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Shale Oil and Gas State Regulatory Issues and Trends

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SHALE OIL AND GAS STATE REGULATORY ISSUES AND TRENDS

Christopher S. Kulander[†]

CONTENTS

INTRODUCTION.....	1101
I. TRENDS IN REGULATIONS AFFECTING FRACING.....	1103
A. <i>Control of Water Acquisition and Use</i>	1105
B. <i>Disclosure of Fracing Fluid Ingredients</i>	1107
C. <i>Flowback Water Disposal Requirements</i>	1109
D. <i>Completion Requirements</i>	1110
II. SPECIFIC STATE LAWS AND REGULATIONS	1111
A. <i>Idaho</i>	1111
B. <i>Kansas</i>	1113
C. <i>Maryland</i>	1115
D. <i>Ohio</i>	1119
E. <i>Pennsylvania</i>	1125
F. <i>Texas</i>	1129
CONCLUSION: ONE FRACING REGULATORY SCHEME TO RULE THEM ALL?....	1140

INTRODUCTION

Development of hydrocarbons from shale has dramatically changed the picture of American reserves. Advancements in directional drilling

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and hydraulic fracturing have made possible widespread development of oil and gas in rock formations previously believed to be too impermeable for commercial development. In a time of economic want, this American boom employs tens of thousands in tough but lucrative work and significantly reduces the United States' dependence on hydrocarbons imported from unstable and unfriendly countries. Moreover, unlike past booms (and busts) that repeatedly inflated (and deflated) only the economies of the traditional oil patch, the shale gas boom has rippled everywhere prospective shale formations are found, including the long-moribund Northeast. While New York watches, Ohio, Pennsylvania, and West Virginia have embraced a thriving new industry.

But it is in Texas, where the shale craze started, that the most frantic activity continues today. Since the curtain rose on the Barnett Shale in the early 2000s, bringing production onto the grounds of DFW Airport and into the city of Fort Worth, shale gas production has blasted off in the Eagle Ford Shale of South Texas, leaving a brightly lit footprint caused by production that can be seen from orbit.¹ Twenty active Eagle Ford Shale fields produce “over 900 million cubic feet *per day* of natural gas.”² Producers have stampeded into the Haynesville Shale along the Texas-Louisiana line. The newest target, the Cline Shale in West Texas, is thought to have an isopach thickness of 200 to 550 feet—“the equivalent of ten Eagle Ford shales stacked on each other.”³ The Cline Shale joins other West Texas shale targets, like the Bend and Avalon shale formations, and other shale formations thought to be analogous to the Barnett and Woodford shale formations.⁴

This latest rush has the downsides of harming environmental assets if the related machinery is not correctly deployed and definitely foisting inconvenience, delay, and nuisances on various surface parties through truck traffic, pulverized roads, noise, foul smells, surface degradation, and more onto parties that may not be directly benefitting from shale development. Therefore, the states wherein shale hydrocarbon development is now blossoming are scrambling to craft regulations that promote environmentally responsible development.

This Article surveys proposed and existing state laws and regulations to describe the most common statutory and regulatory

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1. David Wogan, *The Eagle Ford Shale Boom from Space*, SCI. AM. BLOG (Dec. 27, 2012), <http://blogs.scientificamerican.com/plugged-in/2012/12/27/the-eagle-ford-shale-boom-from-space>.
 2. *Id.* (emphasis added).
 3. John Mangalanzo, *Anticipation, Strategy is Name of Shale Game*, ABILENE REPORTER-NEWS, Feb. 9, 2013, at 1A.
 4. *See Lower 48 State Shale Plays*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/oil_gas/rpd/shale_gas.pdf (last updated May 9, 2011) (highlighting the size and locations of various shale formations).

issues associated with hydraulic fracturing—the drilling-completion technique necessary to make recovering hydrocarbons from shale economic.⁵ It includes discussion of individual state laws and regulations as well as general trends and policies among the states regarding state regulation of well drilling and hydraulic fracturing. Laws and regulations affecting both groundwater and surface water supplies and acquisition, fracturing fluid ingredient disclosure, and drilling completion and monitoring standards will be compared across the states wherein hydraulic fracturing is common. Finally, a few thoughts on whether federal agencies, mainly the EPA, should seek to preempt or direct state action regarding fracturing regulation on private and state lands will be provided.

This Article also includes an appendix that briefly describes both horizontal drilling techniques and the hydraulic fracturing process. This appendix further contains information explaining how hydraulic fracturing may detrimentally affect surface and groundwater.

Finally, an explanation of the terminology used in this Article is necessary. The issue of hydraulic fracturing is so prickly that no consensus exists as to even the spelling of the informal terms used for it. “Fracing,” “frac’ing,” and “fracking” have all been used in media outlets as a substitute for “hydraulic fracturing.” This Article uses “fracing.” Similarly, a “fraced well” is a well that has undergone hydraulic fracturing. Also, in the oil and gas context, “operator” is used to describe any mineral developer, whether it be a self-developing mineral owner or a mineral owner’s lessee.

I. TRENDS IN REGULATIONS AFFECTING FRACING

Control of hydraulic fracturing has always been primarily a matter of state regulation—except when done on federal or Indian lands. Generally, states with a long history of oil and gas production have powerful state agencies, such as Oklahoma’s Corporation Commission, that cover both general exploration and production rules of oil and gas, such as spacing and density rules, and the environmental regulation related thereto. In contrast, states that are new to oil and gas development, thanks to fracing, have generally left the environmental side of their oil and gas regulation to their respective state environmental agencies, such as Pennsylvania’s Department of Environmental Protection.

Despite the geological and geographical differences among the prospective shale plays nationwide, the abundance and location of water, regional water uses, topography, population density, road

5. For helpful background information on horizontal drilling techniques and the hydraulic fracturing process, see Thomas E. Kurth et al., *American Law and Jurisprudence on Fracing*, 58 ROCKY MTN. MIN. L. INST. 4-1 (2012).

network, and many other issues, similarities can be found in regulation schemes across the various states. Some of these laws and regulations were in effect prior to the advent of the shale gas development boom. For example, existing state law provisions requiring that well logs and pressure test results be included in disclosures to state authorities also commonly cover shale development.

Responding to popular dissatisfaction with the secrecy surrounding the chemicals included by operators in their hydraulic fracturing fluid, a wave of new state rules requiring disclosure of additives have swept the nation in the past three years. Along with ingredient disclosure, a number of states now require state-issued permits for fracturing. Such permits may be contingent on adequate reporting to state authorities before, during, and after hydraulic fracturing. The reports cover subjects such as the plans for disposal of used fracturing fluid, the amount of water to be used for fracturing and its source, and contingency plans for a loss of pressure during fracturing or other mishaps.

A lot of the current state regulation of fracturing is simply an extension of the regulations that have always covered all oil and gas secondary and tertiary development processes. Generally, fracturing is not expressly mentioned in older existing laws and regulations such as those requiring permits to be acquired before secondary and tertiary recovery methods are tried.⁶ Questions then arise about whether fracturing is covered by such a law. In Texas, the Texas Railroad Commission regulates almost all oil and gas matters. It has jurisdiction over all “oil and gas wells in Texas; . . . persons owning or operating pipelines in Texas; . . . and persons owning or engaging in drilling or operating oil or gas wells in Texas.”⁷ This cloak of regulatory power includes fracturing operations and the operators that conduct them.

Besides general regulations covering oil and gas operations that happen to include fracturing, a wave of fracturing-specific laws and regulations have swept the nation over the last four years or so. Four key areas where the regulations of the states have had an impact on fracturing operations are: (a) control of the acquisition and use of water for fracturing; (b) disclosure of chemicals used in fracturing fluid; (c) flowback water disposal requirements; and (d) requirements for casing, cementing, drilling, and completion. An additional emerging issue is the promulgation of surface use limitations, either by local governments or at the state level.

6. Oftentimes, like all other oil and gas development, fracturing operations require the state oil and gas regulatory authority to issue a permit authorizing drilling and/or deepening of a well.

7. TEX. NAT. RES. CODE ANN. § 81.051(a)(2)–(4) (West 2012).

With regard to the disposal of used fracturing fluid, in addition to permitting regulation, state laws commonly regulate the storage, transfer and disposal of oil and gas wastes of all varieties. Even if such regulations do not expressly mention fracturing, these general regulations often cover any fracturing fluids that are brought back to the surface as part of oil and gas production waste. Although such laws are specifically intended to regulate injection of fluids as part of enhanced oil recovery or waste injection process, their language can generally be interpreted to include fracturing operations. In addition, states are gradually expressly adding wastes attributable to fracturing to the list of oil and gas production wastes under regulation.

Regulation of casing and cementing is another way in which the state's general oil and gas laws affect fracturing. A primary worry of cities and environmentalists has long been the potential for fracturing fluids to contaminate groundwater. States therefore have recently begun "beefing up" their casing, cementing, drilling, and completion regulations to protect surface and groundwater resources from being contaminated by fracturing fluids. One common requirement, for example, is that cemented casing must be run fifty to one hundred feet below the lowest potable aquifer. Specific permits for fracturing, similar to those required for other injection operations, are also becoming common state requirements.

Some recent state laws and regulations expressly require written authorization from state authorities before allowing well perforation for fracturing. Other rules require that specifically designed pits or even steel tanks be utilized for storing used fracturing fluid; both must be maintained according to a specific code established by the state oil and gas regulators. Most states with significant production impose restrictions on drilling within certain specified distances from sources of water for municipal water systems connected to individual dwellings.

A. Control of Water Acquisition and Use

How states deal with water acquisition and use for fracturing is, first and foremost, dependent on the way the state deals with water rights in general, whether riparian, prior of first appropriation, or otherwise. Generally, fee mineral owners and their lessees can use a reasonable amount of water from a tract for operations on that tract. Under the doctrine of reasonable use, property owners "have the right to capture and use the underground water beneath their land for a beneficial purpose on that land, but no landowner can transport water off the land from which it came if the transfer injured the water supply of neighboring property owners."⁸

8. *Town of Chino Valley v. State Land Dep't.*, 580 P.2d 704, 709 (Ariz. 1978).

East of the Mississippi, states that observe riparian water rights have encountered public concern over the amount of water used in fracing operations and whether those downstream of fracing operations that have a common right and draw upon surface water will be able to get their own allotment of surface water. Under the riparian system, all landowners whose property is adjacent to a body of surface water, including gas developers, have the right to make reasonable use of it. Regulated riparianism tends to do away with rules that limit water use to the same tract from which the water is drawn. But all sorts of other limitations, like those placed on draws during droughts, have also arisen.

But since one riparian owner's water needs are weighed equally and equitably with the rights of adjacent or downstream riparian owners, if state authorities believe that local surface water levels are too low, they may suspend draws on particular rivers and streams so that parties adjacent or downstream are assured of their reasonable share. For example, low river and stream flows have caused the Susquehanna River Basin Commission (SRBC) to suspend water usage for fracing in portions of eastern Pennsylvania in 2012.⁹ Such restrictions are triggered when flow rates drop below a certain threshold. Such curtailments may not even require a declaration of drought by the state agency, meaning that oil and gas companies may have little warning of an impending curtailment declaration and there may not be an administrative mechanism to define a "drought" and indicate when it begins and ends.

In contrast, in "prior appropriation" states, located mainly west of the Mississippi, the first party to use water for a beneficial purpose (the appropriation) creates a water right if the water right is registered and recognized by the state. Since water is a valuable commodity in these dry states, the authorities have adopted detailed schemes for the determination and administration of water rights. Unlike in most riparian regimes, appropriated water can typically be removed from its source and put to recognized beneficial uses anywhere in the state, even if downstream parties adjacent to the water source are left wanting. Water rights are treated similarly to rights to real property and can be conveyed, mortgaged, and encumbered like more traditional real property.

If two parties appropriate water from a stream, the one who establishes its right first is known as the "senior" water right owner, while the second appropriator is known as the "junior" water right holder. Similarly, if surface water runs low during periods of drought, the owner of the more junior water right upstream must yield to a

9. Press Release, Susquehanna River Basin Comm'n, 37 Water Withdrawals for Natural Gas Drilling and Other Uses Suspended to Protect Streams (June 28, 2012), *available at* <http://www.srbc.net/newsroom/NewsRelease.aspx?NewsReleaseID=89>.

senior water right user downstream. If the senior water right user cannot get its water, it can typically bring an injunction action to stop an upstream junior water right holder from drawing from a common source. Practically speaking, state agencies generally group appropriators of surface water based upon seniority by year, and when rivers and streams are running low, might issue a blanket proclamation that all water right holders who established their right after a certain year must temporarily cease drawing water from a common source. Such announcements can be a sudden and unexpected surprise. If an oil company is expecting to use a junior water right for fracing and use of that right is curtailed, trouble may ensue as the company scrambles to find water for the busy frac crew scheduled to arrive the next week.

Groundwater may be treated differently. Generally speaking, fee owners located outside cities that drill their own water well can use that water however they like, unless the local conservancy district denies a permit. Oil and gas operations may be excepted from permitting requirements. In Texas, for example, groundwater rights can be used for oil and gas exploration and development off the tract of its origination without a permit from local conservancy districts. With the advent of fracing and the onset of drought, however, local conservancy districts are taking a closer look at whether fracing operations are covered by the ground water use exception. Some authorities in Texas, for example, have decided that the statute may allow a city or conservancy district to require a permit for *fracing* operations (as opposed to exploration and development operations—see below). In response, oil companies may drill water wells for fracing water deeper into brinier, nonpotable aquifers not in communication with the shallower, potable aquifers that concern local conservancy districts.

B. Disclosure of Fracing Fluid Ingredients

Of all the issues related (or allegedly related) to hydraulic fracturing, disclosure of the chemicals used in fracing fluid has generated the most publicity. Fracing fluid and gels are comprised of water, proppant,¹⁰ and chemicals which are added to assist flow. Companies engaged in fracing have spent enormous sums formulating and testing a variety of fracing fluids to be used in a variety of reservoirs, painstakingly searching for just the right combination of materials that yield the best recovery. Little environmental worry has been raised regarding the water and sand used. The identity and quantity of the associated chemicals, however, have raised media and

10. “Proppant” is the solid material—usually sifted sand, sometimes coated with resin—that is pumped into the induced fractures along with fracing fluid to hold open the fractures so the gas can flow. Kurth et al., *supra* note 5, at 4-7.

environmental complaints about fracking to a fever pitch. Industry, interested in maintaining some measure of confidentiality as to the composition of their fracking fluids, has been slow to embrace disclosure of the components and concentrations of their fracking fluids and gels.

This protective attitude is changing because of state law. Beginning with Wyoming, a wave of states have passed mandatory disclosure laws that require the operator or their contractor to notify state authorities that fracking will be taking place and to make public the chemicals used. Disclosure via a publically accessible website, such as www.fracfocus.org (FracFocus), an Internet archive jointly maintained by the Interstate Oil and Gas Compact Commission and the Groundwater Protection Council—is now the most common forum for public disclosure regarding the type and concentration of chemicals used in fracking fluid. FracFocus started operation on April 11, 2011, and already several cities in Texas and Oklahoma, detailed below, require all wells employing fracking to use the site.

Officials estimate about 75 percent of all wells drilled after FracFocus began are logged on FracFocus.¹¹ As of April 2012, 130 companies had logged chemicals used in more than 15,000 wells.¹² As of July 2012, eleven states required disclosure on FracFocus and nine more were in the process of adopting it.¹³ Some environmental groups have complained that FracFocus is too limited and does not provide the public—or even state authorities—with all the ingredient information required by the various states that require disclosure through FracFocus.¹⁴ The president of the Ground Water Protection Council, Stan Belieu, flatly denies this, saying instead that FracFocus contains all of the information required by these states with respect to hydraulic fracturing chemical disclosure.¹⁵

Starting June 1, 2013, FracFocus will update its data input process with “FracFocus 2.0.”¹⁶ The new format allows the FracFocus

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11. Jay F. Marks, *Oklahoma City Chemical Disclosure Website FracFocus Turns Year Old*, NEWSOK (Apr. 13, 2012), <http://newsok.com/oklahoma-city-chemical-disclosure-website-fracfocus-turns-year-old/article/3665867>.
 12. *Id.*
 13. *FracFocus: Myth and Facts*, ENERGY IN DEPTH (Nov. 26, 2012), <http://www.eidohio.org/tag/natural-resources-defense-council>.
 14. *See, e.g.*, MATTHEW MCFEELEY, NAT. RES. DEF. COUNCIL, STATE HYDRAULIC FRACTURING DISCLOSURE RULES AND ENFORCEMENT: A COMPARISON 8 (2012), available at <http://www.nrdc.org/energy/files/fracking-disclosure-ib.pdf>.
 15. ENERGY IN DEPTH, *supra* note 13.
 16. Barry Russell, IPAA Members Notice, Feb. 4, 2013 (on file with author).

software to search on, and check for, many more data elements for input and value errors than the Excel spreadsheet format of the original. It also allows distribution of the data to state agencies in a format that can be imported into the most commonly encountered database software. “With the introduction of the server side XML design, FracFocus can now meet the needs of the state agencies that wanted to use it for regulatory reporting.”¹⁷

C. Flowback Water Disposal Requirements

Perhaps the single biggest threat to groundwater and surface water occurs when used fracturing fluid comes back to the surface. This fluid is typically laden with particulates, salt, and various chemicals used in the fracturing process. The four most common disposal methods for used fracturing fluid include: (a) discharge of the used fracturing fluid into existing drainages, generally after some form of prescribed treatment; (b) holding the fracturing fluid in a pit for settling, followed either by recycling of the used fracturing fluid or evaporation and seepage into the ground; (c) use of trucks or temporary pipelines for transportation and remote disposal; or (d) disposal through a local disposal well, possibly into the aquifer from which it was originally pumped.

Movement of new and recycled frac water is often done with tractor-tanker trucks. Fracing and recycling operations can require dozens of trips with such trucks which cause congestion and increased road wear. In addition, if such trucks congregate on a road during a fracturing operation, more congestion can occur. Regulation to alleviate such use is often local in nature, particularly with regard to hours of travel, selection of truck routes, and parking rules. Road use surtaxes or “impact fees” have recently been contemplated or introduced, as in Ohio and West Virginia.¹⁸

Storage in evaporation pits and recycling and storage pits has led to regulations concerning pit permitting and the design of pits along with requirements to report ruptures and accidental discharges. For example, Oklahoma requires operators to report any event of rupture, break, or opening that occurs in the surface or production casing.¹⁹ Regulations also govern the use of commercial and noncommercial pits²⁰ as well as reclamation and abandonment.²¹

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17. JOHN VEIL, VEIL ENVTL., L.L.C., FRACFOCUS 2.0 USERS GUIDE 3 (2013), *available at* <http://www.ipaa.org/wp-content/plugins/download-monitor/download.php?id=107>.
 18. Reginald Fields, *New Ohio Energy Strategy to Deal with Expected Fracking Boom*, PLAIN DEALER (Cleveland) (Mar. 4, 2012), *available at* http://www.cleveland.com/open/index.ssf/2012/03/ohio_looks_at_way_s_to_cash_in.html.
 19. OKLA. ADMIN. CODE § 165:10-3-3 (2011).
 20. *See id.* § 165:10-9-1.

Generally, underground injection of drilling waste falls under federal oversight through the U.S. Environmental Protection Agency (EPA). Included within the Safe Drinking Water Act (SDWA) is a program that provides for regulatory management of the injection of fluids, if injection may result in contamination of underground sources of drinking water.²² This program is known as the Underground Injection Control (UIC) program. The SDWA establishes six classes of wells, including “Class II” wells, which are used for the injection of waste associated with oil and gas, including used fracing fluid. In 2005, however, legislative amendments clarified that the SDWA does not regulate hydraulic fracturing operations.²³ Therefore, states have primacy with regard to UIC programs over fraced wells and disposal wells.

States seek to promulgate rules regarding disposal of used fracing fluid that protect surface water and fresh groundwater. Generally, states seek to: (a) define the allowable general methods of disposal; (b) delineate either required or best practices or proscribe certain practices associated with the allowable methods, or both; and (c) establish reporting and monitoring requirements and, if necessary, fines or other penalties for violations.

D. Completion Requirements

Several states that have encountered fracing have established rules requiring drilling and fracing records to be kept and filed with the state both during and after operations are complete. These reports sometimes require completion of an approved form and generally must be filed within a certain number of days after completion of drilling or stimulation operations, or both. For example, in Ohio the operator must file a well completion record on a form approved by the state within sixty days of completing drilling operations to the proposed total depth of a well or discovery of a dry hole.²⁴ In Ohio, these reports require information about “the type and volume of fluid used to stimulate the well,” the pressure at which the reservoir fractures and admits fracing fluid, the methods used for the containment of used fracing fluid, “the average pumping rate of the well,” and the name of the managerial personnel that performed the well stimulation.²⁵ Some other state laws require the driller to include a copy of the log from the stimulation of the well and a copy of the pumping pressure and rate of flow graphs derived from fracing operations.

21. *Id.* § 165:10-11.

22. 42 U.S.C. § 300h (2006).

23. *Id.* § 300h(d)(1)(B)(ii).

24. OHIO REV. CODE ANN. § 1509.10(A) (West Supp. 2012).

25. *Id.* § 1509.10(A)(9).

II. SPECIFIC STATE LAWS AND REGULATIONS

The following is an alphabetical analysis of several states that currently have, or soon expect to have, shale hydrocarbon development. It is intended to provide a spectrum, with states having long experience with shale development and with an established body of oil and gas law in general (like Texas) on one end and states without either (like Idaho and Maryland) on the other. It also provides a balance between eastern and western states. In addition, the analysis is intended to provide examples of the common characteristics of state regulation governing fracking that are described in Part I.

A. *Idaho*

In Idaho, oil and gas development—including exploration, drilling, and all production phases—is regulated by the Idaho State Board of Land Commissioners (Idaho Board).²⁶ As of October 7, 2012, the Idaho Board has not yet received an application requesting permission to engage in hydraulic fracturing.²⁷ The Idaho Board does, however, anticipate that they will begin to receive some applications requesting permission for fracking in 2013.²⁸ In anticipation of such applications, the Idaho Board passed regulations covering fracking in Idaho.²⁹ The rules and regulations contain disclosure and notice requirements that explicitly address fracking.³⁰

The regulations require the owners or operators of a well to submit a permit application to the Idaho Board that includes disclosures of the chemical constituents in the owner or operator's fracking fluid and information on the geologic formation into which the owner or operator intends to inject the fracking fluid.³¹ Specifically, the owner or operator is required to identify, as to each stage of the well

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26. *Idaho Oil & Gas Conservation Commission*, IDAHO DEP'T OF LANDS, http://www.idl.idaho.gov/bureau/minerals/min_leasing/iogcc.html (last updated Mar. 15, 2013).
 27. Telephone Interview with Eric Wilson, Minerals Program Manager, Idaho Dep't of Lands (Oct. 5, 2012) (confirming that Idaho's Department of Lands has yet to receive any application to engage in hydraulic fracturing, but anticipates receiving some within the next year).
 28. *Id.* (anticipating a permit influx because well operators will need to utilize hydraulic fracturing to clean out drilling muds that are currently preventing hydrocarbons from flowing into the wells from the surrounding reservoir).
 29. IDAHO ADMIN. CODE r. 20.07.02.056 (2012).
 30. *Id.*
 31. *Id.* r. 20.07.02.056(1) (requiring the inclusion of fracking information—in addition to the well treatment information required by subsection 055.01—for a section 050 Application for Permit to Drill).

stimulation program: (1) the chemical additive types, (2) the chemical compound names and Chemical Abstracts Service numbers, (3) the proposed rate or concentration and total volume for each additive, and (4) the formula of the chemical compounds that will be used in the well stimulation.³²

Once the Idaho Board receives an application for a permit to drill, it will post the application on the Idaho Department of Lands website, a publicly accessible forum, for a fifteen-day comment period.³³ During this interval, the public may review the application and evaluate whether or not the application complies with the oil and gas rules and regulations, and their comments will be compiled on the website.³⁴ Additionally, the Idaho Board will furnish local counties or cities with an electronic copy of the applications.³⁵ Idaho's fracing regulations *do not* contain an explicit provision regarding public disclosure.³⁶ Upon request, within the application for a permit to conduct fracing, the owner or operator may invoke trade secret provisions to prevent the chemical disclosure of the hydraulic fracturing fluids from being revealed to the public.³⁷

The regulations also explicitly prohibit owners or operators from injecting any BTEX compounds—an acronym covering “volatile organic compounds, such as benzene, toluene, ethyl benzene, and xylene”—“or any petroleum distillate[] into ground water in excess of . . . ground water quality standards.”³⁸ These standards and concen-

32. *Id.* r. 20.07.02.056(1)(b).

33. IDAHO OIL & GAS CONSERVATION COMM'N, CHANGES TO IDAHO'S OIL AND GAS RULES 2 (n.d.) [hereinafter CHANGES TO IDAHO'S OIL & GAS RULES], *available at* http://www.idl.idaho.gov/bureau/minerals/pdf/faq_oil-gas-rule-changes.pdf.

34. *Id.*

35. *Id.*

36. *See* IDAHO ADMIN. CODE r. 20.07.02.056(1)(b).

37. *Id.* r. 20.07.02.006(2); CHANGES TO IDAHO'S OIL & GAS RULES, *supra* note 33, at 2; *see also* IDAHO CODE ANN. § 9-340D(1) (2010 & Supp. 2012) (protecting and exempting trade secrets, which may be included in response to a public agency's request for information, from disclosure; the trade secrets may be in the form of a formula, compilation, method, technique, or process).

38. IDAHO ADMIN. CODE r. 20.07.02.056(2); *see also* PAUL JEHN, IDAHO DEP'T OF HEALTH & WELFARE DIV. OF ENVTL. QUALITY, BUREAU OF WATER QUALITY, IDAHO GROUNDWATER QUALITY PROTECTION: A MANUAL FOR LOCAL OFFICIALS 22 (1989) [hereinafter MANUAL FOR LOCAL OFFICIALS], *available at* http://www.deq.idaho.gov/media/462975-idaho_gw_quality_protection_entire.pdf (listing the public drinking water standards and regulations for the purpose of maintaining quality of the public drinking water system).

tration limits vary from substance to substance.³⁹ The owners or operators may be authorized to use BTEX or petroleum distillates for well stimulations, but only if such usage is approved by the Director of the Idaho Board.⁴⁰ In addition, the owner or operator must disclose the following information to the Idaho Board in a “detailed description of the proposed well stimulation design”: (1) the anticipated pressure range that is to be applied to the well, (2) the maximum injection pressure the owner or operator anticipates will be applied to the drilling well, and (3) the estimated or calculated resultant horizontal and vertical fracture height or length.⁴¹

Analogous to the owner or operator of a well submitting a disclosure application to the Idaho Board before engaging in fracing, once hydraulic fracturing on the well has ceased, the owner or operator must also disclose a posttreatment report to the Idaho Board.⁴² But the posttreatment report requires less detail than the initial application for hydraulic fracturing.⁴³ Specifically, the posttreatment report must disclose: (1) the concentrations by volume of the base treatment fluid, (2) the individual additive and proppants in the entire fracturing fluid, and (3) the amount of pressures used while fracing the well.⁴⁴ The owner or operator of the well may also request that trade secrets disclosed in the posttreatment report be treated as confidential.⁴⁵

B. *Kansas*

In 1947, Kansas was the first state to pioneer the method of hydraulic fracturing.⁴⁶ Although the Kansas Corporation Commission (KCC) has regulated the state oil and gas industry since the 1930s, the Kansas legislature only recently passed its first “fracing specific” law—a law that simply states, “The [KCC] *may* . . . promulgate rules and regulations necessary for the supervision and disclosure of any well on

39. MANUAL FOR LOCAL OFFICIALS, *supra* note 38, at 22.

40. IDAHO ADMIN. CODE r. 20.07.02.056(2).

41. *Id.* r. 20.07.02.056(1)(c).

42. *Id.* r. 20.07.02.056(5).

43. BRANDON J. MURRILL & ADAM VANN, CONG. RESEARCH SERV., R42461, HYDRAULIC FRACTURING: CHEMICAL DISCLOSURE REQUIREMENTS 7 n.40 (2012), available at <http://www.fas.org/sgp/crs/misc/R42461.pdf>.

44. IDAHO ADMIN. CODE r. 20.07.02.056(5).

45. MURRILL & VANN, *supra* note 43, at 5 n.24.

46. *Hydraulic Fracturing: Frequently Asked Questions*, KAN. CORP. COMM’N, http://www.kcc.state.ks.us/conservation/faq_hydraulic_fracturing.htm (last visited Mar. 18, 2013) [hereinafter *Kansas Hydraulic Fracturing: FAQ*] (“Hydraulic fracturing, or ‘fracing,’ is a method pioneered in Kansas in 1947, used to allow oil and natural gas producers to safely recover oil and gas from oil- and gas-producing formations.”).

which a hydraulic fracturing treatment is performed.”⁴⁷ Currently, however, the KCC has not created, nor are there any proposals to create, regulations that explicitly address hydraulic fracturing.⁴⁸ Rather, only the General Rules and Regulations for the Conservation of Crude Oil and Natural Gas apply to hydraulic fractured wells.⁴⁹ Thus, Kansas is one of at least fifteen states that currently engages in fracturing activities but does not operate with any ingredient or operational disclosure requirements.⁵⁰ Along with its newfound confirmation of its ability to specifically address hydraulic fracturing, the KCC is to annually review the “current drilling methods, geologic formation standards, plugging techniques[,] and casing and cementing standards and materials.”⁵¹ Based upon the review, the KCC must then, if necessary, amend its rules and regulations to reflect any changes in methods, standards, techniques, and materials.⁵²

Before the Kansas legislature enacted this ambitious fracturing law,⁵³ the Kansas Joint Committee on Energy and Environmental Policy (a committee staffed by both Kansas House and Senate Legislature members), in conjunction with the KCC and the Office of Revisor of Statutes, explored whether and how other states regulate hydraulic fracturing.⁵⁴ Specifically, the Kansas Legislature looked into how the

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47. *Id.*; KAN. STAT. ANN. § 55-152(a) (Supp. 2012) (emphasis added).
48. Telephone Interview with Lane Palmateer, Litigation Counsel, Kan. Corp. Comm’n (Sept. 12, 2012) (indicating that there has not been, nor is there currently, a strong push towards establishing hydraulic fracturing regulations within the KCC).
49. *Id.*; *Kansas Hydraulic Fracturing: FAQ*, *supra* note 46 (acknowledging that hydraulic fracturing in Kansas is regulated through the following general regulations: surface pipe regulations, production casing regulations, well-cementing requirements, intent-to-drill process, well spacing requirements, pit permitting process, and well completion reporting requirements).
50. MCFEELEY, *supra* note 14, at 1, 7.
51. KAN. STAT. ANN. § 55-152(b) (Supp. 2012).
52. *Id.*
53. *Id.* § 55-152.
54. See DOUG LOUIS, HYDRAULIC FRACTURING: JOINT COMMITTEE ON ENERGY AND ENVIRONMENTAL POLICY 18 (Sept. 9, 2011), *available at* http://www.kcc.state.ks.us/conservation/hydraulic_fracturing_louis.pdf (addressing, specifically, what the states of Alabama, Arkansas, Louisiana, Oklahoma, Texas, and Wyoming have done regarding hydraulic fracturing); Memorandum from Matt Sterling, Assistant Revisor of Statutes, to the Joint Energy and Environmental Policy Committee (Oct. 17, 2011) [hereinafter Sterling Memorandum], *available at* http://www.kslegislature.org/li_2012/b2011_12/committees/misc/ctte_jt_engy_envr_n_plcy_1_20111017_04_other.pdf (addressing, specifically, how Texas regulates hydraulic fracturing after the passage of H.B. 3328 in 2011).

Texas Legislature addressed the ingredient disclosure of hydraulic fracturing fluids through mandatory public disclosures, including selection of a disclosure outlet, protection of trade secret information, and determining when disclosure is necessary.⁵⁵ But today, while the KCC does not require disclosure, some well operators (such as ExxonMobil and Oxy) have voluntarily and publically disclosed their hydraulic fracturing fluid ingredients and concentrations.⁵⁶

By allowing the KCC to adopt rules and regulations that would protect water wells from contamination by the construction, operation, and abandonment of any well, including those utilizing fracturing, the KCC protects Kansas's freshwater, which is water "containing not more than 10,000 milligrams per liter [of] total dissolved solids."⁵⁷ However, rules and regulations exist regarding the water used in hydraulic fracturing, promulgated by the Kansas Department of Agriculture's Division of Water Resources (DWR).⁵⁸ Specifically, the DWR issues water permits for a specific time period and decides whether an operator can use water already appropriated under an existing right or can be obtained through a new appropriation, if available.⁵⁹ While the DWR regulates the water used in hydraulic fracturing, the KCC regulates the same water's storage and disposal.⁶⁰

C. Maryland

The Maryland Department of the Environment (MDE) considers all applications for oil and gas well drilling and operating permits in

55. Sterling Memorandum, *supra* note 54.

56. LOUIS, *supra* note 54, at 6–7, 9–11 (showing the disclosures of ExxonMobil Corporation, Oxy, Apache Corporation, and Chesapeake).

57. KAN. STAT. ANN. § 55-150(i) (West 2008); *see id.* § 55-152(a) (Supp. 2012) ("The commission shall adopt such rules and regulations necessary for the implementation of this act including provisions for the construction, operation and abandonment of any well and the protection of the usable water of this state from any actual or potential pollution from any well."). But the rules and regulations for "wells providing cathodic protection to prevent corrosion to lines" are not allowed to "preempt existing standards and policies adopted by . . . groundwater management district[s] if such standards and policies provide protection of fresh water to a degree equal to or greater than that provided by such rules and regulations." *Id.*

58. *How is Water Used in Oil and Gas Exploration in Kansas?*, KAN. WATER OFFICE, http://www.kwo.org/about_us/bacs/kwif/rpt_hydraulic%20fracturing_ks_water_faq_03082012_final_ki.pdf (last visited Mar. 11, 2013).

59. *Id.*

60. *See* KAN. ADMIN. REGS. §§ 82-3-401 to -412 (2009) (disposal and enhanced recovery well rules).

Maryland.⁶¹ Other than strict permitting requirements⁶² and more general laws and regulations related to exploration and development activities, no specific regulations expressly governing fracing exist in Maryland. Several applications have been filed with the MDE for permits to produce oil and gas in Maryland using hydraulic fracturing, but no such permits have been issued yet.⁶³ Fracing in Maryland is primarily limited to Garrett County, its westernmost county.⁶⁴

On June 6, 2011, Governor Martin O'Malley issued an executive order requiring two Maryland Agencies, the MDE and the Maryland Department of Natural Resources (MDNR), to conduct a study on the impacts of natural gas drilling in the Marcellus Shale.⁶⁵ This executive order, known as The Marcellus Shale Safe Drilling Initiative, established an advisory commission to study the short-term, long-term, and cumulative effects of natural gas exploration and production, as well as best practices and appropriate changes to the current laws governing oil and gas exploration in Maryland.⁶⁶

In a press release issued by the State of Maryland, the study outlined in the Safe Drilling Initiative was described as follows:

The Departments of the Environment and Natural Resources, [i]n consultation with the Advisory Commission, will conduct a three-part study and present findings and recommendations as follows:

- By December 31, 2011, a presentation of findings and related recommendations regarding the desirability of legislation to establish revenue sources, such as a State-level severance tax, and the desirability of legislation to establish standards of liability for damages caused by gas exploration and production.
- By [December 31, 2012, a draft of] recommendations for best practices for all aspects of natural gas exploration and

61. See MD. CODE REGS. 26.19.01.07 (2013) (describing permit application review procedures for the MDE).

62. See MD. CODE REGS. 26.19.01.06 (describing permit application procedures for the applicant).

63. Md. Exec. Order No. 01.01.2011.11 (June 6, 2011), *available at* <http://www.governor.maryland.gov/executiveorders/01.01.2011.11.pdf>.

64. See DREW P. COBBS, MD. PETROLEUM COUNCIL, MARCELLUS SHALE IN MARYLAND 3 (Feb. 7, 2012), *available at* <http://marcellusshale.garrettcounty.org/images/documents/020712%20presentation.pdf> (map of the Marcellus Shale); DAVID K. BREZINSKI, MD. GEOLOGICAL SURVEY, THE GEOLOGY OF THE MARCELLUS SHALE IN MARYLAND 3 (n.d.) (“In western Maryland, the Marcellus Shale underlies all of Garret County . . .”).

65. Md. Exec. Order No. 01.01.2011.11, *supra* note 63, at 4–6.

66. *Id.*

production in the Marcellus Shale in Maryland, [with a final Best Practices report by August 1, 2013.]

- No later than August 1, 2014, a final report with findings and recommendations relating to the impact of Marcellus Shale drilling including possible contamination of groundwater, handling and disposal of wastewater, environmental and natural resources impacts, impacts to forests and important habitats, greenhouse gas emissions, and economic impact.
- The Executive Order also instructs the Departments and the Advisory Commission to take advantage of other ongoing research. If information becomes available during the course of the study that is sufficient to demonstrate that the natural gas can be extracted from shale formations in Maryland without adverse impact to human health, natural resources, or the environment, the Department could issue permits with all appropriate safeguards in place.⁶⁷

In December of 2011, the MDE and MDNR released Part I of the Marcellus Shale Safe Drilling Initiative Study. The study made a series of recommendations that, if enacted, would impact gas drilling in Maryland, including:

- the imposition of a fee on existing gas leases to fund research into hydraulic fracturing;
- the imposition of a state-wide severance tax, the proceeds of which would be put in a fund to monitor the impact of gas drilling and exploration, and to address impacts of such activities when negative impacts cannot be attributed to a specific, solvent entity;
- the creation of a rebuttable presumption that certain types of damages are caused by exploration and production activities; and

67. Press Release, Md. Dep't of the Env't, Governor O'Malley Names Members of the Marcellus Shale Safe Drilling Initiative Advisory Commission (July 19, 2011), *available at* <http://www.mde.state.md.us/programs/pressroom/pages/071911.aspx> (date for recommendations of best practices edited to reflect modified schedule). The revised dates for the draft and final Best Practices Report were noted in a later press release. *See* Press Release, Md. Dep't of the Env't, Marcellus Shale Advisory Commission to Hold Evening Meeting, Accept Public Comment (Aug. 14, 2012) [hereinafter Evening Meeting], *available at* http://www.mde.maryland.gov/programs/pressroom/pages/marcellus_shale_advisory_commission_august_2012_meeting.aspx.

- the creation of a comprehensive Surface Owner's Protection Act.⁶⁸

Part II of the Marcellus Safe Shale Drilling Initiative Study, which will be a report consisting of recommendations for best practices for all aspects of natural gas exploration and production in the Marcellus Shale in Maryland, is currently being compiled.⁶⁹

Bills have been introduced in the Maryland Legislature that would act upon the suggestions contained in the MDE and MDNR study. For example, the Maryland House of Representatives passed bills that would impose a \$15 fee per acre to raise funds for the next stages of the MDE and MDNR study,⁷⁰ and impose a 7.5 percent severance tax based off the wholesale market value of the gas produced at the wellhead.⁷¹ Furthermore, the Maryland Legislature has enacted recommendations included in the MDE and MDNR study. For example, the Maryland Legislature has adopted a rebuttable presumption that certain damages are caused by gas exploration and production.⁷²

Building upon fracing restrictions promulgated because of the Safe Drilling Initiative, and the existing MDE permitting requirements, county and municipal regulations may also apply. For example, the town of Mountain Lake Park in Garrett County has enacted a local moratorium against drilling new natural gas wells within its jurisdiction.⁷³ Furthermore, “[e]nvironmental groups are [currently] rallying to support legislation that would formally ban hydraulic fracturing for natural gas in Maryland” until the study on the impact of natural gas drilling in the Marcellus Shale, which is being conducted by the MDE and MDNR, is finished.⁷⁴

68. MD. DEP'T OF THE ENV'T & MD. DEP'T OF NATURAL RES., MARCELLUS SHALE SAFE DRILLING INITIATIVE STUDY: PART I, at v-vi (Dec. 2011), *available at* http://www.mde.state.md.us/programs/land/mining/marcellus/documents/meetings/marcellus_shale_report_part_i_dec_2011.pdf.

69. A draft of the second part was due to Maryland's Governor, Senate President, and House Speaker by December 31, 2012, and the final report is due no later than August 1, 2013. Evening Meeting, *supra* note 67. The Marcellus Shale Advisory Commission held a meeting on August 14, 2012, to hear comments from the public regarding hydraulic fracturing. *Id.*

70. H.D. 1204, 2012 Leg., 430th Sess. (Md. 2012).

71. H.D. 907, 2012 Leg., 430th Sess. (Md. 2012).

72. MD. CODE ANN., ENVIR. § 14-110.1 (LexisNexis 2012).

73. Mountain Lake Park, Md., Ordinance 2011-01 (Mar. 3, 2011), *available at* <http://celdf.live2.radicaldesigns.org/downloads/Ordinance-Mt.pdf>.

74. Tim Wheeler, *Greens Urge 'Fracking' Ban in Maryland*, BALT. SUN (Sept. 12, 2012, 8:10 AM), <http://www.baltimoresun.com/features/gr>

D. Ohio

In Ohio, approximately 80 percent of new wells now undergo fracing.⁷⁵ The Division of Oil and Gas Resources Management (DOGRM), a branch of the Ohio Department of Natural Resources, is the exclusive state authority that regulates the permitting, location, and spacing of wells and production and completion operations in Ohio.⁷⁶ The chief of the DOGRM, promulgates the state's oil and gas regulation.⁷⁷ Regulation of water and air pollution is conducted by the Ohio Environmental Protection Agency.

General Production Rules Affecting Fracing. Statutes and regulations that generally affect oil and gas exploration and development impact fracing mostly through significant regulation of the injection of saltwater. Before the 2010 rules went into effect, as described below, the only substantive statutory regulations explicitly affecting fracing were the waste disposal requirements applicable to injection wells.⁷⁸ These rules indirectly regulated fracing by requiring the DOGRM chief to issue a permit before any operator may inject saltwater as a part of “secondary or additional recovery operations”⁷⁹—with injected flowback fluid counting as saltwater.⁸⁰ The DOGRM chief will not issue the permit unless he concludes that groundwater will not be contaminated by the injection, the injection will not cause any public water system to be unable to comply with any national primary drinking water regulation, or, generally, that the injection will not otherwise adversely affect public health.⁸¹

en/blog/bal-bmg-legislative-fracking-ban-in-maryland-proposed-20120912_0,6855106.story (“Maryland already has a ‘de facto moratorium’ on fracturing . . . as state agencies have put on hold three applications to drill in western Maryland while they carry out an order by Gov. Martin O’Malley to conduct a three-year study of fracturing’s environmental impacts and whether they can be prevented through tighter regulations.”).

75. *State Progress*, INTERSTATE OIL & GAS COMPACT COMM’N, <http://groundwork.iogcc.org/topics-index/hydraulic-fracturing/state-progress> (last updated Nov. 29, 2012) (providing fracing statistics for Ohio, as well as all other states).
76. OHIO REV. CODE ANN. § 1509.02 (West Supp. 2012).
77. *See id.* § 1509.03 (indicating that the DOGRM chief “shall adopt, rescind, and amend . . . rules for the administration, implementation, and enforcement of this chapter”).
78. *See id.* §§ 1509.19, 1509.22 (regulating the stimulation of wells and brine management and disposal, respectively).
79. *Id.* § 1509.21 (“No person shall, without first having obtained a permit from the chief of the division of oil and gas resources management, conduct secondary or additional recovery operations, including any underground injection of fluids . . .”).
80. *Id.* § 1509.01(U).
81. *Id.* § 1509.21.

The Ohio Administrative Code provides further guidelines for injection wells. Like production wells, each saltwater injection well must meet specific construction and permit requirements.⁸² These requirements are similar to other states and include that the surface casing be free of apparent defects and cemented continually to at least fifty feet below the deepest known source of potentially potable groundwater and that the well be inspected before initial injection.⁸³ A variance from these and other requirements may be obtained only if the volume of injection is sufficiently low and the DOGRM also determines that injection will not contaminate underground public water supplies.⁸⁴ Likewise, no saltwater injection well may be within one hundred feet of an occupied private dwelling.⁸⁵

Before using a well for injection, an operator must obtain a permit from the DOGRM after approval from the DOGRM chief.⁸⁶ The application for a permit must describe the integrity of existing casing, include an area survey (including the location of other wells), and be followed by a notice to be filed by the DOGRM.⁸⁷ After the notice has been on file for fifteen days and the DOGRM determines that the application complies with regulatory requirements, a permit is granted provided no objections have been filed.⁸⁸

Finally, the DOGRM imposes additional operating and reporting requirements on saltwater injection wells. First, operators may only inject saltwater or “standard well treatment fluid” into a well approved under the Administrative Code and may only do so up to a certain pressure.⁸⁹ Also, injection pressures, volumes, and annular pressure must be monitored, and reports of the results must be submitted in a form supplied by the DOGRM once a year.⁹⁰

Fracing-Specific Revisions. Fracing has been the target of two recent tranches of legislation in Ohio. The first of these came in June of 2010, when the 128th General Assembly and Ohio Governor Ted Strickland passed laws with provisions that directly address fracing. Fracing is now specifically defined under “well stimulation” as “the

82. See OHIO ADMIN. CODE 1501:9-3-05 to -06 (2011) (describing well construction and permit application requirements).

83. *Id.* 1501:9-3-05(A)(1), (5).

84. *Id.* 1501:9-3-05(A)(7).

85. *Id.* 1501:9-3-09.

86. *Id.* 1501:9-3-06(A), :9-3-12 (discussing permit requirement and injection approval, respectively).

87. *Id.* 1501:9-3-06(B)–(E).

88. *Id.* 1501:9-3-06(E)(2)(b).

89. *Id.* 1501:9-3-07(C)–(D).

90. *Id.* 1501:9-3-07(E)–(F).

process of enhancing well productivity, including hydraulic fracturing operations.”⁹¹ Generally, the statute creates new reporting and substantive requirements for activities relating to “well stimulation.” Aside from reporting requirements, the statute now explicitly requires the DOGRM chief’s written authorization before allowing well “perforat[ion] for purposes of well stimulation in any zone that is located around casing that protects underground sources of drinking water.”⁹² In addition, the 2010 Ohio regulations require that pits or steel tanks used for “brine and other waste substances resulting from, obtained from, or produced in connection with drilling . . . be constructed and maintained to prevent the escape of brine and other waste substances,” as authorized by the chief of the Division of Mineral Resources Management.⁹³

Under the 2010 law, within sixty days of completing drilling operations to the proposed total depth of a well or discovery of a dry hole, the driller must file a well completion record⁹⁴ on a form approved by the chief of the Division of Mineral Resources Management, the predecessor of the DOGRM.⁹⁵ As modified in 2012 (described below), this record needs to provide information about

the type and volume of fluid used to stimulate the reservoir of the well, the reservoir breakdown pressure, the method used for the containment of fluids recovered from the fracturing of the well, the methods used for the containment of fluids when pulled from the wellbore from swabbing the well, the average pumping rate of the well, and the name of the person that performed the well stimulation.⁹⁶

The actual required disclosures are detailed on Material Safety Data Sheets, available on a state-maintained website, listing each fracing ingredient’s individual chemical components and their corresponding Chemical Abstract Service (CAS) number.⁹⁷ In addition, the driller

91. OHIO REV. CODE ANN. § 1509.01(Z) (West Supp. 2012).

92. *Id.* § 1509.17(A). As of March 2, 2012, Ohio began posting Material Safety Data Sheets online but has not formulated rules requiring complete chemical disclosure.

93. OHIO REV. CODE ANN. § 1509.22(C)(3).

94. *Id.* § 1509.10(A).

95. *Id.* § 1509.02.

96. *Id.* § 1509.10(A)(9).

97. *Id.* § 1509.10(E). As of March 2, 2012, Ohio began posting Material Safety Data Sheets online. *Material Safety Data Sheets*, OHIO DEP’T NATURAL RES., <http://oilandgas.ohiodnr.gov/industry/material-safety-data-sheets-msds> (last visited Mar. 12, 2013).

needs to “include a copy of the log from the stimulation of the well, a copy of the invoice for each of the procedures and methods” used on the well, and “a copy of the pumping pressure and rate graphs.”⁹⁸

In the second tranche of laws, new laws requiring more robust fracing fluid ingredient disclosure, improved water quality testing protocols, and other operational issues were established. Specifically, on June 11, 2012, Governor John Kasich signed the Amended Substitute Senate Bill 315, which contains Ohio’s new fracing fluid disclosure rules and became effective September 10, 2012.⁹⁹ These provisions modified Ohio law in Revised Code chapter 1509.¹⁰⁰

The bill requires chemical disclosure during initial completion and subsequent fracing operations and online disclosure of fracing fluid ingredients, with exceptions for recognized trade secrets. Specifically, operators are now required to include with their completion report all chemicals used in drilling a well up until the surface casing is set.¹⁰¹ In addition to this disclosure to state officials, public disclosure to either FracFocus.org or another website of the DOGRM’s choosing is also necessary.¹⁰² Like other states, a trade secret exception is included in the law.¹⁰³ After initial completion, disclosure of fracing fluid constituents used for refracturing operations or to complete a well is also required.¹⁰⁴ Complete records of chemicals used in initial completion and in fracturing and recompletion operations must be kept by operators for two years.¹⁰⁵ The final bill was softened somewhat by allowing “substantial compliance” by operators to satisfy the new disclosure requirements if “reasonable efforts” were made to acquire and disseminate information about fracing fluid

98. OHIO REV. CODE ANN. § 1509.10(A)(9).

99. MAURA MCCLELLAND ET AL., OHIO LEGIS. SERV. COMM’N: FINAL ANALYSIS OF AM. SUB. 315, at 71, *available at* <http://www.lsc.state.oh.us/analyses129/12-sb315-129.pdf>.

100. 2012 Ohio Legis. Serv. Ann. L-1013 (West) (now codified at OHIO REV. CODE ANN. §§ 1509.01–04, .06–.07, .10–.11, .22, .221–.223, .23, .28, .33, .99); *see also* Duncan Meisel, *Ohio Passes One of the Worst Fracking Laws in the U.S.*, ECOWATCH (May 29, 2012), <http://ecowatch.org/2012/ohio-passes-one-of-the-worst-fracking-laws-in-the-u-s> (“The shale gas provisions are part of a larger energy bill that also addresses Ohio’s renewable energy . . .”).

101. OHIO REV. CODE ANN. § 1509.10(A)(9)(a).

102. *Id.* § 1509.10(F)(2)–(3); OHIO LEGIS. SERV. COMM’N, *supra* note 99, at 20.

103. OHIO REV. CODE ANN. § 1509.10(I)(1).

104. *Id.* § 1509.10(B)(3).

105. *Id.* § 1509.10(J)(1)–(2).

ingredients¹⁰⁶ and permitting nondisclosure of trace or incidental amounts of chemicals used in a well.¹⁰⁷

The new laws also require well operators to disclose the anticipated source of water, such as Lake Erie or the Ohio River watershed, to be used for fracing and other production operations.¹⁰⁸ New statutes and regulations also impose restrictions on drilling locations with respect to distance between drilling sites and urban areas.¹⁰⁹ In addition, the DOGRM can now mandate pad-site location design specifications¹¹⁰ and terms for wells to be located in any hundred-year floodplain or within the distance that groundwater is estimated to flow in a five-year period from a public water supply source.¹¹¹

Under the newly enacted laws, horizontal wells—defined as those producing from the Marcellus, Point Pleasant, and Utica formations¹¹²—require: testing of water wells within 1,500 feet of the horizontal well,¹¹³ inspection of the well pad by DOGRM inspectors before production occurs,¹¹⁴ and a minimum threshold of general hazard insurance of five million dollars.¹¹⁵ Horizontal well permits now will also require either a road use and maintenance agreement with the municipality wherein the well lies or an affidavit that the operator of record attempted in good faith to acquire these agreements but could not reach final agreement with the local municipality.¹¹⁶

Owner and operators of UIC-Class II saltwater/fracing flowback injection wells, and associated brine haulers, are now required to make quarterly reports via the Internet, compiling volume, composition, and other data for fluid injected into a particular over that season.¹¹⁷

Senate Bill 315 implemented an express list of violations, including failure to get permits to drill, reopen, plugback, or plug a well; maintain insurance and surety bonds as required;¹¹⁸ restore the

106. *Id.* § 1509.10(K)(1).

107. *Id.* § 1509.10(K)(2).

108. *Id.* § 1509.06(A)(8)(a).

109. *Id.* § 1509.06(A)(8)(b).

110. *Id.* § 1509.06(H)(1).

111. *Id.* § 1509.06(H)(2).

112. *Id.* § 1509.01(GG).

113. *Id.* § 1509.06(A)(8)(c).

114. *Id.* § 1509.06(H)(1).

115. *Id.* § 1509.07(A)(2).

116. *Id.* § 1509.06(A)(11)(b).

117. *Id.* § 1509.22(D)(1)(c)–(d).

118. *Id.* § 1509.01(EE)(1)–(3).

surface as required by section 1509.072;¹¹⁹ or submit a report, test result, fee, or document as required by section 1509.01.¹²⁰ Each day a violation of the law occurs is now considered a separate violation with regard to criminal and civil penalties.¹²¹ Industry personnel have complained about the daily incurrence of separate criminal or civil violations but believe that this will change with subsequent iterations of the new fracking legislation.¹²²

Sentate Bill 315 and the resultant rules have drawn a negative response from environmentalists. The loudest complaints have arisen concerning the trade secret exception from disclosure.¹²³ In particular, complaints have arisen over a portion of the law purported to act as a “gag order” on doctors treating patients possibly harmed by chemicals in fracking fluid.¹²⁴ The offending clause provides:

- (H)(1) If a medical professional, in order to assist in the diagnosis or treatment of an individual who was affected by an incident associated with the production operations of a well, requests the exact chemical composition of each product, fluid, or substance and of each chemical component in a product, fluid, or substance that is designated as a trade secret pursuant to division (I) of this section, the person claiming the trade secret protection pursuant to that division shall provide to the medical professional the exact chemical composition of the product, fluid, or substance and of the chemical component in a product, fluid, or substance that is requested.
- (2) A medical professional who receives information pursuant to division (H)(1) of this section shall keep the information confidential and shall not disclose the information for any purpose that is not related to the diagnosis or treatment of an individual who was affected by an incident associated with the

119. *Id.* § 1509.01(EE)(5).

120. *Id.* § 1509.01(EE)(8).

121. *Id.* § 1509.33(H).

122. W. Jonathan Airey et al., *Oil and Gas Alert: Ohio Oil and Gas Regulation Legislation Revisions to Revised Code 1509*, VORYS (June 19, 2012), <http://www.vorys.com/publications-628.html> (“Many industry representatives believe this failure to add appropriate limitations on daily violations will need to be addressed in subsequent legislation.”).

123. See Duncan Meisel, *They Did It, DON’T FRACK OHIO* (May 29, 2012, 4:54 PM), <http://www.dontfrackoh.org/2012/05/they-did-it> (accusing fracking companies of labeling chemicals as trade secrets to avoid disclosure).

124. See *New Ohio Law Limits Disclosure of Fracking Fluid Ingredients*, SOC’Y OF ENVTL. JOURNALISTS (May 30, 2012), <http://www.sej.org/publications/watchdog-tipsheet/new-ohio-law-limits-disclosure-fracking-fluid-ingredients> (noting that doctors are required to sign confidentiality agreements when “treating people possibly made sick by fracking fluids”).

production operations of a well. Nothing in division (H)(2) of this section precludes a medical professional from making any report required by law or professional ethical standards.¹²⁵

Instead of being a “gag order” as claimed, the law actually allows for disclosure three ways: (1) as necessary for “diagnosis or treatment” of a patient, (2) as otherwise required by law, or (3) as required by the ethical standards of medical personnel.

Some in the Ohio legislature would still like to see fracking banned. Ohio House Democrats introduced a bill (House Bill 345) on October 12, 2011, that would temporarily halt fracking statewide until the EPA completed a study about the ramifications of fracking on air and water.¹²⁶ The bill’s cosponsor, Representative Denise Driehaus, said, “There are too many questions that still need to be answered regarding our constituents’ safety.”¹²⁷ After referral to the Agriculture and Natural Resources committee, the Ohio House took no action on House Bill 345, and it expired in January 2013 with the convening of the 130th General Assembly.¹²⁸

E. Pennsylvania

The Pennsylvania Office of Oil and Gas Management, a section of the Pennsylvania Department of Environmental Protection (DEP), oversees oil and gas development in Pennsylvania pursuant to authority derived from statute.¹²⁹ Although oil has been drilled in Pennsylvania since the middle of the nineteenth century, throughout most of the twentieth century the state was not a prolific producer, so much of Pennsylvania’s oil and gas case law is over a century old and, until recently, practically no regulations affected hydraulic fracturing.¹³⁰

125. OHIO REV. CODE ANN. § 1509.10(H)(1)–(2).

126. H.B. 345, 129th Gen. Assemb., Reg. Sess. § 1(B) (Ohio 2011), *available at* http://www.legislature.state.oh.us/BillText129/129_HB_345_I_Y.pdf; Roger Ballas, *Democratic State Reps. to Introduce Fracking Legislation in Ohio House*, CLEVELAND.COM (Oct. 16, 2011, 1:21 PM), http://www.cleveland.com/broadview-heights/index.ssf/2011/10/post_15.html; *Status Report of Legislation: 129th General Assembly—House Bills*, LEGIS. SERV. COMM’N, <http://lsc.state.oh.us/coderev/hou129.nsf/House+Bill+Number/0345?OpenDocument> (last visited Mar. 18, 2013).

127. Ballas, *supra* note 126.

128. *Status Report of Legislation*, *supra* note 126.

129. 58 PA. CONS. STAT. ANN. §§ 3201–3274 (West Supp. 2013); *see also Oil & Gas Programs*, PA. DEP’T ENVTL. PROT., http://www.depweb.state.pa.us/portal/server.pt/community/oil_gas/6003 (last visited Feb. 21, 2013) (describing the Office of Oil and Gas Management and its role in implementing environmental regulations).

130. Brigid R. Landy & Michael B. Reese, *Getting to “Yes”: A Proposal for a Statutory Approach to Compulsory Pooling in Pennsylvania*, 41

This changed on January 28, 2010, when then-Governor Ed Rendell proposed amendments to existing drilling regulations that specifically affected fracing in order to protect freshwater supplies.¹³¹ The governor also proposed the hiring of more inspectors to enforce the new rules.¹³² The proposed regulations became effective on February 5, 2011, introducing enhanced well-casing requirements¹³³ and requiring operators to replace any water supplies contaminated by fracing.¹³⁴

Generally, the new law requires operators must “ensure that the integrity of the well is maintained and health, safety, environment and property are protected.”¹³⁵ Specifically, the operator must prevent “brine, completion and servicing fluids, and any other fluids or materials from below the casing seat from entering fresh groundwater.”¹³⁶ Additionally, operators must “prepare and maintain a casing and cementing plan”¹³⁷ describing how the well will be drilled and completed in compliance with the new regulations, and this plan must contain information regarding “anticipated fresh groundwater zones”¹³⁸ and “casing type, . . . depth, diameter, wall thickness and burst pressure rating.”¹³⁹ This plan must be kept at the well site for state inspectors.¹⁴⁰

If aquifer contamination occurs, the water supply must be replaced. Generally, a well operator who contaminates or diminishes a water supply must “restore or replace the affected supply with an alternate source of water adequate in quantity and quality for the purposes served by the supply.”¹⁴¹ Specifically, the new rules require a

ENVTL. L. REP. 11044, 11044 (2011) (providing an overview of Pennsylvania’s oil and gas history).

131. *Proposed Rulemaking: Department of Environmental Protection*, 25 PA. CODE § 78 Oil and Gas Wells, 40 PA. BULL. 623, 623 (2012), available at http://www.pabulletin.com/secure/data/vol40/40-5/40_5_prm.pdf; Jon Hurdle, *Pennsylvania Plans More Gas Drilling Regulation*, REUTERS (Jan. 28, 2010, 6:22 PM), <http://www.reuters.com/article/idUSN2812147220100128>.

132. Hurdle, *supra* note 131.

133. 25 PA. CODE § 78.73(a)–(f) (2011).

134. *Id.* § 78.51(a).

135. *Id.* § 78.73(a).

136. *Id.* § 78.73(b).

137. *Id.* § 78.83a(a).

138. *Id.* § 78.83a(a)(1).

139. *Id.* § 78.83a(a)(3).

140. *Id.* § 78.83a(b).

141. *Id.* § 78.51(a).

replacement water supply to be of “adequate quantity” and “adequate quality.” “Adequate quantity” means the replacement source must either supply enough water to meet the user’s current needs or connect to a public water system that supplies enough water to meet the user’s current need.¹⁴² “Adequate quality” means the replacement water supply either meets the specifications in the Pennsylvania Safe Drinking Water Act¹⁴³ or is of comparable quality to the lost water supply, if the lost water supply did not meet the Water Act standards.¹⁴⁴

In response to fear about water contamination, new taxes (described as “fees”) were imposed in early 2012 on gas wells, and various uniform standards for shale gas developments were implemented.¹⁴⁵ Under the new law, popularly known as Act 13 of 2012, fees per well are assessed by local county authorities.¹⁴⁶ The amount of the fee per well is affected by the average price of shale gas during the year in which the tax is assessed.¹⁴⁷ Not paying the assessments can lead to fines and liens.¹⁴⁸ The collected fees are then to be deposited into the newly established “Unconventional Gas Well Fund.” Half of the fund is divided equally among the conservation districts for use allowed by the Conservation District Law,¹⁴⁹ and half is distributed by the State Conservation Commission.¹⁵⁰

Act 13 of 2012 also created zoning requirements related to shale gas drilling. Under the law, a gas well may not be drilled within 500 feet of a building or water well without the owner’s express written consent.¹⁵¹ Similarly, shale gas wells cannot be drilled within 1,000 feet of any existing water supply extraction point used by a water

142. *Id.* § 78.51(d)(3)(i)–(ii).

143. 35 PA. STAT. ANN. § 721.1–17 (West 2003) (establishing an Environmental Quality Board to determine standards, rules and regulations).

144. 25 PA. CODE § 78.51(d)(2). This would be applicable if, for example, the lost water was of “livestock grade”—too saline for human consumption, but still useful for cattle.

145. 58 PA. CONS. STAT. ANN. §§ 2301–3504 (West Supp. 2013).

146. *Id.* § 2302(a).

147. *Id.* § 2302(b). For example, in 2013, if the average annual price of natural gas is less than \$2.25, the fee per gas well will be \$30,000; however, if the annual price is between \$2.25 and \$3.00, a \$35,000 fee will be assessed for each gas well. *Id.* § 2302(b)(2)(i)–(ii).

148. *Id.* § 2308(b), (e).

149. 3 PA. STAT. ANN. §§ 849–62 (West 2008 & Supp. 2013).

150. 58 PA. CONS. STAT. ANN. § 2314(a), (c)(5) (West Supp. 2013).

151. *Id.* § 3215(a).

purveyor,¹⁵² and no shale gas well “may be drilled within 300 feet of any wetlands greater than one acre in size.”¹⁵³

Fracing is specifically addressed in Act 13 of 2012. Under the act the DEP must make publically available all confirmed cases of groundwater contamination arising from fracing activities.¹⁵⁴ Specified “containment systems” are required for all fracing additives.¹⁵⁵ Also, Pennsylvania, unlike a number of other states that require public disclosure of fracing fluid ingredients, does not use FracFocus. Act 13 of 2012 requires operators to complete a chemical disclosure registry form within sixty days of completing a frac job so as to provide the Pennsylvania DEP a complete list of chemical additives used during hydraulic fracturing, with the exception of chemicals deemed “trade secrets.”¹⁵⁶ Nevertheless, the operators must provide a way for doctors treating patients that are suspected of being injured by nondisclosed chemicals to access the withheld information. Operators, however, must pass along the confidential information only if the “health professional” executes a “confidentiality agreement.”¹⁵⁷ As in most states with disclosure loopholes for trade secrets, controversy has followed. Environmentalists complain that the disclosure limitations and need for a confidentiality agreement will curtail a doctor’s ability to treat his or her patients free of the threat of litigation.¹⁵⁸

Zoning authority and preemption is also an issue in Pennsylvania. Act 13 of 2013 implemented new provisions, specifically, sections 3302 to 3304, that restrict the ability of local municipalities to regulate oil and gas operations.¹⁵⁹ In the wake of Act 13’s passage, seven Pennsylvania towns, together with the Delaware Riverkeeper Network, an environmental organization, sued Pennsylvania seeking to enjoin the law, alleging that it violates the state constitution.¹⁶⁰ A group of energy companies sought leave to intervene in the Act 13 litigation, arguing that the court would benefit from the perspective

152. *Id.*

153. *Id.* § 3215(b)(3).

154. *Id.* § 3218(b.4).

155. *Id.* § 3218.2(b).

156. *Id.* §§ 3222.1(a)–(d).

157. *Id.* § 3222.1(b)(11).

158. See Joanna Zelman, *Pennsylvania’s Fracking Chemical Disclosure Law Concerns Some Doctors*, HUFFINGTON POST (Apr. 12, 2012, 6:48 PM), http://www.huffingtonpost.com/2012/04/13/pennsylvania-fracking-disclosure_n_1422272.html (noting concerns that the chemical disclosure provision “could have a chilling effect on research and on doctors’ ability to diagnose and treat patients who have been exposed”).

159. 58 PA. CONS. STAT. §§ 3302–04 (2012).

160. *Robinson Twp. v. Commonwealth*, 52 A.3d 463 (Pa. Commw. Ct. 2012).

of those who would be directly affected by municipal ordinances that are hostile to the oil and gas industry, but the Pennsylvania Commonwealth Court denied this request.¹⁶¹ The court subsequently held that the zoning portion of Act 13 violated the Pennsylvania Constitution.¹⁶² The state appealed, and the Pennsylvania Supreme Court heard argument on October 17, 2012.¹⁶³

F. *Texas*

The Railroad Commission of Texas (RRC) makes and enforces rules covering oil and gas exploration and production in the state. It has jurisdiction over all oil and gas wells in Texas, persons owning or operating pipelines in Texas, and persons owning or engaging in drilling or operating oil or gas wells in Texas.¹⁶⁴ Unlike some other states wherein the main environmental agency also deals with oil and gas production, the Texas Commission on Environmental Quality (TCEQ) is not the primary state regulatory agency with jurisdiction over oil and gas operations or the wastes produced from those operations.¹⁶⁵

Regulations that Specifically Affect Hydraulic Fracturing. During the 2011 legislative session, the laws passed were crafted to initiate changes to the regulatory regime of three entities in Texas, including the TCEQ, the RRC, and the Texas Water Development Board (TWDB).¹⁶⁶ From these laws, various bills were introduced that altered the structure and mission of these three agencies. Bills covering changes to the TCEQ and the TWDB passed while bills altering the structure and name of the RRC failed.

Despite the primacy of the RRC as the principal authority regulating oil and gas exploration and development, other Texas agencies regulate certain limited—but potentially important—aspects of production. The TCEQ’s jurisdiction over oil and gas production activities is generally limited to regulation of air quality and the appropriation and use of surface water; the RRC regulates virtually all other environmental aspects of oil and gas operations, such as casing and completion requirements.

161. *Robinson Twp. v. Commonwealth*, No. 284 M.D. 2012, 2012 WL 1429454 (Pa. Commw. Ct. Apr. 20, 2012).

162. *Robinson Twp.*, 52 A.3d at 494 (declaring 58 PA. CONS. STAT. § 3304 “unconstitutional, null and void” and enjoining the state from enforcing it).

163. *Robinson Twp. v. Commonwealth*, No. 63 MAP 2012 (Pa. 2013).

164. TEX. NAT. RES. CODE ANN. § 81.051 (West 2011).

165. 16 TEX. ADMIN. CODE § 3.30 (2013) (setting forth the jurisdictional boundaries between the TCEQ and the RRC).

166. *Sunset Bills 82nd Legislature*, SUNSET ADVISORY COMM’N, available at <http://www.sunset.state.tx.us/legislation11.htm> (last visited Mar. 19, 2013).

Railroad Commission of Texas. Well into 2011, fracking was not regulated in Texas as a separate process targeted by laws or rules written specifically for fracking, but rather was covered by more general laws that addressed multiple aspects of oil and gas development and recovery, including fracking.¹⁶⁷ In June of 2011, Texas Governor Rick Perry signed into law legislation requiring operators to disclose the chemicals used in fracking fluids, so long as doing so would not reveal “trade secrets.”¹⁶⁸ The new law required well operators to “complete the form posted on the hydraulic fracturing chemical registry Internet website of the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission”—FracFocus.¹⁶⁹ The required disclosure includes both the volume of water used and the chemical ingredients of the fracturing fluid, along with the trade name of the chemical, its CAS number,¹⁷⁰ supplier, purpose, and maximum concentration.¹⁷¹

One element of disclosure laws that has attracted criticism by environmentalists in Texas, and other states with similar loopholes, is the part that allows an operator to withhold certain information from disclosure that it claims to be a trade secret.¹⁷² Specifically, the regulations provide that if the chemical ingredients of the fracking fluid are entitled to be shielded from disclosure as a “trade secret” pursuant to the Texas Government Code, Chapter 552, then immediate public disclosure is not required, provided the trade secret claim is made clear on the Chemical Disclosure Registry form.¹⁷³

167. See *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1, 17 (Tex. 2008) (“Though hydraulic fracturing has been commonplace in the oil and gas industry for over sixty years, neither the Legislature nor the [RRC] has ever seen fit to regulate it, though every other aspect of production has been thoroughly regulated. Into so settled a regime the common law need not thrust itself.”); ERNEST E. SMITH & JACQUELINE LANG WEAVER, 3 TEXAS LAW OF OIL AND GAS § 14.4(B), at 14-74 (2d ed. 2009) (“The Railroad Commission does not currently regulate hydraulic fracturing to stimulate production from gas wells . . .”).

168. H.B. 3328, 82d Leg., Reg. Sess. (Tex. 2011).

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

170. This number is assigned by the Chemical Abstracts Service to every chemical described in recent scientific literature. Materials covered by this numbering system include elements, isotopes, organic and inorganic compounds, ions, organometallics, and metals. *CAS REGISTRY and CAS Number FAQs*, CHEM. ABSTRACT SERV., <http://www.cas.org/content/chemical-substances/faqs> (last visited Mar. 19, 2013).

171. NAT. RES. § 91.851(a)(1)(B); 16 TEX. ADMIN. CODE § 3.29(c)(2)(A) (2011).

172. 16 TEX. ADMIN. CODE § 3.29(e).

173. *Id.* § 3.29(e)(2).

Affected property owners and those “adjacent” to the tract under development are able to challenge the trade secret protection.¹⁷⁴

If a trade secret exemption to disclosure is successfully claimed, the operator must still provide a way to supply the withheld information to “health professionals” and “emergency responders” in case of an injury, release, or other accident caused by or attributable to the fracing operation.¹⁷⁵ If a health professional or emergency responder receives fracing chemical information protected as a trade secret, this information must be kept classified except as necessary to perform his or her responsibilities.¹⁷⁶ The trade secret exception may be challenged—within two years of the filing of the final well completion report—by landowners upon whose land the well is located or whose land is adjacent¹⁷⁷ to the well or, perhaps, the pertinent oil and gas leasehold or by a state agency with jurisdiction over a matter to which the claimed trade secret information is relevant.¹⁷⁸

The 2011 rules provide for mandatory disclosure of the volume of water used and the chemical ingredients of the fracturing fluid, along with the chemical trade names, CAS number, supplier, purpose, and maximum concentration, on FracFocus, or if FracFocus ceases operation, another publically accessible website with similar disclosure requirements.¹⁷⁹ Specifically, the Texas disclosure process has two steps. First, the service companies that provide a wellsite with fracing materials must disclose to the operator of record the trade name and first supplier of each additive, along with a brief description of the intended use of each additive within fifteen days of completing the fracing process.¹⁸⁰ Second, the service company must disclose to the operator of record all chemical ingredients covered by the requirements of 29 C.F.R. § 1910.1200(g)(2), which comprise the hazard communication regulations, and describe what information is necessary to disclose on Occupational Safety and Health Administration Material Safety Data Sheets.¹⁸¹ After receipt of this data, the operator of record must submit the fracing information to be posted publically via FracFocus (or similar outlet).¹⁸²

174. *Id.* § 3.29(f)(1)(A)–(B).

175. *Id.* § 3.29(c)(4).

176. *Id.* § 3.29(g).

177. *Id.* § 3.29(a)(3) (defining adjacent property as “[a] tract of property next to the tract of property on which the subject wellhead is located, including a tract that meets only at a corner point”).

178. *Id.* § 3.29(f)(4).

179. *Id.* § 3.29(c).

180. *Id.* § 3.29(c)(1)(A)(i).

181. *Id.* § 3.29(c)(1)(A)(ii).

182. *Id.* § 3.29(c)(2)(A).

Two other exceptions are written into the new RRC disclosures. First, the operator of record or service company is not required to disclose fracking fluid ingredients that are, in turn, not disclosed to it by the original manufacturer, supplier, or service company.¹⁸³ Second, the operator of record or service company is not required to disclose ingredients not intentionally added to the fracking fluid or those that appear incidentally or unintentionally in trace amounts.¹⁸⁴

Texas Commission on Environmental Quality. Standards of quality and use of surface water in Texas are regulated by the TCEQ.¹⁸⁵ In response to the 2011 legislature's mandate, significant changes to the TCEQ's regulations, operations, and powers were made.¹⁸⁶

Generally, the new law is an attempt to make the administrative process of the TCEQ easier for the public to follow and the TCEQ more responsive to public concerns. Specifically, the law requires changing various parts of the Texas Water Code (sections 5.239, 5.271, and 5.276) in order to require performance reports from the Office of Public Interest Counsel (OPIC) to be delivered annually to the TCEQ.¹⁸⁷ Another example of this transparency is the OPIC, which was created in 1977 to help guarantee that the public's interest is represented in issues considered by the TCEQ. While the OPIC does not formally represent individual parties at TCEQ procedures, "OPIC attorneys routinely assist the public by explaining agency procedures and helping citizens gain an understanding of how they may participate in Commission decisions that affect them."¹⁸⁸ Anyone

183. *Id.* § 3.29(d)(1).

184. *Id.* § 3.29(d)(2)–(3). An example of such an incidental presence would presumably include substances that arise as a result of chemical reactions in the ground.

185. 30 TEX. ADMIN. CODE § 307.1 (2011).

186. House Bill 2694 authorizes the TCEQ to operate for another twelve years. H.R. 2694, 82d Leg., Reg. Sess. (Tex. 2011) (extending the expiration date to 2023). The recommendations of the 2011 Texas Sunset Advisory Committee have been codified and a review of the legislative information related to bill passage is available online. *Texas Senate Bill: S.B. 692*, OPEN GOV'T, <http://tx.opengovernment.org/sessions/82/bills/sb-692> (last visited Mar. 19, 2013).

187. EMILY W. ROGERS, UPDATE: TCEQ AND THE TEXAS WATER DEVELOPMENT BOARD 2-3 (2011). This presentation provides an outstandingly detailed description of every recommendation made by the 82nd Legislature and SAC regarding the TCEQ and the corresponding 2011 rule changes promulgated by the TCEQ.

188. *Office of the Public Interest Counsel*, TEX. COMM'N ON ENVTL. QUALITY, http://www.tceq.texas.gov/agency/public_interest/index.html (last updated Mar. 19, 2012).

who needs to make a permit application to the TCEQ is authorized to receive general assistance from the OPIC.¹⁸⁹

The Public Interest Counsel is appointed by the TCEQ and is supported by six additional licensed attorneys. OPIC also provides assistance to parties with questions about enforcement proceedings. In addition to assisting outside parties affected by TCEQ action, OPIC also participates as a party in contested case hearings, proposals for rulemakings, enforcement matters, and at TCEQ's public meetings.¹⁹⁰ As a party, OPIC attempts to both "provide balance to the hearings process" and "ensure[] that environmental permitting applications satisfy all legal requirements and will be adequately protective of human health and the environment."¹⁹¹ OPIC also provides comments to the TCEQ on proposed agency rules and policy, especially those that may have substantial impact on public participation.¹⁹²

Texas experienced one of its worst droughts on record in 2011 and into 2012.¹⁹³ In responding to competing demands during droughts, TCEQ relies on a priority system based on the seniority of water right holders—more "senior" water rights are allowed "first draw" rights during times of drought, while more "junior" water rights may be suspended, altered, or curtailed by the TCEQ by priority date. For example, on November 14, 2011, in response to low surface water levels on the Neches River, the director of the TCEQ notified certain "junior" water-permit owners located in the Neches drainage basin that their right to divert the river's water had been temporarily but immediately suspended so that senior water-permit holders could get their allotted share.¹⁹⁴ Specifically, water rights with a priority date of August 13, 1913, or later, term permits, and all temporary water-right permits in the Neches Basin were suspended—including those uses associated with production. Water rights associated with municipal uses or for power generation were not suspended. This restriction followed similar restrictions placed on permit rights affecting water

189. *Id.*

190. *Id.*

191. *Id.*

192. *Id.*

193. See Hilary Hylton, *Forget Irene: The Drought in Texas Is the Catastrophe that Could Really Hurt*, TIME (Aug. 31, 2011), <http://www.time.com/time/nation/article/0,8599,2091192,00.html>.

194. Press Release, Tex. Comm'n on Env'tl. Quality, TCEQ Restricts Junior Water Rights, Neches River Basin Affected (Nov. 14, 2011), *available at* http://www.anra.org/about/public_information/news/2011-11-14_TCEQ_restricts_junior_water_rights.htm.

draws from the San Saba, Llano, and Brazos Rivers, among other surface water sources in 2011.¹⁹⁵

Regulations heightening the powers of the TCEQ director's control over surface water use during droughts have been promulgated. Stakeholder meetings, public hearings, and comment periods for changes to the TCEQ rules stemming from the 2011 legislative session have continued through 2012 and into 2013.¹⁹⁶ Section 11.053 of the Water Code authorizes the TCEQ director to mandate temporary interruption, modification, or use of a water right during drought conditions—*sometimes without notice beforehand*.¹⁹⁷ A TCEQ suspension order must be designed to maximize the beneficial use of the water while minimizing waste and the impact on water-right holders.¹⁹⁸ It must also consider efforts by the owners of the suspended water right to design and employ their own water conservation and drought contingency schemes as required by Chapter 11 of the Texas Water Code.¹⁹⁹ Operators interested in purchasing water from an impoundment should note that the TCEQ director's suspension or alteration of a water right cannot require the release of water stored under a water right.²⁰⁰

As a first step, the TCEQ has defined both “drought” and “emergency water shortage” and used these conditions to demark when the new suspension powers may be invoked.²⁰¹ A suspension can

195. See generally *Newsroom*, TEX. COMM'N ON ENVTL. QUALITY, http://www.tceq.texas.gov/news/aggregator/atct_topic_view?b_start:int=20&-C= (last modified Mar. 14, 2013) (displaying various TCEQ press releases relating to river water permit restrictions); see also TEX. COMM'N ON ENVTL. QUALITY, RIGHTS TO SURFACE WATER IN TEXAS (2009), available at <http://www.tceq.texas.gov/publications/gi/gi-228.html> (describing the TCEQ's regulation of water rights).

196. *Rule Proposals and Adoptions*, TEX. COMM'N ON ENVTL. QUALITY, http://www.tceq.texas.gov/rules/propose_adopt.html (last modified May 31, 2012) (maintaining a repository of the steps which are underway for rulemaking).

197. TEX. WATER CODE ANN. § 11.053 (West Supp. 2012); 30 TEX. ADMIN. CODE § 36.8(a) (2011).

198. 30 TEX. ADMIN. CODE § 36.5(b)(1)–(3) (2012).

199. *Id.* § 36.5(b)(4).

200. *Id.* § 36.5(b)(6).

201. “Drought” occurs when either (1) conditions in a watershed or part of a watershed are classified as at least “moderate” by the National Drought Mitigation Center, (2) stream levels at U.S. Geological Survey gaging stations are below the thirty-third percentile of the period of record available for the affected watershed, or (3) below normal precipitation in the watershed or part of the affected watershed lasts for a three-month period, is paired with a call on water by a senior water right holder and demand for water exceeds the available supply. *Id.* § 36.2(3). On the other hand, “emergency shortage of water” is defined as the “inability of

last up to 180 days.²⁰² The TCEQ has also defined the usual administrative processes of notice, hearing, comment, and appeals procedures. The bill also requires that a monthly record of water use associated with the water right be kept by the water-right owner in a format which can then be reviewed by the TCEQ upon request after a declaration of “drought” or other “emergency shortage of water.”²⁰³

The effect that oil and gas operations may have on air quality is another focus of TCEQ’s efforts. After extensive study, the executive director of the TCEQ determined that the air permitting rules for oil and gas production and treatment sites, particularly in high population areas, had to be significantly revised.²⁰⁴ Recent monitoring data illustrates that updated monitoring rules would help protect the public from benzene, hydrogen sulfide, and other various potentially toxic air pollutants found in proximity to oil and gas production sites.²⁰⁵ In January of 2011, the TCEQ promulgated rules covering twenty-three counties in and around the Barnett Shale.²⁰⁶ The rules made air quality standard permits necessary for the operation of new stationary facilities, or groups of facilities, at a site where natural gas and petroleum fluids are handled.²⁰⁷

The Internet provides other outlets of transparency for corporate compliance. As required by statutory changes enacted in its 2011 Sunset Review, the TCEQ has developed a website that allows parties subject to the TCEQ’s rules—and the public after November 15, 2012—to review their rule compliance history.²⁰⁸ This review, known

a senior water right holder to take surface water under its water right during” either (1) “emergency periods posing a hazard to public health or safety” or (2) “conditions affecting hydraulic systems which impair or interfere with conveyance or delivery of water for authorized users.” *Id.* § 36.2(4).

202. *Id.* § 36.6(3). (A suspension (or adjustment) order may be extended once for up to 90 days, but no longer than 180 days.).

203. H.R. 2694, 82d Leg., 88th Reg. Sess. (Tex. 2011).

204. Press Release, Tex. Comm’n on Env’tl. Quality, Proposed Air Quality Standard Permit for Oil and Gas Sites 1 [hereinafter Air Quality Permit], *available at* http://www.tceq.state.tx.us/assets/public/permitting/air/Announcements/og_proposed_sp_fin.pdf.

205. *Id.*

206. Press Release, Tex. Comm’n on Env’tl. Quality, The Texas Commission on Environmental Quality (TCEQ or Commission) Adopts the Amendment to § 106.352, at 1 (Oct. 2012), *available at* <http://www.tceq.texas.gov/assets/public/permitting/air/Announcements/ado11-2012.pdf>.

207. Air Quality Permit, *supra* note 204, at 103.

208. Press Release, Tex. Comm’n on Env’tl. Quality, Advanced Review of Compliance History Registration Now Available (July 23, 2012),

as the Advanced Review of Compliance History or ARCH, will not only expose rule breakers but also give parties subject to TCEQ's control the chance to request corrections of the TCEQ before its yearly evaluation of their compliance histories.²⁰⁹

Texas Water Development Board. The TWDB's primary concern is administering the Texas Water Bank, established in 1993 to help municipalities transfer, sell, or lease water rights.²¹⁰ The TWDB's 2011 SAC bill passed,²¹¹ although little that was changed will have a direct impact on oilfield operations²¹² because of a provision in the Texas Water Code, which generally excepts oil and gas operations from oversight related to groundwater use and the purpose and activities of the TWDB.²¹³

Groundwater Management Districts. Groundwater ownership rights are subject to regulation and control by courts and the Texas legislature.²¹⁴ Groundwater appropriation and use is subject to municipalities and groundwater management districts in Texas. While the TCEQ regulates surface water appropriation, regulation of groundwater appropriation has been largely taken over in most areas by Groundwater Conservation Districts (GCDs).²¹⁵ GCDs are authorized to "make and enforce rules, including rules limiting groundwater production based on tract size or the spacing of wells, to

available at <http://www.tceq.texas.gov/news/releases/7-12ComplianceRuleReg7-23>.

209. *Id.*

210. The TWDB also provides help to communities that are planning future water use and conservation through computer modeling and technical assistance. *About Texas Water Development Board*, TEX. WATER DEV. BD., <http://www.twdb.state.tx.us/about/index.asp> (last visited Mar. 19, 2013).

211. See TEX. WATER CODE ANN. § 15.975 (West Supp. 2012); *Texas Senate Bill SB 370*, OPEN GOV'T, <http://tx.opengovernment.org/sessions/82/bills/sb-370> (last visited Nov. 19, 2011) (reviewing information related to the passage of Senate Bill 370).

212. Telephone Interview with Wendy Foster, Dir. of Gov't Relations, Tex. Water Dev. Bd. (Nov. 8, 2011). The fracking fluid disclosure legislation, discussed below, was attached as an amendment to the TWDB's 2011 SAC bill. *Id.* This portion of the legislation will, of course, have a significant impact on oil and gas operations in Texas, but is unrelated to the activities of the TWDB and, in fact, almost caused the larger TWDB SAC bill which encompassed it to fail. *Id.*

213. WATER § 36.117.

214. *Water Use in Associations with Oil and Gas Activities Regulated by the Railroad Commission of Texas*, R.R. COMM'N OF TEX., <http://www.rrc.state.tx.us/barnettshale/wateruse.php> (last visited Mar. 19, 2013) [hereinafter *Water Use in Associations*].

215. *Id.*

provide for conserving, preserving, protecting, and recharging of the groundwater or of a groundwater reservoir or its subdivisions in order to control subsidence, prevent degradation of water quality, or prevent waste of groundwater.”²¹⁶ GCDs can require permits for, and apply their regulations to, water wells used to supply water for activities related to the exploration or production of hydrocarbons or minerals, but not injection wells themselves.²¹⁷ If obligated by the applicable GCD, local water well drillers may be required to submit reports detailing “the drilling, equipping, and completing of water wells and of the production and use of groundwater.”²¹⁸

While the state water code exempts drilling and oil and gas exploration from some rules enacted by groundwater districts,²¹⁹ local groundwater conservation districts interpret the difference between *exploration/drilling* and *fracing* to mean that fracing is not included in the general permit exemption for groundwater used in drilling and exploration—an “exception to the exception.”²²⁰ Specifically, local conservancy districts must except from any permitting requirement “a water well used solely to supply water for a rig that is actively *engaged in drilling or exploration operations* for an oil or gas well permitted by the [RRC] provided that the person holding the permit is responsible for drilling and operating the water well.”²²¹ Until 2011, this exception has prevented oversight by groundwater districts via a permitting scheme of oil and gas operations, including fracing.²²²

The ongoing drought and the great expansion of fracing operations have triggered a change in the interpretation of the statute.²²³ Conservancy districts and cities are now distinguishing “drilling or exploration operations” from fracing operations and are requiring permits for water wells used to supply water for fracing.²²⁴ Section 117 of the Water Code seems to provide support for this interpretation by removing the permitting exemption if any water

216. WATER § 36.101.

217. *Id.* § 36.117(1).

218. *Id.* § 36.111(a).

219. *E.g., id.* § 36.117(b)(2).

220. Telephone Interview with Jim Conkwright, Dir., High Plains Underground Water Conservation Dist. No. 1, Lubbock, Tex. (Nov. 8, 2011).

221. WATER § 36.117(b)(2) (emphasis added).

222. Telephone Interview with Jim Conkwright, *supra* note 220.

223. Telephone Interview with Brian Sledge, Gov’t Relations Practice Grp. Chairman, Lloyd Gosselink Rochelle & Townsend, P.C., Austin, Tex. (Nov. 8, 2011).

224. *Id.*

from an exempted water well is not used for oil and gas drilling or exploration.²²⁵

In an example of local entities taking control in the absence of state regulation, Texas water conservancy districts are now regulating the use of groundwater for fracing operations. First, the Evergreen Underground Water Conservation District, which directs aquifer use for Atascosa, Frio, Karnes and Wilson Counties in South Texas, expressly applied their preexisting water-use limits to fracing in 2008.²²⁶ After drought struck in late 2010, conservancy authorities for the southern end of the Ogallala Aquifer, which partially overlaps the Permian Basin near Midland-Odessa, approved that district's first-ever restrictions on water use for fracing in July of 2011.²²⁷ In 2012, the High Plains Underground Water Conservation District No. 1, centered on Lubbock and covering an area larger than Vermont, passed new water-use restrictions that do not exempt fracing operations.²²⁸

Municipalities are also stepping in. For example, in August 2011, the City of Grand Prairie, just south of Dallas and located on the eastern boundary of the Barnett, became the first municipality in Texas to prohibit the use of city water for fracing.²²⁹ Some cities do not allow their water to be used for fracing operations outside of city limits. In August 2011, city officials in Arlington, Texas, cited Chesapeake Energy for a water permit violation when Chesapeake used Arlington city water for fracing operations in neighboring Grand Prairie, a violation that may entail a fine of up to \$2,000.²³⁰

Groundwater produced from exempted wells and then transported outside the district is subject to “applicable production and export fees.”²³¹ In addition, exempted wells still require registration with the conservancy district, and like nonexempt wells, must be maintained to both prevent the communication of groundwater from an aquifer to a nonaquifer as well as to generally prevent groundwater contamination.²³²

General Regulations that Affect Fracing. Some regulations that apply to all or many types of oil and gas operations necessarily cover fracing operations. All Texas oil and gas development—including

225. WATER § 36.117(b)(2).

226. Telephone Interview with Brian Sledge, *supra* note 223.

227. *Id.*

228. Telephone Interview with Jim Conkwright, *supra* note 220.

229. Mike Lee, *Parched Texans Impose Water-Use Limits for Fracking Gas Wells*, BLOOMBERG BUSINESSWEEK (Oct. 6, 2011, 10:35 AM), <http://www.businessweek.com/news/2011-10-06/parched-texans-impose-water-use-limits-for-fracking-gas-wells.html>.

230. *Id.*

231. TEX. WATER CODE ANN. § 36.117(k) (West Supp. 2012).

232. *Id.* § 36.117(h)(1)–(2).

fracing operations—requires a permit from the RRC authorizing the drilling or deepening of a well.²³³ In addition to this general permitting requirement, two other RRC broad regulations affect fracing.

The first is title 16, section 3.8 of the Texas Administrative Code, “Water Protection,” which regulates the storage, transfer, and disposal of oil and gas wastes.²³⁴ This apparently includes any flowback frac fluids returned as part of enhanced oil and gas production.²³⁵ Although regulation of returned frac fluid is not expressly covered by section 3.46, the rule can easily be interpreted to include fracing operations, stating that a fluid injection permit is required for “fluid injection operations in reservoirs productive of oil, gas, or geothermal resources.”²³⁶ But as a practical matter, section 3.46 does not currently create any additional duties specific for fracing operators in Texas.²³⁷

Regulation of casing and cementing via title 16, section 3.13 of the Texas Administrative Code, “Casing, Cementing, Drilling, and Completion Requirements,” is the second way in which the RRC’s standard oil and gas regulations affect fracing. While environmentalists and surface landowners near fracing operations have expressed concerns regarding the potential for fracing fluids to contaminate groundwater, the RRC has expressed confidence that the current casing, cementing, drilling, and completion regulations in title 16, section 3.13 of the Texas Administrative Code are adequate to protect groundwater from being contaminated by fracing fluids. Since no documented case of freshwater aquifer contamination caused by fracing fluids has occurred in Texas as of April 2013, the RRC does not require fluid injection permits for fracing similar to those required for other injection operations by title 16, section 3.46 of the Texas Administrative Code.²³⁸

Finally, another example of a general regulation that affects fracing is RRC oversight of the use of saltwater or brackish water drawn from aquifers that are typically below potable groundwater

233. 16 TEX. ADMIN. CODE § 3.5 (2013).

234. *Id.* § 3.8.

235. *Id.* (regulating drilling fluid pits, saltwater and brine storage pits, flare pits, sediment pits, etc. for the storage of oil and gas waste).

236. *Id.* § 3.46.

237. SMITH & WEAVER, *supra* note 167, at 14-74. If EPA regulations are amended to include fracing within the definition of Class II underground injection wells, then the RRC may be forced to follow suit.

238. Telephone Interview with Ramona Nye, Dir. of Media Relations, R.R. Comm’n of Tex. (Apr. 29, 2013).

aquifers.²³⁹ The RRC requires permits for water wells that are associated with hydrocarbon exploration and development and which draw saltwater or brackish water from formations below the base of freshwater aquifers.²⁴⁰

CONCLUSION: ONE FRACING REGULATORY SCHEME TO RULE THEM ALL?

Should the federal government or the individual states regulate hydraulic fracturing? A fixture in the debate over fracing is whether the regulation of the process is rightfully the province of the federal agencies or individual states. The state law and regulatory framework in states most affected by fracing (Texas, Louisiana, Oklahoma, North Dakota, West Virginia, Pennsylvania, and New York) potentially may face preemption by federal legislation.

The Bureau of Land Management, an agency of the Department of Interior, has already announced its intention to formulate rules requiring disclosure of chemicals used in the drilling process and to adopt well-integrity standards as part of the permit process.²⁴¹ The EPA is still in the midst of a multiyear study of hydraulic fracturing, producing a prolonged debate over the regulatory role of the EPA versus individual states.²⁴²

Despite the extensive expertise of state regulatory agencies and their responsiveness to their own states' unique challenges, some commentators still desire federal oversight of hydraulic fracturing.²⁴³ State primacy for regulation on hydraulic fracturing has been disparaged as being "uneven" and a "patchwork."²⁴⁴ This author submits that what is being derided as a weakness is actually a strength: each state can rapidly respond to its unique blend of economic,

239. *See Water Use in Associations, supra* note 214 (discussing regulations regarding water "drawn from underground reservoirs that are below the base of usable quality water").

240. TEX. WATER CODE ANN. § 36.117(l) (West Supp. 2012).

241. Jim Snyder & Katarzyna Klimasinska, *Natural-Gas Fracking Rules Considered by U.S. for Federal Lands*, BLOOMBERG (Aug. 18, 2011, 2:37 PM), <http://www.bloomberg.com/news/2011-08-18/natural-gas-fracking-rules-considered-by-u-s-agency-for-federal-lands.html>.

242. *See* Casey Junkins, *EPA Is Bashed Over Fracing*, INTELLIGENCER (Wheeling, W. Va.), Mar. 25, 2011, at 1; *see also* Michael Rubinkam, *EPA to Probe Gas Drilling's Toll on Drinking Water*, BLOOMBERG BUSINESSWEEK (Nov. 3, 2011, 5:43PM), <http://www.businessweek.com/ap/financialnews/D9QPGLPG2.htm> (discussing the goals of the EPA study).

243. Jody Freeman, Op-Ed., *The Wise Way to Regulate Gas Drilling*, N.Y. TIMES, July 6, 2012, at A23.

244. *Id.*

political, hydrological, and geological realities to achieve realistic and functional regulatory oversight. A further weakness alleged by those favoring federal primacy, that states are “rushing” to create law regulating fracking, is also a strength: the necessary regulations are made in a timely manner, in response to industry activity, and by those more familiar with the challenges faced by an individual state.

In contrast, the federal government’s record regarding the proposal of realistic bills and quick action on those bills is lacking. For example, it took the EPA over three years to promulgate UIC regulations for a new category of injection wells.²⁴⁵ If it takes over three years to establish federal regulatory oversight for a relatively uncontroversial program, how responsive can the federal government be expected to be to the demands for formulating a much larger and controversial regulatory system covering all the facets of fracking?

State regulation *is* uneven and results in a patchwork of laws across the states. Sometimes this results in circumstances where federal intervention and oversight have been required, as in cases where individual civil rights have not been protected or where interstate commerce is threatened with disruption. Sometimes, however, federal intervention is merely clumsy unnecessary, and unresponsive.

245. Specifically, Class VI injection wells for carbon sequestration.



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