state UIC programs were to prohibit unauthorized "underground injection," defined as "the subsurface emplacement of fluids by well injection."¹⁰³

In 1994, LEAF petitioned EPA to initiate proceedings to have the agency withdraw its approval of the Alabama UIC program because the program did not regulate hydraulic fracturing operations in the state associated with production of methane gas from coalbed formations.¹⁰⁴ The EPA rejected the LEAF petition in 1995 based on a finding that hydraulic fracturing did not fall within the definition of underground injection as the term was used in the SDWA and the EPA regulations promulgated under that act.¹⁰⁵ According to EPA, that term applied only to wells whose "principal function" was the placement of fluids underground.¹⁰⁶ LEAF challenged EPA's denial of its petition in the U.S. Court of Appeals for the Eleventh Circuit, arguing that EPA's interpretation of the terms in question was inconsistent with the language of the SDWA.¹⁰⁷

The court rejected EPA's claim that the language of the SDWA allowed it to regulate "only those wells whose 'principal function' was the injection of fluids into the ground."¹⁰⁸ EPA based this claim on what it perceived as ambiguity in the SDWA regarding the definition of underground injection as well as a perceived congressional intent to exclude wells with primarily non-injection functions.¹⁰⁹ The court held that there was no ambiguity

the fracking fluids are recovered from the well, and the SDWA's language suggests it was not meant to regulate drilling for oil or gas. *LEAF I*, 118 F.3d at 1475-76.

100. *LEAF I*, 118 F.3d at 1470.

101. *Id.*

102. *Id.* at 1470-71.

103. *Id.* at 1474.

104. *Id.* at 1471.

105. *Id.*

106. *Id.*

107. *Id.* at 1472.

108. *Id.* at 1473.

109. *Id.* at 1473-74.

in the SDWA's definition, noting that the words have a clear meaning:

The process of hydraulic fracturing obviously falls within this definition, as it involves the subsurface emplacement of fluids by forcing them into cracks in the ground through a well. Nothing in the statutory definition suggests that EPA has the authority to exclude from the reach of the regulations an activity (i.e., hydraulic fracturing) which unquestionably falls within the plain meaning of the definition, on the basis that the well that is used to achieve that activity is also used—even primarily used—for another activity (i.e., methane gas production) that does not constitute underground injection.¹¹⁰

The language of the SWDA requiring the state UIC programs approved by the EPA gave a “straightforward statutory command,” and “dictated that *all* underground injection be regulated under the UIC programs.”¹¹¹ Accordingly, the court remanded the case to the EPA for reconsideration of LEAF's petition for withdrawal of Alabama's UIC program approval.¹¹² Alabama eventually incorporated fracking into its UIC regulations under a portion of the SDWA that applied to secondary recovery of resources, which the EPA and the court accepted.

Following *LEAF I*, however, the EPA failed to amend its UIC regulations to expressly require states' regulation of fracking as an underground injection. After that, LEAF asked the Court to issue a writ of mandamus to enforce the mandate in *LEAF I*.¹¹³ The EPA, in turn, started to withdraw approval of Alabama's Class II UIC program.¹¹⁴ Meanwhile, Alabama submitted its revised UIC program for the EPA's approval under the alternative demonstration provision in section 1425 of the SDWA.¹¹⁵ LEAF objected to approval, arguing that fracking was not one of the types of activities listed in section 1425, leaving Alabama to demonstrate that its revised program could satisfy the showing required by SDWA section 1425(b).¹¹⁶

In early 2000, the EPA approved Alabama's revised UIC program under section 1425, prompting LEAF to file a petition for review challenging the EPA's approval of Alabama's revised UIC program, using three arguments.¹¹⁷ First, LEAF argued that the EPA should not have approved state regulation of fracking under SDWA section 1425 because it does not have a direct relationship

110. *Id.* at 1474-75 (footnote omitted).

111. *Id.* UIC approved state programs “shall prohibit . . . *any* underground injection in such State which is not authorized by permit issued by the State.” 42 U.S.C. § 300h(b)(1)(A).

112. *LEAF I*, 118 F.3d at 1478.

113. *LEAF II*, 276 F.3d at 1256.

114. *Id.*

115. *Id.*

116. *Id.* at 1256-57.

117. *Id.* at 1256.

to the two specific activities Congress intended to permit.¹¹⁸ The court rejected this argument, finding that the phrase “relates to” was broad and ambiguous enough to include regulation of hydraulic fracturing as being related to tertiary recovery of gas.¹¹⁹

Second, LEAF challenged the Alabama program’s regulation of hydraulic fracturing as “Class II-like” wells not subject to the same regulatory requirements as Class II wells.¹²⁰ The court agreed with LEAF, noting that in *LEAF I*, it had held that methane gas production wells used for hydraulic fracturing are “wells within the meaning of the statute.”¹²¹ Hydraulic fracturing must fall within one of the six classes set forth in EPA regulations.¹²² The court remanded the matter to the EPA for a determination of whether Alabama’s updated UIC program complied with the requirements for Class II wells.¹²³

Finally, LEAF argued that even if Alabama’s revised UIC program was eligible for approval under section 1425, EPA’s decision to approve it was “arbitrary and capricious” and therefore a violation of the Administrative Procedure Act.¹²⁴ The Court rejected this argument, observing that “the practical difference between the two statutory methods for approval is that the requirements for those programs covered under § 1425 are more flexible than the requirements for those programs covered under § 1442(b).”¹²⁵ Rejecting LEAF’s interpretation of the SDWA, the Court found that LEAF’s argument undervalued the term “relates to” under the alternate path.¹²⁶ The Court ultimately upheld the EPA’s approval of Alabama’s revised UIC program.¹²⁷

With fracking now subject to regulation under the SDWA, the EPA launched a study to examine the potential effects of fracking on USDW and to formulate regulations that adequately addressed public concerns.¹²⁸ In 2004, the EPA concluded that the injection of

118. *See id.* at 1259 (arguing that “relates to” requires a “a direct relationship between that portion of a state’s program and one of two specific activities: the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations, and underground injection for the secondary or tertiary recovery of oil or natural gas.” (internal quotations omitted))

119. *Id.* at 1258-59.

120. *Id.* at 1262.

121. *Id.* (citing *LEAF I*, 118 F.3d at 1474 n.9).

122. 40 C.F.R. § 144.6.

123. *LEAF II*, 276 F.3d at 1264-65.

124. *Id.* at 1265.

125. *Id.* at 1257.

126. *See id.* at 1259 (“By focusing only on whether hydraulic fracturing is the same as ‘secondary or tertiary recovery of oil or natural gas,’ LEAF’s construction of § 1425 fails to give full weight to the phrase ‘relates to.’ Since ‘relates to’ injects ambiguity and interpretative breadth into this statutory provision, we cannot accept LEAF’s construction.”).

127. *Id.* at 1265.

128. EPA, Evaluation of Impacts to Underground Sources of Drinking

fracking fluids into coalbed methane wells “poses little or no threat to USDWs.”¹²⁹ This study was widely criticized by the public, environmental groups and EPA employees.¹³⁰

2. *The Federal Exemption for Fracking: The Energy Policy Act of 2005*

In 2005, one year after the EPA study, Congress passed the Energy Policy Act of 2005, which addressed an array of energy related issues.¹³¹ Section 322 of the EPAct amended the SDWA to specifically exempt hydraulic fracturing from regulation.¹³²

The EPAct was likely a response to the EPA study and the *LEAF* decisions. The Court’s holding in *LEAF I*—that hydraulic fracturing “unquestionably falls within the plain meaning of the definition [of underground injection]”¹³³—raised the possibility that the EPA could be required to regulate fracking under the SDWA.¹³⁴ In order to clarify its intent for non-regulation, Congress passed an amendment to the SDWA as part of the EPAct stating that the UIC requirements do not apply to fracking, and amended the definition of underground injection:

The term ‘underground injection’

(A) Means the subsurface emplacement of fluids by well injection; and

(B) *Excludes*: (i) the underground injection of natural gas for purposes of storage; and (ii) the underground injection of fluids or propping agents (other than diesel fuels) *pursuant to hydraulic fracturing operations* related to oil, gas, or geothermal production activities.¹³⁵

In other words, “underground injection” *only* includes the subsurface emplacement of fluids by well injection, which specifically *excludes* the underground injections of fluids or

Water by Hydraulic Fracturing of Coalbed Methane Reservoirs, at ES-7 (2004).

129. *Id.* at ES-16.

130. See, e.g., Weston Wilson, EPA Allows Hazardous Fluids to be Injected into Ground Water: A Report on EPA’s Failure to Protect America’s Ground Water from the Impacts of Oil and Gas Production, (Oct. 8, 2004), www.earthworksaction.org/files/publications/Weston.pdf?pubs/Weston.pdf (complaining that the EPA needs to conduct further studies before it can safely conclude that fracking has no effect on USDW).

131. Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 694 (2005) [Hereinafter “EPAct”].

132. EPAct § 322.

133. *LEAF I*, 118 F.3d at 1475.

134. See Tiemann & Vann, *supra* note 17, at 18 (noting a natural consequence of the ruling could “put companies in competition with communities for drinking water supplies”).

135. EPAct, § 322 (amending 42 U.S.C. § 300h(d)) (emphases added).

chemicals associated with hydraulic fracturing operations.¹³⁶ Under this newly tailored definition, as long as diesel is not used,¹³⁷ oil and gas extraction companies can inject anything in association with fracking operations without having to comply with the SDWA. Congress's deliberate elimination of fracking from the purview of the SDWA left fracking virtually unregulated by the federal government.¹³⁸

3. *Proposed Legislation in the 112th Congress: The FRAC Act*

Since granting the exemption for fracking from federal regulation, Congress has sought to undo its regulatory blunder. In 2009, Congress introduced 'twin bills' to amend the SDWA which would give the EPA the authority to regulate fracking.¹³⁹ The FRAC Act, or Fracturing Responsibility and Awareness of Chemicals Act, H.R. 1084 and S. 587, would require producers in the energy industry to fully disclose the chemicals used in fracking fluids, information which has been protected due to the energy industry's assertion that the chemicals are protected as a trade secret.¹⁴⁰ The two bills have some minor language differences, but are substantially similar—each contain two amendments to the SDWA: (1) amend the definition of underground injection to include hydraulic fracturing and (2) create a new disclosure requirement for the chemicals used in hydraulic fracturing.¹⁴¹

The FRAC Act failed due to opposition from industry, members of Congress, and even some environmentalists who believe that the regulation of fracking should continue to rest with the states.¹⁴² Many environmental groups are advocating for the uniform regulation of gas drilling and more stringent

136. 42 U.S.C. § 300h(d)(1).

137. While the fracking process is not generally regulated under the SDWA, fracking operations that use diesel fuel *do* fall within the definition of "underground injection." Tiemann & Vann, *supra* note 17, at 7-8. Recently, the EPA has issued new guidance on fracking with diesel, but most oil and gas companies have already phased diesel fuel out of their fracking operations. Michael Bastasch, *EPA Looks to Regulate "Potential" Water Threats from Fracking*, The Daily Caller (Feb. 12, 2014, 2:17 PM), <http://dailycaller.com/2014/02/12/epa-looks-to-regulate-potential-water-threats-from-fracking/>.

138. *See* Modern Shale: An Update, *supra* note 56, at 57 (authorizing EPA to oversee only fracking that uses diesel fuel).

139. Abrahm Lustgarten, *FRAC Act—Congress Introduces Twin Bills to Control Drilling and Protect Drinking Water*, PROPUBLICA (Jun. 9, 2009, 12:31 PM), www.propublica.org/article/frac-act-congress-introduces-bills-to-control-drilling-609.

140. Fracturing Responsibility and Awareness of Chemicals Act of 2011, 112 H.R. 1084 (2011), FRAC Act, 112 S. 587 (2011).

141. *Id.*

142. Lustgarten, *supra* note 139.

environmental protections for water resources.¹⁴³ While these groups support eliminating the SDWA exemption for gas drilling, some states are formally requesting that the EPA leave regulation of fracking to them.¹⁴⁴ The FRAC Act was reintroduced in 2013 in the 113th Congress as S. 1135 and H.R. 1921.¹⁴⁵ Both of these bills died in committee and were subsequently reintroduced in the 114th Congress as S. 785 and H.R. 1482, where they are set to die in committee once again.¹⁴⁶ The general prognosis appears to be that these bills have a zero percent chance of being passed.¹⁴⁷ In March 2012, the Fracturing Regulations are Effective in State Hands Act was introduced.¹⁴⁸ “Also known as the FRESH Act, [S.] 2248 and H.R. 4322 would require that states have the *sole authority* to regulate hydraulic fracturing on federal lands within the state’s borders.”¹⁴⁹

Both of these bills died in committee.¹⁵⁰ The FRESH Act was reintroduced in the 113th Congress as S. 1234, where it similarly died in committee.¹⁵¹ The FRESH Act was reintroduced again in the 114th Congress on March 19, 2015 as S. 828.¹⁵² S. 828 was referred to the Senate Energy and Natural Resources Committee the same day it was introduced, where it has stayed since.¹⁵³ S.

143. David Willett, *LCV Statement on Fracking Rule from Department of Interior*, League of Conservation Voters Press Releases (March 20, 2015), www.lcv.org/media/press-releases/LCV-Statement-on-Fracking-Rule-from-Department-of-Interior.html; *Not So Fast, Natural Gas Why Accelerating Risky Drilling Threatens America’s Water*, Food and Water Watch Fact Sheet (July 2010), www.foodandwaterwatch.org/sites/default/files/not_so_fast_natural_gas_fs_july_2010.pdf.

144. H.R. 6025, 2011 Leg., Reg. Sess. (Kan. 2011) (resolution urging Congress “to preserve the primacy of the Kansas Corporation Commission to regulate hydraulic fracturing”); H.R. Con. Res. 3008, 62nd Leg. Assemb., Reg. Sess. (N.D. 2011) (urging Congress “to clearly delegate responsibility for the regulation of fracking to the states”).

145. S. 1135 (113th): *FRAC Act*, GOVTRACK.US (last visited Apr. 20, 2016), www.govtrack.us/congress/bills/113/s1135.

146. S. 785: *FRAC Act*, GOVTRACK.US (last visited Apr. 20, 2016), www.govtrack.us/congress/bills/114/s785.

147. *Id.*

148. FRESH ACT, S. 2248, 114th Cong. (2014), H.R. 4322, 114th Cong. (2014).

149. David L. Callies & Chynna Stone, *Regulation of Hydraulic Fracturing*, 1 J. INT’L & COMP. L. 19 (2014).

150. S. 2248 (112th): *Fracturing Regulations are Effective in State Hands Act*, Govtrack.us (last visited Apr. 20, 2016), www.govtrack.us/congress/bills/112/s2248.

151. S. 1234 (113th): *Fracturing Regulations are Effective in State Hands Act*, Govtrack.us (last visited Apr. 20, 2016), www.govtrack.us/congress/bills/113/s1234.

152. S. 828: *Fracturing Regulations are Effective in State Hands Act*, GOVTRACK.US (last visited Apr. 20, 2016), www.govtrack.us/congress/bills/114/s828.

153. *Id.*

828's current prognosis gives the bill a two-percent chance of being passed.¹⁵⁴

B. Federal (DOI) Proposed Fracking Regulations

In May 2013, the Obama administration issued a new set of proposed regulations for fracking on public lands.¹⁵⁵ These new rules would apply *only to fracking on federal lands*, which contains only 13% of shale production and formations.¹⁵⁶ The Obama administration originally intended this new set of proposed rules as a guideline for the states, but many of the states affected by hydraulic fracturing had already enacted much stricter regulations.¹⁵⁷ As one commentator put it:

According to DOI's summary, the rule "adds a provision allowing the BLM to approve a variance that would apply to all lands within the boundaries of a State, a tribe, or described as field-wide or basin-wide, that is commensurate with the state or tribal regulatory scheme," if the "State or tribal law . . . meets or exceeds the effectiveness of the proposed [federal] rule." Taken together, this means that the proposed regulations should be evaluated now, as they are likely to form the basis of a future federal proposal on fracking standards.¹⁵⁸

The new rules would require that the oil companies disclose most of the drilling fluid components (but are allowed to keep certain trade components a secret) and require "integrity tests" on a well to ensure compliance.¹⁵⁹ If approved, the rules will require a company with just a single well on federal land to disclose the chemical makeup of its fracking operations at any similarly operated wells on private lands.¹⁶⁰ Additionally, the new rules would impose a laundry list of construction standards on fracking wells and add a requirement that fracking well operators put appropriate plans in place for managing flowback waters from

154. *Id.*

155. Bureau of Land Mgmt., *Proposed Rule: Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands*, Regulations.gov (May 24, 2013), www.regulations.gov/#!documentDetail;D=BLM_FRDOC_0001-0061 [hereinafter "*Proposed Rule*"].

156. Bureau of Land Mgmt., *Hydraulic Fracturing Rule*, www.blm.gov/wo/st/en/prog/energy/oil_and_gas.html, (last updated May 9, 2016).

157. See Drew Dorner, *US DOI Proposing Regulation of Fracking on Federal Lands: Is Such Regulation Coming To A Gas Well Near You?*, FRESH L. BLOG (Jun. 7, 2013), www.freshlawblog.com/2013/06/07/doi-proposing-regulation-of-fracking-on-federal-lands-is-such-regulation-coming-to-a-gas-well-near-you/ (reporting "over a dozen states require some form of disclosure of the chemicals used in the hydraulic fracturing process").

158. *Id.*

159. *Proposed Rule*, *supra* note 155. An integrity test measures the pressure inside and outside the drill casing to make sure it is safe to drill. *Id.*

160. *Id.*

fracturing operations.¹⁶¹ While environmentalists were disappointed that full disclosure of the chemicals used in the drilling process was not required by the promulgated rules, this stricter regulation is considered a victory for those who are against fracking.

C. Other Federal Loopholes, Exemptions, and Cursory Regulation

A series of federal laws also play a more attenuated role in the regulation of fracking—although none come close to comprehensive regulation. As of 2012, fracking was exempt from seven different federal laws. The most prominent of these laws include the Clean Water Act and the Clean Air Act.¹⁶² The CWA regulates surface water discharge from fracking operations and runoff from well sites.¹⁶³ The CAA limits air emissions from engines, natural gas processing equipment and any other potential emissions arising from natural gas extraction activities.¹⁶⁴ Although the following federal legislation regulates certain aspects of fracking, the fracking exemption in the EPAAct of 2005 renders regulation largely ineffective.

1. Clean Water Act

The Clean Water Act (CWA)¹⁶⁵ regulates unpermitted discharges of soil, chemicals or other materials to “navigable waters.”¹⁶⁶ Because the CWA regulates mostly discharge at the surface level, instead of underground injections of fluids, the CWA has historically not played a large role in the regulation of oil and gas operations. Since 1987, drilling operations have been exempted from stormwater runoff provisions of the CWA.¹⁶⁷ When the use of fracking increased, the CWA was amended and “pollutant” was defined to exclude hydraulic fracturing fluids: “The term ‘pollutant’ . . . does not mean . . . (B) water, gas, or other material which is injected into a well to facilitate production of oil

161. *Id.*

162. *See* Modern Shale: A Primer, *supra* note 8, at 25 (listing the CWA and CAA as two laws in a series of federal environmental regulations on fracking).

163. *Id.* *See also* Beth E Kinne, ‘Clearing the Air’ in Erica L. Powers & Beth E. Kinne (eds), *Beyond the Fracking Wars: A Guide for Lawyers, Public Officials, Planners, and Citizens* (American Bar Association 2013) 109 ff.

164. Modern Shale: A Primer, *supra* note 8, at 25.

165. Clean Water Act, 33 U.S.C. §§ 1251-1388 (2012).

166. *Id.* § 1251(a)(1).

167. Water Quality Act of 1987, Pub. L. 100-4, 101 Stat. 7 § 401 (codified as 33 U.S.C. § 1342(l)(2)).

or gas.”¹⁶⁸ Regulation by the CWA, if at all, will likely come into play with flowback, or fracking wastewater.¹⁶⁹

2. Clean Air Act

The Clean Air Act (CAA) was passed in 1970 in an effort to “protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare.”¹⁷⁰ Section 112 of the CAA addresses potentially hazardous air pollutants, including emissions from oil and gas drilling operations.¹⁷¹ Section 112 regulates “major sources” of pollutants, defined as

[A]ny stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit . . . in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.¹⁷²

For these major sources, the EPA is required to promulgate standards for technology that will yield the “maximum degree of reduction in emissions.”¹⁷³ Theoretically, most of the oil and gas drilling operations would be under the EPA’s direct control under this provision of the CAA. However, section 112 goes on to exempt a substantial portion of the oil and gas industry from these regulations: “[I]n the case of any oil or gas exploration or production well (within its associated equipment), such emissions shall not be aggregated for any purpose under this section.”¹⁷⁴

More recently, however, the EPA has issued rules regulating air pollution from the oil and gas industry. In April 2012, the EPA issued final rules targeting emissions from oil and gas operations, specifically including fracking wells, which require the industry to apply green completions.¹⁷⁵ Green completion would require drilling operations to utilize equipment that separates gas from the flowback fluid and stores it to prevent or reduce methane emissions.¹⁷⁶

168. 33 U.S.C. § 1362(6).

169. Jason T. Gerken, Comment, What the Frack Shale We Do? A Proposed Environmental Regulatory Scheme for Hydraulic Fracturing, 41 CAP. U. L. REV. 81, 103 (2013).

170. 42 U.S.C. § 7401(b)(1).

171. 42 U.S.C. § 7412.

172. § 7412(a)(1).

173. § 7412(d)(2).

174. § 7412(n)(4)(A).

175. 40 C.F.R. § 60.5375 (Lexis Advance through the June 15, 2016 issue of the Federal Register); 40 C.F.R. § 63.1281 (Lexis Advance through the June 15, 2016 issue of the Federal Register); *EPA Fracking Rules On Emission To Be Finalized*, Huffington Post (updated Jun. 18, 2012), www.huffingtonpost.com/2012/04/18/epa-fracking-rules-emissions_n_1434526.html.

176. See Env’tl. Prot. Agency, Overview of Final Amendments to Air Regulations for the Oil and Natural Gas Industry 1 (August 2012).

3. Resource Conservation and Recovery Act

The 1976 Resource Conservation and Recovery Act (RCRA)¹⁷⁷ is the primary federal law governing the handling and disposal of solid and hazardous waste.¹⁷⁸ In the late 1980s, the Solid Waste Disposal Act Amendments were passed, temporarily exempting oil and gas exploration and production wastes from regulation under RCRA.¹⁷⁹ The exemption was to last at least two years while the EPA, authorized by Congress, would study whether waste from oil and gas operations needed to be regulated as hazardous waste under RCRA.¹⁸⁰ After completing the study, the EPA concluded that wastes associated with exploration and production activities did not warrant hazardous waste regulatory controls because they were high volume wastes that were low in toxicity.¹⁸¹ Despite acknowledging that exempted wastes (including oily sludges, workover wastes, and well completion and abandonment wastes), are known to contain toxic substances, the EPA determined regulation was unnecessary, in part because state regulations adequately address the risk.¹⁸²

4. Comprehensive Environmental Response, Compensation and Liability Act

Enacted by Congress in 1980, the Comprehensive Environmental Response, Compensation and Liability Act¹⁸³ established a framework for the cleanup of toxic materials, known as the Superfund Program.¹⁸⁴ Superfund imposes strict liability on the responsible parties for spills of hazardous substances into the environment.¹⁸⁵ The list of hazardous substances regulated under Superfund is extensive and includes many chemicals found in crude oil and petroleum.¹⁸⁶ However, “petroleum [and] natural gas” are exempted from the hazardous substances definition, thus

177. 42 U.S.C. §§ 6901-6992k (2012).

178. §§ 6921-6939g.

179. § 6921(b)(2)(A).

180. § 6921(b)(2)(B).

181. Env'tl. Prot. Agency, Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations 5 (Oct. 2002).

182. *Id.* at 19.

183. 42 U.S.C. §§ 9601-9628 (West 2012).

184. EPA, *Superfund: CERCLA Overview*, www.epa.gov/superfund/policy/cercla.htm (last accessed Apr. 20, 2016).

185. § 9607.

186. *See* § 9601(14) (defining “hazardous substance” by referring to myriad federal statutes). A list of over 600 CERCLA hazardous substances is provided in 40 C.F.R. 302.4.

leaving fracking activities exempt from regulation under Superfund.¹⁸⁷

5. National Environmental Policy Act

The National Environmental Policy Act (NEPA)¹⁸⁸ of 1970 establishes national goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within federal agencies.¹⁸⁹ NEPA also establishes the Council on Environmental Quality (CEQ).¹⁹⁰ NEPA provides three levels of environmental review, depending on the severity of the interference: (1) actions that fit within a categorical exclusion (CE) undergo a low level of review because an agency has found these actions do not have a significant effect on the environment; (2) an environmental assessment (EA) is used when an agency wants to determine whether an environmental impact statement (EIS) is necessary; and (3) an EIS is the most comprehensive level of review and provides alternative actions, unavoidable adverse effects, and other stringent requirements.¹⁹¹ In 2005, the EPAct effectively exempted certain oil and gas activities from stringent environmental review under NEPA.¹⁹² The EPAct specified that oil and gas related activities were to be evaluated under the categorical exclusion standard, which is the lowest level of scrutiny required under NEPA and does not allow for public comment.¹⁹³ In addition, in 2006 and 2007, the U.S. Bureau of Land Management (BLM) granted these exemptions to needing environmental impact statements to oil and gas companies who lease federal lands.¹⁹⁴

187. 'Superfund: Reportable Quantities' U.S. EPA www.epa.gov/superfund/policy/release/rq/index.htm#substance (last visited 10 Jan. 10, 2014). *See also* Lauren Pagel & Lisa Sumi, *Earthworks, Loopholes for Polluters 2* (2011) (recognizing that the fracking industry "has little incentive to clean up its hazardous waste").

188. 42 U.S.C. §§ 4321 to 4370m-12 (West 2012).

189. § 4321.

190. The CEQ promulgated regulations implementing NEPA are codified at 40 C.F.R. §§ 1500-1508.

191. Brandon J. Murrill, *Hydraulic Fracturing and the National Environmental Policy Act (NEPA): Selected Issues*, CONG. RES. SERV. 2 (2012).

192. Pagel & Sumi, *supra* note 187, at 2.

193. Murrill, *supra* note 191, at 2.

194. U.S. Gov't Accountability Off.: Rep. to Cong., *Energy Policy Act of 2005: Greater Clarity Needed to Address Concerns with Categorical Exclusion for Oil and Gas Development under Section 390 of the Act 2* (2009).

6. The Endangered Species Act

The Endangered Species Act (ESA)¹⁹⁵ protects threatened and endangered species and their habitat.¹⁹⁶ The ESA requires federal agencies to report any activities that could potentially impact a listed species or habitat.¹⁹⁷ While not specifically related to fracking operations, several multi-million dollar settlements have been reached for failure to prevent endangered birds from landing in oil and gas production waste pits.¹⁹⁸ Although the ESA has not been heavily used to address environmental fracking concerns, legislation has been proposed to require the ESA to more closely regulate the interaction between listed species and oil and gas operations.¹⁹⁹

Federal regulation of fracking is so far virtually nonexistent. States will likely continue to play an important role in enforcing fracking locally while simultaneously addressing broad public concerns.

III. STATE AND LOCAL REGULATION

In the absence of clear and effective federal regulation, fracking regulation continues to be primarily a matter of state and local law. While the federal government currently exempts most fracking activity from regulation, the states are free to regulate practices as they see fit.²⁰⁰ There currently exists a patchwork of state regulations, with each state enacting various requirements for wastewater disposal, underground injection, storm water runoff, water supply acquisition, and the process for spacing, drilling, casing, and operating wells. Many states are also reviewing, amending, or drafting regulations that apply directly to fracking.²⁰¹ Given the lack of federal regulation and the likelihood that state courts (following the lead of *Coastal Oil & Gas Corp. v.*

195. 16 U.S.C. §§ 1531-1544 (West 2012).

196. § 1531(b).

197. § 1531(c).

198. See *Contaminant Issues: Oil Field Waste Pits*, U.S. Fish & Wildlife Serv., www.fws.gov/mountain-prairie/contaminants/contaminants1a.html (last accessed Apr. 21, 2016) (estimating between 500,000 and 1 million birds die in oil pits or disposal facilities). The Migratory Bird Treaty Act of 1918 (MBTA) also protects certain listed bird species from takings, similar to the ESA. 16 U.S.C. §§ 703-712.

199. *Contra* Suzie Gilbert, *Fracking Over Endangered Species*, SHALEREPORTER.COM (Sept. 16, 2013, 3:39 PM), www.shalereporter.com/blog/suzie_gilbert/article_b793e550-1f07-11e3-995b-0019bb30f31a.html/ (reporting Pennsylvania state legislators who offer bills to make things easier for oil and gas operations).

200. Tiemann & Vann, *supra* note 17, at 20.

201. See Dougal & Arechiga, *supra* note 16, at 5 (highlighting that a commonality between states' attempting to regulate fracking "is an increased desire for fracing [sic] operators to disclose" their chemicals).

*Garza Energy Trust*²⁰²) will be hesitant to interfere with states' regulation of fracking, state regulation is the central mechanism controlling fracking and its effects.

A. *What Level of Government Should Regulate Fracking—Federal or State?*

The Groundwater Protection Council (GWPC)²⁰³ and Interstate Oil and Gas Compact Commission (IOGCC)²⁰⁴ both oppose federal regulation of fracking, noting that this process is regulated by the states, most often through general oil and gas productions regulations, policies, and practices. Both report that the major oil and gas producing states now have laws and regulatory requirements in place to protect water resources during oil and natural gas exploration and production activities.

Proponents of federal regulation argue that the federal government is in a better position to provide oversight of and set requirements for the rapidly expanding industry of fracking.²⁰⁵ In July of 2013, however, the 113th Congress saw the introduction of the Protecting States' Rights to Promote American Energy

202. *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1 (Tex. 2008). The rule of capture, which gave a mineral rights owner title to the oil and gas produced from a lawful well bottomed on the property, even if the oil and gas flowed to the well from beneath another owner's tract, prevented royalty interest owners of a natural gas lease from recovering damages against a well operator on trespass claim that alleged that the operator's subsurface hydraulic fracturing of the natural gas well caused the draining of natural gas, which was subject to the lease, to the operator's well on the adjacent property. *Id.* at 42-43.

203. Ground Water Protection Council, www.gwpc.org (last accessed Apr. 23, 2016). The GWPC is a national association representing state groundwater and UIC agencies whose mission is to promote protection and conservation of groundwater resources for beneficial uses. *About the Ground Water Protection Council*, GWPC.com, www.gwpc.org/about-us (last accessed Apr. 23, 2016). The stated purpose of the GWPC is "to promote and ensure the use of best management practices and fair but effective laws regarding comprehensive ground water protection." *Id.*

204. *About the Interstate Oil and Gas Compact Commission*, IOGCC.COM, <http://iogcc.state.ok.us/about-us> (last accessed Apr. 23, 2016). The IOGCC represents state oil and gas agencies. *See id.* (providing a forum for states and industry representatives to present their views on oil and gas production). The commission was established in the 1930s, initially to reduce the waste of oil during exploration and production by developing model statutes and practices to improve the conservation of oil resources. *Our History*, IOGCC.COM, <http://iogcc.publishpath.com/history> (last accessed Apr. 23, 2016).

205. *See* Adam Garmezy, Teaching Supplements and Duke University Scholarship, *Balancing Hydraulic Fracturing's Environmental and Economic Impacts: The Need for A Comprehensive Federal Baseline and the Provision of Local Rights*, 23 DUKE ENVTL. L. & POL'Y F. 405, 430-31 (2013) (arguing that fracking regulation should be in the hands of the federal government, not the states).

Security Act.²⁰⁶ The Act seeks to require the federal government to defer to individual states' fracking regulations with the goal of "recogniz[ing] States' authority to regulate oil and gas operations and promote American energy security, development, and job creation."²⁰⁷ The bill passed in the House in November of 2013 and goes on to the Senate next.²⁰⁸ If enacted, a state's laws or regulations regarding fracking would be the rules applied in that state, rather than promulgated by the federal government.

Another argument in favor of state regulation is that states are able to better sense and suit the needs of its citizens through fracking regulations. For example, Illinois recently passed a major comprehensive statute to regulate fracking said to be the nation's strictest regulations for natural gas drilling.²⁰⁹ It touches upon most of the important environmentally-sensitive aspects of fracking (with the exception of the little-understood relationship of fracking and seismic activity/earthquakes): water pollution, air pollution, and so forth.²¹⁰ It also leaves regulation of those aspects of fracking otherwise affecting the use of land to the local government whose jurisdiction fracking takes place.²¹¹ Some highlights of the law include:

- A high volume horizontal hydraulic fracturing permit is required for each fracking well developed. All chemicals anticipated to be added to or used as hydraulic fracturing fluid must be listed in the permit application as well as its concentration and 'mass'.²¹²
- Each application for a permit requires a plan for the handling, storage, transportation, disposal or reuse of the fluids, together with a traffic management, containment, and plugging and restoration plan.²¹³
- Public notification and opportunity for hearings are required for each planned application and well. The hearing must be of the contested case variety and is

206. *H.R. 2728: Protecting States' Rights to Promote American Energy Security Act*, Govtrack.us, www.govtrack.us/congress/bills/113/hr2728 (last accessed Apr. 23, 2016). Republican Representative Bill Flores of Texas, District 17, introduced H.R. 2728 on July 18, 2013. *Id.*

207. H.R. 2728, 113th Cong. (1st Sess. 2013).

208. H.R. 2728: Protecting States' Rights to Promote American Energy Security Act, *supra* note 206.

209. Don Babwin, *Illinois Gas Drilling Rules: Governor Pat Quinn Signs New Fracking Regulations Into Law*, HUFFINGTON POST (Jun. 17, 2013, 6:19 PM) www.huffingtonpost.com/2013/06/17/illinois-gas-drilling-rules-fracking_n_3455668.html?page_version=legacy.

210. *Id.*

211. *Id.*

212. Hydraulic Fracturing Regulatory Act, 225 ILL. COMP. STAT. ANN. 732/1-20 (Westlaw 2016).

213. 225 ILL. COMP. STAT. ANN. 732/1-35 (Westlaw 2016).

appealable under the Illinois administrative procedures act.²¹⁴

- Emission controls are required for managing gas and hydrocarbon fluids produced during the flowback period of the extraction process.²¹⁵
- Water quality monitoring of all water sources likely to be affected by the process of fracking.²¹⁶
- Eventual plugging of a well and restoration of the well site is required in accordance with the Illinois Oil and Gas Act, at the expense of the permittee.²¹⁷
- The Act creates a task force on fracking which governs both the membership and reporting duties thereof.²¹⁸
- Lastly, the legislation also creates the Illinois Hydraulic Fracturing Tax Act, which provides for a rate of 3% of the value of the oil or gas extracted for the first 2 years of production, and thereafter a more complicated formula that is different for gas and oil. The Tax Act also provides for a modest reduction in royalties tax rates if the process utilizes a local workforce.²¹⁹

Another area in which states have taken the lead with regard to regulation is disclosure laws.²²⁰ For example, Wyoming enacted laws requiring disclosure of chemicals used in fracking fluids, and now requires companies to file for trade secret approval.²²¹ In 2011, Texas enacted the first legislation mandating disclosure, requiring that companies report the total volume of water and chemicals used in fracking (except for proprietary information) on an online chemical registry called FracFocus.²²² Finally, Colorado

214. 225 ILL. COMP. STAT. ANN. 732/1-50 (Westlaw 2016).

215. 225 ILL. COMP. STAT. ANN. 732/1-75(e) (Westlaw 2016).

216. 225 ILL. COMP. STAT. ANN. 732/1-80 (Westlaw 2016).

217. 225 Ill. Comp. Stat. Ann. 732/1-95 (Westlaw 2016).

218. 225 Ill. Comp. Stat. Ann. 732/1-99 (Westlaw 2016).

219. Hydraulic Fracturing Tax Act, 35 Ill. Comp. Stat. Ann. 450/2-5 to 2-75 (Westlaw 2016).

220. See Dougal & Arechiga, *supra* note 16, at 5 (referencing Texas specifically as a state that mandates disclosure of the chemicals used in fracking operations).

221. Nicholas Kusnetz, *Wyoming Fracking Rules Would Disclose Drilling Chemicals*, ProPublica (Sept. 14, 2010, 3:17 PM), www.propublica.org/article/wyoming-fracking-rules-would-disclose-drilling-chemicals.

222. Randy Lee Loftis, *Texas' New Fracking Disclosure Law Doesn't Shed Light on Everything*, The Dallas Morning News (Aug. 7, 2012, 7:27 AM), www.dallasnews.com/news/community-news/dallas/headlines/20120806-new-state-law-requiring-disclosure-of-fracking-chemicals-sheds-light-on-some-processes-but-leaves-other-things-in-the-dark.ece. The Texas Legislature left many loopholes in the 2011 law. First, the law, which is not retroactive, only affects newly fracked wells, the number of which is very small. *Id.* Second, the

requires those engaged in fracking to report chemicals used to state regulators and medical personnel if an incident occurs.²²³ In December 2011, Colorado regulators passed new rules requiring companies to post information about the chemicals on FracFocus, including the concentration of all chemicals used (propriety chemicals need not be disclosed, but the type of chemical must be listed).²²⁴

B. State Versus Local Fracking Regulation: Varying Degrees of Preemption

In the virtual absence of comprehensive federal regulation, local governments have also responded to its citizens concerns by enacting ordinances banning, supporting, or restricting fracking. When faced with the issue of whether these local ordinances conflict with state laws governing oil and gas activity, the courts employ a preemption analysis.²²⁵ Preemption is a doctrine that “establishes priority between potentially conflicting laws enacted by various levels of government’—federal, state, and local.”²²⁶ “Under this doctrine, the law enacted by the higher level of government generally will be given priority, and the law enacted by the lower level of government will be preempted, rendering it unenforceable[.]”²²⁷ A collage of state and local fracking regulations has formed a confusing picture, as the limits of local regulation are interpreted on a case-by-case basis.

1. New York: No Preemption Where Local Ordinance Regulates the “Where” of Fracking

The State of New York sits on top of one of the largest shale formations in the country, the Marcellus Shale.²²⁸ Despite its

law only requires disclosure after the work is done; it does not require public notice of the use of fracking chemicals. *Id.* Finally, the law allows natural gas drillers “to keep some information secret as confidential business information.” *Id.*

223. P. Solomon Banda, *Colorado to Require Disclosure of Fracking Chemicals*, USA Today (Dec. 15, 2011, 3:44 PM), usatoday30.usatoday.com/money/industries/energy/story/2011-12-13/colorado-fracking-two/51882992/1.

224. *See id.* (allowing trade secrets to be protected, but requiring frackers to list the ingredient’s chemical family).

225. Keith B. Hall, *When Do State Oil and Gas or Mining Statutes Preempt Local Regulations?*, 27 NAT. RES. & ENV’T 13, 13 (2013).

226. *Id.* (quoting *Huntley & Huntley, Inc. v. Borough Council of Oakmont*, 964 A.2d 855, 862 (Pa. 2009)).

227. *Id.*

228. The Marcellus Shale extends from southern New York across Pennsylvania, and into West Virginia, western Maryland and eastern Ohio, and contains significant quantities of natural gas. Daniel J. Soeder & William M. Kappel, U.S. Geological Surv., *Water Resources and Natural Gas Production from the Marcellus Shale 1* (2009).

prime location, New York Governor David Patterson imposed a statewide moratorium on fracking in December of 2010²²⁹ and in 2014 Governor Cuomo announced a statewide ban.²³⁰ The moratorium remained in effect until the New York Department of Environmental Conservation (DEC) issued its final Supplemental Generic Environmental Impact Statement and promulgates hydraulic fracturing regulations,²³¹ ultimately leading to the ban.²³² Concurrent with state action, local municipalities in New York passed their own fracking regulations.²³³ Despite a statute putting the regulation of the state's oil, gas, and mining industry in the hands of the DEC, courts found local ordinances to be valid. Therefore, New York provides one example of fracking regulation occurring at the local government level, even when a state statute that arguably governs.

The Environmental Conservation Law (ECL) established the DEC and tasked it with natural resource protection in furtherance of the State's environmental policy.²³⁴ In 1971, the Oil, Gas and Solution Mining law (OGSML) amended the ECL and extended the DEC's authority to include regulation²³⁵ and issuance of permits²³⁶ pertaining to the State's oil, gas and mining industry.²³⁷ The policy aim of the OGSML is to foster the development of New York's natural resources, to conserve natural resources, and to protect the rights of its citizens.²³⁸ The OGSML leaves little to local regulation: '[t]he provisions of [Mineral Resources Article 23 of the ECL] shall supersede all local laws or ordinances relating to the regulation of the oil, gas, and solution mining industries; but shall not supersede local government jurisdiction over local roads

229. See N.Y. Exec. Order 41, 9 C.R.R.-N.Y. 7.41 (2010) (halting all permit approvals until the completion of the impact statement).

230. Freeman Kloppot, 'N.Y. Officially Bans Fracking with Release of Seven-Year Study' *Bloomberg* (June 29, 2015) www.bloomberg.com/news/articles/2015-06-29/n-y-officially-bans-fracking-with-release-of-seven-year-study (accessed July 9, 2016).

231. See N.Y. Exec. Order 41, 9 C.R.R.-N.Y. 7.41 (2010) (halting all permit approvals until the completion of the impact statement).

232. Freeman Kloppot, 'N.Y. Officially Bans Fracking with Release of Seven-Year Study' *Bloomberg* (June 29, 2015) www.bloomberg.com/news/articles/2015-06-29/n-y-officially-bans-fracking-with-release-of-seven-year-study accessed July 9, 2016.

233. Mary Esch, 'New York Fracking Decision: Cuomo Under Pressure to Rule on Hydraulic Fracturing' *Huffington Post* (6 September 2012) www.huffingtonpost.com/2012/09/06/new-york-fracking-decision_n_1862112.html accessed 18 January 2014.

234. NY Environmental Conservation Law § 1-0101 (NCL).

235. *Id.* § 23-0503 (granting the DEC the power to set standards for the construction and maintenance of drilling operations and the power to specify a minimum distance between wells and sources of underground drinking water).

236. *Id.* § 23-0305 (granting the DEC exclusive authority over the issuance of well permits).

237. *Id.* § 23-0301.

238. *Id.*

or the rights of local governments under the real property tax.²³⁹ On its face, the OGSML appears to override “all local laws or ordinances” relating to hydraulic fracturing. However, in two recent cases regarding fracking regulation, New York courts interpreted Section 23-0303 to uphold local zoning ordinances banning fracking.²⁴⁰

In both *Anschutz Exploration Corp v Town of Dryden*²⁴¹ and *Cooperstown Holstein Corp v. Town of Middlefield*,²⁴² the issue was whether a municipality can exercise its police powers to enact local zoning ordinances banning fracking within that municipality, given the express preemption language contained in the OGSML. Plaintiffs in both cases argued that ECL § 23-0303(2)’s “shall supersede” language both expressly and impliedly preempted municipalities from enacting any ordinance regulating the oil and gas industry, which necessarily includes ordinances banning the process of hydraulic fracturing. The municipality defendants argued the ordinances were consistent with their power under New York’s Municipal Home Rule Law, which enable municipalities’ use of zoning to protect the health, safety, and welfare of its community.²⁴³

In *Anschutz*, Anschutz Exploration Corporation (‘Anschutz’ or ‘Plaintiff’), an oil and gas company claimed that the Town of Dryden’s local zoning ordinance outlawed the extraction of natural gas from properties to which it held mineral rights.²⁴⁴ Concerned with the increased use of high-volume fracking and its potential to contamination to ground water, the Town of Dryden amended its zoning ordinance to ban all activities related to the exploration of natural gas.²⁴⁵ The new ordinance left Anschutz with useless gas leases spanning over 22,200 acres and a lost investment of nearly \$1.5 million dollars.²⁴⁶ Anschutz shortly thereafter sued to have the Amendment declared void based on express preemption by the supersession clause of the OGSML, or ECL § 23-0303.²⁴⁷

The court held that the OGSML *did not* expressly preempt local regulation of land use, but only regulations dealing with operations.²⁴⁸ “The OGSML does not preempt a municipality’s

239. *Id.* § 23-0303(2).

240. *See Cooperstown Holstein Corp. v. Town of Middlefield*, 943 N.Y.S.2d 722, 724 (N.Y. Sup. Ct. 2012); *Anschutz Exploration Corp. v. Town of Dryden*, 940 N.Y.S.2d 458, 460 (N.Y. Sup. Ct. 2012).

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

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

243. *See* NY Constitution, art IX §§ (c)(i), 2(c)(11)(10).

244. *Anschutz* 940 N.Y.S.2d at 453.

245. *Id.*

246. *Id.*

247. *Id.*

248. *Id.* at 467.

authority—through the exercise of its zoning power—to completely ban operations related to oil and gas production within its borders.”²⁴⁹ Relying on *Frew Run Gravel Prods v Town of Carroll*,²⁵⁰ the court found the statutes at issue in both cases to be nearly identical, and therefore:

both statutes preempt only local regulations ‘relating’ to the applicable industry, they must be afforded the same plain meaning—that they do not expressly preempt local regulation of land use, but only regulations deal with operations. Neither supersedure clause contains a clear expression of legislative intent to preempt local control over land use and zoning.²⁵¹

In addition, the purpose of the OGSML pertained only to the regulation of oil and gas operations only in locations where those activities were conducted in compliance with applicable municipal zoning ordinances.²⁵² The court granted the Town’s motion for summary judgment, rendering the zoning ordinance and amendment valid. Anschutz appealed.²⁵³

The appellate division affirmed, holding that ‘the OGSML *does not preempt*, either expressly or impliedly, a municipality’s power to enact a local zoning ordinance banning all activities related to the exploration for, and the production or storage of, natural gas and petroleum within its borders’.²⁵⁴ The appellate court agreed with the lower court’s interpretation of the supersession clause as prohibiting municipalities from enacting laws or ordinances “relating to the *regulation* of the oil, gas and solution mining industries”²⁵⁵ Although the zoning ordinance and amendment may have an incidental effect upon the oil and gas industries, it did not regulate the details or procedure of those operations.²⁵⁶ The ordinance also did not conflict with the state’s interest in establishing uniform procedures for oil and gas exploration and operations, but only established permissible and prohibited uses of land within the Town,²⁵⁷ holding that the OGSML supersession clause did not expressly preempt the Town’s zoning amendment.²⁵⁸

249. *Id.* at 468.

250. *Frew Run Gravel Prods., Inc. v. Town of Carroll*, 518 N.E.2d 920 (N.Y. 1987).

251. *Anschutz*, 940 N.Y.S.2d at 467.

252. *Id.* at 470.

253. *Matter of Norse Energy Corp. USA v. Town of Dryden*, 108 A.D.3d 25 (N.Y. App. Div. 2013). During the pendency of the appeal, Anschutz assigned its interest in certain oil and gas leases in the Town of Dryden to Petitioner, Norse Energy Corporation, USA, who was thereafter substituted in the proceeding. *Id.* at 28.

254. *Id.* at 36 (emphasis added).

255. *Id.* at 31 (internal quotations and citations omitted) (emphasis added).

256. *Id.* at 32.

257. *Id.* at 34.

258. *Id.* at 38.

Similarly, in *Cooperstown Holstein Corp v Town of Middlefield*,²⁵⁹ the court upheld the municipalities' ability to exclude fracking as a permissible use of land through zoning ordinances. The ECL preempted local laws governing "how," but not those governing "where."²⁶⁰ Plaintiff was a landowner in Cooperstown who entered into natural gas leases with energy companies.²⁶¹ Middlefield amended its zoning ordinance in June 2011 to effectively ban oil and gas drilling within the borders of the township.²⁶² The landowner sought to declare the law void due to preemption and asserted that the purpose of the leases would be frustrated by the enforcement of the ordinance.²⁶³ The Court looked to two court cases²⁶⁴ ²⁶⁵ where the courts held municipalities were *not preempted* by clauses similar to ECL § 23-0303(2) from enacting local zoning ordinances which may prohibit oil and gas related exploration.²⁶⁶ After a detailed review of the ECL's legislative intent and legislative history, the court held that "[t]he state maintains control over the "how" of such procedures while the municipalities maintain control over the "where" of such exploration."²⁶⁷ The court denied Cooperstown's motion for summary judgment and upheld the Town's zoning ordinance.

After both cases were affirmed by the Appellate Division,²⁶⁸ they were combined into the landmark Court of Appeals of New York decision in *Wallach v. Town of Dryden*,²⁶⁹ which affirmed the lower judgments. This major decision was given further weight when the Court of Appeals denied the bankruptcy trustee for

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

260. *Id.* at 728.

261. *Id.* at 723-24.

262. *Id.* at 723.

263. *Id.* at 723-24.

264. *Matter of Frew Run Gravel Prods., Inc., v. Town of Carroll*, 71 N.Y.2d 126, 524 N.Y.S.2d 25, 518 N.E.2d 920 (1987). The Court of Appeals, while addressing the breadth of the supersession clause of the Mining Land Reclamation Law (MLRL), ECL § 23-2703(2), found that the zoning regulations of the Town of Carroll did not frustrate the state's "purposes of the statute . . . to foster a healthy, growing mining industry."

265. *Matter of Gernatt Asphalt Prods., Inc., v. Town of Sardinia*, 87 N.Y.2d 668, 681-682, 642 N.Y.S.2d 164, 664 N.E.2d 1226 (1996), confirmed the *Frew Run* holding and stands for the proposition that a municipality may ban a particular activity, such as mining, in furtherance of its land use authority.

266. *Cooperstown*, 943 N.Y.S.2d at 729.

267. *Id.*

268. *See Norse Energy Corp. USA v. Town of Dryden*, 108 A.D.3d 25 (N.Y.A.D. 2013), *Cooperstown Holstein Corp. v. Town of Middlefield*, 106 A.D.3d 1170 (N.Y.A.D. 2013). Anschutz was no longer a party by the time of appeal, as Norse Energy Corp. USA now possessed the rights previously held by Anschutz Exploration Corp.

269. *Wallach v. Town of Dryden*, 16 N.E.3d 1188 (N.Y. 2014).

Norse Energy Corp.'s motion for reargument.²⁷⁰ Commentary seems to agree that the matter appears settled in New York.²⁷¹

2. *Pennsylvania: State Law Expressly Preempts Local Regulation*

A trio of cases in Pennsylvania have provided a playbook for local regulation.²⁷² The Pennsylvania Oil and Gas Act (POGA) contains a provision addressing the role of local ordinances:

Except with respect to local ordinances adopted pursuant to the [Municipalities Planning Code] . . . all local ordinances purporting to regulate oil and gas operations regulated by Chapter 32 are hereby superseded. No local ordinance adopted pursuant to [the aforementioned acts] shall contain provisions which impose conditions, requirements or limitations on the same features of oil and gas operations regulated by Chapter 32 or that accomplish the same purposes as set forth in Chapter 32. The Commonwealth, by this section, preempts and supersedes the regulation of oil and gas operations as provided in this chapter.²⁷³

On the same day, the Pennsylvania Supreme Court decided two cases with contrasting outcomes—finding local regulations were not preempted in *Huntley & Huntley, Inc. v. Borough Council of Oakmont*²⁷⁴ and finding local regulations preempted by POGA in *Range Resources—Appalachia, LLC v. Salem Township*.²⁷⁵

In *Huntley*, an oil and gas company sought a permit to drill and operate a natural gas well on a residential property.²⁷⁶ The city council denied the conditional use application, and the company sought review.²⁷⁷ The court found that POGA *did not* preempt the zoning ordinance designating where natural gas drilling is permitted because the ordinance “serves different purposes from those enumerated in the Oil and Gas Act.”²⁷⁸ Local zoning ordinances may contain provisions including or excluding natural gas extraction operations from certain locations, and that “location” is not a “feature” as defined by POGA.²⁷⁹ The court

270. See *Wallach v. Town of Dryden*, No. 2014–867, 2014 WL 5366261 (N.Y. Oct. 16, 2014).

271. See “New York High Court Denies Petition To Rehear Landmark Fracking Case,” 83 USLW 644 (Issue No. 16, 10/28/14).

272. Aaron Stemplewicz, Note, Developing the Marcellus Shale: Legal, Regulatory, and Infrastructure Challenges and Their Effect on Downstream Energy Markets, 19 BUFF. ENVTL L. J. 107, 118-19 (2012).

273. 58 Pa. Stat. and Cons. Stat. Ann. § 3302 (2012), *invalidated by* *Robinson Twp. v. Commonwealth*, 96 A.3d 1104 (Pa. Commw. Ct. 2014).

274. *Huntley & Huntley, Inc. v. Borough Council of Oakmont*, 964 A.2d 855 (Pa. 2009).

275. *Id.* at 869.

276. *Id.* at 857.

277. *Id.*

278. *Id.* at 866.

279. *Id.* at 864.

emphasized that it wasn't holding a "municipality could permit drilling in a particular district but then make that permission subject to conditions addressed to features of well operations regulated by the Act."²⁸⁰ Therefore, while *Huntley* left municipalities with some un-preempted power, the holding is limited to restricting natural gas drilling *only for aesthetic reasons*, such as "preserving the character of residential neighborhoods and encouraging beneficial and compatible land uses."²⁸¹

In *Range Resources*, the Pennsylvania Supreme Court held that POGA preempted the local ordinances enacted by Salem Township.²⁸² Energy companies sought declarative and injunctive relief from a zoning ordinance that regulated certain activities associated with oil and gas drilling operations.²⁸³ The zoning ordinance contained a separate appendix directly relating to oil and gas drilling, seemingly to create a comprehensive scheme to regulate activities of that sort.²⁸⁴ The court held the regulations were "a regulatory apparatus parallel to the one established by [POGA]," and thus preempted by POGA.²⁸⁵ The court did not address, however, whether the ordinance would be valid if it had only regulated commercial development generally.²⁸⁶

In *Penneco Oil Co., Inc. v. County of Fayette*,²⁸⁷ the final case in the trio of Pennsylvania case law, the court held that POGA *did not* preempt a local ordinance that targeted natural gas drilling.²⁸⁸ Fayette County adopted a zoning ordinance that oil and gas wells were a "permitted use" in some zoning districts, but in all other districts, oil and gas wells were a "special exception."²⁸⁹ If oil and gas wells were within special exception zones, they were subject to four requirements:

- (A) An oil or gas well shall not be located within the flight path of a runway facility of an airport.
- (B) An oil or gas well shall not be located closer than two-hundred (200) feet from residential dwelling or fifty-(50) [sic] feet from any property line or right-of-way.
- (C) An oil or gas well shall provide fencing and shrubbery around perimeter of the pump head and support frame.
- (D) The Zoning Hearing Board may attach additional conditions pursuant to this section, in order to protect the public's health, safety and welfare.²⁹⁰

280. *Id.* at 866 n.11.

281. *Id.* at 865 (internal citation omitted).

282. *Range Res.—Appalachia, LLC v. Salem*, 964 A.2d 869, 877 (Pa. 2009).

283. *Id.* at 871.

284. *Id.* at 875.

285. *Id.*

286. *See id.* at 876 (emphasizing that the holding did not extend to general zoning regulation but applied only to oil and gas development).

287. *Penneco Oil Co. v. County of Fayette*, 4 A.3d 722 (Pa. Commw. Ct. 2010).

288. *Id.* at 733.

289. *Id.* at 730.

290. *Id.*

An oil and gas company engaged in natural gas drilling within Fayette County challenged the ordinance, arguing that POGA preempted the ordinance and it was therefore invalid.²⁹¹

The Pennsylvania Commonwealth Court found none of the provisions to be preempted by POGA. The first three provisions fell directly within the sphere of traditional zoning restrictions and thus are not preempted by POGA, and the final provision “to protect the public’s health, safety, and welfare” is also not preempted.²⁹² After reviewing the reasoning in *Huntley* and *Range Resources*, the court determined that the fourth provision did not relate to “technical aspects of well functioning,” but was instead similar to the *Huntley* ordinance because it attempted to preserve the character of residential neighborhoods and encourage beneficial and compatible land uses.²⁹³ However, the court’s limited holding “does not provide Fayette County or its zoning hearing board with virtually unbridled discretion to deny permission to drill an oil and gas well even after compliance with the applicable zoning regulations.”²⁹⁴

Since these three cases, the Pennsylvania Supreme Court has taken up another fracking preemption case. In *Robinson Township, Washington County v. Commonwealth of Pennsylvania*,²⁹⁵ the Pennsylvania Supreme Court struck down Act 13, which was a 2012 major overhaul of POGA. In addition to a range of fracking regulations, including impact fees for drilling, Act 13 restricted local governments’ ability to zone and regulate natural gas drilling.²⁹⁶ In *Robinson*, a three justice plurality struck down part of Act 13, ruling that the provision for regulation of oil and gas operations that preempted municipalities’ obligation to plan for environmental concerns for oil and gas operations violated the Environmental Rights Amendment to the Pennsylvania Constitution.²⁹⁷ The remaining concurring justice argued that Act 13 violated substantive due process.²⁹⁸ Two main areas of Act 13 were struck down in *Robinson*: the first called for statewide rules on oil and gas to preempt local zoning rules; the second required municipalities to allow oil and gas development in all zoning areas.²⁹⁹ The Supreme Court of Pennsylvania remanded the case

291. *Id.* at 724.

292. *Id.* at 730-31.

293. *Id.* at 730.

294. *Id.* at 731.

295. *Robinson Twp., Wash. Cnty. v. Commonwealth*, 83 A.3d 901 (Pa. 2013).

296. See State Impact, *Impact Fee*, NPR, <http://stateimpact.npr.org/pennsylvania/tag/impact-fee/> (last accessed Apr. 25, 2016) (providing a collection of articles about the impact fees authorized by Act 13).

297. *Robinson Twp., Wash. Cnty.*, 83 A.3d at 978.

298. *Id.* at 1001 (Baer, J., concurring).

299. *Id.* at 978.

and the Commonwealth Court dismissed most of the remaining challenges to Act 13.³⁰⁰

3. West Virginia: State Law Preempts Local Regulation of Fracking

In *Northeast Natural Energy, LLC v. City of Morgantown*,³⁰¹ a dispute arose over a city's ordinance banning fracking within a mile of Morgantown, West Virginia.³⁰² Plaintiffs Northeast Energy, LLC and Emrout Properties, LLC, argued the ordinance was unenforceable because state law preempted it.³⁰³ The City contended that under West Virginia's Home Rule, it could regulate fracking process as a nuisance.³⁰⁴ The Circuit Court of Monongalia County struck down the ban as preempted by state law.

Morgantown's ordinance prohibited the drilling of any oil or gas well within one mile of the corporate limits of Morgantown on grounds that fracking constituted a public nuisance.³⁰⁵ The ordinance effectively prohibited Plaintiffs from completing wells that had been permitted through the West Virginia Department of Environmental Protection (WVDEP).³⁰⁶ Plaintiffs sought to prohibit the City's enforcement of the ordinance, arguing that the regulations of the WVDEP preempted the local ordinance.³⁰⁷

The court held that the city could not completely ban fracking because the industry is regulated solely by the WVDEP. Under West Virginia law, the purpose of the WVDEP is to "consolidate environmental regulatory programs in a single state agency," and WVDEP has sole discretion to perform all duties related to the exploration, development, production, storage, and recovery of oil and gas in the states.³⁰⁸ The State law "sets forth a comprehensive regulatory scheme with no exception carved out for a municipal corporation to act in conjunction with the WVDEP[.]"³⁰⁹

In late 2011, West Virginia enacted emergency rules to regulate horizontal gas drilling while it works on long-term regulations.³¹⁰ West Virginia now has casing and cement standards for wells and also requires permits for horizontal fracking, erosion and sediment control plans, well safety plans,

300. *Id.* at 1104.

301. *Ne. Natural Energy, LLC v. City of Morgantown*, 2011 WL 3584376 (W. Va. Cir. Ct. Aug. 12, 2011).

302. *Id.* at *1

303. *Id.*

304. *Id.* at *2.

305. *Id.* at *3-4 (citing Morgantown, W. Va. Ordinance § 721.01, *et seq.* (Jun. 21, 2011)).

306. *Id.*

307. *Id.* at *1.

308. W. Va. Code §§ 22-1-1(b)(2)-(3), 22-6-2(c)(12) (2011).

309. *Northeast Nat. Energy*, 2011 WL 3584376 at *6.

310. W. Va. Code St. R. §§ 35-8-3 to 5 (2011).

and planned management and disposition of wastewater from fracking operations.³¹¹ The state also requires a 30-day public notice period for well operators to report on water sample results.³¹² Although temporary, West Virginia's emergency rules have received praise and support from the EPA, particularly because they address water issues.

4. *Colorado: An Attempt at Cooperation Between State and Local Regulation*

Local governments in Colorado include both statutory and home-rule counties and municipalities, and thus possess only the regulatory authority “expressly conferred upon [them] by the constitution and statutes. . . .”³¹³ Colorado preemption cases are centered on the issue of whether local ordinances regulating oil and gas operations are preempted by state law, the Colorado Oil and Gas Conservation Act (COGCA).³¹⁴ Colorado courts hold that COGCA does not preempt (either expressly or impliedly) local regulation of oil and gas operations.³¹⁵ However, some local regulation may be preempted depending on the nature of the local government and the degree of conflict with state law.³¹⁶ Home rule in Colorado has led courts to develop a four-part test to determine whether a local ordinance or regulation is valid in the face of an alleged state conflict: “whether there is a need for statewide uniformity of regulation; whether the municipal regulation has an extraterritorial impact; whether the subject matter is one traditionally governed by state or local government; and whether the Colorado Constitution specifically commits the particular matter to state or local regulation.”³¹⁷

By contrast, in cases involving statutory non-home rule counties or municipalities, the Colorado Supreme Court has applied the ordinary rules of statutory construction to determine whether a state statute and a local ordinance can be construed harmoniously or whether the state statute preempts the local ordinance. If a conflict exists and the state statute contains a

311. § 35-8-5.

312. § 35-8-15.3.d.

313. Adam S Cohen and Shannon Stevenson, ‘Hydraulic Fracturing: Regulatory and Litigation Update For the Rocky Mountain States’ (Rocky Mountain Mineral L Foundation J, 2012).

314. Oil and Gas Conservation Act, Colo. Rev. Stat. §§ 34-60-100 to 130 (West 2016).

315. *Town of Frederick v. N. Am. Res. Co.*, 60 P.3d 758, 763 (Colo. App. 2002).

316. *Bd. of Cnty. Comm’rs v. Bowen/Edwards Assocs., Inc.* 830 P.2d 1045, 1057 (Colo. 1992) (en banc).

317. *Colo. Mining Ass’n v. Bd. of Cnty. Comm’rs*, 199 P.3d 718, 723 (Colo. 2009) (en banc) (quoting *Voss v. Lundvall Bros., Inc.*, 830 P.2d 1061, 1067 (Colo. 1992) (en banc)).

specific provision addressing the matter, the state statute controls over the statutory county's general land use authority.³¹⁸

Further, “[a] county ordinance and a statute may both remain effective and enforceable as long as they do not contain express or implied conditions that are irreconcilably in conflict with each other.”³¹⁹

In *Colorado Mining Ass’n v. Bd. of County Commissioners of Summit County*,³²⁰ a State mining association sued Summit County seeking a declaration that the county ordinance, which banned the use of cyanide or other toxic/acidic chemicals in oil and gas operations for all zoning districts in the county, was preempted by the Mined Land Reclamation Act (MLRA).³²¹ The District Court for Summit County ruled that the MLRA preempted the ordinance.³²² The county and two intervening environmental groups appealed.³²³ The Court of Appeals reversed.³²⁴

The State Supreme Court held that while the county ordinance was not expressly preempted by the MLRA, it was impliedly preempted by the MLRA.³²⁵ The Colorado Supreme Court used the four-part test to determine which of the three categories a land use regulation falls.³²⁶ The Court cited two cases, *Voss v. Lundvall Bros., Inc.*,³²⁷ a 1992 oil and gas case discussed below, and *City of Northglenn v. Ibarra*,³²⁸ a 2003 zoning case concerning registered sex offenders. Using these cases, the Colorado Supreme Court discussed various factors to be considered in determining whether a matter is of state or local, or a combination of both.³²⁹ However, in neither of the cases were the factors to be considered limited to four: “This is not an exhaustive list. All of these factors are directed toward weighing the respective state and local interests implicated by the law, a process that lends itself to flexibility and consideration of numerous criteria.”³³⁰ In *Board of County Commissioners v.*

318. *Id.* at 724 (internal citations omitted); Colo. Rev. Stat. § 30-15-411 (prohibiting a statutory county from adopting an ordinance that “is in conflict with any state statute”).

319. *Bowen/Edwards*, 830 P.2d at 1055-56.

320. *Colo. Mining Ass’n v. Bd. of Cnty. Comm’rs*, 199 P.3d 718 (Colo. 2009).

321. *Id.* at 722.

322. *Id.*

323. *Id.*

324. *Id.*

325. *Id.* at 730.

326. *Id.* at 737 (citation omitted).

327. *Voss v. Lundvall Bros., Inc.*, 830 P.2d 1061 (Colo. 1992).

328. *City of Northglenn v. Ibarra*, 62 P.3d 151 (Colo. 2003) (en banc). *Ibarra* addressed whether state law preempted a local sex offender registration ordinance. *Id.* at 153.

329. *Colo. Mining Ass’n*, 199 P.3d at 723-24 (considering the state’s interest and “sufficient dominancy” in the cited cases before applying those factors to the instant case).

330. *Ibarra*, 62 P.3d at 156 (internal citations omitted).

Bowen/Edwards Associates, Inc.,³³¹ the state's highest court addressed the issue of preemption with respect to the state's oil and gas laws, COGCA.³³² The court first reviewed the purposes of COGCA:

The declared purposes of [COGCA] are as follows: to promote the development, production, and utilization of the natural resources of oil and gas in the state; to protect public and private interests against the evils of waste; to safeguard and enforce the coequal and correlative rights of owners and producers in a common source or pool of oil and gas so that each may obtain a just and reasonable share of production therefrom; and to permit each oil and gas pool to produce up to its maximum efficient rate of production subject to the prohibition of waste and subject further to the enforcement of the coequal and correlative rights of common-source owners and producers to a just and equitable share of profits.³³³

The Colorado Oil and Gas Conservation Commission (COGCC) has authority to issue permits for oil and gas drilling operations, and has authority to regulate all

drilling, production, and plugging of wells, the shooting and chemical treatment of wells, the spacing of wells, and the disposal of salt water and oil field wastes, . . . as well as to limit production from any pool or field for the prevention of waste and to allocate production from a pool or field among or between tracts of land having separate ownership on a fair and equitable basis so that each tract will produce no more than its fair and equitable share.³³⁴

In addition, the COGCC has the authority to enforce all of its technical requirements for oil and gas extraction operations and to “promulgate rules and regulations to protect the health, safety, and welfare of the general public in the drilling, completion, and operation of oil and gas wells and production facilities.”³³⁵

Despite the COGCC's broad powers, the court held that COGCA does not expressly or impliedly preempt local ordinances governing oil and gas development.³³⁶ There was no express preemption because COGCA did not contain a clear statement of legislative intent to prohibit a county from exercising traditional land use authority in areas where oil and gas operations may take place.³³⁷ There was also no implied preemption because the state's oil and gas interests do not “patently [dominate]” the county's land-use interests, “nor are the respective interests of both the

331. Bd. of Cnty. Comm'rs v. Bowen/Edwards Assocs., Inc. 830 P.2d 1045, 1057 (Colo. 1992) (en banc).

332. *Id.* at 1048.

333. *Id.* at 1049 (citing Colo. Rev. Stat. § 34-60-102(1)).

334. *Id.* (citing Colo. Rev. Stat. § 34-60-106(2), (3)(a)).

335. *Id.* (citing Colo. Rev. Stat. § 34-60-106(11)).

336. *Id.* at 1058-59.

337. *See id.* at 1058 (reading in “anything more than a legislative effort to consolidate regulatory authority . . . would rest on nothing but speculation”).

state and county so irreconcilably in conflict, as to eliminate by necessary implication any prospect for a harmonious application of both regulatory schemes.”³³⁸ However, the case was remanded for a determination of whether there was any partial preemption by operation, affording Bowen/Edwards the opportunity to specify *particular* county regulations that may operationally conflict with, and thus be preempted by, state law.³³⁹

In *Town of Frederick v. North American Resources Company*,³⁴⁰ an oil and gas corporation challenged the Town of Frederick’s regulations, which imposed a requirement that the company obtain a permit, pay a \$1,000 application fee, and comply with certain location and setback requirements, noise mitigation, and visual impact and aesthetics regulations.³⁴¹ The court applied the *Bowen/Edwards* test: “state preemption by reason of operational conflict can arise where the effectuation of a local interest would materially impede or destroy the state interest.”³⁴² The court concluded that the regulations imposed technical conditions on the drilling of oil and gas wells, and no such conditions were imposed by state regulation, and thus were preempted by state law.³⁴³

One of several local governments have approved fracking bans or moratoria;³⁴⁴ the City of Longmont, Colorado’s fracking ban has captured a lot of the attention and is the center of a preemption court battle. The Colorado Oil and Gas Association (COGA) filed a lawsuit against Longmont, seeking to overturn the voter’s ban.³⁴⁵ The suit alleged that state law preempted the ban and that minerals worth \$500 million would be taken if the ban were allowed to stand.³⁴⁶ The takings claim was later dismissed, and the court ultimately ruled only on the preemption issue.³⁴⁷

338. *Id.*

339. *Id.* at 1060.

340. *Town of Frederick v. N. Am. Res. Co.*, 60 P.3d 758, 763 (Colo. App. 2002).

341. *Id.* at 760.

342. *Id.* at 764 (citing *Bowen/Edwards*, 830 P.2d at 1059).

343. *Id.* at 765.

344. See Jack Healy, *Heavyweight Response to Local Fracking Bans*, N.Y. TIMES (Jan. 4, 2015) (naming Longmont, Fort Collins, and Lafayette, Colorado, as towns that have attempted to ban or restrict fracking).

345. See Complaint, *Colo. Oil & Gas Ass’n v. City of Longmont*, No. 2012CV960, 2012 WL 6652789 (Colo. Dist. Ct. Dec. 17, 2012) (seeking declaratory relief from the District Court of Weld County).

346. *Cf. id.* at ¶ 38; Jack Healy Heavyweight Response to Local Fracking Bans, *The New York Times* (Jan. 3, 2015) <www.nytimes.com/2015/01/04/us/heavyweight-response-to-local-fracking-bans.html> accessed July 9, 2016 (stating “City officials and energy companies estimated that Longmont was floating atop as much as \$500 million of oil and gas—resources that were locked away. While the ban did not explicitly outlaw drilling, industry officials said the prohibition on fracking removed a crucial step needed to tap the oil and gas.”)

347. Stipulated Motion to Dismiss COGA’s Third Claim for Relief, *Colo. Oil*

The state originally declined to sue Longmont over the ban, believing that Longmont lacked standing because it could not allege a particularized injury. However, the state filed an amicus brief in support of COGA, and eventually joined the Colorado Oil and Gas Conservation Commission, a state agency, as a necessary party to the lawsuit.

Longmont is a home rule city under the Colorado Constitution.³⁴⁸ Similar to other Constitutional home rule jurisdictions, home rule municipalities in Colorado may exercise exclusive local control over local issues, but may not enact a regulation that “operationally conflict[s]” with state concerns to the extent that it “materially impedes or destroys a state interest.”³⁴⁹

On July 24, 2014, the Boulder County District Court struck down the voter-enacted fracking ban.³⁵⁰ The judge stated:

The Court recognizes that some of the case law described above [primarily *Voss* and *Bowen/Edwards*] may have been developed at a time when public policy strongly favored the development of mineral resources. Longmont and the environmental groups, the Defendant-Intervenors, are essentially asking this Court to establish a public policy that favors protection from health, safety, and environmental risks over the development of mineral resources. Whether public policy *should* be changed in that manner is a question for the legislature or a different court The conflict in this case is an irreconcilable conflict.³⁵¹

The court did, however, stay the ruling pending Longmont’s appeal of the decision.³⁵²

Longmont appealed the Boulder County District Court’s decision, which was combined with a similar case involving the City of Fort Collins’ five-year moratorium on fracking. On August 17, 2015, the Colorado Court of Appeals certified the question of whether the local governments’ fracking ordinances were preempted by state law to the Colorado Supreme Court.³⁵³ The Colorado Supreme Court has not yet released its decision as to whether they will accept the case.

& Gas Ass’n v. City of Longmont, No. 2013CV63 (Colo. Dist. Ct. Boulder Cnty. Mar. 21, 2013).

348. See Katherine Toan, *Not Under My Backyard: The Battle Between Colorado and Local Governments Over Hydraulic Fracturing*, 26 COLO. NAT. RES., ENERGY & ENV’T L. REV. 1, 45 (2015).

349. *Id.* at 21.

350. Order Granting Motions for Summary Judgment at 16-17, *Colo. Oil & Gas Ass’n v. City of Longmont*, No. 2013CV63 (Colo. Dist. Ct. Jul. 24, 2014).

351. *Id.* at 13, 16.

352. *Id.* at 17.

353. Order Certifying Case to Supreme Court, *Colo. Oil & Gas Ass’n v. City of Longmont*, No. 2014CA1759 (Colo. App. Aug. 17, 2015).

5. Ohio

On February 17, 2015, the Ohio Supreme Court by a 4-3 vote, ruled that the Home Rule Amendment to the Ohio Constitution does not grant home rule cities the authority “to enforce [their] own permitting scheme[s] atop the state system.”³⁵⁴ In *Morrison*, the City of Munroe Falls, Ohio, filed suit in the Court of Common Pleas to halt Beck Energy’s drilling operations within city limits. The city argued that Beck had not complied with five city ordinances relating to fracking.³⁵⁵ The first of those ordinances was a general zoning ordinance “that prohibits any construction or excavation without a ‘zoning certificate’ issued by the zoning inspector.”³⁵⁶ The remaining four ordinances related explicitly to oil and gas drilling and required various fees, performance bonds, public hearings, and public notices before commencing drilling operations.³⁵⁷

Beck had commenced drilling operations without complying with Munroe Falls’ ordinances, because it had secured a state permit for oil and gas drilling under the state statute that, according to the Court, served to “provide uniform statewide regulation of oil and gas production within Ohio and to repeal all provisions of law that granted or alluded to the authority of local governments to adopt concurrent requirements with the state.”³⁵⁸ Beck’s argument, therefore, was that Munroe Falls’ ordinances were preempted by the state statute and were therefore invalid. The trial court ruled that Beck was in violation of Munroe Falls’ local ordinances and granted injunctive relief prohibiting company from drilling until it complied with all local ordinances. The Court of Appeals reversed the trial court’s decision, and Munroe Falls appealed.

The majority opinion of the Ohio Supreme Court ruled that the test employed in Ohio for whether a local ordinance is preempted by state law is that “a municipal-licensing ordinance conflicts with a state-licensing scheme if the local ordinance restricts an activity that a state license permits.”³⁵⁹ The Court explained that Munroe Falls’ ordinances conflict with the state statute in two ways: (1) they prohibit what the state statute allows—state-licensed oil and gas production within Munroe Falls; and (2) they regulate in an area the state statute explicitly reserved for the state to the exclusion of local governments.³⁶⁰

354. State ex rel. Morrison v. Beck Energy Corp., 37 N.E.2d 128, 131 (Ohio 2015).

355. *Id.* at 132.

356. *Id.*

357. *Id.* at 133.

358. *Id.* at 131.

359. *Id.* at 135.

360. *Id.* at 135, 137.

A concurring majority opinion specifically explained that the case was decided only on the narrow parameters of the five ordinances in question.³⁶¹ The concurring opinion clarified that “it remains to be decided whether the General Assembly intended to wholly supplant all local zoning ordinances limiting land uses to certain zoning districts without regulating the details of oil and gas drilling expressly addressed by [the statute].”³⁶² Much of this concurring opinion is dedicated to preserving a local government’s zoning authority, which flows both from the constitutional home rule provision, but also from statutory authorization.³⁶³ The conflict with the zoning ordinance, this justice ruled, was that it required the exact same permit as the other four ordinances.³⁶⁴ Though that zoning ordinance was preempted because of the oil and gas permit requirement, the justice is clear that not all zoning ordinances can so easily be preempted.³⁶⁵ Finally, a dissenting judge noted,

[w]e have never held that a preemption statement alone is sufficient to divest municipalities of their constitutional right to home rule. To the contrary, a declaration by the General Assembly of its intent to preempt a field of legislation “does not trump the constitutional authority of municipalities to enact legislation pursuant to the Home Rule Amendment, provided that the local legislation is not in conflict with general laws.”³⁶⁶

6. Texas

While not a lawsuit involving preemption, Texas’ recent state law prohibiting local government from passing fracking bans is an interesting story to follow. In May 2015, Governor Greg Abbott of Texas signed House Bill 40 (H.B. 40) into law, which “[t]he legislature intends [to] expressly preempt the regulation of oil and gas operations by municipalities and other political subdivisions, which is impliedly preempted by the statutes already in effect.”³⁶⁷

It is widely believed that H.B. 40 was introduced as a response to an ordinance passed in Denton, Texas, banning fracking in that municipality.³⁶⁸ Many news sources in Texas even

361. *See id.* at 138 (O’Donnell, J., concurring) (limiting the scope of the holding).

362. *Id.* at 138-39 (O’Donnell, J., concurring).

363. *Id.* at 139 (O’Donnell, J., concurring).

364. *Id.* at 138.

365. *See id.* at 141 (“If the legislature had intended to override all local zoning ordinances that affect oil and gas drilling, it could have declared that intent, such as it did in the case of hazardous waste facilities, public utilities, casinos, and licensed residential facilities.” (internal citations omitted)).

366. *Id.* at ¶ 56 (Lanzinger, J., dissenting) (quoting *Am. Fin. Servs. Ass’n v. Cleveland*, 858 N.E.2d 776, 782 (Ohio 2006)).

367. H.B. No. 40, 84th Leg., Reg. Sess. (Tex. 2015).

368. *See* Russell Gold, *Texas Prohibits Local Fracking Bans*, WALL ST. J. (May 18, 2015, 4:51 PM), www.wsj.com/articles/texas-moves-to-prohibit-local

refer to the Act as the “Denton Fracking Bill.”³⁶⁹ After H.B. 40 was passed, however, the Denton City Council voted not to repeal their ban, though the city’s attorneys acknowledged that the Texas General Land Office and the Texas Oil and Gas Association could ask a court for judgment under H.B. 40 and create precedent that would end the discussion on preemption in Texas.³⁷⁰

IV. CONCLUSION

The recent explosion in hydraulic fracturing as a means for extracting natural gas and oil has resulted in a flurry of regulatory activity in the United States. While the federal government may well be a logical locus of such regulation given the plethora of direct federal legislation either regulating the underground injection of non-natural substances, like the Safe Drinking Water Act, or indirectly regulating fracking activity on or below the surface, like the Clean Air Act and the Clean Water Act, the U.S. has fashioned a blanket exception for fracking in the former despite early case law upholding U.S. statutory regulation, and the latter is not particularly effective. As a result, most regulation of fracking takes place at either the state or local government levels. But while most states in which fracking occurs have comprehensive oil and gas regulation statutes, few of these actually regulate fracking, like Illinois, which has recently passed one of the most extensive such statutes in the nation. Therefore, much of the effective regulation so far appears to come from local government through existing zoning and other land use ordinances.

The relatively few cases dealing with fracking do not yet demonstrate a clear pattern, however. Issues of preemption of local government regulation by state statutes along with basic authority for such local regulation are largely unresolved. Some states courts, like New York, have clearly and unequivocally declared that local zoning ordinances may regulate not just the location surface infrastructure, but all aspects of fracking. Other state courts have held that the authority belongs to the states.

fracking-bans-1431967882. (noting pushback to the ordinance passed in Denton, Texas).

369. See, e.g., Jim Malewitz, *Abbott Signs “Denton Fracking Bill”*, THE TEXAS TRIBUNE (May 18, 2015), www.texastribune.org/2015/05/18/abbott-signs-denton-fracking-bill/ (signifying the “most prominent of the flurry of measures filed in response to Denton’s November vote to ban hydraulic fracturing within city limits”).

370. Peggy Heinkel-Wolfe, *Council Drops Repeal of Fracking Ban*, DENTON RECORD-CHRONICLE (June 3, 2015, 1:07 AM), www.dentonrc.com/local-news/local-news-headlines/20150603-council-drops-repeal-of-fracking-ban.ece.