

**HYDRAULIC FRACTURING: TRADE
SECRETS AND THE MANDATORY
DISCLOSURE OF FRACTURING WATER
COMPOSITION**

KEITH B. HALL

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HYDRAULIC FRACTURING: TRADE SECRETS AND THE MANDATORY DISCLOSURE OF FRACTURING WATER COMPOSITION

KEITH B. HALL*

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* Keith B. Hall is the Director of the Louisiana Mineral Law Institute and a professor of law at Louisiana State University. He serves as Chair of the New Orleans Bar Association's Oil and Gas Section, as incoming Chair of the Louisiana State Bar Association's Environmental Law Section, and as member of the Board of Trustees for the Rocky Mountain Mineral Law Foundation. In addition, he co-authors "Recent Developments: Mineral Law" for the bi-monthly Louisiana Bar Journal. Before joining LSU, he was a member of Stone, Pigman, Walther, Wittmann LLC in New Orleans, where he practiced law for sixteen years, focusing his practice on oil and gas law, environmental law, and toxic tort litigation. He also served as co-chair of the firm's Energy and Environment Practice Group and was the author of his law firm's blog, the "Oil and Gas Law Brief." While practicing law, he also taught Introduction to Mineral Law as an adjunct professor at Loyola University School of Law in New Orleans.

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Hydraulic fracturing is a process that uses a high-pressure fluid to create fractures in underground rock formations, thereby facilitating the production of oil and gas from formations that have low permeability. The fluid used in hydraulic fracturing typically consists of water, sand, and various additives.

Historically, the companies that perform hydraulic fracturing kept the composition of their fracturing fluids confidential, treating the compositions as trade secrets. But in recent years, many people expressed fears that hydraulic fracturing might be harmful to the environment, and they began pushing for regulations that would require companies to publicly disclose the composition of fracturing fluids. The push has been effective. Since mid-2010, about seventeen states have enacted mandatory disclosure regulations, and this count includes most of the states that have a significant amount of hydraulic fracturing activity. In addition, other states seem poised to adopt similar rules.

Thus, in a relatively short time, a near-consensus has developed that mandatory disclosure is appropriate. But the various states' disclosure regulations differ from one another in significant ways. There are a number of reasons why states adopt different rules regarding the same subject, including the facts that states sometimes face different circumstances and that states will sometimes make different policy choices even when they face very similar circumstances.

But in this case, an additional reason for the differences in state rules is that so many states have adopted mandatory disclosure regulations within a relatively short period, leaving little time to develop a consensus regarding what rules seem likely to work best, much less time to develop experience working with the regulations.

This article begins with background discussion of hydraulic fracturing and the movement toward mandatory disclosure. The article then examines ways in which the states' regulations differ, analyzes which differences are most important, and offers conclusions regarding which regulatory approaches are best. Finally, the article discusses several other issues that have arisen with respect to mandatory disclosure.

I. BACKGROUND

A. What is Hydraulic Fracturing?

Most deposits of oil and gas are not located in underground caverns or void spaces that are filled with fluid. Instead, the oil and gas are located in pore spaces that are found in certain subterranean rock formations.¹ In oil and gas operations that do not involve hydraulic fracturing, a well is drilled to such a formation, and the oil or gas must then travel through the “solid” rock to reach the well.² The gas does that by moving from one pore space to the next, through interconnections between the pores of the “solid” rock.³ A solid object’s “permeability” is a measure of the ease with which a fluid moves through the solid.⁴

But the process described above does not always work. Some rock formations have pore spaces that contain oil or gas, but the pore spaces are not very well interconnected.⁵ Such formations have low permeability and sometimes are described as being “tight.”⁶ If the formation’s permeability is too low, oil and gas will not move through the formation quickly enough to justify the expense of drilling a well.⁷ Essentially, the oil and gas remains trapped in isolated pore spaces.

But if a person could create cracks or fractures in the rock formation, oil and gas could use those fractures as pathways to the wellbore, thereby increasing the rate at which oil and gas flows to the well. In turn, that could make drilling economical, despite the formation’s low permeability.⁸ The purpose of hydraulic fracturing is to create such pathways in low permeability formations.⁹

1. RICHARD C. SELLEY, *ELEMENTS OF PETROLEUM GEOLOGY* 239 (2d ed. 1998); JAMES G. SPEIGHT, *THE CHEMISTRY AND TECHNOLOGY OF PETROLEUM* 103 (2d ed. 1991). Indeed, the word “petroleum” is Latin for “rock oil.” See MERRIAM-WEBSTER’S COLLEGIATE DICTIONARY 809, 869 (10th ed. 1993) (defining “oleum,” “petr,” and “petroleum”); cf. DONALD J. BORROR, *DICTIONARY OF WORD ROOTS AND COMBINING FORMS* 66, 73 (1960) (describing both Latin and Greek origins).

2. SPEIGHT, *supra* note 1, at 142; MARTIN S. RAYMOND & WILLIAM L. LEFFLER, *OIL AND GAS PRODUCTION IN NONTECHNICAL LANGUAGE* 167 (2006).

3. RAYMOND & LEFFLER, *supra* note 2, at 39.

4. See HOWARD R. WILLIAMS & CHARLES J. MEYERS, *MANUAL OF OIL AND GAS TERMS* 775 (10th ed. 1997) (revisions by Patrick Martin & Bruce Kramer) (defining “permeability of rock” as “[a] measure of the resistance offered by rock to the movement of fluids through it”); see also NAT’L ENERGY TECH. LAB., U.S. DEP’T OF ENERGY, *MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES: A PRIMER* 82 (2009), available at http://www.netl.doe.gov/technologies/oil-gas/publications/epreports/shale_gas_primer_2009.pdf [hereinafter *SHALE GAS PRIMER*] (defining “permeability”).

5. The interconnections between pores sometimes are called “pore throats.” See NORMAN J. HYNNE, *NONTECHNICAL GUIDE TO PETROLEUM GEOLOGY, EXPLORATION, DRILLING AND PRODUCTION* 158 (2d ed. 2001).

6. See WILLIAMS & MEYERS, *supra* note 4, at 1110 (defining “tight sands”); see also *SHALE GAS PRIMER*, *supra* note 4, at 15 (referring to “tight gas”).

7. See DANIEL YERGIN, *THE QUEST: ENERGY, SECURITY, AND THE REMAKING OF THE MODERN WORLD* 326 (2011).

8. See *id.* at 327, 329; *SHALE GAS PRIMER* *supra* note 4, at ES-4.

9. *SHALE GAS PRIMER*, *supra* note 4, at ES-4, 57.

Fracturing has been around almost as long as the modern oil and gas industry. “Colonel” Edwin Drake drilled the first oil well in the United States near Titusville, Pennsylvania, in 1859.¹⁰ By the 1860s, some well owners had begun using a practice called “explosive fracturing.”¹¹ In that process, the well’s operator would fill a metal container called a “torpedo” with nitroglycerin, lower the torpedo into the well, and detonate it.¹² The resulting explosion would fracture the surrounding rock and often would significantly increase the rate at which the well produced oil.¹³ This practice continued well into the 1900s.¹⁴

But in the late 1940s, the process known as “hydraulic fracturing”¹⁵ was commercially developed.¹⁶ This process takes advantage of the fact that many rocks will fracture if exposed to sufficiently high pressure.¹⁷ Before using hydraulic fracturing, an operator drills a well. Then, the operator (or a “service company” that it has hired) uses high-pressure pumps to push a fracturing fluid down the well to the formation to be fractured. There, the fluid exits the well’s piping through perforations that previously were created in that section of the well’s piping. The fluid then moves into the formation, where it imposes a sufficient pressure that the rock fractures.¹⁸

After the formation has been fractured, the operator or service company that is performing the fracturing turns off the high pressure pumps and allows the pressure of the formation to push the fracturing fluid back through the well and up to the surface, where this “flowback” water is recovered.¹⁹ Typically, thirty to seventy percent of the fluid initially used in the fracturing process is recovered as flowback during a relatively short period, with the remainder of the fluid gradually returning to the surface along with the oil or gas produced by the well or remaining in the target formation’s pore spaces.²⁰

B. Composition of Fracturing Fluid

Fracturing fluid consists of a “base fluid,” small particles called “proppants,” and various other additives.²¹ Typically, the base fluid and proppants will comprise about 98 to 99.5% of the fracturing fluid.²² The most common base fluid is water,

10. DANIEL YERGIN, *THE PRIZE: THE EPIC QUEST FOR OIL, MONEY & POWER*, 10–11 (1990).

11. See HYNE, *supra* note 5, at 422; see also *Roberts v. Dickey*, 20 F. Cas. 880, 883–84 (W.D. Pa. 1871) (No. 11,899) (discussing a patent granted in 1866 for an invention relating to explosive fracturing).

12. HYNE, *supra* note 5, at 422.

13. *Id.* at 423.

14. *Id.* at 422.

15. The process sometimes is called “hydrofracturing” or “fracing” or “fracking” or “hydrofracking.” Thomas E. Kurth et al., *American Law and Jurisprudence on Fracking*, 47 *ROCKY MOUNTAIN MIN. L. FOUND. J.* 277 (2010); see also WILLIAMS & MEYERS, *supra* note 4, at 418, 495 (“frac” and “hydrofracturing”).

16. Kurth et al., *supra* note 15.

17. *Id.* at 279.

18. See *id.*; SHALE GAS PRIMER, *supra* note 4, at ES-4; HYNE, *supra* note 5, at 423.

19. Kurth et al., *American Law and Jurisprudence on Fracking*, *supra* note 15, at 285.

20. See SHALE GAS PRIMER, *supra* note 4, at 66.

21. *Id.* at 56, 61; SPEIGHT, *supra* note 1, at 141.

22. SHALE GAS PRIMER, *supra* note 4, at 62.

though other fluids can be used.²³ The most common proppant is sand, but very small ceramic beads or other substances are sometimes used.²⁴

The proppants serve an important purpose. As the fracturing fluid is recovered from the well as “flowback,” the pressure on the formation will decrease and the newly-created fractures would tend to close.²⁵ The purpose of the proppants is to prevent the fractures from closing. During fracturing, the fracturing fluid carries proppants into the newly-created fractures.²⁶ When the fracturing fluid is recovered from the well, some of the proppants remain in the fractures, propping the fractures open and thereby preventing them from closing.²⁷

The other additives used in the fracturing fluid serve a variety of purposes. The additives include corrosion inhibitors to protect the well’s piping, biocides to inhibit microbial growth, friction reducers to reduce the friction between the flowing fluid and the well pipe, viscosity adjusters that help the fluid carry proppants, and additives that serve a variety of other purposes.²⁸

C. Shale Plays and Controversy

Disputes involving hydraulic fracturing occasionally arose during the first few decades that the process was used,²⁹ but for the most part the process did not generate much litigation or public attention. The process was used primarily in oil or gas wells that were drilled vertically.³⁰ It also was used to help produce fractures in coal formations in order to facilitate the recovery of coalbed methane.³¹ Companies were not using the process in shale formations.³² Geologists had been aware of numerous shale formations for a long time, and they knew that many shale formations contain oil or gas, but virtually no one thought that oil or gas could be profitably produced from shale.³³

23. *Id.* at ES-4.

24. See Robin Beckwith, *Proppants: Where in the World*, J. PETROLEUM TECH. ONLINE, 36–40 (Apr. 2011), available at <http://www.spe.org/jpt/print/archives/2011/04/11ProppantShortage.pdf>.

25. SHALE GAS PRIMER, *supra* note 4, at 56.

26. *Id.*

27. *Id.*

28. *Id.* at 61–64.

29. There was at least one case in Texas in which a plaintiff complained about an alleged sub-surface trespass of fluid from hydraulic fracturing fluids into the area beneath the surface he owned. *Geo Viking, Inc. v. Tex-Lee Operating Co.*, 1992 WL 80263 (Tex. 1992), *opinion withdrawn and superseded on overruling of rehearing by* *GEO Viking, Inc. v. Tex-Lee Operating Co.*, 839 S.W.2d 797 (Tex. 1992).

In the 1990s, an environmental organization brought suit against the EPA, asserting that the agency was acting contrary to the mandates of the Safe Drinking Water Act by not prohibiting anyone from conducting hydraulic fracturing operations without a SDWA underground injection control permit. *Legal Envtl. Assistance Found., Inc. v. EPA*, 118 F.3d 1467 (11th Cir. 1997); *Legal Envtl. Assistance Found., Inc. v. EPA*, 276 F.3d 1253 (11th Cir. 2001).

And, in 2005, various environmental organizations opposed the successful proposal to amend the SDWA’s definition of “underground injection” to exclude hydraulic fracturing operations, except when the fracturing fluid contains diesel. 151 CONG. REC. S7267-01 at S7278 to S7279 (daily ed. June 23, 2005).

30. See SHALE GAS PRIMER, *supra* note 4, at 15.

31. See *id.*

32. See YERGIN, *THE QUEST*, *supra* note 7, at 326.

33. *Id.*

The main difficulty is that shale has extremely low permeability.³⁴ Although the purpose of hydraulic fracturing is to facilitate production of oil or gas from low-permeability formations, the conventional wisdom was that shale had such low permeability that even the use of hydraulic fracturing could not make the development of shale plays profitable. But a company called Mitchell Energy bucked the conventional wisdom and spent significant resources attempting to economically produce natural gas from the Barnett Shale in central Texas using hydraulic fracturing.³⁵ The company experimented with different techniques and eventually developed a process that worked.³⁶

Others companies combined the improved hydraulic fracturing process with horizontal drilling.³⁷ In horizontal drilling, the drilling operation proceeds vertically downward in the beginning. But as the drilling operation approaches the depth of the target formation, the drill bit is gradually turned toward a horizontal direction, so that not long after the drilling enters the target formation, the drilling will be proceeding in the horizontal direction within the target formation.³⁸ Sometimes the drilling will proceed horizontally for a mile or more, producing a long horizontal “lateral.”³⁹

The advantage of horizontal drilling is that it allows a much longer length of pipe to be located in the target formation—a formation that might be only a few hundred feet tall, but many miles wide.⁴⁰ It is helpful to place a longer length of pipe in the target formation because oil or gas enters the well pipe through perforations in the section of pipe that is located in the target formation (rather than through a single opening in the end of the pipe).⁴¹ Thus a longer length of pipe in the formation allows for more perforations through which oil or gas can enter the well.

The combination of horizontal drilling and improved techniques for hydraulic fracturing made the development of shale plays more profitable,⁴² and companies began to operate in more shale plays. These included the Fayetteville Shale in Arkansas,⁴³ the Haynesville Shale in northwestern Louisiana and east Texas,⁴⁴ and the Marcellus Shale, which stretches from southwestern New York, through western Pennsylvania, and on into West Virginia.⁴⁵ The early shale plays were all shale gas plays—that is, shale formations from which natural gas is produced—but within a few years companies were operating in shale formations that produce oil—so-

34. SHALE GAS PRIMER, *supra* note 4, at 14; HYNE, *supra* note 5, at 159.

35. YERGIN, THE QUEST, *supra* note 7, at 326–28.

36. *Id.* at 328.

37. *Id.*

38. Thomas E. Kurth et al., *Shaking up Established Case Law and Regulation: The Impacts of Hydraulic Fracturing*, 57 THE ADVOCATE 18, 21 (2011).

39. SHALE GAS PRIMER, *supra* note 4, at 47.

40. *Id.* at 46–47.

41. Kurth et al., *Shaking up Established Case Law and Regulation*, *supra* note 38; Keith B. Hall & Lauren E. Godshall, *Hydraulic Fracturing Litigation*, 57 THE ADVOCATE 14 (2011).

42. YERGIN, THE QUEST, *supra* note 7, at 328.

43. SHALE GAS PRIMER, *supra* note 4, at 19.

44. *Id.* at 20.

45. *Id.* at 21.

called “tight oil”⁴⁶—such as the Eagle Ford in south Texas⁴⁷ and the Bakken that covers parts of western North Dakota, eastern Montana, and southern portions of a Canadian province, Saskatchewan.⁴⁸

As shale play activity increased, the amount of oil and gas drilling began to increase significantly, though drilling rig counts still fell well short of the all-time highs of the 1980s.⁴⁹ Perhaps more significant, though, was the fact that oil and gas activity was increasing in areas of the country where there had not been significant oil and gas activity in generations, and where many people were unfamiliar with and distrustful of the industry.⁵⁰ People began to express concerns that hydraulic fracturing and the associated oil and gas activity might cause harm to the environment.⁵¹ And the greatest public fear was that hydraulic fracturing might cause contamination of groundwater.⁵²

D. The Movement for Mandatory Disclosure

As public concern about hydraulic fracturing grew, some people worried that hydraulic fracturing fluids might find their way into groundwater.⁵³ Many people began to ask questions about the composition of fracturing fluid.⁵⁴ Although a fair

46. Natural gas from shale formations often is called “shale gas.” One might think that, by analogy, oil from shale formations might be called “shale oil.” Sometimes that term is used, but many people prefer to use “tight oil” to avoid confusion between the terms “shale oil” and “oil shale.” “Oil shale” is an entirely different type of substance. See Keith B. Hall, *Oil Shale*, ENVIRONMENTAL ENERGY AND LAW BRIEF (Apr. 29, 2011), <http://environmentalenergylawbrief.mt4temp.lexblognetwork.com/oil-shaleadd-category> (last visited Feb. 15, 2013).

47. U.S. ENERGY INFO. ADMN., REVIEW OF EMERGING ENERGY SOURCES: U.S. SHALE GAS AND SHALE OIL PLAYS 29 (2009), available at <http://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf>.

48. *Id.* at 69.

49. See *Rotary Rig Count*, BAKER HUGES INVESTOR RELATIONS, (2012), http://investor.shareholder.com/bhi/rig_counts/rc_index.cfm (providing an up-to-date count of oil rigs) (last visited Feb. 15, 2013).

50. See, e.g., *Legitimate Public Concerns Over Hydraulic Fracking Must be Addressed*, INT’L ENERGY AGENCY (Aug. 20, 2012), <http://www.iea.org/newsroomandevents/news/2012/august/name,30653,en.html> (last visited Feb. 15, 2013).

51. See *id.*

52. As the use of hydraulic fracturing has increased and the process has received more public attention, the interest of legal scholars in the process also has increased. See, e.g., Bruce M. Kramer, *Federal Legislative and Administrative Regulation of Hydraulic Fracturing*, 44 TEX. TECH. L. REV. 827 (2012); Hannah Wiseman, *Regulatory Adaptation in Fractured Appalachia*, 21 VILL. ENVTL. L.J. 229 (2010); David E. Pierce, *Developing a Common Law of Hydraulic Fracturing*, 72 U. PITT. L. REV. 685 (2011); Owen L. Anderson, *Subsurface “Trespass”: A Man’s Subsurface is Not His Castle*, 49 WASHBURN L.J. 247 (2010). See also Keith B. Hall, *Regulation of Hydraulic Fracturing under the Safe Drinking Water Act*, 19 BUFFALO ENVT’L L. J. 1 (2012).

53. See Edwin Dobb, *The New Oil Landscape*, NATIONAL GEOGRAPHIC (Mar. 2013) <http://ngm.nationalgeographic.com/2013/03/bakken-shale-oil/dobb-text> (last visited Feb. 15, 2013); see also Lynne Peebles, *Fracking’s Toxic Secret: Lack of Transparency Over Natural Gas Drilling Endangers Public Health, Advocates Say*, HUFFINGTON POST (Nov. 21, 2012), http://www.huffingtonpost.com/2012/11/21/natural-gas-fracking-chemicals-testing-disclosure_n_2170030.html (last visited Feb. 15, 2013).

54. See, e.g., Jason Pitt, *Pennsylvania Group Expresses Concerns over Fracking Fluids in Flood Water*, GAS DRILLING AWARENESS FOR COTLAND COUNTY (Sept. 9, 2011),

amount of general information was publicly available about the composition of fracturing fluid, much information was not publicly available.⁵⁵ This was because many of the companies that perform hydraulic fracturing develop their own fracturing fluid additives and keep the composition confidential, hoping to preserve a competitive advantage against their competitors.⁵⁶

Many members of the public complained about the lack of publicly available information regarding the composition of fracturing fluids.⁵⁷ Indeed, the fact that companies kept the composition of fracturing fluids confidential became its own point of controversy.⁵⁸ In response, some companies began to voluntarily post information regarding the composition of fracturing fluid that they used.⁵⁹ Those companies generally did not identify the compounds or substances that were most critical to preserving their trade secrets,⁶⁰ but the information disclosed nevertheless was more information than had been publicly disclosed before.⁶¹

In addition, public support grew for regulations that would require companies to disclose their fracturing fluid composition.⁶² In August 2010, Wyoming became the first state to enact regulations requiring such disclosure.⁶³ The Wyoming regulations required operators of wells to disclose the composition of fracturing fluid on a

<http://gdacc.org/2011/09/09/pennsylvania-groups-express-concerns-over-fracking-fluids-in-flood-water> (last visited Feb. 15, 2013).

55. *Id.*

56. See Keith B. Hall, *Hydraulic Fracturing: Mandatory Disclosure of Fracking Water Additives*, ENVTL. & ENERGY L. BRIEF (Mar. 28, 2011), <http://www.environmental-and-energy-law-brief.com/hydraulic-fracturing/mandatory-disclosure-of-fracking-water-additives> (last visited Feb. 15, 2013).

57. See Peeples, *supra* note 53.

58. *Id.*

59. See Keith B. Hall, *Hydraulic Fracturing: Voluntary Disclosure of Fracking Water Additives*, ENVTL. & ENERGY L. BRIEF (Apr. 18, 2011), <http://www.environmental-and-energy-law-brief.com/hydraulic-fracturing/voluntary-disclosure-of-fracking-water-additives>.

60. There are two basic definitions of “trade secret.” One is contained in the Uniform Trade Secrets Act (“UTSA”). Section 1 of UTSA defines “trade secret” to mean information, including a formula, pattern, compilation, program, device, method, technique, or process, that (a) derives independent economic value, actual or potential, from not being generally known to and not being readily ascertainable by proper means by other persons who can obtain economic value from its disclosure or use, and (b) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy. Uniform Trade Secrets Act § 1(4)(i)-(ii) (1985), available at http://www.uniformlaws.org/shared/docs/trade%20secrets/utsa_final_85.pdf.

The other definition is found in the Restatement (First) of Torts, which states in part:

A trade secret may consist of any formula, pattern, device or compilation of information which is used in one’s business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device, or a list of customers.

RESTATEMENT (FIRST) OF TORTS § 757 cmt. b (1939). Comment (b) also states that, “The subject matter of a trade secret must be secret.” *Id.* Restatement (First) of Torts § 757 cmt. (b) became the basis for Section 39 of the Restatement (Third) of Unfair Competition. See *id.*; See also RESTATEMENT (SECOND) OF AGENCY § 396 (1958).

61. *Supra*, note 52.

62. Ben Casselman, *Fracking Disclosures to Rise: Gas Drillers Begin Supporting Laws Requiring Them to List the Chemicals They Use*, THE WALL STREET JOURNAL (Jun. 20, 2011), <http://online.wsj.com/article/SB10001424052702304887904576395630839520062.html>.

63. Wyoming Oil & Gas Conservation Commission Rules, Ch. 3, § 45(d)(ii); Mead Gruver, *Wyoming Judge Hears Fracking Disclosure Case*, BLOOMBERG BUSINESSWEEK (Jan 23, 2013), <http://www.businessweek.com/ap/2013-01-23/wyoming-judge-hears-fracking-disclosure-case>.

well-by-well basis,⁶⁴ and regulators began posting the information that was disclosed on the website of the Wyoming Oil and Gas Conservation Commission.⁶⁵ The reason for requiring that disclosures be done on a well-by-well basis is that companies will vary the fracturing fluid composition from one well to another, depending upon circumstances.⁶⁶ In January 2011, Arkansas became the second state to enact mandatory disclosure rules,⁶⁷ and in February 2011, Pennsylvania became the third.⁶⁸

At the same time, a movement to prompt more companies to make voluntary disclosures also proceeded. Eventually, the movement to prompt voluntary disclosures became almost moot because most of the states that have significant oil and gas activity enacted mandatory disclosure rules. But the voluntary disclosure movement produced at least one development that would have lasting relevance. In April 2011, the Ground Water Protection Council⁶⁹ and the Interstate Oil Gas Compact Commission⁷⁰ jointly launched FracFocus,⁷¹ a website where companies could voluntarily disclose the composition of fracturing fluid used anywhere in the United States on a well-by-well basis.

The reason that FracFocus remained relevant, even after most of the significant oil and gas states enacted mandatory disclosure regulations, was that several states' regulations direct companies to make their disclosures by posting information directly to FracFocus, rather than by sending the disclosures directly to regulators.⁷² For example, the Texas legislature enacted legislation in mid-2011⁷³ that directed the Texas Railroad Commission to draft regulations that require companies to disclose fracturing fluid composition on a well-by-well basis by posting infor-

64. *Memorandum*, INTERSTATE OIL AND GAS COMPACT COMMISSION (Aug. 20, 2010), http://groundwork.iogcc.org/sites/default/files/WY_Memo_adopt_Rules_Aug2010.pdf.

65. *Id.*

66. See Rachel Ehrenberg, *The Facts Behind the Frack: Scientists Weigh in on the Hydraulic Fracturing Debate*, Sept. 8, 2012, Vol. 185 No. 5, available at http://www.sciencenews.org/view/feature/id/343202/description/The_Facts_Behind_the_Frack (discussing the various chemicals used in the fracking fluids).

67. Arkansas Oil & Gas Commission Rule B-19; *Official: Ark. 'Fracking' Disclosure Rule Success*, BLOOMBERG BUSINESSWEEK (Jul. 7, 2011), <http://www.businessweek.com/ap/financialnews/D9OB2IR82.htm>.

68. See 58 P.a.C.S. § 3222(b.1) (2012).

69. "The Ground Water Protection Council (GWPC) is a nonprofit 501(c)6 organization whose members consist of state ground water regulatory agencies which come together within the GWPC organization to mutually work toward the protection of the nation's ground water supplies." *About the Groundwater Protection Council*, GROUNDWATER PROTECTION COUNCIL, <http://www.gwpc.org/about-us>.

70. The Interstate Oil and Gas Compact Commission describes itself as a "multi-state government agency" whose members include governors and state agency representatives from oil- and gas-producing states. *About Us*, INTERSTATE OIL AND GAS COMPACT COMMISSION, <http://www.iogcc.state.ok.us/about-us> (last visited Feb. 15, 2013).

71. FRAC FOCUS CHEMICAL DISCLOSURE REGISTRY, <http://fracfocus.org/> (last visited Feb. 15, 2013).

72. *Id.*

73. H.B. 3328, 82nd Leg., Reg. Sess. (Tex. 2011), available at <http://www.capitol.state.tx.us/BillLookup/History.aspx?LegSess=82R&Bill=HB3328>.

mation on FracFocus,⁷⁴ and the Commission complied with the directive, enacting such regulations in December 2011.⁷⁵

In October 2011, Louisiana enacted a mandatory disclosure regulation that gave operators the option of either posting their disclosures at FracFocus or sending the information directly to the Office of Conservation⁷⁶ (and many companies that fracture wells in Louisiana are choosing to post to FracFocus). In December 2011, Colorado enacted regulations requiring disclosure on the FracFocus website.⁷⁷ North Dakota began requiring companies to post disclosures at the FracFocus site on April 1, 2012,⁷⁸ and Oklahoma enacted such a requirement effective July 1, 2012.⁷⁹ Some other states also adopted mandatory disclosure regulations that directed companies to make disclosures directly to FracFocus.

By the end of March 2013, about seventeen states had enacted mandatory disclosure regulations, including the seven states noted above, as well as Idaho,⁸⁰ Indiana,⁸¹ Michigan,⁸² Mississippi,⁸³ Montana,⁸⁴ New Mexico,⁸⁵ Ohio,⁸⁶ Utah,⁸⁷ and West Virginia.⁸⁸ Further, other states, such as Alabama, Alaska, California, Illinois, Kansas, New York, and South Dakota were considering such regulations. And, in Canada, the province of British Columbia also adopted mandatory disclosure regulations.⁸⁹

This is a large number of states to adopt such regulations within a relatively short period of time, particularly given that several of the remaining states have

74. TEX. NAT. RES. CODE ANN. § 91.851(a)(1)(A) (West 2012).

75. 16 TEX. ADMIN. CODE § 3.29 (2012) (in Texas, oil and gas activity is regulated by the Railroad Commission).

76. LA. ADMIN. CODE tit. 43, pt. XIX § 118 (2012). (In Louisiana, oil and gas activity is regulated by the Office of Conservation). In 2012, the Louisiana Legislature enacted a statute requiring the Office of Conservation to draft regulations that would mandate certain disclosures, but the legislatively-mandated disclosures mirror the disclosure requirements that already were in place.

77. COLO. CODE REGS. § 404-1:205A (2012).

78. N.D. ADMIN. CODE § 43-02-03-27.1(g) (2012).

79. OKLA. ADMIN. CODE § 165:10-3-10(b) (2012). To be more precise, the Oklahoma regulations give operators the option of reporting information to FracFocus or directly to the Corporation Commission, but the regulation stipulates that whenever disclosures are made directly to the Corporation Commission it will post the information on FracFocus. *Id.* The Corporation Commission is the agency that regulates oil and gas activity in Oklahoma.

80. IDAHO ADMIN. CODE r. 20.07.02.055.01(c), (e); 20.07.02 056.01(2012).

81. The Indiana Legislature has directed the Indiana Department of Natural Resources to develop mandatory disclosure regulations. IND. CODE § 14-37-3-8 (2012). Indiana adopted a disclosure requirement by emergency rule, pending adoption of final rules. IND. CODE § 4-22-2-37.1 (2012).

82. Supervisor of Wells Instruction 1-2011, *available at High Volume Hydraulic Fracturing Well Completions*, STATE OF MICH. DEP'T OF ENV'T QUALITY, (Jun. 20, 2011), http://www.michigan.gov/documents/deq/SI_1-2011_353936_7.pdf.

83. Mississippi Oil & Gas Board Rule 1.26 (2013), *available at* <http://www.ogb.state.ms.us/Docs/Final%20Hydraulic%20Frack%20Rule%20-%202026.pdf>.

84. MONT. ADMIN. R. § 36.22.1015 (2012).

85. N.M. CODE R. § 19.15.16.19(B) (LexisNexis 2012).

86. OHIO REV. CODE ANN. § 1509.10 (West 2012).

87. Utah Division of Oil, Gas & Mining Rule R649-3-39, § 1.1, *available at Hydraulic Fracturing Rule*, UTAH DIVISION OF OIL, GAS & MINING, (2012), https://fs.ogm.utah.gov/pub/Oil&Gas/Notices/Hydraulic_Fracturing_Rule_R649-3-39_110_12012.pdf (must report to FracFocus).

88. W. VA. CODE §22-6A-7(e)(5) (2012).

89. See *Increased Transparency for Natural Gas Sector*, BRITISH COLUMBIA NEWSROOM (Sept. 8, 2011, 1:31 PM), <http://www.newsroom.gov.bc.ca/2011/09/increased-transparency-for-natural-gas-sector.html>.

little reason to adopt mandatory disclosure regulations because they have no oil and gas activity. The rapidity of the trend toward adopting mandatory disclosure regulations was driven by a combination of factors, including the significant public attention centered on hydraulic fracturing, and the fact that both environmentalists and industry supported the adoption of disclosure regulations. Environmentalists supported disclosure regulations because they wanted information regarding the content of fracturing fluids. Industry supported disclosure in part because it hoped such disclosures would address some of the public concerns about fracturing.⁹⁰ In addition, some members of the oil and gas industry may have hoped to avoid federal regulations by supporting additional state regulations.

II. THE MOST IMPORTANT DIFFERENCES BETWEEN THE STATES' DISCLOSURE REGULATIONS

About sixteen states have enacted regulations that require companies to disclose information regarding the composition of fracturing fluid.⁹¹ Viewed at a general level, the various regulations are similar in that each requires companies to disclose information regarding fracturing fluid composition, and such information generally is made available to the public. Further, all of the regulations appear to protect trade secrets from public disclosure.

The regulations differ, however, regarding the scope and level of detail of the information that must be disclosed, the processes for disclosing information, the methods for making it available to the public, and the extent to which trade secret claims are subject to verification and challenge.

Below, this article identifies many of the differences between the states' mandatory disclosure regulations, evaluates which of the differences are most important, and offers conclusions regarding which of the approaches taken by various states are better than other approaches. In reaching conclusions regarding which approaches are best, the author begins with several premises. The premises, which will conflict in at least some circumstances, are that mandatory disclosure regulations should:

- provide as much disclosure to the public as reasonably possible;
- make the disclosures as easily accessible to the public as reasonably possible;
- protect genuine trade secrets against public disclosure;
- avoid imposing excessive costs on industry; and
- avoid placing undue burdens on the scarce resources of regulatory agencies.

90. JACQUELYN PLESS, NATURAL GAS DEVELOPMENT AND HYDRAULIC FRACTURING: A POLICYMAKER'S GUIDE 2 (2012), available at http://www.ncsl.org/documents/energy/frackingguide_060512.pdf.

91. *Supra* Part I.D.

A. MSDS Chemicals or Broader Disclosure?

One of the differences between the states' mandatory disclosure rules is the scope of chemicals that must be disclosed. Given this article's premise that more disclosure is better than less, the different scopes of required disclosures might be the most important of the differences between the various states' regulations.

States generally have followed one of two basic approaches regarding the scope of substances that must be reported. Some states require disclosure of all compounds contained in fracturing fluid additives.⁹² Other states only require disclosure of substances "that are subject to the requirements of 29 CFR Section 1910.1200(g)(2),"⁹³ a federal regulation that was enacted pursuant to the Occupational Safety and Health Act.

The regulation requires manufacturers and importers of "hazardous" chemicals to "obtain or develop a safety data sheet for each hazardous chemical they produce or import," and requires employers to keep such "a safety data sheet in the workplace for each hazardous chemical which they use."⁹⁴ These sheets are commonly called "Material Safety Data Sheets" or "MSDS" forms.⁹⁵ The primary purpose of requiring MSDS forms is to inform workers about potentially hazardous chemicals with which they might come into contact in the workplace.⁹⁶

There are certain arguments that might be advanced in favor of limiting the scope of disclosure to substances for which an MSDS is required. For example, this approach could have the benefit of making the disclosure process easier. It does so in a few ways. First, it limits the number of substances that must be disclosed. Second, because MSDS forms generally must identify each chemical compound contained in a substance, *unless* the identity is a trade secret, the manufacturer or supplier of a substance for which an MSDS is required generally will already have determined whether it believes the identity constitutes a trade secret. This is important because, as is discussed in more detail below, almost all fracturing fluid disclosure regulations apply different rules for substances whose identity is a trade

92. An example is Wyoming. *See* Wyoming Oil & Gas Conservation Commission, Ch. 3, WYO. CODE R. (LexisNexis 2012). Although this article refers to reporting of "all" compounds, or at least "all" compounds for which an MSDS form is required, some of the states' regulations make an express exception for compounds that are not deliberately added to the additive and which might happen to be present in trace amounts. *Id.*

93. Examples include Louisiana and New Mexico. *See* LA. ADMIN. CODE tit. 43, pt. XIX § 118(C)(1)(d) (2012); N.M. CODE R. § 19.15.16(B) (LexisNexis 2012). Michigan's disclosure rule requires companies to submit copies of Material Safety Data Sheets provided by the service company for additives used in high volume hydraulic fracturing. STATE OF MICH. DEP'T OF ENVTL. QUALITY, *supra* note 82, at 3.

94. 29 C.F.R. § 1910.1200(g)(2) (2012). The regulation also contains definitions of "hazardous chemical," as well as definitions of most of the terms used in defining "hazardous chemical." *Id.* at 1910.1200(c). Appendices to the regulation give detailed criteria for evaluating whether a substance is a "hazardous chemical." *Id.*

95. *See, e.g.,* U.S. Dep't of Labor, *Recommended Format for Material Safety Data Sheets (MSDSs)*, OSHA.GOV, <http://www.osha.gov/dsg/hazcom/msdsformat.html> (last visited Feb. 15, 2013). Examples of various MSDS forms can be found online.

96. *Cf. Johnson v. American Standard, Inc.*, 179 P.3d 905, 908 (Cal. 2008) (discussing purpose of MSDS forms required under California hazard communication rules). *But see* Manufacturers Ass'n of Tri-Cnty v. Knepper, 801 F.2d 130, 141 (3rd Cir. 1986) (noting other purposes of MSDS forms), *cert. denied*, 484 U.S. 815 (1987). For a brief history of the development of the requirement for MSDS forms, *see* United Steelworkers of Am. v. Aucther, 763 F.2d 728, 731-33 (3d Cir. 1985).

secret than for other substances.⁹⁷ Further, limiting the disclosure requirement to “MSDS chemicals” focuses attention on substance for which disclosure arguably is most important—namely, substances classified as “hazardous” by 29 C.F.R. Section 1910.1200(g)(2).

The drawback of the “MSDS chemical” approach is that it results in the disclosure of less information. Given that the purpose of disclosure regulations is to provide information to regulators and the public, the benefit of more complete disclosure seems significant, even if the additional disclosure relates to substances that are not hazardous.

Further, some critics of the “MSDS chemical” approach argue that many substances that might be hazardous have not yet been tested or classified as hazardous.⁹⁸ Moreover, the factors that determine whether a substance is classified as “hazardous” for purposes of 29 C.F.R. 1910.1200 are not necessarily identical to the factors that would be used to determine whether a substance could be harmful to the environment.⁹⁹ In addition, the more limited “MSDS chemical” approach is less likely to instill public confidence in reporting regimes than is a more comprehensive disclosure scheme. Thus, industry itself might benefit from more comprehensive disclosure.

Finally, there is no indication that a more comprehensive disclosure scheme is unworkable. Most states that have enacted disclosure regulations, including Texas, have opted to require disclosure of all fracturing fluid additives, rather than just those that are “MSDS chemicals,” and the process appears to be working. For these reasons, a disclosure regime that generally requires the identification of all the chemical compounds in fracturing fluid is preferable to the more limited “MSDS chemical” approach.

B. Trade Secret Verification and Challenges

1. The Different Approaches to the Most Important Trade Secret Issues

Some of the other important differences between various states’ mandatory disclosure rules relate to trade secrets. The differences do not relate to whether trade secrets will be protected from public disclosure. All of the states’ regulations provide such protection. But the rules differ with respect to two important features: (1) who has standing to challenge trade secret claims, and under what circumstances; and (2) whether a company must submit information to support the validity of a trade secret claim at the time the claim is made. The different approaches taken by the states can be illustrated by the rules in five states: Wyoming, Arkansas, Texas, Colorado, and Louisiana.

97. *Infra*, section B.

98. See, e.g., Matthew McFeeley, *State Hydraulic Fracturing Disclosure Rules and Enforcement: A Comparison*, NRDC ISSUE BRIEF, 6 (July 2012) <http://www.nrdc.org/energy/files/Fracking-Disclosure-IB.pdf>.

99. *Id.*

a. Wyoming

Wyoming was the first state to enact a mandatory disclosure regulation.¹⁰⁰ The regulation requires that the owner or operator of a well provide various information to the Wyoming Oil and Gas Conservation Commission regarding each fracturing operation, including the identity of all compounds contained in the fracturing fluid additives.¹⁰¹ The Commission makes the information that is disclosed publicly available by posting it on the Commission's website,¹⁰² except that the Commission does not make proprietary information available.¹⁰³

In order to assert a trade secret claim, the operator must make a written request that the Commission recognize the proprietary nature of the information, "justifying and documenting the nature and extent of the proprietary information."¹⁰⁴ If the owner or operator makes such a request, "confidentiality protection shall be provided consistent with" the Wyoming Public Records Act ("WPRA").¹⁰⁵ In turn, the WPRA makes information held by government available to the public, but it makes certain exceptions, including an exception that applies to "[t]rade secrets, privileged information and confidential commercial, financial, geological or geophysical data furnished by or obtained from any person."¹⁰⁶

Reports indicate that the Commission has approved most, but not all, trade secret claims submitted to it.¹⁰⁷ Some environmental groups have asserted that the Commission is not being stringent enough in evaluating trade secret claims, and a few of the groups have brought suit challenging certain Commission decisions that approved trade secret claims.¹⁰⁸

The way that the plaintiffs gained standing to assert a challenge is noteworthy. Wyoming's mandatory disclosure regulation does not address challenges to the Commission's approval of a trade secret claim, but Wyoming's Public Records Act provides that "[a]ny person denied the right to inspect any record covered by [the WPRA]" may bring suit to challenge the denial.¹⁰⁹

The plaintiffs made a public records request for documents identifying substances whose identity the Commission had recognized to be a trade secret. The Commission denied the public records request, asserting that the WPRA's trade secret exception applied. The plaintiffs then filed suit, claiming that the records

100. Keith B. Hall, *Environmental Groups Sue for Release of Hydraulic Fracturing Fluid Information*, ENVTL. & ENERGY L. BRIEF (Mar. 27, 2012) <http://www.environmentalandenergylawbrief.com/hydraulic-fracturing/environmental-groups-sue-for-release-of-hydraulic-fracturing-fluid-information/>.

101. Wyoming Oil & Gas Conservation Commission, Ch. 3, WYO. CODE R. § 45(d)(ii) (LexisNexis 2012).

102. *Id.* at § 45(f).

103. *Id.* at § 45(d)(ii).

104. *Id.* at § 45(f).

105. *Id.*

106. WYO. STAT. ANN. § 16-4-203(d)(v) (2012).

107. Environmental groups have claimed that the Commission has approved "nearly all" trade secret claims. Brief for Petitioner at para. 8, Powder River Basin Res. Council v. Wyoming Oil and Gas Conservation Comm'n (7th Jud. Dist. Ct. Wyo. 2012) (No. 94650-C), available at http://earthjustice.org/sites/default/files/WOGCC_petition.pdf.

108. *Id.*

109. WYO. STAT. ANN. § 16-4-203(f) (2012), available at <http://legisweb.state.wy.us/statutes/statutes.aspx?file=titles/Title16/T16CH4.htm>.

withheld by the Commission were not properly designated as trade secrets, and therefore the Commission could not properly withhold the information that the plaintiffs had requested.¹¹⁰ The Commission has argued that its decisions were appropriate, entitled to deference, and should be upheld.¹¹¹

b. Arkansas

Arkansas has rules somewhat similar to Wyoming's. Arkansas requires operators to disclose the identity of compounds contained in fracturing fluid to the Arkansas Oil & Gas Commission.¹¹² The Commission makes that information available to the public by posting it on the Commission's website,¹¹³ but an operator can make a written claim that the identity of a compound is entitled to trade secret status.¹¹⁴ Unlike Wyoming's disclosure regulation, the Arkansas disclosure regulation does not explicitly state that the person who makes the claim must justify the claim, but the Commission has made a practice of requiring companies to complete a form that requests certain information relevant to the trade secret claim.¹¹⁵

Arkansas' disclosure regulations do not address the right to challenge trade secret designations, but Arkansas' Freedom of Information Act¹¹⁶ generally grants persons the right to obtain access to documents held by government,¹¹⁷ as well as the ability to bring suit to challenge a denial of that right.¹¹⁸ Thus, someone who wishes to challenge the Commission's acceptance of a trade secret claim might be able to do so by using a strategy similar to that used by certain groups in Wyoming. First, a person could make a public records request for documents that identify the substances whose identity the Commission has recognized to be a trade secret. Then, if the Commission denies the public records request on grounds that the

110. Petition for Review of Agency Action, Powder River Basin Res. Council v. Wyoming Oil and Gas Conservation Comm'n (7th Jud. Dist. Ct. Wyo. 2012) (No. 94650-C) (filed Mar. 26, 2012); Brief of Respondent, Powder River Basin Res. Council v. Wyoming Oil and Gas Conservation Comm'n (7th Jud. Dist. Ct. Wyo. 2012) (No. 94650-C) (filed Oct. 17, 2012).

111. Brief of Respondent, Powder River Basin Res. Council v. Wyoming Oil and Gas Conservation Comm'n (7th Jud. Dist. Ct. Wyo. 2012) (No. 94650-C) (filed Oct. 17, 2012).

112. Arkansas Oil and Gas Commission, Rule B-19(k)(8) (2012) *available at* <http://www.aogc.state.ar.us/onlinedata/forms/rules%20and%20regulations.pdf>.

113. ARK. OIL AND GAS COMM'N, <http://www.aogc.state.ar.us/>.

114. Arkansas Oil and Gas Commission, Rule B-19(k)(8) (2013), *available at* <http://www.aogc.state.ar.us/onlinedata/forms/rules%20and%20regulations.pdf>. For this purpose, Arkansas uses the trade secret standard set by 42 U.S.C. § 11042, which is the section of the Emergency Planning and Community Right-To-Know Act that specifies the conditions under which a person can refrain from identifying substances under disclosures otherwise required by the Act.

115. ARK. OIL AND GAS COMM'N, FORM 37 CLAIM OF ENTITLEMENT TO WITHHOLD THE IDENTITY OF A CHEMICAL CONSTITUENT AS A TRADE SECRET OR REQUEST FOR TRADE SECRET EXEMPTION, *available at* <http://www.aogc.state.ar.us/OnlineData/Forms/Form%2037%20020211.pdf>. Copies of completed forms submitted by companies also are available at the Commission's website.

116. ARK. CODE ANN. § 25-19-101 to 25-29-110 (2012).

117. *Id.* § 25-19-105 (1967). The statute provides various exceptions, including two that should apply to any fracturing fluid components whose identity is a true trade secret. First, the statute provides an exception if there is a law "specifically enacted" to prevent disclosure in a particular circumstance. § 25-19-105(a)(1)(A). Also, it makes an exception for information that would be useful for "competitors." § 25-19-105(b)(9)(A).

118. *Id.* § 25-19-107.

Freedom of Information Act does not apply to trade secrets, the person could bring suit to challenge the denial, arguing that the requested information is not properly classified as a trade secret.

c. Texas

The Texas mandatory disclosure regulation requires operators to disclose information by posting it directly to FracFocus, rather than by sending it to the Railroad Commission.¹¹⁹ The operator is not required to post information that the operator claims is a trade secret, and similarly the operator need not send that information to the Railroad Commission.¹²⁰ The regulation does not require an operator who makes a trade secret claim to provide documentation for the claim at the time it is made.

Because the information claimed to be a trade secret is not submitted to regulators, a person could not challenge a trade secret designation by making a public records request for that information and then challenging a denial of the request, as certain groups are doing in Wyoming.¹²¹

But unlike most other states' mandatory disclosure regulations, the Texas regulation contains a provision that expressly authorizes certain persons to assert challenges to trade secret claims.¹²² The persons who have standing to assert a challenge are those who own the land on which the "relevant wellhead" is located, the owner of adjacent property, and any state agency "with jurisdiction over a matter to which the claimed trade secret information is relevant."¹²³ A challenge must be made in writing to the Texas Railroad Commission.¹²⁴ The regulation provides an example format for a written challenge.¹²⁵

d. Colorado

Like Texas, Colorado requires that operators make disclosures by submitting information directly to FracFocus, rather than to regulators, and provides that companies need not disclose trade secrets.¹²⁶ Unlike Texas, Colorado requires an operator to submit a form that verifies certain basic facts that would be necessary to support a trade secret claim.¹²⁷ For example, the form asks the operator to verify that: (1) the operator has not disclosed the information claimed to be a trade secret to any other person (except to persons who are bound by a confidentiality agreement

119. 16 TEX. ADMIN. CODE § 3.29(c) (2013).

120. *Id.* § 3.29(d)(4).

121. See e.g., Jennifer A. Dlouhy, *Environmentalists Challenge Trade Secret Protections for Hydraulic Fracturing*, FUEL FIX, <http://fuelfix.com/blog/2012/03/26/environmentalists-challenge-trade-secret-protections-for-hydraulic-fracturing/> (last visited Feb. 15, 2013).

122. *Id.* § 3.29(f).

123. *Id.* § 3.29(f)(1).

124. *Id.* § 3.29(f)(2).

125. *Id.* § 3.29(f)(3).

126. 2 COLO. CODE REGS. § 404-1:205A(b)(2)(A) (LexisNexis 2012) (stating the operator must disclose the chemicals used to the "chemical disclosure registry").

127. *Id.* § 404-1:205A(b)(2)(C). The form, "Form 41," is available from the website of the Colorado Oil and Gas Conservation Commission. COLORADO OIL AND GAS CONSERVATION COMM'N, TRADE SECRET CLAIM OF ENTITLEMENT FORM 41 FILING, available at https://cogcc.state.co.us/Forms/instructions/Form41_inst.pdf.

or certain government employees, etc.); (2) that no law requires public disclosure of the information; (3) that disclosure likely would harm the competitive position of the company; and (4) that the information is not readily accessible through reverse engineering.¹²⁸ But the agency does not attempt to conduct a thorough examination or verify trade secret claims.¹²⁹

The information that constitutes the trade secret itself is not submitted to regulators.¹³⁰ Thus, a person could not challenge a trade secret claim by making a public records request and then filing suit to challenge a denial of the request. Further, the Colorado regulation does not expressly grant anyone the right to challenge a trade secret designation.¹³¹

Nevertheless, Colorado's rules include one feature that may provide a basis for challenging a trade secret. Like all other states that require operators to post information directly to FracFocus, Colorado's regulations provide an exception for trade secrets.¹³² But the language of Colorado's regulation is slightly different from that in other states. Most states provide that an operator need not post information that the operator or service company *claims* to be a trade secret.¹³³ Colorado's regulation requires the operator to identify each compound unless the compound *is* a trade secret.¹³⁴ Thus, if a company withholds the identity of a substance based on a trade secret claim, but the claim is erroneous, a literal interpretation of the regulation suggests that the company is in violation of the regulation until it makes the disclosure. Colorado regulators have suggested that this could provide the basis for a trade secret challenge.¹³⁵

In responding to questions and comments made during the official public comment period for the state's mandatory disclosure regulation, Colorado regulators noted that Colorado's Oil and Gas Conservation Act contains a citizen suit provision that applies in the event that the Commission fails to bring suit to enjoin a continuing violation of the state's oil and gas laws.¹³⁶ The citizen suit provision authorizes a person who has been "adversely affected" by a violation of those laws to petition the Commission to bring suit to stop the violation, and if the Commission does not, the person may file suit against the alleged violator.¹³⁷ The regulators also stated that, for purposes of challenges to trade secret designation, they believe that "adversely affected" is a phrase that "should be broadly construed."¹³⁸

128. COLORADO OIL AND GAS CONSERVATION COMM'N, TRADE SECRET CLAIM OF ENTITLEMENT FORM 41 FILING, available at https://cogcc.state.co.us/Forms/instructions/Form41_inst.pdf.

129. *Id.*

130. *Id.*

131. *See id.* § 404-1:205A.

132. *Id.* § 404-1:205A(b)(2)(A).

133. *See e.g.*, 16 TEX. ADMIN. CODE § 3.29(d)(4) (2013).

134. *Id.* § 404-1:205A(b)(2)(D).

135. *Id.* § 404-1 app. 1.

136. *Id.* § 404-1 app. 1.

137. COLO. REV. STAT. § 34-60-114 (2013).

138. *Id.* § 404-1 app. 1.

e. Louisiana

Louisiana's mandatory disclosure regulation requires companies either to submit information to the Office of Conservation or to post it directly to FracFocus, but companies need not disclose information that they claim constitutes a trade secret.¹³⁹ Louisiana's regulation does not require companies to submit information to justify a trade secret claim at the time the claim is made.¹⁴⁰

Because regulators generally will not possess the information that a company claims to be a trade secret, a person could not challenge a trade secret designation through the process of making a public records request for the trade secret and challenging the denial of that request. Further, unlike the Texas regulation, Louisiana's regulation does not expressly address challenges to trade secrets.¹⁴¹

There are certain general provisions in Louisiana's Conservation Act that someone might argue would provide a basis to initiate a challenge, such as a statute that gives any "interested person" the right to request that the Commissioner of Conservation call a public hearing regarding any matter within his jurisdiction,¹⁴² and another that allows any person "aggrieved" by action of the Commission to bring suit to challenge the action, after exhaustion of administrative remedies.¹⁴³ But it is not clear that a court would interpret these statutes as giving a citizen the right to challenge a trade secret claim, particularly given that: (1) Louisiana's disclosure regulation does not expressly require the Office of Conservation to evaluate or make any determination regarding trade secret claims; and (2) unlike Colorado's regulation, Louisiana's regulation does not contain a provision whose literal terms would suggest that an operator violates the regulation if he withholds information based on an erroneous trade secret claim.

2. Should Agencies Thoroughly Examine Trade Secret Claims?

Given that trade secret claims reduce the amount of information disclosed, it seems appropriate that there be either verification of trade secrets by regulators or some procedure for challenging trade secret claims, or perhaps both.

A thorough examination of trade secret claims by regulators would have some advantages, but it also would have drawbacks. If an examination is very thorough, it will be costly to both regulators and industry, and in many cases may simply result in a determination that the trade secret claim is proper. Indeed, Colorado regulators cited concern about agency resources in explaining why they did not choose to include in their state's fracturing fluid disclosure regulations a requirement that the agency verify and approve each trade secret claim.¹⁴⁴ The concern about limited agency resources is a concern beyond Colorado. Given that many state agencies face budget and resource challenges, any time spent verifying trade secret claims and dealing with public record requests likely will mean resources are diverted from other regulatory or enforcement efforts.

139. LA. ADMIN. CODE tit. 43, pt. XIX, § 118 (C)(2) (2012).

140. *See id.*

141. *See id.* § 118.

142. LA. REV. STAT. ANN. § 30:6(F) (2009).

143. *Id.* § 30:12(A).

144. 2 COLO. CODE REGS. § 404-1 app I. (LexisNexis 2013).

Further, if an agency chooses to test a trade secret claim very thoroughly, the information that the agency must obtain and review in order to do that may include the trade secret itself.¹⁴⁵ Colorado regulators noted that this increases the risk for inadvertent disclosure.¹⁴⁶

Moreover, if, during the course of its investigation of a trade secret claim, the agency obtains information that includes the trade secret itself, any person could make a public records request for the information. In most states, the agency could refuse to disclose the information on the basis that the public records law does not apply to trade secrets, but then the person making the request could sue the agency, arguing that the agency's refusal was improper because the information did not qualify as a trade secret. Colorado regulators have noted this potential problem,¹⁴⁷ and Wyoming's Oil and Gas Conservation Commission has already been sued under this exact scenario.¹⁴⁸

This does not mean that it is entirely impractical for an agency to require a company to provide an up-front justification for a trade secret claim and for the agency to evaluate the claim. The Wyoming Oil and Gas Conservation Commission is doing so, and despite the criticism of some environmentalists that the Commission is too lenient in approving trade secret requests, the agency is giving some level of review to trade secret claims.¹⁴⁹ Further, numerous federal statutes require companies to submit information to government agencies, and many of those statutes provide that the information provided to the agencies will be made available to the public *unless* the company makes a trade secret claim and provides support for it.¹⁵⁰

But Colorado regulators' concerns about agency costs, increased risk of inadvertent disclosure, and the likelihood that agencies will be sued under public records statutes if they engage in a thorough review of trade secret claims are concerns that have merit. Moreover, requiring companies to provide up-front support for trade secret claims will add to their costs too.

For now, the best regulatory approach for most states will be to give their agencies discretion to challenge trade secret claims, but not to require that state regulators make a thorough examination of each and every trade secret claim. Mandatory disclosure regulations are relatively new, and there is not yet a significant amount of experience working with them. It is not yet clear, for example, that there is a significant problem with meritless trade secret claims. Further, even though most states do not require their regulatory agencies to verify trade secret claims, it is clear that disclosure regulations are making much more information publicly available regarding fracturing fluid composition than was ever available

145. *Id.*

146. *Id.*

147. *Id.*

148. Petition for Review of Administrative Action; Complaint for Declaratory Relief, Powder River Basin Res. Council v. Wyo. Oil & Gas Conservation Comm'n, *available at* http://earthjustice.org/sites/default/files/WOGCC_petition.pdf.

149. *Id.*

150. *See infra* note 174; *see also* *Fracking Chemical Disclosure Rules*, PROPUBLICA.ORG (Feb. 16, 2012, 2:44 PM), <http://www.propublica.org/special/fracking-chemical-disclosure-rules>.

before.¹⁵¹ Accordingly, scarce agency resources probably can be better utilized elsewhere.

After states have gained more experience administering the new disclosure regulations, they will be in a better position to evaluate whether there appears to be a problem with meritless claims of trade secret status, and, if such a problem seems to exist, the agencies can reconsider at that time whether to engage in a more thorough review of every trade secret claim.

3. Should States Require Companies to Provide Support for Trade Secret Claims at the Time They Are Made?

Arkansas and Colorado require operators who make trade secret claims to provide some basic information to support trade secret claims, but the required information is not detailed.¹⁵² Unless a particular state's agency is going to make a thorough review of all trade secret claims, the state probably should not require detailed justification for the trade secret claim up front. More detailed information might help the agency (or any person who challenges a trade secret claim) decide whether to challenge the claim, but such a requirement would impose a cost on industry even though many trade secrets will never be challenged. The better course is to wait until someone actually asserts a challenge before making a company provide more detailed support for a trade secret claim.

4. Trade Secret Challenges

There should be a procedure for at least some persons to challenge trade secret claims. This is particularly important if a state's regulatory agency does not thoroughly test trade secret claims. The Texas regulations allow challenges by the landowner on whose property the well is located, by persons who own adjacent property, and by any agency with jurisdiction over an issue to which the trade secret claim has relevance.¹⁵³ This approach has considerable merit.¹⁵⁴ Although the class of private persons who can assert challenges is not broad, it compares favorably to the rules in some states, such as Louisiana, where it is not clear that anyone could challenge a trade secret claim.¹⁵⁵

Moreover, the class of persons who can assert challenges in Texas includes the persons who are most likely to be affected by fracturing operations.¹⁵⁶ Further, if additional persons allege a definite injury based on exposure to fracturing fluids, they need not rely on the mandatory disclosure rule to challenge a trade secret claim. They can bring a tort claim and engage in formal discovery. Finally, the Texas approach avoids disputes that would arise if the standard for allowing a person to assert a trade secret were based on a vaguer standard, such as the standard in

151. *Id.*

152. 6 Colo. Code Regs. § 1007-3 (LexisNexis 2013); 010 Ark. Code R. § 06.10-9 (LexisNexis 2012).

153. 16 Tex. Admin. Code § 3.29(f)(1) (2013).

154. *Id.*

155. LA. ADMIN. CODE tit. 33, pt. XIX § 10123 (2013).

156. 16 TEX. ADMIN. CODE § 3.29(f) (2013).

Colorado, where a person's standing to assert a trade secret challenge apparently will depend on whether he has been "adversely affected."¹⁵⁷

C. Level of Detail and Specificity in Required Disclosures

In order to give the most precise composition of fracturing fluid, one needs to identify each compound in the fluid, as well as each compound's concentration. The states' mandatory disclosure regulations have led to much more information being publicly available regarding fracturing fluid composition than was available before, but some improvements can be made regarding the level of detail and specificity of the information that must be reported.

1. Level of Specificity in Reporting the Identity of a Substance

Some states require an operator to disclose the trade name of each fracturing fluid additive, as well as the supplier of the additive and the function it serves in the fracturing fluid (for example, whether the additive is a biocide, corrosion inhibitor, friction reducer, etc.).¹⁵⁸

Such information is important, but for purposes of identifying the composition of fracturing fluid, the most important information is the identity and concentration of each chemical compound found in the fluid. How should the compounds be identified? Some compounds, such as water, can be identified by a well-known common name that unambiguously refers to a specific chemical compound.¹⁵⁹ But some other compounds do not have well-known common names, or they have multiple common names, some of which might be ambiguous. The most reliable way to identify a compound is by its Chemical Abstracts Service ("CAS") number, an identifier that is unique for each known chemical compound. Accordingly, states should require operators to identify the CAS numbers of compounds found in fracturing fluid. Several states already expressly require operators to do that, but others do not.¹⁶⁰

2. Level of Specificity Regarding Concentration

Some states require operators to report the concentration of compounds; other states require operators to report the "maximum" concentration of a compound, while others do not require that concentrations be reported.¹⁶¹

It is important to know the concentrations of substances found in fracturing fluid because many substances that are harmful at certain concentrations are not harmful at lower concentrations. Accordingly, states should require that concentra-

157. 2 COLO. CODE REGS. § 404-1 app. I (LexisNexis 2013).

158. See, e.g., LA. ADMIN. CODE tit. 43, pt. XIX § 118 (2012).

159. See *CAS Content*, CHEMICAL ABSTRACTS SERVICE, <http://www.cas.org/content> (last visited Feb. 19, 2013).

160. See, e.g., W. VA. CODE ANN. § 22-6A-7(e) (West 2012) (not referring to CAS numbers); LA. ADMIN. CODE tit. 43, § 118(C)(1)(d) (requiring identification of CAS numbers).

161. See *supra* Part I.D.

tions be reported. Further, they should require reporting of actual concentrations, not merely maximum concentrations. If the concentration of a particular substance in the fracturing fluid being pumped into the formation is deliberately varied during the course of the fracturing operation, perhaps the operator should be required to report both the maximum concentration and the overall concentration of the compound in the total volume of fracturing fluid.

3. Ambiguity in Terminology

One issue relates to ambiguity in the disclosure rules. Many of the states' regulations refer to "additives," without defining what "additive" means. Obviously an "additive" is something added to the fracturing fluid, but that still leaves ambiguity. For example, in the unlikely event that a company added Brand X soft drink to the fracturing fluid, would the "additive" be Brand X soft drink or would the "additives" be water, carbon dioxide, sugar (sucrose), and each of the individual chemical compounds found in the soft drink?

In some cases, the context suggests the answer. For example, Louisiana's regulation requires operators to identify the trade name and supplier of each additive, as well as its function or purpose in the fracturing fluid ("such as acid, biocide, breaker, corrosion inhibitor").¹⁶² Those requirements suggest that the "additive" would be Brand X, not each chemical compound in the soft drink.¹⁶³ That conclusion seems to be confirmed by the regulation's subsequent references to identifying the "maximum ingredient concentration within the additive" and to identifying the CAS numbers for "chemical ingredients."¹⁶⁴

But context does not always provide a clear answer. For example, a West Virginia statute requires operators to provide a "listing" of each "additive" used in the fracturing fluid.¹⁶⁵ Suppose that a company performing a fracturing operation in West Virginia added Brand X soft drink to the fracturing fluid. If "additive" is given the same meaning in West Virginia's statute as it appears to have in Louisiana's regulation, then an operator might be able to satisfy its reporting obligation by providing the trade name of the substance – Brand X soft drink – without specifying the individual chemical compounds found in the soda.¹⁶⁶

States should clarify these ambiguities by defining terms. Perhaps "additive" could be defined to mean any substance that is added to fracturing fluid, whether the substance consists of a single chemical compound or a mixture of compounds. A regulation then could require operators to identify the trade name (if there is one) and supplier of each additive, as well as the CAS numbers and concentration of each chemical compound in each additive.

4. Arguments for Less Specificity

There are arguments that can be made in favor of requiring less specific disclosures. For example, requiring less detail has the benefit of making the disclosure

162. LA. ADMIN. CODE tit. 43, pt. XIX § 118(C)(1).

163. *See id.*

164. *Id.*

165. W. VA. CODE ANN. § 22-6A-7(e) (LexisNexis 2012).

166. *See id.*; LA. ADMIN. CODE tit. 43, pt. XIX § 118(C)(1) (2012).

process simpler. Further, even if trade secrets are not publicly disclosed, a company still may be able to determine the composition of a competitor's fracturing fluid additives through reverse engineering, and the more detail is contained in public disclosures the more likely that becomes.

But requiring less detail in mandatory disclosures also means that less information will be disclosed. Many states, including states with significant oil and gas activity, have enacted regulations that require detailed disclosure,¹⁶⁷ and in several of those states the oil and gas industry supported the rules. At present, there does not seem to be any indication that the more detailed reporting requirements—requiring the reporting of CAS numbers and concentrations of each compound—is unworkable. Accordingly, with the exception of information that constitutes trade secrets, states should require operators to disclose the CAS number and actual concentration of individual compounds in the fracturing fluid.

III. OTHER ISSUES

A. Recognition of Trade Secrets

Some people have criticized the exemption of fracturing fluid trade secrets from public disclosure, but there is a widespread consensus that trade secrets should be protected.¹⁶⁸ Even most environmental organizations do not oppose trade secret protection altogether.¹⁶⁹

The consensus that trade secrets should be protected is nearly universal.¹⁷⁰ All fifty states, as well as the Virgin Islands and the District of Columbia, protect trade secrets as a matter of *substantive* law.¹⁷¹ Further, both the Federal Rules of Civil Procedure and state rules of procedure give courts discretion to protect trade secrets during formal discovery.¹⁷²

Also, the federal Freedom of Information Act and many state open records statutes contain provisions that exempt trade secrets from the requirement that government records be available to the public.¹⁷³ In addition, many federal and state

167. See *supra* Part I.D.

168. See *infra* Part IV.

169. Environmental organizations have expressed concerns about ensuring that only valid trade secret claims be recognized. For example, the Natural Resources Defense Council has stated that disclosure “exemptions must only be used for legitimate trade secrets.” McFeeley, *supra* note 98, at 6.

170. See *infra* Part IV.

171. See *infra* Part IV, noting that forty-seven states, the District of Columbia, and the Virgin Islands have adopted some version of the Uniform Trade Secrets Act, and that the remainder of the states follow the Restatement (First) of Torts definition.

172. Federal Rule of Civil Procedure 45 permits a court to quash or modify a subpoena that requires a person to disclose “a trade secret or other confidential research, development, or commercial information.” FED. R. CIV. P. 45(c)(B)(i). State rules contain similar provisions. See, e.g., LA. CODE CIV. PROC. ANN. art. 1354(A) (2012). Federal Rule of Civil Procedure 26(c)(1)(G) gives courts authority to protect trade secrets during discovery by “requiring that a trade secret or other confidential research, development, or commercial information not be revealed or be revealed only in a specified way” Again, state rules provide similar provisions. See, e.g., LA. CODE CIV. PROC. ANN. art. 1426(A)(7) (2012); see also TEX. R. CIV. P. 76a (procedural protections for trade secrets).

173. 5 U.S.C. § 552(b)(4) (2012); W. VA. ST. CODE ANN. § 29B-1-4(a)(1) (LexisNexis 2012); TEX. GOV'T CODE ANN. § 552.110(b) (West 2012).

statutes that require persons to submit information to the government contain provisions stating that the information submitted will be available to the public, *unless* it constitutes a trade secret.¹⁷⁴ And notably, there is a statute that makes it a criminal offense for a federal employee to make an unauthorized disclosure of trade secrets to which the employee had access because of his federal employment.¹⁷⁵

Finally, two other federal laws that provide protections for trade secrets are worth noting. One of those is 29 C.F.R. § 1910.1200, the regulation that requires companies to provide MSDS forms for each hazardous chemical that they manufacture or import, and requires employers to have a MSDS available for each hazardous chemical present in the workplace. The regulations generally require the MSDS form to identify chemical compounds in the substance, but it makes an exception for compounds that are trade secrets.¹⁷⁶

The Emergency Planning and Community Right to Know Act is also noteworthy. It generally requires companies to provide information regarding hazardous substances, including the identity of compounds in the substances, but the Act does not require that the compounds that are trade secrets be specifically identified.¹⁷⁷

B. Ability to Search Databases by Chemical

The FracFocus website organizes information on a well-by-well basis. A visitor to the website can conduct searches for wells based on various search criteria such as the operator of the well, the county or state where the well is located, the geographical coordinates of the well, or the API number of the well.¹⁷⁸ Some people have expressed a desire that FracFocus add an additional search capability—the ability to search for all wells in which the hydraulic fracturing fluid contained a particular ingredient. Similarly, though Colorado’s regulations currently require operators to make disclosures by posting to FracFocus, the regulations require Colorado regulators to develop their own website for posting disclosures if FracFocus does not eventually provide the capability to run searches based on particular chem-

174. A federal law example comes from the Clean Air Act, which requires certain information be made available to the EPA, and provides that the information obtained by the EPA will be available to the public, except for trade secrets. *See* 42 U.S.C. § 7414 (2012). Federal law provides several other examples. *See also* 21 U.S.C. § 331(j) (2012) (Food and Drug Act); 42 U.S.C. § 6927(b) (2012) (Resource Conservation and Recovery Act); 42 U.S.C. § 9604(e)(7) (2012) (Comprehensive Environmental Response, Compensation and Liability Act).

An example from state law is the Louisiana Surface Mining and Reclamation Act. Louisiana requires persons to obtain a permit and provide certain information to the Office of Conservation prior to conducting certain mining activities. LA. REV. STAT. ANN. 30:912 (2009). Generally, the information is made available to the public, but information that constitutes a trade secret is not. *Id.* § 30:916.

175. 18 U.S.C. § 1905 (2012).

176. *See* 29 C.F.R. § 1910.1200.

177. *See* 42 U.S.C. § 11042 (2012) (exemption for trade secrets); 42 U.S.C. § 11021 (2012) (MSDS must be provided to various persons, and that data sheet should describe properties of the substance).

178. The API number is an identification number that is unique for each oil and gas well drilled in the United States. *See* AMERICAN PETROLEUM INSTITUTE, *The API Well Number and Standard State and County Numeric Codes Including Offshore Waters* (1979), available at www.ppdm.org/downloadFile/62 (last visited Jan. 23, 2012).

icals by a specified date.¹⁷⁹ Reports suggest that FracFocus is working to provide such search capabilities.¹⁸⁰

C. Disclosures to Medical Personnel

Many of the disclosure regulations expressly require companies to provide the identity of all substances found in fracturing fluid to medical professionals who need it for treating a patient, even those substances whose identity is a trade secret.¹⁸¹ Some of those regulations allow such a company to require that the medical professionals sign a confidentiality agreement in which they promise not to use or disclose the information other than as necessary to treat the patient,¹⁸² while some of the other regulations simply state that the medical professionals are prohibited from using or disclosing the information other than as needed for treating the patient.¹⁸³

A few medical professionals have criticized such confidentiality provisions,¹⁸⁴ but much, if not all, of that criticism is misplaced. Much of the criticism has been based on a supposition that the doctors had an inherent right to disclose whatever information they received, even if the information constituted a trade secret, and even if doctors received the information for the limited purpose of treating a patient.¹⁸⁵ For example, one doctor argued that he should have the right to distribute whatever information he received to the “general public.”¹⁸⁶

But in a great variety of contexts, individuals are granted access to confidential information on the condition that they may not use or disclose the information, except for a particular purpose. For example, courts often will condition a party’s right to obtain a response to certain discovery requests on that party agreeing not to use or disclose the information outside the scope of the litigation.¹⁸⁷ Even a government agency’s right to receive a response to an administrative subpoena sometimes is conditioned on the agency agreeing to enter a confidentiality agreement.¹⁸⁸ A federal employee can be imprisoned if he makes an unauthorized disclosure of trade secrets to which he had access in the scope of his employment.¹⁸⁹ An attorney

179. 2 COLO. CODE REGS. § 404-1:205A(b)(3) (LexisNexis 2012).

180. FRAC FOCUS, 19th IPEC Conference, presentation by Stan Belieu, *available at* http://ipec.utulsa.edu/Conf2012/Papers_Presentations/belieu.pdf.

181. *See, e.g.*, 2 COLO. ADMIN. CODE REGS. § 404-1:205A(b)(5) (LexisNexis 2012); 16 TEX. ADMIN. CODE § 3.29(c)(4) (2012). There are some disclosure regulations that do not address disclosure to medical personnel. *See, e.g.*, UTAH ADMIN. CODE r. 649-3-39(1) (2012). However, none of the regulations provide a shield against disclosure to medical personnel who need the information for treatment of a patient.

182. MONT. ADMIN. R. 36.22.1016(3)–(4) (2012).

183. OHIO REV. CODE ANN. § 1509.10(H) (LexisNexis 2012).

184. *See* Alicia Gallegos, *Doctors Fight “Gag Orders” Over Fracking Chemicals*, AMEDNEWS.COM (Aug. 27, 2012), <http://www.ama-assn.org/amednews/2012/08/27/gv110827.htm>.

185. *Id.* (noting a doctor’s claim that he had a First Amendment right to disclose fracturing fluid composition to others).

186. Susan Phillips, *Leading Public Health Official Says Impact Fee Law Violates Medical Ethics*, STATEIMPACT PENNSYLVANIA, Feb. 16, 2012, <http://stateimpact.npr.org/pennsylvania/2012/02/16/leading-public-health-official-says-impact-fee-law-violates-medical-ethics/>.

187. *See, e.g.*, FED. R. CIV. P. 26(c).

188. E.E.O.C. v. C & P Tel. Co., 813 F. Supp. 874, 876 (D.D.C. 1993).

189. 18 U.S.C. § 1905 (2012).

can be disbarred for making an improper disclosure of client confidences. Doctors themselves are obligated to keep information regarding their patients confidential.

Further, the federal regulation that allows companies to refrain from disclosing trade secrets on Material Safety Data Sheets provides that doctors can obtain the trade secret information, if it is needed to treat a patient, but that the chemical supplier may require the doctor to sign a confidentiality agreement.¹⁹⁰ In short, conditioning a medical professional's access to trade secret information on his agreement to keep the information confidential is reasonable, consistent with traditional notions of trade secrets, and similar to analogous provisions of law.

D. Pre-fracturing Disclosure or Not?

Some states require companies to make disclosures at two different times. First, before the company performs the hydraulic fracturing operation, it must disclose the composition of the fracturing fluid that it plans to use.¹⁹¹ Second, after the fracturing operation, the company must disclose the composition of the fracturing fluid that it actually used.¹⁹² Other states only require companies to report the composition they actually used, which the companies must do within a specified number of days after the fracturing operation.¹⁹³

If a particular regulatory agency actually is going to use information contained in a pre-fracturing disclosure, that fact probably justifies a pre-disclosure requirement. But otherwise there seems to be little point in requiring a pre-fracturing disclosure.

The main argument that has been advanced in support of requiring pre-fracturing disclosure for the sake of disclosure has been that, if a landowner chooses, he could arrange for sampling of groundwater and for baseline testing in advance of the fracturing operation, using the list of substances in the pre-fracturing disclosure to guide him regarding which chemical analyses to run.¹⁹⁴

But such a justification is weak for multiple reasons. First, it is very questionable how many landowners will choose to undergo the expense of such baseline testing. Second, if a landowner wishes to do baseline testing, he can do so even in the absence of pre-disclosure because there are substances for which one can predict that testing would be worthwhile, even if a company has not made a pre-fracturing disclosure. For example, if the formation that will be fractured is a formation from which natural gas will be produced, a baseline test for methane might be prudent. Further, based on a company's prior fracturing operations that have been completed and for which final disclosures already have been made, a landowner may be able to determine some of the substances likely to be used in an upcoming fracturing operation to be performed on or near his land.

190. 29 C.F.R. § 1910.1200(i)(2) (2012).

191. *See, e.g.*, WYOMING OIL & GAS CONSERVATION COMMISSION, OPERATIONAL RULES, DRILLING RULES, WELL STIMULATION, Ch. 3, § 45(d).

192. *See, e.g., id.* at § 45(h).

193. *See, e.g.*, LA. ADMIN. CODE tit. 43, pt. XIX, § 118 (2012).

194. *See, e.g.*, McFeeley, *supra* note 98, at 6; BRANDON J. MURRILL & ADAM VANN, CONG. RESEARCH SERV., R42461, HYDRAULIC FRACTURING: CHEMICAL DISCLOSURE REQUIREMENTS 10–11 (2012).

Moreover, there is no guarantee that the fracturing fluid composition that a company actually uses will match the composition that the company predicted it would use. Companies will vary the fracturing fluid composition from one well to another, based on circumstances, and the company will not necessarily determine very far in advance of the fracturing operation what composition it ultimately will use at a particular well.

Another argument that has been advanced to support pre-fracturing disclosure is that it might assist emergency responders in the event of a spill or blowout.¹⁹⁵ But the possibility that pre-fracturing disclosure would benefit responders is questionable. There are multiple substances that can be released into the environment during a spill or blowout: (1) any one of several fracturing additives (before the additive is mixed into the base fluid), (2) the fracturing fluid (after additives are mixed into the base fluid), (3) flowback water, or (4) hydrocarbons from the well.¹⁹⁶ Each of these would have different compositions. Further, even if the fluid that is spilled is the fracturing fluid, the composition of the fluid might not match the composition that a company predicted when it made the pre-fracturing disclosure. Thus, responders will have to communicate with the operator or service company to determine what was spilled.

The arguments for requiring only a single, *post*-fracturing disclosure include the fact that state regulators often do not condition drilling permits or work permits on the particular composition of fracturing fluid a company predicts it will use. Thus, the primary function of disclosure is to provide information, and the most accurate information will come from the post-fracturing disclosure. Also, requiring two separate disclosures means more work for the operators that must report information.

Further, requiring two separate reports can complicate the task of disseminating information to the public. For example, assume that the reported fracturing composition is available via the internet. Posting both reports could confuse persons who are reviewing the information, and at the very least it would require a more complex website. The website would need to either keep two disclosures for each well—the projected composition and the actual composition—or it would have to temporarily post the projected composition, then replace that with the actual composition after the actual composition is reported. Of course the website could simplify things by not reporting the proposed composition, and only reporting the actual composition, but if the proposed composition is never made readily available, then one of the benefits of requiring pre-fracturing disclosure is lost.

A state could require pre-fracturing disclosure and prohibit companies from varying from that composition, but that would have drawbacks. Companies often change their plans for the specific fracturing fluid composition as they refine their analyses and do not determine the actual composition until shortly before the frac-

195. MURRILL & VANN, *supra* note 194, at 11.

196. See THE FRACKING OF AMERICA (Jan. 24, 2013), <http://frackingofamerica.com/>; Keith B. Hall, *Hydraulic Fracturing and Well Drilling – What Safety Issues Should We Be Discussing*, ENV'T & ENERGY BRIEF (Apr. 24, 2011), <http://www.environmentalenergylawbrief.com/hydraulic-fracturing/hydraulic-fracturing-and-well-drilling---what-safety-issues-should-we-be-discussing/>.

turing operation.¹⁹⁷ If a company was required to make a pre-fracturing disclosure some period (perhaps thirty days) in advance of fracturing,¹⁹⁸ and was prohibited from using a different composition than stated in the pre-disclosure, that could have one of two adverse effects, depending on how the company reacted to such a requirement.

One is that the company would not submit the pre-fracturing disclosure until it was confident that it knew the precise composition of fracturing fluid it wanted to use. Because the company would then have to wait at least thirty days before conducting the fracturing operation, delays would result. The other possibility is that the company would not wait to submit its pre-fracturing disclosure until it was sure it knew the optimal fracturing fluid composition, but would instead make its pre-fracturing disclosure as early as before and simply resign itself to using the composition it stated in its pre-fracturing disclosure, even if the company had determined that a different composition would work better.

Some of these problems would be solved by making the deadline for a pre-fracturing disclosure only a few days in advance of the fracturing, instead of a thirty days in advance. But if the deadline for a pre-fracturing disclosure was only a few days in advance of fracturing, a landowner likely would not have time to use the disclosure to plan for sampling and baseline testing in advance of fracturing. Thus, one of the purported justifications for requiring pre-fracturing disclosure would be undermined.

For the most part, the benefits of pre-fracturing disclosure of predicted fracturing fluid composition seem limited. Unless regulators in a particular state will actually use the pre-fracturing disclosure, the state probably should not require operators to make a pre-fracturing disclosure of predicted fracturing fluid composition. Requiring such disclosures does no serious harm, but it increases the reporting burden on companies and serves little purpose.

E. Disclosure of Trade Secrets to Regulators

The states' mandatory disclosure regimes are uniform in exempting trade secrets from *public* disclosure. But the regulations differ on the question of whether companies must disclose trade secrets to *regulators*. Some states require such disclosure to regulators, while others do not.

There are several reasons states might choose not to require companies to disclose trade secrets to regulators. First, many regulatory agencies apparently do not use the information for anything. State regulators might not want the task of receiving and keeping trade secret information that they will not use and which will not be disclosed to the public.

Second, if the agency receives trade secret information, it may receive a public records request for the information. And, if the agency denies the public records request, the agency might be sued. The Wyoming Oil and Gas Conservation Commission has been sued on that basis already, and Colorado regulators cited fears about their agency being sued as a reason for not wanting to receive trade secret

197. MURRILL & VANN, *supra* note 194, at 11.

198. See McFeeley, *supra* note 98, at 14.

spill. A problem with the argument is that there are many different substances at a well site both before and after a fracturing job is completed—the fracturing fluid, the undiluted additives that are mixed into the fracturing fluid, flowback, and perhaps hydrocarbons produced from the formation being fractured.²⁰⁰ Thus, responders will not be able to learn what was spilled simply by contacting regulators and asking them for a previously-disclosed fracturing fluid composition. Responders still will need to communicate with the company that was performing the hydraulic fracturing operation.

Further, the timing of disclosures also makes it unlikely that such information could be used to assist emergency personnel who are responding to some incident that occurs during the fracturing process. Unless the state in which the incident occurs is one that requires pre-fracturing disclosure, no disclosure would have been made yet at the time of the fracturing operation. And if the state does require pre-fracturing disclosure, the actual composition of the fracturing fluid might not match that which the company predicted in its advance disclosure. Perhaps in the right set of circumstances, responders might be assisted by trade secret information obtained in advance by regulators, but that possibility seems remote.

In short, requiring companies to disclose trade secrets to regulators serves little purpose and certain drawbacks, including that it increases the likelihood the regulatory agency will be sued in an open records dispute.

F. Complete Disclosure in Event of a Spill

Even in states that generally do not require operators to disclose trade secret information to regulators, the rules generally state that a company must provide the information to regulators if they request it in order to assist their response to some particular incident.²⁰¹ This seems appropriate.

G. How Information is Made Available

The information submitted pursuant to mandatory disclosure rules generally is made available to the public, but the method used to make the information available varies by state. Most states make the information available in one of two ways—either by posting it on a website maintained by the agency that regulates oil and gas activity in the state, or by requiring operators to post the information on FracFocus. Examples of states that post information on their own websites include Wyoming and Arkansas.²⁰² Examples of states that require posting to FracFocus include Texas, Oklahoma, North Dakota, and Colorado.²⁰³

Posting on agency websites has certain advantages. An agency can customize its own website to provide information not included in the standard FracFocus template. For example, Arkansas's website includes a "master list" of substances that

200. See McFeeley, *supra* note 98, at 14.

201. See, e.g., OHIO REV. CODE ANN. § 1509.10(J) (Lexis Nexis 2012).

202. ProPublica, *Fracking Chemical Disclosure Rules*, PROPUBLICA.ORG (Feb. 16, 2012, 2:44 PM), <http://www.propublica.org/special/fracking-chemical-disclosure-rules>.

203. See Interstate Oil and Gas Compact Comm'n, *Hydraulic Fracturing: State Progress*, GROUNDWORK.IOGC.ORG, <http://groundwork.iogcc.org/topics-index/hydraulic-fracturing/state-progress> (last visited Feb. 22, 2013).

draulic fracturing operations.²¹⁰ That information would then be made available to the public, unless the operator submits with the report a claim that a particular additive constitutes a trade secret that is protected against disclosure by some existing federal law.²¹¹

An operator that makes a trade secret claim would be required to identify the federal law that the operator claims provides the protection against disclosure.²¹² If an operator made such a claim, the BLM would not publicly disclose the identity of the additive unless the BLM determined that federal law does not provide the protection the operator claims.²¹³ If the BLM made such a determination, it would give the operator at least ten days' notice before publicly disclosing the identity of the additive for which the BLM determined the trade secret claim was invalid.²¹⁴

BLM stated that it would make the publicly-disclosed information available on the internet.²¹⁵ BLM stated that it is evaluating the possibility of making FracFocus the platform for such disclosures.²¹⁶ FracFocus began as a website for well-by-well disclosures of fracturing water.²¹⁷ In early 2013, BLM announced that it will publish a revised draft of proposed rules in response to comments from stakeholders.²¹⁸

2. The Environmental Protection Agency

a. The EPA's "Voluntary" Information Requests

The United States Environmental Protection Agency sent letters to nine service companies²¹⁹ and nine exploration and production companies,²²⁰ seeking information regarding hydraulic fracturing (the requests were not well-by-well requests).²²¹ Initially the EPA characterized the requests as "voluntary," but when one company did not respond by the date the EPA requested, the EPA served a

210. *Id.*

211. *Id.* at 36–37.

212. *Id.* at 37.

213. *Id.*

214. *Id.*

215. *Id.*

216. *Id.*

217. *Id.*

218. Barclay Nicholson & Rafe A. Schaefer, *BLM Announces Replacement of Proposed Fracking Rules*, HYDRAULIC FRACKING (Jan. 24, 2013), <http://fracking.fulbright.com/2013/01/blm-announces-replacement-of-proposed.html>.

219. Press Release, Env'tl. Prot. Agency, EPA Formally Requests Information From Companies About Chemicals Used in Natural Gas Extraction / Information on hydraulic fracturing chemicals is key to agency study of potential impacts on drinking water (Sept. 9, 2010), available at <http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/ec57125b66353b7e85257799005c1d64!OpenDocument>.

220. Env'tl. Prot. Agency, *Analysis of Existing Data: August 2011 Information Request*, EPA.GOV (Aug. 11, 2011), <http://www.epa.gov/hfstudy/analysis-of-existing-data.html>.

221. Press Release, Env'tl. Prot. Agency, Eight of Nine U.S. Companies Agree to Work with EPA Regarding Chemicals Used in Natural Gas Extraction / EPA conducting congressionally mandated study to examine the impact of the hydraulic fracturing process on drinking water quality; Halliburton subpoenaed after failing to meet EPA's voluntary requests for information (Nov. 9, 2011), available at <http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/a96496444c546959852577d6005e63d6%21OpenDocument>.

eral mandatory disclosure rule that would apply throughout the country on a well-by-well basis.²³⁰ Is there a need for such a rule? There are several reasons to think the answer is, “No.”

In general, a potential justification for federal action on an issue would be if the states refused to act on an important issue. But that potential justification does not apply here. About seventeen states already have enacted mandatory disclosure regulations, including most of the significant oil and gas states.²³¹ Further, the remaining states with significant oil and gas production are considering such regulations.²³² Thus, it is likely that sometime soon the only states that will not have mandatory disclosure rules will be states that have little or no oil and gas activity.²³³

A second and similar potential justification for federal action on an issue would be if various states wanted to act on an issue, but circumstances were such that states could not afford to be the first to act. But that is not the case here. As noted above, most oil and gas states already have acted.

A third potential justification would be if states were incapable of acting, but that reason similarly is inapplicable here.

A fourth potential justification for federal action on an issue would be if events in one state frequently had effects in another. But that does not apply here. Hydraulic fracturing in the middle of one state will have no effect on a neighboring state. Only a tiny fraction of fracturing will occur near state lines, and few, if any horizontal wells will ever cross state lines (and a permit likely would be required from both states if anyone proposed such a well).

A fifth justification for federal action on an issue could exist if a matter were uniquely federal in character or matter traditionally handled by the federal government, rather than the states. But this justification does not apply and actually cuts the other way. The regulation of oil and gas activity traditionally has been a matter of state law.

A sixth justification for federal action on an issue would be if uniformity were needed. But this justification also is inapplicable here. There seems to be no compelling reason why all disclosure rules must be the same.

It should be noted that, although it is not important that the disclosure rules themselves be uniform, there is a closely related issue on which uniformity may be important—the definition of “trade secret.” On this issue, uniformity arguably is important because, if a company chooses to operate in multiple states, the loss of its trade secrets in one state may destroy its trade secrets everywhere. Thus, its trade secret rights in a practical sense may be no broader than they are in the state that has the narrowest definition of “trade secret.”

But this turns out not to be a problem. The definition of “trade secret” is a matter of state law, and there might be slight nuances from state to state in what constitutes a trade secret, but there is substantial uniformity. Approximately forty-

230. See *supra* Part III.H.1; III.H.2.b.

231. See *supra* Part I.D.

232. See *supra* Part I.D.

233. Based on the Baker Hughes weekly count of drilling rigs operating in the United States as of March 22, 2013, the author calculated that more than ninety-five percent of rotary drilling rigs operating on land or in state waters within the U.S. were operating in states that already have enacted mandatory disclosure regulations and that nearly five percent of the other drilling rigs were operating in states that are considering the enactment of such regulations.

seven states, Puerto Rico, the Virgin Islands, and the District of Columbia have adopted some version of the Uniform Trade Secrets Act (UTSA).²³⁴ Several states have adopted the exact definition of “trade secret” that is contained in the Uniform Act.²³⁵ Other states have modified the definition, but the modifications generally are minor,²³⁶ and sometimes are modifications that merely expand the illustrative list of what can constitute a trade secret.²³⁷ There are three states that have not adopted the Act—Texas,²³⁸ New York,²³⁹ and Massachusetts²⁴⁰—but each of the three has adopted the Restatement (First) of Torts’s definition of what constitutes a trade secret, and that definition is similar to the definition contained in the Uniform Trade Secret Act.²⁴¹

Occasionally someone will advocate federal action to bring about “uniformity” when his or her primary motivation is dislike for the policy results reached at the state level, but a personal preference for a different policy result is not the same as a true need for uniformity.

234. See *Legislative Fact Sheet – Trade Secrets Act*, UNIFORM LAW COMM’N, <http://www.uniformlaws.org/LegislativeFactSheet.aspx?title=Trade%20Secrets%20Act> (last visited Feb. 22, 2013). Although North Carolina is not listed in the table of states that have adopted a version of the Uniform Trade Secrets Act, the state has a statutory scheme, the Trade Secrets Protection Act, which appears in general to be based on UTSA. See, e.g., N.C. GEN. STAT. § 66-152 (2012).

235. See ARK. CODE ANN. § 4-75-601 (2012); IND. CODE § 24-2-3-2 (2012); LA. REV. STAT. ANN. § 51:1431 (2012); N.D. CENT. CODE § 47-25.1-01 (2011); WYO. STAT. ANN. § 40-24-101 (2012).

236. Michigan adopted a definition that is nearly identical except that Michigan inserted the words “is both of the following” at the end of the introductory portion of the definition, thereby expressly stating what appears already to have been the intent in the standard definition, that to constitute a “trade secret” information must have economic value and be the subject of reasonable efforts to maintain its confidentiality. MICH. COMP. LAWS SERV. § 445.1902 (LexisNexis 2012).

237. Pennsylvania adds “drawing” to the list of examples of the types of information that can qualify as a trade secret, and adds the phrase “including a customer list” after the word “compilation,” but otherwise adopts the standard definition found in UTSA. See 12 PA. STAT. ANN. § 5302 (LexisNexis 2012).

Idaho adds “computer program” to its illustrative list of the types of information that can constitute trade secrets, adds a definition of “computer program,” and adds a stipulation that trade secrets are subject to disclosure by public agencies “according to chapter 3, title 9, Idaho Code.” See IDAHO CODE ANN. § 48-801 (2012).

Montana adds “computer software” to the illustrative list, but otherwise follows the standard UTSA definition of “trade secret.” MONT. CODE ANN. 30-14-402.

238. *In re Bass*, 113 S.W.3d 735, 738-39 (Tex. 2003) (the court noted that, in determining what qualifies as a trade secret, Texas applies the six factors listed in Restatement (First) of Torts § 757 cmt. B) See also *Hyde Corp. v. Huffines*, 314 S.W.2d 763 (Tex. 1958).

239. New York common law also provided protection for trade secrets. See, e.g., *N.Y. Tel. Co. v. Pub. Serv. Comm’n*, 436 N.E.2d 1281, 1283 (N.Y. 1982). The state generally follows the definition of trade secret contained in the Restatement (First) of Torts § 757 cmt. b.

240. Massachusetts recognizes both common law and statutory causes of action for misappropriation of a trade secret. See MASS. ANN. LAWS ANN. ch. 93 § 42 (LexisNexis 2012). The Massachusetts Supreme Court has adopted the Restatement (First) of Torts definition of what constitutes a trade secret. See *E. Marble Prods. Corp. v. Roman Marble Inc.*, 364 N.E.2d 799, 801 (Mass. 1977). In Massachusetts, the statutory and common law causes of action for misappropriation of a trade secret are “essentially equivalent.” See *Increase Inc. v. Timex Corp.*, 488 F.3d 46, 52 n.10 (1st Cir. 2007). Massachusetts also has a statute making it a crime to steal a trade secret. See MASS. ANN. LAWS, ch. 266 § 30 (LexisNexis 2012); *E. Marble Prods. Corp.*, 364 N.E.2d at 801–2.

241. Compare Restatement (First) of Torts § 757 cmt. b., with UNIF. TRADE SECRETS ACT § 1 (1985).

V. WHAT DISCLOSURES SHOULD BE REQUIRED?

The purpose of mandatory disclosure regulations is to provide the public and regulator with information regarding fracturing fluid composition. To define the composition precisely, both the identity of the substances in fracturing fluid and their concentrations must be known. While exceptions for information that constitutes a trade secret, operator should be required to disclose:

- the type and amount of base fluid;
- the amount and type of proppant, including the supplier and trade name (if applicable);
- trade name (if applicable), supplier, and function of each additive mixed into the fracturing fluid, along with the amount of additive used; and
- CAS number and concentration of each compound contained in each additive, as well as in the overall fracturing fluid.

If the identity of compounds is shielded on the basis that it is a trade secret, the operator still should be required to provide some information regarding the substance. Some states require companies to report the “chemical family” for each substance whose identity is shielded as a trade secret, without defining what “chemical family” means.²⁴² The regulations should define the term, but the concept of requiring some information about substances whose identity is a trade secret is sound.

This article has focused on disclosure of the composition of fracturing fluid, but it may also be appropriate to require disclosure of other information. Some states may find it worthwhile to require companies to report the source of the base fluid. That might provide a database of information that is important for water management issues. In addition, some states may find it worthwhile to report details regarding the operational details of the fracturing operation, such as the maximum pressure exerted during fracturing and pressures measured in the annulus of the well—which could be relevant to well integrity issues.

VI. CONCLUSION

States should require operators to disclose the composition of fracturing fluids on a well-by-well basis, as at least sixteen states already have started to do.²⁴³ State regulations should require disclosures to include the type and amount of base fluid, and information from which the specific identity and concentration of each of the other chemical compounds in the fracturing fluid can be determined. The scope of disclosure should not be limited to chemicals classified as “hazardous” for purposes of whether Material Safety Data Sheet requirements apply. This information that is disclosed should be made available to the public via an easily accessible and navigable website, such as FracFocus, but trade secrets should not be publicly disclosed.

242. See P. Solomon Banda, *Colorado to Require Disclosure of Fracking Chemicals*, USA TODAY (Dec. 15, 2011), <http://usatoday30.usatoday.com/money/industries/energy/story/2011-12-13/colorado-fracking-two/51882992/1>.

241. See *supra* Part I.D.

State regulators probably should not invest scarce resources in seeking to thoroughly evaluate each trade secret claim. Instead, a substance whose identity is claimed is a trade secret should be presumed to be a trade secret until proven not to be a valid trade secret. States should draft their disclosure regulations to allow state agencies with an interest in the matter, as well as certain private persons, to challenge trade secret claims. The class of private persons with standing to challenge trade secret claims should include the owner of the land on which the wellhead of the well to be fractured is located, as well as the persons who own adjacent property.

In general, states need not require companies to report a predicted fracturing fluid composition in advance of fracturing. A post-fracturing disclosure of the actual composition used is sufficient. Requiring advance disclosure should not create problems, and is justified in the apparently few jurisdictions in which the state's regulators actually use the information in making permitting decisions, but otherwise disclosures serve little purpose. Similarly, requiring companies to disclose trade secrets to regulators should not create significant problems, but it also serves little purpose and increases the chance that regulators will be sued by persons seeking disclosure of the information or that inadvertent disclosures will occur.

The United States Environmental Protection Agency has announced plans to draft disclosure regulations that would apply on an "aggregate" basis, rather than a well-by-well basis. The Bureau of Land Management has proposed mandatory disclosure rules that would apply on a well-by-well basis to any fracturing operations conducted on federal lands, but there does not seem to be any need to enact a federal mandatory disclosure regulation that would apply on a well-by-well basis on other lands.