

FRACKING FLUIDS: REGULATORY DISCLOSURE AND TRADE SECRET INGREDIENTS

Alison Ibendahl

INTRODUCTION	180
I. THE BACKGROUND OF HYDRAULIC FRACKING.....	181
<i>A. What is Hydraulic Fracking?</i>	181
<i>B. The Importance of Hydraulic Fracking</i>	183
1. <i>Unconventional Formations and Economic Feasibility</i>	183
2. <i>Supply and Demand Changes Resulting from Fracking</i>	185
<i>C. Fracking and Intellectual Property Protection</i>	186
II. FORCED DISCLOSURE OF TRADE SECRETS	188
<i>A. The Regulatory Takings Framework</i>	188
<i>B. Trade Secrets Defined</i>	189
<i>C. Associated Property Rights & Regulatory Takings</i>	192
1. <i>Early Treatment of Trade Secrets</i>	192
2. <i>Trends Away from Trade Secret Property Rights</i>	193
3. <i>A Return to Property Rights and Regulatory Takings</i>	194
<i>D. What this Means for Fracking Fluid Disclosure</i>	197
III. CURRENT LAW, POLICY AND POLITICAL IMPACTS	197
<i>A. Current Disclosure Law</i>	198
1. <i>Pennsylvania Disclosure Law</i>	198
2. <i>Texas Disclosure Law</i>	199
3. <i>Oklahoma Disclosure Law</i>	200
4. <i>North Dakota Disclosure Law</i>	201
<i>B. Fracking Fluid Disclosure Policy</i>	202
1. <i>Fracking Fluid Disclosure Stakeholders</i>	202
2. <i>Research into Fracking</i>	203
<i>C. Politics and Fracking Disclosure</i>	204
1. <i>Current and Past Federal Action on Fracking Fluid Disclosure</i>	205
2. <i>Looking Forward to 2020</i>	206
IV. FUTURE REGULATION OF FRACKING FLUID DISCLOSURE	208
CONCLUSION	209

FRACKING FLUIDS: REGULATORY DISCLOSURE AND TRADE SECRET INGREDIENTS

*Alison Ibendahl**

INTRODUCTION

Hydraulic fracturing, or as otherwise known, fracking, has become a loaded term over the past decade. It is viewed by some as a game-changing tool of immense value while viewed by others as a dangerous process that poses significant health risks. Fracking has been known to the oil industry as a way to increase production of certain types of reservoirs for over a century.¹ However in the last 30 years, the public profile has increased exponentially due to technological innovations that have made the fracking process more cost effective. Fracking is now very valuable to drilling operators who are profiting off of reservoirs previously deemed economically unfeasible. Increased availability has shifted the United States to a potential net exporter of hydrocarbons within a few years.² With the increased public profile has come greater public scrutiny of the process. Specifically, concerns grew about the impact of fracking on the environment and the health of residents near well sites. Advocates identified possible contamination of drinking water, with fracking fluid chemicals as a source of harm. One response to drinking water contamination concerns was to call for increased disclosure of the chemicals used in fracking fluids. At this time, regulation of fracking, along with most other oil and gas operations, is primarily the responsibility of the states. Beginning in 2012, states have passed various regulations to compel the disclosure of fracking fluids.³ Frequently, at least some of the chemicals used in fracking fluids are considered trade secrets. State laws requiring fracking fluid disclosure typically provide an exception for trade secret chemicals. Some activists argue that trade secret chemicals also need to be disclosed to adequately protect human health. However, regulations forcing the disclosure of trade secret fracking fluid chemicals could result in a regulatory taking. Underlying the factors considered in a

* Juris Doctor, Notre Dame Law School, 2020; Bachelor of Science in Mechanical Engineering, Missouri University of Science & Technology. I would like to thank Professor Bruce Huber for his guidance and direction in writing this paper and selecting a topic that blended my prior career in oil and gas with my interest in intellectual property. I would also like to thank my friends and family for their support, and the staff of the *Notre Dame Journal on Emerging Technologies* for their skillful editing. All errors are my own.

¹ See *infra* Part II. A.

² See *infra* Part II. B. 2.

³ See *infra* Part III. A.

regulatory takings analysis is the additional benefit to public health from disclosure of the trade secrets. That benefit is better understood by looking at scientific research of groundwater contamination from fracking, and what impact public disclosure of trade secrets would have on future research. Other factors are influencing fracking regulation too. Energy in general has become highly politicized and fracking is no different. Political attitudes have had, and still have, the potential to impact disclosure regulations.

The following material reviews current law, policy, and politics that are part of the discussion around disclosing fracking fluid trade secrets. Part I of this paper provides a background of fracking, why it is valuable, and intellectual property regimes used by owners of fracking relating to intellectual property. Part II reviews the regulatory takings doctrine, trade secret law and the interaction between them. Current disclosure laws, the policy considerations of disclosure law, and political attitudes towards fracking are discussed in Part III. This review concludes with general comments on current disclosure and the potential changes to regulations.

I. THE BACKGROUND OF HYDRAULIC FRACKING

To understand why hydraulic fracking spurs debate, it is important to have a basic understanding of what it is and the value that it holds. This section will review the basics of the fracking process, what makes it so valuable, and the intellectual property regimes utilized by fracking providers. As a point of clarification, the terms “fracturing” and “fracking” are both commonly used in the industry. For purposes of consistency, from here forward the term “fracking” will be used.

A. *What is Hydraulic Fracking?*

Hydraulic fracking is a means of well stimulation or, put more simply, it makes a well produce more oil and gas from a formation than the well would have produced otherwise.⁴ Fracking has become well-known by the public in the last decade. However, the basic idea has been around since the 1860s when explosive fracking was used to increase well production.⁵ Stanolind Oil performed the fracking treatment using water injection in hydraulically fractured reservoir rock.⁶ In 1949, Halliburton Oil Well

⁴ NORMAN J. HYNE, *NONTECHNICAL GUIDE TO PETROLEUM GEOLOGY, EXPLORATION, DRILLING & PRODUCTION* 439 (3d ed. 2012).

⁵ *Id.* at 440.

⁶ Carl T. Montgomery & Michael B. Smith, *Hydraulic Fracturing: History of an Enduring Technology*, 62 J. OF PETROLEUM TECH. 26, 27 (Dec. 2010).

Cementing Company (Howco) performed the first two commercial fracking treatments.⁷ However, commercial fracking treatments were too expensive to make unconventional formation profitable.⁸ By the end of the 1990s, George Mitchell developed slick water fracking to break open shale formations to release gas and oil.⁹ At about the same time, horizontal drilling technology was developed, and the first horizontal well was drilled in Texas.¹⁰ Slick water fracking and horizontal drilling were inevitably used together, making development of unconventional formations feasible.¹¹ By the end of 2016, 69% of producing wells had been drilled horizontally and then fracked.¹²

Fracking is a process that consists of a service company first injecting a large volume of fracking fluids into a well to fracture the reservoir rock.¹³ Reservoir rocks are the rocks that the hydrocarbon formations are stored in.¹⁴ Fracturing occurs when fracking fluids are pumped into a well at a pressure higher than the fracture pressure of the rock.¹⁵ After fractures are initiated in the rock, propping agents and additional fracking fluids are pumped downhole. Existing fractures then extend and are filled with propping agents to prop them open.¹⁶ The third and last step is backflushing the well to remove at least some of the original fracking fluid.¹⁷ Slick water fracking fluids contain low concentrations of chemical additives that vary based on the shale formation being fractured, mixed with friction reducers, biocides, corrosion inhibitors, and acids.¹⁸ Propping materials are usually sand grains.¹⁹ Fracking is used in vertical and horizontal wells, but when used with horizontal drilling, well exposure to the formation is greatly increased. Some formations may only be a couple hundred feet thick but extend for miles horizontally.²⁰ A vertical well would pass through the

⁷ *Id.*

⁸ HYNE, *supra* note 4, at 472.

⁹ JOHN H. GRAVES, FRACKING: AMERICA'S ALTERNATIVE ENERGY REVOLUTION, 50 (2012).

¹⁰ OFFICE OF FOSSIL ENERGY, U.S. DEP'T OF ENERGY, MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES: A PRIMER 13 (2009), <https://www.energy.gov/fe/downloads/modern-shale-gas-development-united-states-primer>.

¹¹ *Id.* at 9.

¹² U.S. ENERGY INFORMATION ADMINISTRATION, *Hydraulically fractured horizontal wells account for most new oil and natural gas wells*, TODAY IN ENERGY (Jan. 30, 2018), <https://www.eia.gov/todayinenergy/detail.php?id=34732>.

¹³ HYNE, *supra* note 4, at 440.

¹⁴ *Id.* at 120.

¹⁵ *Id.* at 440.

¹⁶ *Id.* at 442.

¹⁷ *Id.* at 442.

¹⁸ OFFICE OF FOSSIL ENERGY, *supra* note 10, at 63.

¹⁹ HYNE, *supra* note 4, at 442.

²⁰ *Id.* at 476 (describing the Marcellus shale as 100 feet to 250 feet thick while underlying a significant area of New York and Pennsylvania).

formation for only a couple hundred feet, where a horizontal well would travel through a formation for thousands of feet.²¹ Horizontal drilling also allows more wells to be drilled on a single pad site. Six to eight horizontal wells can be drilled from one well site. Sixteen vertical wells would have to be drilled to get the same level of reservoir exposure.²² When a horizontal well is fracked, the cracks radiate up and down toward the top and bottom edges of the formation.²³

Unconventional formations that require fracking for economic feasibility exist across the United States.²⁴ Key formations include the Barnett Shale and Eagle Ford Shale in Texas, the Marcellus Shale in Pennsylvania, the Bakken Formation in North Dakota and Granite Wash Reservoirs located in the Texas panhandle and Oklahoma.²⁵

B. The Importance of Hydraulic Fracking

As previously noted, hydraulic fracking has been around since the 1860s.²⁶ However, it has only become widely used in the past twenty years. With widespread use, fracking has become an important part of the United States energy landscape and economy. During the mid-1980s, conventional oil and gas reserves and discoveries started to decrease.²⁷ United States reserves were on the decline until oil and gas from unconventional formations started replenishing depleted reserves.²⁸

To understand why fracking is so valuable, it is important to start with an understanding of the reserves it opened up. It is now possible to tap into reservoirs previously thought to be commercially unfeasible to produce. Increased availability of natural gas, and to a lesser extent oil, because of fracking, has led to shifts in energy consumption in the United States. Despite shifts towards increased consumption of natural gas and consistently high demand for oil and gas, the United States is decreasing its dependence on foreign energy sources. Fracking is a driver of these shift, making it an invaluable contributor to the United States energy portfolio.

1. Unconventional Formations and Economic Feasibility. – For many years, unconventional formations either could not be developed, or it was economically unfeasible to develop them. For over 75 years the Marcellus formation has been known to be a gas reservoir but had been viewed as

²¹ *Id.* at 472 (describing horizontal well sections as being 3,000 to 10,000 feet long).

²² OFFICE OF FOSSIL ENERGY, *supra* note 10, at ES-3.

²³ Chris Mooney, *The Truth About Fracking*, 305 SCI. AM. 80, 81 (2011).

²⁴ OFFICE OF FOSSIL ENERGY, *supra* note 10, at ES-1.

²⁵ HYNE, *supra* note 4, at 474-477.

²⁶ *See supra* Part I.A.

²⁷ HYNE, *supra* note 4, at 471.

²⁸ *Id.* at 473.

unproducibile.²⁹ During early drilling through the Marcellus shale, companies observed “pockets” of gas that lasted for a few days but were not sustained.³⁰ Wells had even been drilled through the shale to reach deeper reservoirs in conventional formations.³¹ With the advent of improved fracking techniques, shales like the Marcellus are profitable. The Marcellus Shale is now a significant producer of natural gas.³²

Conventional oil and gas reservoirs were the primary source of oil and gas production for much of the twentieth century. Oil and gas, in a conventional reservoir, are located in rock that has high permeability.³³ Permeability quantifies the ability of the formation to allow fluids to move through it.³⁴ High permeability formations have interconnected pore spaces that allow hydrocarbons to flow from one pore to another and on to the well.³⁵ Alternatively, unconventional reservoirs, like the Marcellus Shale produce, have oil and gas located in low permeability formations, preventing flow to the well.³⁶

Hydraulic fracking comes into play as a way to stimulate unconventional reservoirs and increase their permeability in an effort to make them economically viable.³⁷ It does so by creating fractures in the formation that allow oil and gas to move more freely to the well, allowing enough recovery to make the well profitable.³⁸ As discussed, fracking was a previously known process for releasing hydrocarbons from shale but was prohibitively expensive.³⁹ In the 1990s, slick water fracking, a process better suited to fracturing shales because it creates long fractures, was developed.⁴⁰ When slick water fracking was developed, the economics of fracking improved to make it a commercially viable means of well stimulation.⁴¹

In 2018, the Pennsylvania Department of Environmental Protection issued a total of 2149 drilling permits. Of those, 1876 (87% of total permits)

²⁹ John A. Harper, *The Marcellus Shale—An Old “New” Gas Reservoir in Pennsylvania*, 38 PENN. GEOLOGY 2, 2 (2008), http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_006811.pdf.

³⁰ *Id.* at 3.

³¹ HYNE, *supra* note 4, at 476.

³² *See supra* Part I.A.

³³ OFFICE OF FOSSIL ENERGY, *supra* note 10, at 15.

³⁴ *Permeability*, WILLIAMS AND MEYERS MANUAL OF OIL AND GAS TERMS (16th ed. 2015).

³⁵ OFFICE OF FOSSIL ENERGY, *supra* note 10, at 15.

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.* at ES-4.

³⁹ *See supra* Part I.A.

⁴⁰ Harper, *supra* note 29, at 10.

⁴¹ HYNE, *supra* note 4, at 472 (explaining that slick water fracking costs about 30% less than large fracking jobs at the time).

were for unconventional wells.⁴² Of the 918 wells drilled, 779 (85% of total wells) were unconventional wells.⁴³ Combined with horizontal drilling to gain greater exposure to the formation, fracking has made other large unconventional formations, in addition to the Marcellus Shale, profitable.⁴⁴

2. *Supply and Demand Changes Resulting from Fracking.* – Natural gas has become a preferred fuel for many industries and offers an opportunity for decreased reliance on foreign sources of energy. There are a wide range of uses for natural gas, including electrical power generation, fuel in industries such as oil refining and food processing, and as a feedstock for plastics, chemicals, and fertilizers.⁴⁵ Natural gas has always been used in industry. But now, fracking has increased the availability of natural gas and lowered its cost, resulting in a greater role in the United States energy landscape.

In response to increased availability and relatively low prices, use of natural gas across industries has increased significantly. In the years leading up to the development of modern fracking methods, most electric utility generators fired their plants with coal or nuclear power.⁴⁶ Power generators are now transitioning to using natural gas as their primary feedstock because of its low cost.⁴⁷ Natural gas prices are projected to remain low compared to historical prices through 2050.⁴⁸ As a result of relatively low prices, increased use of natural gas is expected across industries. Continued low prices are expected to cause a continued increase in the number of power plants fired by natural gas.⁴⁹ Consumers are also benefiting from lower wholesale electricity prices that are a product of low natural gas prices.⁵⁰ Additionally, natural gas burns cleaner than coal, making it an attractive option to comply with air quality standards.⁵¹

The United States is expected to become a net exporter of both oil and gas by 2020 due to continued growth in production of oil and gas.⁵² Growth in production of oil and natural gas is attributed to continued development

⁴² PA. DEP'T. OF ENVTL. PROTECTION, 2018 - PERMITS ISSUED AND WELLS DRILLED MAPS (January 11, 2019), <http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/2018/2018Wellspermitted-drilled.pdf>.

⁴³ *Id.*

⁴⁴ OFFICE OF FOSSIL ENERGY, *supra* note 10, at 13 (identifying the Barnett Shale in Texas and Bakken Shale in Montana and North Dakota as examples of increased production due to hydraulic fracking and horizontal drilling).

⁴⁵ *Id.* at 4.

⁴⁶ *Id.* at 3.

⁴⁷ *Id.*

⁴⁸ U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2019 12 (Jan. 24, 2019), <https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf>.

⁴⁹ *Id.*

⁵⁰ *Id.* at 22.

⁵¹ GRAVES, *supra* note 9, at 12.

⁵² U.S. ENERGY INFO. ADMIN., *supra* note 48, at 14.

of unconventional reservoirs.⁵³ At the same time the United States is trending towards being a net exporter of oil and gas, key oil producing nations are experiencing instability or the potential for instability.⁵⁴ Against that backdrop, the United States is projected to become the world's largest oil and gas producer, enabled by the development of unconventional shale formations.⁵⁵

C. Fracking and Intellectual Property Protection

As briefly discussed above, activists and citizens are pressuring governments to pass regulation requiring fracking companies to completely disclose the composition of fracking fluids to identify any products used that may be hazardous to human health.⁵⁶ Options for, and availability of, disclosure are dependent on how companies choose to protect their intellectual property in those fluids. Patents and trade secrets are the two main tools used by fracking companies to protect their intellectual property. The path to disclosure is very different depending on the type of protection.⁵⁷ Disclosure of information protected by patents is automatic with the grant of the patent.⁵⁸ Alternatively, the protection of information using trade secret law is not conditioned on disclosing the information.⁵⁹

The fracking industry has been utilizing patents since fracking was successfully completed on the Stanolind wells in 1947.⁶⁰ In 1948 and 1949, Stanolind applied for, and was eventually granted, patents for "Fracturing Formations in Wells" and "Treatment of Wells."⁶¹ Eventually other companies also patented the fracking processes they were developing.⁶² Other

⁵³ *Id.* at 16.

⁵⁴ Sam Meredith, *Venezuela's electricity crisis could trigger 'serious disruption' in the oil market*, IEA warns, CNBC (Mar. 15, 2019, 5:00 AM), <https://www.cnbc.com/2019/03/15/iea-report-venezuelas-electricity-crisis-could-disrupt-oil-markets.html> (discussing IEA report that cites power disruptions resulting from political instability as disrupting Venezuelan oil exports); Laila Kearney, *Oil dips on global growth worry, possible output rise*, REUTERS (Apr. 8, 2019, 9:04 PM), <https://www.reuters.com/article/us-global-oil/oil-dips-on-global-growth-worry-possible-output-rise-idUSKCN1RL03J> (identifying growing concerns about the stability of Libyan and U.S. sanctions on Iran and Venezuela as a factor of oil prices).

⁵⁵ INT'L ENERGY AGENCY, *WORLD ENERGY OUTLOOK 2018: EXECUTIVE SUMMARY 2 (2018)*, <https://www.iea.org/weo2018/>.

⁵⁶ *See supra* Part I.A.

⁵⁷ *See supra* Part II.B.

⁵⁸ 35 U.S.C. § 10 (2019) (giving the USPTO Directory authority to publish patents).

⁵⁹ *See infra* Part III.B.

⁶⁰ *See supra* Part I.A.

⁶¹ *See* U.S. Patent No. 2,596,845; U.S. Patent No. 2,596,844; U.S. Patent No. 2,596,843.

⁶² *See* U.S. Patent No. 2,825,409.

ancillary aspects of patents also followed. At about the same time Stanolind filed their patents, they began licensing the technology to Howco.⁶³ Patent litigation also followed. In the mid-1950's, Stanolind filed an infringement action against Magnolia Petroleum Company alleging Magnolia was "the first company to openly defy Stanolind's claims to royalties in fracturing."⁶⁴

However, when George Mitchell developed modern slick water fracking and used it in combination with horizontal drilling in the Barnett Shale, the processes were not patented by Mitchell or other leading developers.⁶⁵ The lack of patent monopoly left open a space for other companies to apply the slick water fracking and horizontal drilling to other formations like the Marcellus formation.⁶⁶ Despite the initial innovators not patenting their technology, there was a spike in fracking patents issued corresponding with the dramatic increase in use of fracking. From 2004 to 2010, the United States Patent and Trademark Office ("USPTO") issued 150 patents a year.⁶⁷ That is compared with about 50 patents a year for the prior 20 years. Fracking patents issued by the USPTO exceeded 200 patents a year in 2010 and 2011.⁶⁸

Despite the dramatic increase in patent activity, many fracking companies protect their fracking fluid compositions with trade secrets in addition to patents. Fracking fluid compositions qualify as trade secrets⁶⁹ because they are capable of providing an economic advantage to companies, and are likely not common knowledge across the industry.⁷⁰ The prevalence of trade secret protection was evident when in 2010, the EPA requested nine natural gas companies disclose the ingredients and volumes of their fracking fluids. Not all the components could be identified because some were withheld as trade secrets.⁷¹ At the same time, a quick search of USPTO issued patents turns up patents related to fracking fluids⁷² A caveat of fracking fluid patents is that while they disclose the information as soon as the

⁶³ Daniel R. Cahoy, Joel Gehman & Zhen Lei, *Fracking Patents: The Emergence of Patents as Information-Containment Tools in Shale Drilling*, 19 MICH. TELECOMM. & TECH. L. REV. 279, 289 (2013).

⁶⁴ *'Paid-Up' Frac License Granted*, PETROLEUM WK., Aug. 31, 1956, at 15.

⁶⁵ Cahoy, Gehman & Lei, *supra* note 63, at 291.

⁶⁶ *Id.* at 292. (arguing a "gold-rush mentality" resulted in part from other companies moving quickly to capitalize on unpatented technology).

⁶⁷ *Id.* at 290.

⁶⁸ *Id.*

⁶⁹ See *infra* Part III.B (discussing the requirements of information to be a trade secret).

⁷⁰ Hannah Wiseman, *Trade Secrets, Disclosure, and Dissent in a Fracturing Energy Revolution*, 111 COLUM. L. REV. SIDEBAR 1 (2011) (citing a superior proportion of fracking fluid components as resulting in lower costs and higher rates of gas production).

⁷¹ *Id.* at 1.

⁷² See U.S. Patent No. 7,281,581.

patent issues, the patent may only be for a portion of the entire fluid composition.⁷³

The intellectual property protection chosen for fracking fluids determines how much information about that fluid can be disclosed. Information protected by patents is automatically disclosed. However, because trade secrets protect information by limiting access, they are not easily disclosed.

II. FORCED DISCLOSURE OF TRADE SECRETS

As fracking boomed over the last decade, concerns grew about its environmental impact. One of the environmental concerns has been possible contamination of ground water. Fears of groundwater contamination have been fueled by videos of water being lit on fire⁷⁴ and pictures of residents holding jugs of brown water.⁷⁵ Activists have responded by calling for complete disclosure of the components of the fracking fluids used. However, there are legal obstacles to enacting regulations requiring complete disclosure, including trade secrets. Primary is the Fifth Amendment prohibition against taking private property without just compensation.⁷⁶ Fracking companies frequently protect the intellectual property in their fracking fluid compositions as a trade secret. When trade secrets are considered a form of property, the Fifth Amendment prevents their forced disclosure without just compensation. Regulatory takings doctrine, trade secrets law, and case history combine to create a framework that fracking fluid disclosure laws have to operate within.

A. *The Regulatory Takings Framework*

A governmental regulation is a taking if it exceeds the police power granted to the state, and instead begins to look more like an eminent domain action. Regulatory takings doctrine was first established by

⁷³ *Id.* (The '581 patent discloses a method of propping at least one fracture, with proppant aggregate in a variety of embodiments).

⁷⁴ Zoe Schalnger, *Fracking Wells Tainting Drinking Water in Texas and Pennsylvania, Study Finds*, NEWSWEEK (Sept. 15, 2014 3:57 PM), <https://www.newsweek.com/fracking-wells-tainting-drinking-water-texas-and-pennsylvania-study-finds-270735> (discussing homeowners who alleged nearby fracking caused their water to be flammable).

⁷⁵ Katie Colaneri, *DEP publishes details on 248 cases of water damage from gas development*, STATEIMPACT PENNSYLVANIA (August 29, 2014 2:40 PM), <https://stateimpact.npr.org/pennsylvania/2014/08/29/dep-publishes-details-on-248-cases-of-water-damage-from-gas-development/> (article containing example of common brown pictures).

⁷⁶ U.S. CONST. amend. V (. . . nor shall private property be taken for public use, without just compensation.).

Pennsylvania Coal Co. v. Mahon.⁷⁷ *Mahon* concerned a statute that barred the mining of coal that formed a support column for surface property. Prior law allowed the surface owner to waive the rights to the support column, allowing it to be mined.⁷⁸ In the majority opinion, Justice Holmes found the pillars of coal represented a distinct property right. Barring mining of the pillars essentially took the coal away from Pennsylvania Coal without just compensation.⁷⁹ The diminution of value far exceeded any public nuisance issues or reciprocity of advantage, making it more similar to an eminent domain action than an exercise of state police power.

Many years passed after *Mahon* before the next significant development in the regulatory takings doctrine. *Penn Central Transportation Co. v. New York City* centered around the designation of Grand Central Terminal as a “landmark.”⁸⁰ Landmark status prevented Penn Central from erecting a multistory office building above it. To determine if there had been a taking, the Court developed a three-part ad hoc balancing test.⁸¹ Step one asked what the economic impact to the plaintiffs was. Next, the test asked if the regulation interfered with reasonable investment backed expectations. Interference was defined as a sudden, very unexpected change in the regulation the taking resulted from. Third, the test looked at the character of the government action. If the government action balances the economic benefits and burdens, it is more similar to an exercise of police power but if not, the action is more like eminent domain and a taking.

After *Penn Central*, exceptions to the ad hoc balancing test were developed such as finding permanent physical occupations a *per se* taking.⁸² However, the ad hoc balancing test is still used to decide if government regulations constitute a taking of property when the regulation does not fall into one of the *per se* taking categories.

B. Trade Secrets Defined

As the regulatory takings doctrine was developing, trade secret law was also developing. In the dictionary, a trade secret is defined as “[a] formula, process, device, or other business information that is kept confidential to

⁷⁷ *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922).

⁷⁸ *Id.* at 412.

⁷⁹ *Id.* at 415.

⁸⁰ *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 (1978).

⁸¹ *Id.*

⁸² See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982) (installation of a cable on a building was a *per se* taking because it was a permanent physical occupation); *Horne v. Dep't of Agriculture*, 135 S.Ct. 2419 (2015) (Department of Agriculture's reserve requirements for raisins were a *per se* physical taking).

maintain an advantage over competitors”⁸³ Trade secrets are not a federal intellectual property right, leaving states to define and enforce them. Trade secret law was first guided by the Restatement of Torts § 757.⁸⁴ § 757 defined trade secrets as “any formula, pattern, device or compilation of information” used in a business, that provide an advantage over competitors not using or without access to the information, and are kept secret.⁸⁵ Information also has to be continually used by the owner.⁸⁶ For example, a secret method in use for making soda would meet the “continuous use” requirement. Alternatively, the amount of a confidential bid would not meet the continuous use requirement because it is a one-time event. If it is shared with other employees, those employees have to agree to keep the information secret.⁸⁷ The Restatement assigns liability to someone who discloses another’s trade secret if that person did not have authority to do so, and discovered the secret through improper means or breached confidentiality to disclose the secret.⁸⁸ Comment (a) of the Restatement further clarifies that liability stems from the use of improper means to acquire the trade secret and not just the copying or use of the secret information.⁸⁹

For many years, the Restatement of Torts governed how state courts implemented trade secret law. Because trade secret law is based in state law, it experienced uneven development across states with uncertainty as to the scope of trade secret protection.⁹⁰ In response, the Uniform Trade Secrets Act (“UTSA”) was developed and recommended for enactment in all states in 1979.⁹¹ The UTSA adopted a trade secret definition similar to that of § 757 of the Restatement of Torts. To be a trade secret under the UTSA, information has to (1) have economic value because it is secret, and (2) be subject to reasonable efforts to maintain its secrecy.⁹² One key difference from § 757 is absence of a continuous use requirement. Information does not have to be in continuous use to be a trade secret as defined by the UTSA.⁹³ Confidential bids from the example above would qualify for trade secret protection under the UTSA, where they previously did not under § 757. The broader definition allows for protection when an owner has chosen to delay use or has not had an opportunity to use the secret information.

⁸³ *Trade Secret*, BLACK’S LAW DICTIONARY (10th ed. 2014).

⁸⁴ RESTATEMENT (FIRST) OF TORTS § 757 (AM. LAW INST. 1939).

⁸⁵ *Id.* § 757 cmt. b.

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ *Id.* § 757 cmt. a.

⁸⁹ *Id.*

⁹⁰ UNIF. TRADE SECRETS ACT PREFATORY NOTE (UNIF. LAW COMM’N 1985).

⁹¹ *Id.*

⁹² *Id.*

⁹³ *Id.* § 1(4).

Reverse engineering of a lawfully acquired product is a proper means of discovery of the trade secret, allowing two distinct parties to claim trade secret protection for the same information.⁹⁴ At this time, every state except New York has adopted the UTSA.⁹⁵

In addition to the UTSA, the Restatement (Third) of Unfair Competition also guides trade secret law.⁹⁶ Trade secret law principles included in the Restatement are applicable to actions under the UTSA and common law.⁹⁷ Similar to the UTSA, § 39 does not include a requirement for continuous use of secret information. § 39 also requires a trade secret to have value and to be subject to secrecy adequate to give its owner a competitive advantage.⁹⁸

All three sources of trade secret law acknowledge trade secrets differ from patent and copyright protection for intellectual property. Trade secrets have the potential to last indefinitely while patents and copyrights last for a fixed number of years. Unlike patents, trade secrets do not require novelty or non-obviousness.⁹⁹ More significantly, the basis of trade secrets originates in English common law from the early nineteenth century.¹⁰⁰ Alternatively, patents and copyrights are created by the Constitution.¹⁰¹ Because trade secrets originate from a different source, they do not have the same normative justifications as patents and copyrights. Patents and copyrights are used to incentivize creation and dissemination of information. Trade secrets are justified as a protection against unfair competition and as a way to promote efficient use of knowledge by discouraging hoarding.¹⁰²

Regardless of incentives or purposes, many companies choose trade secret law to protect their information. With almost complete adoption of the UTSA, trade secret law has become more standardized across the United States. For information to be considered a trade secret, it must (1) be secret but does not have to be absolutely secret, (2) provide economic value or a competitive advantage to its owner, and (3) be subject to reasonable efforts to maintain secrecy.¹⁰³ Trade secret law can be used to protect patentable

⁹⁴ *Id.*

⁹⁵ Aaron Nicodemus, *Massachusetts Adopts Uniform Trade Secrets Law*, BLOOMBERG NEWS (Aug. 16, 2018), <https://www.bna.com/massachusetts-adopts-uniform-n73014481815/> [<http://web.archive.org/web/20180817201908/https://www.bna.com/massachusetts-adopts-uniform-n73014481815/>].

⁹⁶ RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 (AM. LAW INST. 1995).

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ RESTATEMENT (FIRST) OF TORTS § 757 (AM. LAW INST. 1939).

¹⁰⁰ RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 (AM. LAW INST. 1995).

¹⁰¹ U.S. CONST. art. I, § 8, cl. 8 (“The Congress shall have the power . . . to promote the Progress of Science and useful Arts . . .”).

¹⁰² RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 (AM. LAW INST. 1995).

¹⁰³ UNIF. TRADE SECRETS ACT §1(4) (UNIF. LAW COMM’N 1985).

or unpatentable subject matter.¹⁰⁴ Despite approval of § 39 in the Restatement (Third) of Unfair Competition, courts still rely on the Restatement of Torts § 757 to apply the UTSA.¹⁰⁵ That reliance has significant implications in determining if a trade secret is property and as such subject to regulatory takings doctrine.

C. Associated Property Rights & Regulatory Takings

The first question a court asks when considering if there has been a regulatory taking is if private property has been taken.¹⁰⁶ Fracking fluid disclosure regulations are subject to the regulatory takings doctrine if trade secrets are considered property. If a trade secret is not property, the regulation is not a regulatory taking. The relationship between trade secrets and property has changed since the first case to address the question in the early 1800s.¹⁰⁷ Initially, trade secret protection was based on property rights, but then protection was believed to arise from an interest in fair and equitable conduct.¹⁰⁸ More recently, the Supreme Court held trade secrets are property.¹⁰⁹

1. *Early Treatment of Trade Secrets.* – Early trade secret cases held secret information could have value and that there are associated property rights. One of the earliest cases to address the value and rights associated with trade secrets was *Vickery v. Welch*.¹¹⁰ Vickery entered into a contract with Welch to purchase Welch's chocolate mill along with the "exclusive right and art or secret manner of making chocolate and all information pertaining to his said manner of making chocolate."¹¹¹ Upon payment, Welch turned over the deed for the chocolate mills and other items but refused to surrender the rights to the process for making the chocolate.¹¹² Welch agreed to share it with Vickery but would not agree to keep it secret from anyone else.¹¹³ The court held Welch's "exclusive and secret art of making chocolate" was a thing of value and therefore a significant factor in the price paid by Vickery.¹¹⁴ Because the exclusive right to the chocolate making process was conveyed as part of the sale, Welch would be in breach of

¹⁰⁴ *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974).

¹⁰⁵ RESTATEMENT (THIRD) OF UNFAIR COMPETITION §39 (AM. LAW INST. 1995).

¹⁰⁶ Richard Epstein, *The Constitutional Protection of Trade Secrets under the Takings Clause*, 71 U. CHI. L. REV. 57, 58 (2004).

¹⁰⁷ *Vickery v. Welch*, 36 Mass. (19 Pick.) 523 (1837).

¹⁰⁸ See *infra* Part III.C.1.

¹⁰⁹ See *infra* Part III.C.3.

¹¹⁰ *Id.*

¹¹¹ *Id.* at 523.

¹¹² *Id.* at 523-24.

¹¹³ *Id.* at 524.

¹¹⁴ *Id.* at 525.

the contract if he destroyed that exclusivity by sharing it with other parties.¹¹⁵

In the mid-1800s, the court in *Peabody v. Norfolk*¹¹⁶ held trade secrets are the property of the owner of the information. Norfolk was a machinist employed by Peabody under a contract that obligated Norfolk to not use or disclose a secret process for making gunny cloth from jute butts. Norfolk left Peabody's factory, and joined others to build a competing factory using Peabody's secret process. Peabody sued for an injunction against the new factory. In his opinion, Justice Gray stated, "[i]f a man establishes a business and makes it valuable by his skill and attention, the good will of that business is recognized by the law as property."¹¹⁷ The opinion further stated:

If [a person] invents or discovers, and keeps secret, a process of manufacture, whether a proper subject for a patent or not, he has not indeed an exclusive right to it as against the public, or against those who in good faith acquire knowledge of it; but he has a property in it, which a court of chancery will protect against one who in violation of a contract and breach of confidence undertakes to apply it to his own use, or to disclose it to third persons.¹¹⁸

Vickery and *Peabody* both regarded trade secrets as property of the information owner. However, they did not address how a trade secret could be a property right but not be exclusive against the world like every other property right. That open question led to a conception of trade secret protection arising from protection from breaches of contracts and confidentiality.

2. *Trends Away from Trade Secret Property Rights.* – The theory that trade secrets were property started to lose favor in the early twentieth century. Sociological jurisprudence and legal realism weakened the theory that exclusivity of secret information implied a property right and the subsequent implication of legal rights protecting the exclusivity of the information.¹¹⁹ In 1917, the basis of trade secret protection surfaced in the Supreme Court case *E.I. Du Pont de Nemours Powder Co. v. Masland*.¹²⁰ In his majority opinion, Justice Holmes rejected the theory that trade secrets were property, writing:

The case has been considered as presenting a conflict between a right of property and a right to make full defense We approach the question somewhat differently. The word 'property' as applied to trade-marks and trade secrets is an unanalyzed expression of a certain secondary consequences of the

¹¹⁵ *Id.* at 527.

¹¹⁶ 98 Mass. 452 (1868).

¹¹⁷ *Id.* at 457.

¹¹⁸ *Id.* at 458.

¹¹⁹ Robert Bone, *A New Look at Trade Secret Law: Doctrine in Search of Justification*, 86 CALIF. L. REV. 241, 259 (1998).

¹²⁰ 244 U.S. 100 (1917).

primary fact that the law makes some rudimentary requirements of good faith. Whether the plaintiffs have any valuable secret or not the defendant knows the facts, whatever they are, through a special confidence that he accepted. The property may be denied but the confidence cannot be. Therefore the starting point for the present matter is not property or due process of law, but that the defendant stood in confidential relations with the plaintiffs, or one of them.¹²¹

Under Justice Holmes' conception of trade secret law, protection comes from a right to fair and equitable conduct instead of property rights. Supporters of this view concede information protected is similar to property but is not protected as property because of other policies. One of the policies cited is the intent of the Framers to tailor information protection to allow for free dissemination of the information to promote technological and economic progress.¹²² The two federal intellectual property regimes do not provide a means for blanket restrictions on information. Copyright law prohibits protection of information in the public domain.¹²³ Patent law requires protected information be disseminated to the public as soon as the patent issues (if not published sooner). Patents restrict how information can be used, but only for a limited time.¹²⁴ A theory that trade secrets are not property is also supported by § 757 of the Restatement of Torts. Comment (a) describes trade secret protection as a general duty of good faith with liability stemming from a breach of contract or abuse of confidence.¹²⁵ Protection is based on a policy of punishing bad acts instead of a policy of incentivizing future development.¹²⁶ Breach of confidence and use of improper means are the resulting basis of protection for trade secrets. Until the 1980s, protection of trade secrets arose from protection against breach of contract and use of improper means to discover the information.

3. A Return to Property Rights and Regulatory Takings. – Despite the prevalence of the theory trade secret protection arises from a breach of confidentiality or discovery through improper means, there were still arguments that trade secret protection arises from property rights. Court decisions since *E.I. Du Pont* have recognized that trade secrets can be property in the context of regulatory takings.

Supporters of a trade secret property right cite the similarities of trade secrets to other forms of property and the inappropriateness of a pure

¹²¹ *Id.* at 102.

¹²² Pamela Samuelson, *Information as Property: Do Ruckelshaus and Carpenter Signal a Changing Direction in Intellectual Property Law*, 38 CATH. U. L. REV. 365 (1989).

¹²³ See, e.g., *A.A. Hoehling v. Universal City Studios, Inc.*, 618 F.2d 972 (2d Cir. 1980), *cert. denied*, 449 U.S. 841 (1980); *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991).

¹²⁴ 35 U.S.C. § 154 (Contents and term of patent).

¹²⁵ RESTATEMENT (FIRST) OF TORTS § 757 cmt. a (AM. LAW INST. 1939).

¹²⁶ *Id.* § 757 cmt b.

comparison to rights in real property. Trade secret rights, like traditional property rights, include the right to determine how information is used and when others can access that information.¹²⁷ Under the Internal Revenue Code of 1954, trade secrets are sellable, assignable, and may be eligible for treatment as a capital gain.¹²⁸ Corporations can recognize trade secrets as assets based on accepted accounting principles.¹²⁹ Rights of use and disclosure are also similar to those given to copyright owners.¹³⁰ Property right proponents argue that a pure comparison to rights in real property is inappropriate because the nature of information does not allow it to be protected like real property. Information can be replicated without the original owner losing access to the information. Alternatively, real property is unique and if taken from the owner, the owner no longer has access to the property.¹³¹ Proponents of a trade secret property right also argue claims for breach of confidentiality or discovery through inappropriate means are rooted in the owner's property right. Property rights are what permit the owner to use the information how they want and disclose it to others subject to restrictions.¹³²

Regardless of where the debate stands between academics, the Supreme Court case *Ruckelshaus v. Monsanto Co.*¹³³ held that trade secrets are property in the context of a regulatory taking. In *Ruckelshaus*, Monsanto was challenging amendments of the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"). Under the act, manufacturers of pesticides were required to submit data showing a specific pesticide caused no environmental harm to get Environmental Protection Agency ("EPA") approval for sale.¹³⁴ The amendments altered what the EPA could and could not do with information submitted for pesticide approval, including disclosing submitted trade secrets to the public. Monsanto argued allowing the EPA to publicly disclose their trade secrets was a regulatory taking.¹³⁵ Monsanto first had to show there was a property right in their trade secrets. The Court held under Missouri law, trade secrets are property and subject to regulatory takings doctrine.¹³⁶ The majority supported their holding by noting trade

¹²⁷ 1 R. MILGRIM, MILGRIM ON TRADE SECRETS § 2.01 (2019).

¹²⁸ 26 U.S.C. § 170(e)(1)(B)(iii) (1954).

¹²⁹ *Id.*

¹³⁰ 17 U.S.C. § 106 (2002) (Exclusive rights in copyrighted works).

¹³¹ Michael Risch, *Why Do We Have Trade Secrets*, 11 MARQ. INTELL. PROP. L. REV. 1, 23-24 (2007).

¹³² 1 R. MILGRIM, *supra* note 131.

¹³³ 467 U.S. 986 (1984).

¹³⁴ 7 U.S.C. § 136a (1982).

¹³⁵ Samuelson, *supra* note 122, at 377-78 (discussing FIFRA amendments related to *Ruckelshaus*).

¹³⁶ *Ruckelshaus*, 467 U.S. at 1003-04.

secrets are assignable, could form the res of a trust, and could pass to a trustee in bankruptcy.¹³⁷ Justice Holmes' *Du Pont* decision was addressed with a distinction that Justice Holmes did not deny there was a property right in the trade secret. Instead, he merely found the existence of a property right irrelevant to resolution of the case.¹³⁸ Because trade secrets were found to be property, Monsanto had a property right that was protected by the Takings Clause.

Finding trade secrets to be property, and thus subject to the regulatory takings clause, gave industry new protections for their information. Industries now had an avenue for avoiding regulatory disclosures where information is a trade secret. Avoidance of disclosure was tested a few decades later in the context of cigarette ingredient disclosure in *Phillip Morris Inc. v. Reilly*.¹³⁹ At issue was the Massachusetts Disclosure Act ("MDA"), a regulation requiring cigarette manufacturers to submit to the state their ingredient list ordered by relative amount.¹⁴⁰ Public disclosure of the ingredient lists was authorized by the MDA if disclosure "could reduce the risks to public health."¹⁴¹ Cigarette manufacturers challenged the regulation, arguing their ingredient lists were trade secrets and were therefore property protected by the Takings Clause. They further argued public disclosure of the ingredient lists would extinguish their value, causing a taking without just compensation.¹⁴² Massachusetts argued the disclosure was "rationally related to a legitimate governmental interest."¹⁴³ The state further argued Massachusetts law does not create a property interest in trade secrets when their disclosure to the state is required by law.¹⁴⁴ Both arguments of the state were found unpersuasive by the court. First, the court found Massachusetts law recognizes a property interest in trade secrets and being subject to disclosure regulations did not remove that interest.¹⁴⁵ Second, the majority interpreted *Ruckelshaus* to require application of the *Penn Central* framework to the case.¹⁴⁶ Application of the *Penn Central* framework led the court to conclude the MDA violated the Takings Clause by taking private property without just compensation. Following the MDA would cause tobacco companies to lose their trade secrets without a "convincing public

¹³⁷ *Id.* at 1002.

¹³⁸ *Id.* at 1004 n.9.

¹³⁹ *Phillip Morris Inc. v. Reilly*, 312 F.3d 24 (1st Cir. 2002).

¹⁴⁰ Mass. Gen Laws ch. 94 § 307B (2002).

¹⁴¹ *Id.*

¹⁴² *Phillip Morris*, 312 F.3d at 30.

¹⁴³ *Id.* at 30-31 (quoting *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1007 (1984)).

¹⁴⁴ *Id.* at 31.

¹⁴⁵ *Id.* at 32.

¹⁴⁶ *Id.* at 36.

policy rationale to justify the taking itself.”¹⁴⁷

D. What this Means for Fracking Fluid Disclosure

The scope of information protected by trade secret law, the *Ruckelshaus* opinion, and the *Reilly* opinion limit the amount of disclosure states can require. In jurisdictions where trade secrets are considered property, *Ruckelshaus* makes regulation of trade secrets subject to the regulatory takings doctrine. *Reilly* illustrates how *Ruckelshaus* could potentially apply to state law requiring public disclosure of fracking fluid trade secrets. Following the reasoning of *Reilly*, to require public disclosure of those ingredients, the state has to show a “convincing public policy rationale” or offer fracking companies just compensation.¹⁴⁸ Advocates argue public disclosure of fracking fluid ingredients is necessary to protect the public from the harms of groundwater contamination. Any resulting public benefit of complete disclosure is largely dependent on the science of if and how groundwater contamination is caused by fracking.¹⁴⁹ Evidence would need to show complete disclosure provided significant benefits over disclosure laws that allow exemptions for disclosure of trade secrets. For a complete disclosure regulation to survive the regulatory takings doctrine, the government would also have to argue fracking companies had reasonable notice trade secret exceptions would be eliminated. That could be a tough argument given the amount of time that has passed since disclosure laws were enacted.¹⁵⁰ Alternatively, if public pressure, science and politics converge towards complete disclosure, the government could argue fracking companies should have reasonably anticipated regulations forcing complete disclosure. Instead of public disclosure, states may be able to mandate disclosure with an expectation of confidentiality to certain classes of people such as researchers.

III. CURRENT LAW, POLICY AND POLITICAL IMPACTS

As fracking operations increased in frequency, governments moved to implement laws that addressed some of the concerns raised by advocates while still taking into consideration the concerns of the oil and gas industry. However, those laws experience continued criticism for not going far enough from environmental advocates and politicians. Current disclosure laws, the policy behind the arguments for disclosure, and the impact of

¹⁴⁷ *Id.* at 45-46.

¹⁴⁸ *Id.*

¹⁴⁹ *See supra* Part III.B.1.

¹⁵⁰ *See supra* Part III.A.

politics on fracking disclosure laws play a role in the future of disclosure laws.

A. Current Disclosure Law

At the federal level, the EPA is primarily responsible for monitoring substances that may contaminate drinking water under the Safe Drinking Water Act (“SDWA”).¹⁵¹ In 2005, the Energy Policy Act created what is known as the “Halliburton loophole.”¹⁵² The Act amended the SDWA to exclude fracking wastewater from the “hazardous” substance category the EPA has jurisdiction over.¹⁵³ The result is fracking operations do not need federal permits so long as the fluids do not include diesel fuel. Hydraulic fracking fluid disclosure laws are therefore concentrated at the state level. In 2015, the Department of Interior’s Bureau of Land Management (“BLM”) issued regulations requiring disclosure of fracking fluids for wells drilled on federal and Native American land.¹⁵⁴ The rule was eventually rescinded in 2017.¹⁵⁵ It is extremely unlikely that comprehensive federal regulation of fracking fluid disclosure will be enacted in the near term, but shifts in elected representatives may change that likelihood.¹⁵⁶ There is an argument that states are best suited to regulate fracking generally because of differences in geology and economics between states.¹⁵⁷ Pennsylvania, Texas, Oklahoma, and North Dakota have significant levels of fracking activity and have enacted fracking fluid disclosure requirements.

1. *Pennsylvania Disclosure Law.* – Pennsylvania significantly changed their oil and gas regulations with the passage of Act 13 in 2012.¹⁵⁸ One of the changes was the addition of chemical disclosure requirements for fracking of unconventional wells.¹⁵⁹ Well operators are required to complete a chemical disclosure registry form listing all ingredients in the fracking fluids used for a specific well and post it to a chemical disclosure registry within 60 days after concluding the fracking operation.¹⁶⁰ The chemical

¹⁵¹ Safe Drinking Water Act of 1974, Pub. L. No. 93-523, 88 Stat. 1660 (codified at 42 U.S.C. § 201 (1974)).

¹⁵² Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified at 42 U.S.C. § 15801 (2005)).

¹⁵³ *Id.*

¹⁵⁴ 43 C.F.R. § 3162.3 (2015); *See also supra* Part III.C.1.

¹⁵⁵ 43 C.F.R. § 3162.3 (2017).

¹⁵⁶ *See supra* Part III.C.2.

¹⁵⁷ Jason Schumacher & Jennifer Morrissey, *The Legal Landscape of Fracking: The Oil and Gas Industry’s Game-Changing Technique Is Its Biggest Hurdle*, 17 TEX. REV. L. & POL. 239, 260 (2013).

¹⁵⁸ H.B. 1950, Act 13, Gen. Assemb. Reg. Sess. (Pa. 2012).

¹⁵⁹ 58 PA. CONS. STAT. § 3222.1 (2012).

¹⁶⁰ *Id.* § 3222.1(2).

disclosure registry, FracFocus,¹⁶¹ is a website developed by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission.¹⁶² Trade secret information can be withheld, but the regulation requires identification of a trade secret on the disclosure form and a signed statement to that effect.¹⁶³ Operators are required to disclose the chemical family or similar description of the trade secret chemicals.¹⁶⁴ Specific identity, concentration, or both of a trade secret chemical are allowed to be withheld from information disclosed to FracFocus.¹⁶⁵ There are provisions for disclosure of trade secrets to medical professionals for treatment in cases of exposure to fracking fluids and to government officials in the case of a spill.¹⁶⁶ Information not identified as a trade secret is a matter of public record. Confidentiality is required for any trade secret disclosed to the government or health professionals, with steps taken to prevent disclosure.¹⁶⁷

Legislation and regulations requiring complete disclosure of fracking fluids, including trade secrets, would likely be subject to the regulatory taking doctrine. Pennsylvania courts have taken a view of trade secrets as property, making the regulation of them a possible regulatory taking.¹⁶⁸

2. *Texas Disclosure Law.* – Fracking fluid disclosure law in Texas is very similar to Pennsylvania law with a few significant differences. Oil and gas operations in the state are primarily governed by the Texas Railroad Commission.¹⁶⁹ In 2012, pursuant to legislation passed in 2011¹⁷⁰, the Railroad Commission promulgated a rule for the disclosure of fracking fluids.¹⁷¹ Operators are required to submit to FracFocus the fracking completion date, location, total vertical depth of the well, volume and type of fluid used, each additive including trade name and function, and chemical ingredients

¹⁶¹ FRACFOCUS CHEMICAL DISCLOSURE REGISTRY, <http://www.fracfocus.org> (last visited May 8, 2019).

¹⁶² *Oil and Gas Frequently Asked Questions*, PA. DEP'T OF ENVTL. PROTECTION, <https://www.dep.pa.gov/Business/Energy/OilandGasPrograms/OilandGasMgmt/Pages/Oil-and-Gas-FAQ.aspx> (last visited May 8, 2019).

¹⁶³ *Id.*

¹⁶⁴ 58 PA. CONS. STAT. § 3222.1 (2012).

¹⁶⁵ *Id.* § 3222.1(d).

¹⁶⁶ *Id.* § 3222.1(b)(1), (d).

¹⁶⁷ *Id.* § 3222.1(b)(5), (e).

¹⁶⁸ *Sims v. Mack Truck Corp.*, 488 F. Supp. 592 (E.D. Pa. 1980) (declined to follow on other grounds, by *Santana Products, Inc. v. Bobrick Washroom Equipment, Inc.*, 401 F.3d 123 (3d Cir. 2005) (applying Pennsylvania law) (discussing trade secrets as a property interest)); 18A SUMM. PA. JUR. 2D COMMERCIAL LAW § 19:23 (2d ed.) (Mar. 2019 Update).

¹⁶⁹ *Oil and Gas*, RAILROAD COMMISSION OF TEXAS, <https://www.rrc.state.tx.us/oil-gas/> (last visited Apr. 29, 2019).

¹⁷⁰ TX. NAT. RES. CODE ANN. § 91.851.

¹⁷¹ 36 Tex. Reg. 9307 (Dec. 30, 2011).

that are subject to federal hazard communication regulations.¹⁷² If the operator provides its own chemical ingredients, actual or maximum concentrations have to be disclosed for chemicals covered by federal hazard communications regulations. All other chemicals intentionally added also have to be disclosed.¹⁷³ Like the Pennsylvania law, Texas provides a disclosure exemption for information claimed to be a trade secret.¹⁷⁴ Trade secrets have to be disclosed to health professionals and emergency responders as needed, but those workers must agree to confidentiality.¹⁷⁵ If an ingredient is a trade secret, only disclosure of the chemical family or its properties and effects is required.¹⁷⁶ Unlike the Pennsylvania law, Texas allows for claims of trade secret protection to be challenged. Landowners of property with a fracked well on it, adjacent landowners, and relevant state government entities can file a request for challenge to the trade secret claim.¹⁷⁷ If the request is approved the challenge is forwarded to the Attorney General. Chemicals found not to be trade secrets then have to be disclosed to the requester or, if appealed, to the court with jurisdiction.¹⁷⁸

Texas has adopted the UTSA, but Texas trade secret case law and the Railroad Commission's fracking fluid disclosure rule cite the Restatement of Torts § 757.¹⁷⁹ Given the reliance of Texas courts on § 757, it is less likely they would find trade secrets to be property. However, it is also unlikely Texas courts would uphold a regulation that destroys the value of information held by a private company.

3. Oklahoma Disclosure Law. – Oklahoma law is similar to Texas and Pennsylvania disclosure law. Oil and gas operations in Oklahoma are governed by the Oklahoma Corporation Commission.¹⁸⁰ In 2012, the Oklahoma Corporation Commission approved disclosure rules that the Oklahoma

¹⁷² 16 TX. ADMIN. CODE ANN. § 3.29(c)(2)(A) (2019); *see also* 29 C.F.R. § 1910.1200 (federal rule regarding hazard communication).

¹⁷³ *Id.* § 3.29(c)(2)(A).

¹⁷⁴ *Id.* § 3.29(e).

¹⁷⁵ *Id.* § 3.29(c)(4).

¹⁷⁶ *Id.*

¹⁷⁷ *Id.* § 3.29(f).

¹⁷⁸ *Id.*

¹⁷⁹ *See Id.* § 3.29(a)(26) (referencing Restatement (First) of Torts § 757 for factors to consider when determining if information is a trade secret); *Hyde Corp. v. Huffines*, 314 S.W.2d 763, 769 (Tex. 1958) (referencing Restatement (First) of Torts § 757); *Mabry v. Sandstream, Inc.*, 124 S.W.3d 302, 310 (Tex. App. 2003) (referring to Restatement (First) of Torts § 757 to determine if a trade secret exists while acknowledging in footnote 13 Restatement (Third) of Unfair Competition § 39-45 (1995) now contain the restatement sections on trade secrets).

¹⁸⁰ OKLA. CORP. CORPORATION: OIL AND GAS DIVISION, <http://www.occeweb.com/OG/oghome.htm> (last visited Apr. 30, 2019); *see also* OKLA. STAT. ANN. tit. 17 § 52 (giving the Corporation Commission jurisdiction over oil and gas operations).

governor then signed off on.¹⁸¹ When first enacted, the disclosure requirements only applied to fracking operations performed on horizontally drilled wells. It was amended in 2014 to also apply to non-vertical wells.¹⁸² Operators are required to disclose to FracFocus the well location, total volume of fluids used, type of base fluid, and trade names of intentionally added chemical additives within sixty days of completion of fracking operations.¹⁸³ Identity and maximum concentrations of any chemical additive ingredients also has to be disclosed.¹⁸⁴ Similar to Texas and Pennsylvania, Oklahoma provides an exception to disclosure for ingredients claimed in good faith to be a trade secret. Instead, only the chemical family or descriptor has to be disclosed. The Commission reserves the right to require written explanation in support of any claimed trade secret.¹⁸⁵

Oklahoma has adopted the UTSA.¹⁸⁶ State case law has implied secret knowledge can be a property right.¹⁸⁷ Oklahoma case law has also held trade secrets are protectable because of the existence of a confidential relationship.¹⁸⁸ A third, later case then returned to the theory trade secret protection arises from property rights.¹⁸⁹ To receive protection of the trade secret property right, the court held the idea had to be: (1) novel, (2) presented in concrete form, and (3) disclosed confidentially in such a way there was an implication of payment for use of the idea.¹⁹⁰ Given Oklahoma case law, there is a reasonable likelihood a trade secret would be held to be property, making it subject to regulatory takings doctrine.

4. *North Dakota Disclosure Law.* – North Dakota fracking fluid disclosure law is not as defined as other state disclosure laws. Oil and gas law in North Dakota is governed by the North Dakota Department of Mineral Resources Division of Oil and Gas.¹⁹¹ Operators in North Dakota are required to disclose fracking fluids when the well is stimulated through a frac string

¹⁸¹ Jay F. Marks, *Oklahoma approves fracking disclosure rules*, THE OKLAHOMAN (May 29, 2012 12:00 AM, updated May 29, 2012 10:01 AM), <https://newsok.com/article/3679616/oklahoma-approves-fracking-disclosure-rules>.

¹⁸² OKLA. CORP. CORPORATION: OIL AND GAS DIVISION, <http://www.occeweb.com/OG/oghome.htm> (last visited Apr. 30, 2019); *see also* OKLA. STAT. ANN. tit. 17 § 52 (giving the Corporation Commission jurisdiction over oil and gas operations).

¹⁸³ OKLA. ADMIN. CODE § 165:10-3-10(c)(1) (2019).

¹⁸⁴ *Id.* § 165:10-3-10(c)(2).

¹⁸⁵ *Id.* § 165:10-3-10(c)(4).

¹⁸⁶ OKLA. STAT. tit. 78, §§ 85-94 (2019).

¹⁸⁷ *Webster v. Webster Refining Co.*, 128 P. 261 (Okla. 1912) (holding knowledge was not property because it was not patented or secret).

¹⁸⁸ *Nat'l Mach. Works, Inc. v. Harris*, 73 F. Supp. 568, 576 (W.D. Okla. 1947).

¹⁸⁹ *Sloan v. Mud Prod.'s, Inc.*, 114 F. Supp. 916 (N.D. Okla. 1953).

¹⁹⁰ *Id.* at 923-24.

¹⁹¹ N. D. DEP'T OF MINERAL RESOURCES, <https://www.dmr.nd.gov/> (last visited Apr. 30, 2019).

run inside of a casing string or stimulated through an intermediate casing string within sixty days after fracking is performed.¹⁹² Unlike other regulations, which require specific information be disclosed, North Dakota only requires disclosure of “all elements made viewable by the FracFocus website.”¹⁹³ The regulations do not explicitly provide a disclosure exemption for trade secret ingredients. However, information for North Dakota wells available on FracFocus’s website shows some Chemical Abstracts Service numbers listed as proprietary.¹⁹⁴

North Dakota also has adopted the UTSA.¹⁹⁵ When North Dakota adopted the UTSA, it was added to Title 47: Property of the North Dakota code. The location of the UTSA is a strong suggestion that North Dakota regards trade secrets as property, making any regulation of trade secrets most likely subject to regulatory takings doctrine.

B. Fracking Fluid Disclosure Policy

Despite most states requiring some level of disclosure of fracking fluid ingredients, there are still questions as to if more disclosure is needed. On one side of the debate is a coalition of industry, communities and others who have benefited from the fracking boom. On the other side is a coalition of residents who believe they were negatively impacted by fracking, environmental advocates and concerned citizens. The force of each side’s argument is impacted by research into fracking finds and how that research is interpreted. Research into contamination of ground water by fracking fluids can support or undercut each side, depending on how it is interpreted.

1. Fracking Fluid Disclosure Stakeholders. – Public health concerns lie at the root of most arguments made in support of forcing disclosure of trade secret fracking fluid ingredients. Advocates argue fractures created by fracking have the potential to allow fracking fluids to migrate into ground water. Because of the risk to ground water, disclosure is necessary to give health professionals information needed to treat patients, provide scientists information needed to study effects of fracking, and provide information the general public has a right to. Current disclosure laws have also been criticized because initial versions of the FracFocus website were perceived as difficult to understand. Subsequent upgrades to the website have

¹⁹² N.D. ADMIN. CODE § 43.02-03-27.1 (current through July 2018).

¹⁹³ *Id.* § 43.02-03-27.1(1)(g).

¹⁹⁴ Hydraulic Fracturing Fluid Product Component Information Disclosure API Number 33-013-01882-00-00, FRACFOCUS, <https://fracfocusdata.org/DisclosureSearch/Search.aspx> (located in “Find a Well” search) (last visited Apr. 30, 2019).

¹⁹⁵ N.D. CENT. CODE ANN. §§ 47-25.1 Trade Secrets (West 2019).

significantly improved the usability of the site.¹⁹⁶ Oil and gas industry advocates argue trade secrets provide a competitive edge that make unconventional wells profitable, and that fracking does not pose a significant danger to public health. Industry stakeholders also argue that fracking fluids do not migrate into groundwater through resulting fractures because of the surrounding geology.¹⁹⁷ Most states already include provisions to provide health professionals and first responders with trade secret information in the event of a spill or exposure.¹⁹⁸ Those provisions make it difficult to argue the benefits to health professionals of public disclosure of trade secrets justify the loss in value to the owners of those secrets. There is still an open question if trade secret disclosure to scientists or the general public provide a significant public benefit. Those questions are best answered by looking to what science says about fracking and then asking if changes to current disclosure laws are supported by data.

2. *Research into Fracking.* – In December 2016, the EPA published a report on the effects of hydraulic fracking on groundwater.¹⁹⁹ The EPA reviewed about 1200 sources of data and information. Five different stages in the fracking water cycle were analyzed: water acquisition, chemical mixing, well injection, produced water handling, and wastewater disposal and reuse.²⁰⁰ Fracking fluid ingredients potentially effect ground water in all but the first stage in the cycle. 1084 chemical ingredients were used in fracking fluids between 2005 and 2013, but no single chemical was used in every well.²⁰¹ Typically, between 4 and 28 chemicals were used for each fracking operation.²⁰²

All stages of the fracking water cycle were found to impact drinking water resources with some cases of actual contamination.²⁰³ For each cycle, a multitude of factors work together to impact water resources. During the chemical mixing stage, spilt fluids and additives have reached surface water and had the potential to reach ground water.²⁰⁴ Severity of the spill impact is the result of the volume of the spill, permeability of the soil, and the

¹⁹⁶ Seth Whitehead, *Harvard Study Finds 'Huge Improvement' in FracFocus Since 2013*, ENERGY IN DEPTH, Dec. 16, 2013, <https://www.energyindepth.org/harvard-study-huge-improvement-fracfocus-since-2013/>.

¹⁹⁷ See Mooney, *supra* note 23, at 82.

¹⁹⁸ See *supra* Parts III.A.1, III.A.2 and III.A.3.

¹⁹⁹ U.S. DEP'T OF ENVTL. PROTECTION, Executive Summary, *Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States* (2016), ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=530285.

²⁰⁰ *Id.* at 7.

²⁰¹ *Id.* at 16.

²⁰² *Id.*

²⁰³ *Id.* at 1-2.

²⁰⁴ *Id.* at 22.

proximity of the spill to potentially affected water.²⁰⁵ Recommendations to reduce impact severity included designing spill response and prevention around keeping the fluids from reaching groundwater and surface water.²⁰⁶ Well injection, produced water handling, and disposal and reuse had similar findings. They impacted water resources but suggestions for reducing their impact severity centered on improving associated mechanical systems and improving spill prevention and response procedures.²⁰⁷ The report also reviewed the nature of the chemicals in fracking fluids and found some to be hazardous to humans.²⁰⁸ It also noted that to properly understand the actual impacts of the chemicals, data on chemical concentrations in drinking water is needed.²⁰⁹ Other limiting data gaps were identified, such as data on the location of fracking operations, the location of chemical mixing, and information on the growth fractures. Incomplete data on the chemicals used was also cited as a significant data gap.²¹⁰ More information on the chemicals used would provide a better understanding of how the chemicals move through the soil and water and how they impact human health.²¹¹ Because of those data gaps, the report found the true severity of the impact of fracking activities could not be fully described.²¹² The overall conclusion of the report was that the fracking activities identified can impact drinking water, the impacts are variable based on a combination of factors, and more data is needed to develop a full picture of the impact severity.²¹³

C. Politics and Fracking Disclosure

Opposing stakeholders in fracking debates can find data that supports their claims or look past data that is averse to their position.²¹⁴ That malleability results from the role of values and politics in almost every energy debate. Evidence of the impact of politics on fracking disclosure can be seen in past actions at the federal level. Elections add a degree of uncertainty to fracking regulations. Presidential elections contribute more uncertainty because of the broad power of the executive over agency actions. Candidates for the 2020 Democratic presidential nomination have entered the

²⁰⁵ *Id.* at 20.

²⁰⁶ *Id.* at 22.

²⁰⁷ *Id.* at 29, 33, and 37.

²⁰⁸ *Id.* at 39.

²⁰⁹ *Id.*

²¹⁰ *Id.* at 41.

²¹¹ *Id.* at 41.

²¹² *Id.*

²¹³ *Id.* at 1.

²¹⁴ Benjamin K. Sovacool, *Cornucopia or Curse? Reviewing the costs and benefits of shale gas hydraulic fracking*, 37 RENEWABLE AND SUSTAINABLE ENERGY REVIEWS 246 (2014).

race and started discussing their policies. Some candidate policies are undefined while others represent a sharp turn from the policies of the current administration.

1. *Current and Past Federal Action on Fracking Fluid Disclosure.* – Over the last decade, the federal government has taken multiple actions to attempt to change the regulation of hydraulic fracking and the disclosure of fracking fluids. One of the first attempts was the Climate Protection Act of 2013.²¹⁵ The bill introduced by Bernie Sanders (I-VT) and Barbara Boxer (D-CA), addressed multiple sources of pollution, including possible pollution from migration of fracking fluids into ground water. The EPA would have been given authority to regulate hydraulic fracking under the SDWA. It also required fracking fluid ingredients be disclosed before fracking operations but provided a means for secret chemicals to remain confidential.²¹⁶ The bill was referred to the Committee on Environment and Public Works where it died.²¹⁷

In 2015, under the Democratic administration of Barak Obama, the Department of Interior Bureau of Land Management (“BLM”) promulgated a final rule regulating fracking operations.²¹⁸ Operators of wells on federal and Native American lands were required to disclose fracking fluid ingredients within thirty days of completion of a well.²¹⁹ It included a trade secret exemption from disclosure but allowed the BLM to review claims of trade secret status without first receiving a challenge from an affected party.²²⁰ Wyoming, Colorado, North Dakota, Utah and the Ute Indian Tribe challenged the rule.²²¹ The district court held the BLM had exceeded their authority in promulgating the rule because Congress had already spoken directly to the issue in the Energy Policy Act and “precluded federal agency authority to regulate hydraulic fracturing not involving the use of diesel fuels.”²²² In 2017, the BLM rule was rescinded with no replacement language.²²³

In 2017, fracking legislation was also introduced. Sen. Robert Casey (D-PA) introduced the Fracturing Responsibility and Awareness of Chemicals

²¹⁵ S. 332, 113th Cong. (2013).

²¹⁶ *Id.*

²¹⁷ *Id.*

²¹⁸ 43 C.F.R. § 3162.3 (2015).

²¹⁹ *Id.* § 3162.3(i).

²²⁰ *Id.* § 3162.3(j).

²²¹ State of Wyoming et al. v. Dep’t of Interior et al., No. 2:15-CV-043-SWS (D. Wyo. June 21, 2016), <http://www.wyd.uscourts.gov/pdf/forms/orders/15-cv-043-S%20Order.pdf>.

²²² *Id.* at 9.

²²³ 43 C.F.R. § 3162.3 (2017).

Act (“FRAC Act”).²²⁴ The FRAC Act contained provisions similar to the 2013 Climate Protection Act that would give the EPA authority to regulate fracking and require disclosure of fracking fluid chemicals before fracking operations commenced.²²⁵ Like the 2013 bill, the FRAC Act was presented to the Committee on Environment and Public Works where it died.²²⁶

2. *Looking Forward to 2020.* – There are significant differences in how members of the Republican and Democratic party approach energy regulations. Fracking disclosure laws are no exception. Differences are already evident between Democratic candidates and the current Republican administration. In April 2019, the leading candidates for the Democratic nomination were Bernie Sanders, Joe Biden, Kamala Harris, Beto O’Rourke, and Pete Buttigieg.²²⁷ Democratic candidates are expected to support further federal oversight of fracking. As of April 2019, Kamala Harris has not officially released her environmental policies.²²⁸ However, while running for the United States Senate in 2016, Harris said she was “skeptical” of fracking.²²⁹ Pete Buttigieg also does not yet have explicit policies but is noted as being sympathetic to environmental issues.²³⁰ Joe Biden and Beto O’Rourke similarly do not address fracking disclosure explicitly but do express a general need to address environmental and pollution concerns.²³¹ Unlike the other top polling candidates, Bernie Sanders is adamantly against fracking operations.²³² On his campaign website, Sanders expresses pride that Vermont has banned fracking and argues leaked carcinogens have the potential to contaminate ground water.²³³ In 2013, Sanders also was a co-sponsor of

²²⁴ S. 865, 115th Cong. (2017).

²²⁵ *Id.*

²²⁶ *Id.*

²²⁷ Chris Cillizza and Harry Enten, ‘Mayor Pete’ surges into the top 10 in our 2020 rankings, CNN (Apr. 11, 2019 11:43 A.M.), <https://www.cnn.com/2019/04/11/politics/2020-democrats-rankings/index.html>.

²²⁸ KAMALA HARRIS FOR THE PEOPLE, <https://kamalaharris.org/> (last visited Apr. 30, 2019).

²²⁹ David Siders, *Kamala Harris ‘skeptical’ of fracking, stops short of calling for ban*, THE SACRAMENTO BEE (May 21, 2016 04:53 PM, updated May 23, 2016 12:00 PM), <https://www.sacbee.com/news/politics-government/capitol-alert/article79099032.html>.

²³⁰ PETE FOR AMERICA, <https://peteforamerica.com/> (last visited Apr. 30, 2019); Jessica Yarvin, *What does Pete Buttigieg believe? Where the candidate stands on 7 issues*, PBS NEWS HOUR (Feb. 15, 2019 2:25 P.M.), https://www.pbs.org/newshour/politics/what-does-pete-buttigieg-believe-where-the-candidate-stands-on-7-issues_

²³¹ *Joe’s Vision for America*, BIDEN PRESIDENT, <https://joebiden.com/joes-vision/> (last visited Apr. 30, 2019); *Climate Change*, BETO FOR AMERICA, <https://betoorourke.com/climate-change/> (last visited Apr. 30, 2019).

²³² *Bernie Sanders on Energy Policy*, FEELTHEBERN, <https://feelthebern.org/bernie-sanders-on-energy-policy/> (last visited Apr. 30, 2019).

²³³ *Id.*

the Climate Protection Act of 2013.²³⁴

The extent of the change in the law after 2020 is dependent on if there are shifts in which party controls the two houses of Congress. If the executive changes parties but the Senate does not, it is unlikely there will be fundamental changes such as addressing the “Halliburton loophole.” Republicans still would control the Senate and would be highly unlikely to vote for increased fracking regulations. In that scenario, the president would still be able to install cabinet heads who agreed with his or her vision, but they would still be bound by the organic governing statutes. If the Democratic Party took control of the presidency and both houses of Congress, passing legislation to close the Halliburton loophole would be much more likely. Other factors would still be in play that could impact the passage of fracking legislation. Many other issues have been dominating the political cycle such as criminal justice reform, economic inequality, health care, and voting rights.²³⁵ Most likely some of those issues would take precedence and expend significant political capital for passage. Additionally, some Democratic members of Congress may not be a guaranteed “yes” vote on additional fracking legislation. Members from districts and states with significant fracking operations would run a risk of facing strong opposition in their next election if they voted “yes” on additional fracking oversight.

Politics has a net effect of introducing uncertainty into fracking operations and the oil and gas industry more generally. Given the general position of the Democratic Party towards issues perceived to have an environmental impact, attempted legislation, and regulations issued by prior Democrat administrations, it is not unreasonable to believe an administration change in 2020 would result in changes to federal rules governing fracking. In the context of disclosure of fracking fluids, increased federal requirements could have significant economic impacts on operators and suppliers of fracking materials. More expensive data gathering, loss of value of trade secrets, and increased litigation costs from challenging new regulations could raise the overhead costs of fracking operations. Higher breakeven points could result in downward trends in supply, causing negative impacts to the United States energy supply. While it shouldn't necessarily be a controlling factor, government should consider if sudden significant changes are justified compared with gradual incremental changes to avoid shocks to the current energy supplies.

²³⁴ S. 332, 113th Cong. (2013).

²³⁵ Kevin Schaul and Kevin Uhrmacher, *The issues 2020 Democrats are running on, according to their social media*, THE WASHINGTON POST (Apr. 8, 2019), https://www.washingtonpost.com/graphics/politics/policy-2020/priorities-issues/?noredirect=on&utm_term=.bb344b7c0184.

IV. FUTURE REGULATION OF FRACKING FLUID DISCLOSURE

Many advocating for increased fracking fluid disclosure requirements argue there needs to be comprehensive federal regulation of the industry including disclosure of fracking fluid trade secret ingredients. Using agency action to require disclosure of fracking fluid ingredients will most likely not be successful. Under the Energy Policy Act, fracking fluid wastewater that does not contain diesel is not hazardous.²³⁶ Agency actions attempting to regulate fracking fluids would likely be challenged on the basis that agencies are precluded from regulation by the Act, similar to previous successful challenges to the 2015 BLM rule.²³⁷ To avoid costly litigation and a reasonable risk of regulations being struck down, the SDWA would need to be amended to classify fracking wastewater as hazardous and under EPA jurisdiction. Given the current political positions on fracking, the political priorities ahead of fracking, and the shifts in the political party in power that would need to occur, that amendment is extremely unlikely.

In the absence of a comprehensive federal law or rule, states are still responsible for regulating fracking fluid disclosure. States are bound by the Takings Clause when they promulgate regulations. After *Ruckelshaus* and *Reilly*, any regulation, federal or state, that results in public disclosure of trade secrets is likely going to be found unconstitutional. It is doubtful states could find a public policy rationale that justifies the loss of value to owners of fracking fluid trade secrets. Laws requiring disclosure of trade secrets would have a better chance of survival if they limited disclosure to specific classes of people such as researchers. There is a much stronger public policy rationale for disclosing trade secrets for research purposes. Safeguards could be implemented such as requiring confidentiality from those trade secrets are disclosed to. Ingredients would still retain their trade secret value and interests of public health would be advanced. There is already a precedent for disclosing fracking fluid trade secrets to a limited class of people under seal of confidentiality.²³⁸ Many state laws already allow for disclosure of trade secrets to health professionals as necessary for treatment but require confidentiality from those who gain access to the trade secrets.

Without significant political change, any changes in disclosure law at the federal level is highly unlikely. However, states do have options for advancing the public health while working within the bounds established by

²³⁶ Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified at 42 U.S.C. § 15801 (2005)).

²³⁷ See *supra* Part III.C.1.

²³⁸ See *supra* note 164 (of fracking fluid trade secrets to health professionals in Pennsylvania); See *supra* note 173 (disclosure of fracking fluid trade secrets to health professionals in Texas).

Ruckelshaus and Reilly.

CONCLUSION

Many times, fracking is portrayed as a black and white issue. Depending on which side is talking, fracking is a substantial harm to public health or is a low risk practice that provides cheap energy security. Solutions proposed can also be black and white, operating on an assumption that industry is subject to more than enough regulation for public safety, or that greater regulation is a requirement for public health. Like most other aspects of fracking, disclosure of trade secret chemicals used in fracking fluids is not black and white. Broad public disclosure, while it provides information, cannot prevent contamination and does not by itself protect the public. Alternatively, targeted disclosure to researchers and health professionals can benefit public health while maintaining the value of trade secrets. Far from being black and white, any disclosure regime has to consider many things, including longstanding doctrines of law, technology, science, policy and politics.