

FRACK YOU: A COST-BENEFIT ANALYSIS OF THE FRACKING CONTROVERSY IN TEXAS

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I. INTRODUCTION

Hydraulic fracturing, or “fracking,” is a relatively new process for extracting natural gas or oil that is tightly bound in deep geological formations. The process involves injecting water, chemicals, and sand, called fracking fluid, into a formation at high pressure. The resulting fissures in the formation allow gas or oil to flow into the well. It is claimed that it creates a slew of environmental hazards including surface water contamination and even earthquakes.¹ Fracking, however, is a tremendous economic boom to once economically-depressed areas of Texas and Oklahoma.

Is this economic renewal sufficient to outweigh the alleged environmental concerns? Texas is the key state in this debate, and it reminds seasoned observers of the snail darter debacle, which held up the construction of the billion-dollar Tellico Dam project for two years on the grounds that this small obscure fish was allegedly endangered by the dam project.² The snail darter was transformed into both an icon for species

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1. Joseph Block, Judson Starr & Justin Curtis, *Can 20th Century Regulations Cope with 21st Century Technology?*, BUREAU OF NAT'L AFF., http://www.venable.com/files/Publication/5fb658a4-a40f-4873-8b0c-b1aed1874ddb/Presentation/PublicationAttachment/b8042b52-96d7-4853-9fd4-bd517a35daa8/BNA_Fracking_9-6-11.pdf. See also Jennifer Hiller, *Drilling vs. Shooting: Fracking and Deer Hunting Can Be a Contentious Mix*, HOUS. CHRON., Dec. 24, 2012, at B2; Jeannie Keever, *Technology Draws Bead on Hydraulic Fracturing*, HOUS. CHRON., Jan. 12, 2013, at A1, <http://www.houstonchronicle.com/business/energy/article/Technology-draws-bead-on-hydraulic-fracturing-4187872.php#ixzz2OhuX5prW>; Nathaniel Brooks, *Ono, Son: Don't Give Fracking a Chance in N.Y.*, HOUS. CHRON., Jan. 13, 2013, at A2, <http://chron.newspaperdirect.com/epaper/viewer.aspx>; Michael Rubinkam, *Celebrities Tour Natural Gas Drilling Sites*, HOUS. CHRON., Jan. 18, 2013, at D8, <http://www.houstonchronicle.com/business/energy/article/Celebrities-tour-natural-gas-drilling-sites-4203724.php>; Jennifer Hiller, *Corpus Christi Eager to Get Natural Gas From Eagle Ford*, HOUS. CHRON., Jan. 18, 2013, at D3; Roy Bragg, *UFO Sightings Pierce Sky, Land at Eagle Ford*, HOUS. CHRON., Jan. 24, 2013, at B1.

2. Robert L. Wilson, *Tellico Dam Still Generating Debate*, KNOXVILLE NEWS (April 13, 2008, 12:00 AM), <http://www.knoxnews.com/news/2008/apr/13/tellico-dam-still-generating-debate/>.

preservation and a despised symbol of the alleged excesses and foibles of the environmental movement.³

As Joni Mitchell said in the Big Yellow Taxi, “Hey farmer, farmer, put away that DDT now, give me spots on my apples, but leave me the birds and the bees.”⁴ The point of this essay is that fracking, with all its alleged environmental maladies, will only put spots on the apple of American society.

Since fracking uses horizontal not just vertical drilling, there is some fear of gas seepage into the water table.⁵ In Texas, the U.S. Environmental Protection Agency (EPA) charged the Range Production Company with causing contamination of several private water wells in Parker County.⁶ Ultimately, the reviewing agency (here, the Texas Railroad Commission) held that Range’s hydraulic fracturing operations did not pose a threat to human health and safety.⁷

For the most part, states control their own fracking, which makes a lot of sense since each state’s shale deposit is geographically different. However, because of environmental concerns, coupled with the fact that fracking is a highly lucrative proposition with almost unlimited economic potential, the federal government, by way of the EPA, initiated regulations through a methodical approach that will ultimately greatly assist the states in creating a unified regulatory mechanism. Their motto appears to be, “Don’t throw the baby out with the bathwater.” The EPA’s plan is two-stepped with the first step stipulating that new fractured wells, drilled after August 23, 2011, must reduce their allegedly toxic sions volatile organic compounds (VOC) emissions; and the second step, effective January 1, 2015, mandates that fracking operators must capture the gas and make it available for sale or reuse.⁸ Green, baby, green!

3. See *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978); *Blurb* for KENNETH MURCHISON, *THE SNAIL DARTER CASE: TVA VERSUS THE ENDANGERED SPECIES ACT* (Peter Charles Hoffer & N.E.H. Hull eds., 2007).

4. JONI MITCHELL, *BIG YELLOW TAXI* (Warner Bros. Records, Inc. 1970).

5. STATES TACKLE HYDRAULIC FRACTURING ISSUES, 4018 PUR UTIL. REG. NEWS 1 (2011).

6. Chris Hawes, *Map Pinpoints Contaminated Water in Parker County*, WFAA (Dec. 8, 2010, 8:29 PM), <http://www.wfaa.com/news/local/Map-pinpoints-contaminated-water-in-Parker-County--111564849.html>.

7. See *Range Resources Corp. and Range Production Co.*, No. SDWA-06-2011-1208 Dec. 7, 2010 (U.S. E.P.A.); *Range Production Co. Oil & Gas*, No. 7B-0268629, Mar. 22, 2011 (Tex. R.C).

8. See *Summary of Requirements for Processes and Equipment at Natural Gas Well Sites*, EPA, Apr. 17, 2012, <http://www.epa.gov/airquality/oilandgas/pdfs/>

II. THE FRACKING PROCESS

Fracking is exempt from federal drinking water regulations, but it is still allegedly associated with poisoning water supplies.⁹ The EPA reopened its investigation into fracking's potential environmental impact.¹⁰

Fracking allows extraction from scattered accumulations in low-permeability formations including sandstone, chalk, coal beds, and shale.¹¹ Fractures are created by pumping large volumes of pressurized water and chemicals into the formation.¹²

The EPA, in 2004, concluded that fracking is not environmentally harmful, and, in fact, the EPA exempted fracking from the Safe Drinking Water Act (SDWA).¹³ The SDWA also established the Underground

20120417summarywellsites.pdf; EPA PROPOSES FRACKING – SPECIFIC EMISSIONS REGULATIONS, 4068 PUR UTIL. REG. NEWS 6 (2012); Re Oil and Natural Gas Sector: New Source Performance Standards for Hazardous Air Pollutants Reviews, 40 C.F.R. § 63 (2012); Jennifer Dlouhy, *EPA's Fracturing Study on Track for Late 2014*, HOUS. CHRON., Dec. 22, 2012, <http://www.chron.com/default/article/EPA-s-fracturing-study-on-track-for-late-2014-4139872.php>.

9. Adam Orford, *Fractured: The Road to the New EPA "Fracking" Study*, MARTEN LAW, Sept. 17, 2010, <http://www.martenlaw.com/newsletter/20100917-new-epa-fracking-study>.

10. *Id.* In recent years, the U.S. produced 19 TCFs (trillion cubic feet) domestically, and four imported. See U.S. Energy Information Administration, *Natural Gas Consumption by End Use (U.S. Annual) (2004-2009)*; Jessica Gilbert, *Assessing the Risks and Benefits of Hydraulic Fracturing*, 18 MO. ENVTL. L8 POL'Y REV. 169 (Spring 2011); U.S. Energy Information Administration, *Natural Gas Withdrawals and Production (U.S. Annual) (2004-2009)* (Exports are about one TCF per year.); U.S. Energy Information Administration, *Natural Gas Exports by County (U.S. Annual) (2004-2009)*; U.S. Energy Information Administration, *Natural Gas Imports by Country (U.S. Annual) (2004-2009)*; and U.S. Energy Information Administration, *Annual Energy Outlook 2010*, p.56 and Figure 41; Kristen Allen, *The Big Fracking Deal: Marcellus Shale – Pennsylvania's Untapped Resource*, 23 VILL. ENVTL. L.J. 51 (2012).

11. See U.S. Energy Information Administration, *U.S. Crude Oil Natural Gas and Natural Gas Liquids Reserves 2002 Annual Report* p.29; U.S. Crude Oil, Natural Gas and Natural Gas Liquids Reserves 2007 Annual Report p. 29, Figure 18; and Stephen Lacey, *Government Due Credit for Gas Boom*, HOUS. CHRON., Sept. 24, 2012, at A7.

12. See Hannah Wiseman, *Regulatory Adaptation in in Fractured Appalachia*, 21 VILL. ENVTL. L.J. 229, 237 (2010); Jeannie Kever, *Technology Draws Bead on Hydraulic Fracturing*, HOUS. CHRON., Jan. 12, 2013, at A1, <http://www.houstonchronicle.com/business/energy/article/Technology-draws-bead-on-hydraulic-fracturing-4187872.php#ixzz2OhuX5prW> (bead technology creates ceramic proppants which is better than sand as a means to break apart shale formations).

13. 42 U.S.C. § 300f. See also Caroline Wehling, *Hydraulic Fracturing – Overview and EPA Actions*, SU009 ALI-ABA 295, Sept. 20-21, 2012, http://files.aliccle.org/thumbs/datastorage/skoobesruoc/pdf/CU009_chapter_14_thumb.pdf.

Injection Control (UIC) program,¹⁴ which prohibits any contaminating underground injections.¹⁵ However, the EPA's policy of the 1990's stipulated that this section did not apply to hydraulic fracturing since it is only applicable if the principal function is the placement of fluids, as opposed to fracking's *raison d'être* which is to recover resources.¹⁶

President George W. Bush, born and raised in Texas, initiated the Energy Task Force. Bush's final report in May 2001, not surprisingly, lauded fracturing but also promised to explore the possibility of increasing environmental regulations.¹⁷ The EPA's final report of July 2004, again, found that fracking produced little or no harmful effects on underground drinking water.¹⁸

Was this report "scientifically unsound"?¹⁹ Was President Bush soft on science?²⁰ Fracking, unless using diesel fuel, escapes federal regulation.²¹ Environmental "extremists," such as Yoko Ono, more vociferously voiced their disagreement to what appeared to be a weak and biased federal position.²² In addition to water contamination, opponents also focused on air pollution.²³

14. 42 U.S.C. §§300h.

15. 42 U.S.C. §§300h(b)(1), 300h(d)(2).

16. *Legal Envtl. Assistance Found., Inc. v. U.S. E.P.A.* 118 F.3d 1467, 1471 (11th Cir. 1997).

17. Tom Hamburger & Alan C. Miller, *A Changing Landscape: Halliburton's Interests Assisted by White House*, L.A. TIMES, Oct. 14, 2004, <http://articles.latimes.com/2004/oct/14/nation/na-frac14>.

18. E.P.A., *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs Study* (2004), EPA 816-F-04-017 (2004), http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_coalbedmethanestudy.cfm.

19. Letter from Weston Wilson, EPA Environmental Engineer to Colorado Congressmen Wayne Allard, Nighthorse Campbell and Diana DeGette (Oct. 8, 2004).

20. See UNION OF CONCERNED SCIENTISTS, *SCIENTIFIC INTEGRITY IN POLICY MAKING* (March 2004), http://www.ucsusa.org/scientific_integrity/abuses_of_science/reports-scientific-integrity.html.

21. 42 U.S.C. §300h(d)(1)(B)(i).

22. See Michael Rubinkam, *Celebrities Tour Natural Gas Drilling Sites*, HOUS. CHRON., Jan. 18, 2013, <http://www.houstonchronicle.com/business/energy/article/Celebrities-tour-natural-gas-drilling-sites-4203724.php> (Yoko Ono, Sean Lennon and Susan Sarandon toured drilling sites in northeastern Pennsylvania and warned the locals about fracking's potential danger to air, water, and human health); see also Glenn Blain, *'Fracking Kills': Yoko Ono Joins Star-Studded Cast Fighting Against Hydraulic Natural Gas Drilling in Upstate New York*, N.Y. DAILY NEWS (Jan. 13, 2013, 8:16 PM), <http://www.nydailynews.com/new-york/fracking-kills-yoko-fights-drilling-article-1.1238624> (Ono says, "Fracking kills, and it doesn't just kill us, . . . [i]t kills the land, nature and, eventually, the whole world.").

23. Blain, *supra* note 22.

III. TEXAS' FRACKING BOOM

Energy shortage? Not anymore.

Huge new fields [of natural gas] have been found in Texas, Arkansas, and Pennsylvania. . . . The discoveries have spurred energy experts and policy makers to start looking to natural gas in their pursuit of a wide range of goals; easing the impact of energy-price spikes, reducing dependence on foreign oil, lowering 'greenhouse gas' emissions and speeding the transition to renewable fuels.²⁴

The question again is, do environmental consequences outweigh the corresponding economic benefits, and the answer, at least in Texas, seems to be a resounding "yes." "The supply fears drove up prices, which spurred innovation. Oil and gas companies had known for decades that there was gas trapped in shale, a nonporous rock common in much of the U.S. but considered too dense to produce much gas."²⁵

In the 1980s, Texas oilman George Mitchell began trying to produce gas from a formation near Fort Worth, Texas, known as the Barnett Shale. He pumped millions of gallons of water at high pressure down the well, cracking open the rock and allowing gas to flow to the surface.

Oklahoma City-based Devon Energy Corp. bought Mr. Mitchell's company in 2002. It combined his methods with a technique for drilling straight down to gas-bearing rock, then turning horizontally to stay within the formation. Devon's first horizontal wells produced about three times as much gas as traditional vertical wells.

The development of the Barnett Shale almost single-handedly reversed the decline in U.S. natural-gas production. . . . [In 2008], the

24. Ben Casselman, *U.S. Gas Fields Go from Bust to Boom*, WALL ST. J., Apr. 30, 2009, <http://online.wsj.com/article/SB124104549891270585.html>.

25. *Id.* See also Harry Weber, *Eagle Ford to Get Big Play from Marathon*, HOUS. CHRON. (Dec. 4, 2012, 6:44 PM), <http://www.chron.com/business/energy/article/Eagle-Ford-to-get-big-play-from-Marathon-4091172.php> (The point is that fracking has transformed gas and oil drilling into a financially lucrative option: "Output from the Eagle Ford Shale nearly doubled during the third quarter of this year [2012] to 40,000 net barrels of oil equivalent per day from 21,000 in the second quarter. About 65 percent of the volume was crude oil and condensate, which command higher prices on the market than dry natural gas.").

Barnett produced four billion cubic feet of gas a day, making it the largest field in the U.S.²⁶

This new shale work means a corresponding growth in the chemical industry and the railway transport system, which is cheaper than trucking and helps to eliminate some of the truck traffic that has clogged once-sleepy little West Texas towns.²⁷

The next large gas field in Texas is the Eagle Ford Shale, which is near Laredo and moves northward towards Houston.²⁸ “[It] is a 50-mile wide swath of shale that runs from the Mexican border to East Texas and 4,970 wells have been permitted in 25 counties [so far].”²⁹ The University of Texas at San Antonio commissioned a report that indicated that the oil and gas reserves in South Texas contributed to \$25 billion in total economic output to the South Texas region in 2011 and contributed upwards of 47,000 full-time jobs.³⁰ In fact, there are indications that drilling in the ten

26. Casselman, *supra* note 24. See also Jeannie Kever, *Economist Says Shale Plays Change the Game*, HOUS. CHRON., Oct. 5, 2012, <http://www.chron.com/business/energy/article/Economist-says-shale-plays-change-the-game-3924140.php> (increase in gas and oil production boosts economies of Texas and a number of other state).

27. Jennifer Hiller, *Rail Yards Climb Aboard Shale Boom in Texas*, HOUS. CHRON. (Sept. 29, 2012, 10:55 PM), <http://www.chron.com/business/energy/article/Rail-yards-climb-aboard-shale-boom-in-Texas-3904157.php>; see Jennifer Hiller, *Shale Play Is Engine of Growth for Rail*, FUEL FIX (Sept. 29, 2012, 4:39 PM), <http://fuelfix.com/blog/2012/09/29/582255/>; Jennifer Hiller, *Shale Spawns Another Rail Project*, FUEL FIX (Oct. 22, 2012, 7:09 AM), <http://fuelfix.com/blog/2012/10/22/shale-spawns-another-rail-project/>.

28. See Jeannie Kever, *A Tale of One Shale Helped Guide Another*, HOUS. CHRON. (Oct. 7, 2012, 5:35 PM), <http://www.chron.com/business/energy/article/A-tale-of-one-shale-helped-guide-another-3924232.php>; see also *Mexico Must Loosen the Rules to Exploit Its Energy*, HOUS. CHRON., Dec. 2, 2012, <http://www.houstonchronicle.com/opinion/editorials/article/Mexico-must-loosen-the-rules-to-exploit-its-energy-4082112.php> (Apparently, the Eagle Ford Shale runs into Mexico as well: “Hydraulic fracturing technology, or fracking, has brought an economic boom to Texas, with low unemployment, high pay and plentiful natural gas. But while the Eagle Ford Shale that holds these hydrocarbons does not end at our southern border, the economic benefits certainly seem to. This is because Mexico’s oil and gas industry is largely controlled by the country’s state-owned oil monopoly Pemex. The profits go to balancing budgets rather than reinvesting in talent or technology – the talent and technology needed for fracking or deepwater drilling.”).

29. Jennifer Hiller, *To Some, Eagle Ford Isn’t All About Shale*, HOUS. CHRON. (Nov. 24, 2012, 12:30 PM), <http://www.chron.com/business/energy/article/It-s-all-about-shale-Nay-4062851.php>.

30. Kay B. Hutchinson, *A Better Approach to Energy Policy*, KSAT.COM (Sept. 29, 2012, 12:00 AM), <http://www.ksat.com/news/politics/HUTCHISON-A-better-approach-to-energy-policy/-/2567674/16780812/-/g1txos/-/index.html>.

layers above and below Eagle Ford will produce the nation's hottest fields for oil and gas production.³¹

IV. FRACKING STATUTES AND REGULATIONS

Endemic drought conditions in Texas have only highlighted the need to conserve water resources; however, oil companies are still exempt from most state water and permit regulations.³² They have gone no further than to convene a task force to look into the range of issues that are presented by the Eagle Ford phenomenon.³³

Fracking has initiated a slew of mostly unsuccessful lawsuits based on alleged water contamination, property damage, trespass, nuisance, negligence, gross negligence, and strict liability on the basis that fracking is ultra-hazardous.³⁴ It is difficult, of course, to establish causation between the fracking operations and their alleged damages.³⁵ There is simply a lack of conclusive scientific data available at this time to support these claims.

Justice Cardozo's axiom that "proof of negligence in the air, so to speak, will not do,"³⁶ as pronounced in the 1920 case of *Martin v. Herzog* with facts that are surprisingly relevant to causation issues in truck-related injuries that are inherent in the fracturing process. *Martin* involved an accident between a plaintiff buggy driver and a defendant car driver in the dark of the night with the defendant driving on the wrong side of the road and the plaintiff driving without headlights as required by law.³⁷ The court held that negligent conduct is not actionable by itself unless there is a showing that this conduct was the cause of the injuries that occurred. "To

31. Hiller, *supra* note 29.

32. Letter from Ted Yu, Senior Special Counsel, SEC to James E. Parsons, Senior Counsel, Exxon Mobil Corp. (Mar. 22, 2012).

33. Russell Gold & Ana Campoy, *Oil's Growing Thirst for Water*, WALL ST. J., Dec. 6, 2011, <http://online.wsj.com/article/SB10001424052970204528204577009930222847246.html>. See Wiseman, *supra* note 12, at 233–34.

34. Eleni Kouimelis, *Hydraulic Fracturing* §22:2.10, in EQUIPMENT LEASING-LEVERAGED LEASING (5th ed., 2013). See also Joe Schremmer, *Avoidable "Fraccident": An Argument Against Strict Liability for Hydraulic Fracturing*, 60 U. KAN. L. REV. 1215 (2012).

35. See Kouimelis, *supra* note 34; Block et al., *supra* note 1.

36. *Martin v. Herzog*, 126 N.E. 814, 816 (N.Y. App. 1920). See also *Palsgraf v. Long Island R.R. Co.*, 162 N.E. 99, 99 (N.Y. App. 1928) (Cardozo also quoted this phrase citing to both *Martin* and FREDERICK POLLOCK, THE LAW OF TORTS 455 (11th ed. 1920)).

37. *Martin*, 126 N.E. at 814.

impose liability, there still must be a showing of cause, proximate cause and damages.”³⁸

There is no question that fracking has now drawn the attention of congressional regulators.³⁹ The EPA is looking at fracking to determine whether state regulations and current federal pollution control statutes, such as the Clean Water Act,⁴⁰ Clean Air Act,⁴¹ Resource Conservation and Recovery Act,⁴² Safe Drinking Water Act,⁴³ and the Toxic Substances Control Act⁴⁴ are sufficient to regulate the new fracking technology.

The regulation of the oil and gas industry is traditionally a role that is left to the state’s plenary powers; however, the EPA is currently reevaluating its role in controlling the process of fracking.⁴⁵ For example,

38. *Id.*

39. Block et al., *supra* note 1.

40. Clean Water Act, 33 U.S.C. §§ 1251–1387 (2011).

41. Clean Air Act, 42 U.S.C. §§ 7401–7671q (2011).

42. Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901–6992k (2011).

43. Safe Drinking Water Act, 42 U.S.C. §§ 300f–j (2011).

44. Toxic Substances Control Act, 15 U.S.C. §§ 2601–2697.

45. SORELL E. NEGRO, FRACKING WARS: FEDERAL, STATE AND LOCAL CONFLICTS OVER THE REGULATION OF NATURAL GAS ACTIVITIES, 35 No. 2 ZONING AND PLANNING L. REP. 1, 2 (2012); see Emily C. Powers, *Fracking and Federalism: Support for an Adaptive Approach that Avoids the Tragedy of Regulatory Commons*, 19 J.L. & POL’Y 913, 930–31 (2011). See also Averil M. Edwards & Eleni Kouimelis, *EPA’s Hydraulic Fracturing Study*, LEXOLOGY.COM, Aug. 15, 2011, available at <http://www.lexology.com/library/detail.aspx?g=74b476ff-e7f7-4697-b00d-0dadbcf57def>.

Despite the rapid growth of fracking, few studies have examined the likelihood of hydraulic fracturing causing adverse impacts. This lack of conclusive data has perpetuated the controversy surrounding fracking and prevented the development of a coherent legal framework. Citing this uncertainty, Congress directed EPA to undertake a study of fracking’s impact on drinking water resources in October 2009. The study will be peer reviewed and use several methods, including case studies, modeling, and laboratory analysis. A first report containing a preliminary assessment of fracking’s impact is to be released in 2012 to be followed by a final report in 2014. The study is to be the most comprehensive yet undertaken and its data will be used by EPA to draft new rules. Finally, the study will provide needed clarity to guide future regulatory efforts and court decisions whose scope extends beyond existing water (footnotes omitted).

Kouimelis, *supra* note 34.

On August 16, 2012, the EPA issued new rules and regulations (40 C.F.R. §§ 60, 63) entitled “Oil and Gas Natural Sector: New Source Performance Standards and National Emission, Standards for Hazardous Air Pollutants Reviews.” It was characterized as a “Final Rule.”

The rule covers any gas well that is ‘an offshore well drilled principally for production of natural gas.’ Oil wells (wells drilled principally for the production of crude oil) are not subject to this rule. For fractured and refractured gas well, the rule generally requires owners/operators to use reduced emissions completions, also

the EPA is working on new standards for emissions from gas drilling.⁴⁶ The debate is over the relative control and authority of federal, state and local authorities as regards the now tremendously lucrative fracking process.⁴⁷ One does not want to kill the goose that lays the golden eggs.

Two bills in March 2011 would have extended federal regulations to cover fracturing including the controversial provision that would force drillers to disclose their chemical cocktails.⁴⁸ On the whole, the fracking industry has been hesitant to explain the complete contents of their injected fracking fluids (their “special sauce”); this disclosure would also be reported online, but only if the EPA has primary enforcement responsibility in that state, which, of course, is somewhat rare.⁴⁹ The bone of contention in both bills is that they would have eliminated the provision in the Energy Policy Act of 2005 that regulated only those fracking fluids that contain

known as ‘RECs’ or ‘green completions,’ to reduce VOC [volatile organic compound] emissions from well completions. To achieve these VOC reductions, owners and/or operators may use RECs or completion devices, such as flaring, until January 1, 2015; as of January 1, 2015, owners and/or operators must use RECs and a completion combustion device. This rule does not require RECs where their use is not feasible, as specified in the rule.

Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 77 Fed. Reg. 49492 (Aug. 16, 2012).

46. NEGRO, *supra* note 45, at 2. See Natural Gas Air Pollution Standards, EPA, <http://www.epa.gov/airquality/oilandgas/actions.html> (last visited Dec. 13, 2011). See also Zain Zhank, *Natural Gas Produces open up to Joining Leak Study*, FUEL FIX (Oct. 12, 2012, 11:21 PM), <http://fuelfix.com/blog/2012/10/12/natural-gas-producers-open-up-in-joining-leak-study/>; Jennifer A. Dlouhy, *Feds Give Update on Broad Study of Drilling and Water Pollution*, FUEL FIX (Dec. 21, 2012, 12:40 PM), <http://fuelfix.com/blog/2012/12/21/feds-give-update-on-broad-study-of-drilling-and-water-pollution/> (The study is on track to be released in late 2014, but critics still question the EPA’s approach which includes computer and laboratory studies.).

47. NEGRO, *supra* note 46, at 2. See, e.g., California: *California State Assembly Passes Fracking Disclosure Bill*, 300 CORP. COUNS. MONITOR 26 (2011); New York: *New York Judge Upholds Town’s Fracking Ban*, Anschutz Exploration Corp. v. Town of Dryden, 32 No. 17 WESTLAW J. ENVTL. (2012); and Sy Gruza, *Will NYSDEC’s Proposed Regulations Prevent the Potential Significant Adverse Impacts of Fracking?*, 42 ENVTL. L. REP. NEWS & ANAL. 10331 (2012); North Carolina: *Fracking Legislation*, 4078 PUR UTIL. REG. NEWS 7 (2012); Texas: Holly A. Vandrovec, *The Fight Over Fracking*, 74 TEX. BAR J. 390 (2011); West Virginia: *West Virginia Initiates Emergency Rulemaking on Fracking*, 4029 PUR UTIL. REG. NEWS 5 (2011).

48. *Congress Takes on “Fracking,”* 273 ENV. COUNS. 11 (2011); Fracturing Responsibility and Awareness of Chemicals Act of 2011, H.R. 1084, 112th Cong. § 2(a)–(b) (2011); FRAC Act, S. 587, 112th Cong. § 2(a)–(b) (2011).

49. *Congress Takes on “Fracking,” supra* note 48. See also Fracturing Regulations are Effective in State Hands Act, S. 2248, 112th Cong. § 4(a), (b) (2011) (The drillers aver that their “special sauce” is a protected trade secret.).

diesel fuels.⁵⁰ OSHA and NIOSH (National Institute for Occupational Safety and Health) issued a hazard alert on fracking.⁵¹

V. DEFINING RIPARIAN RIGHTS

A key question in fracking is the ownership of the riparian, or water, rights. Water is the constant in the process that defines fracking's uniqueness and its commercial success. "Riparian right" is defined as "the right of a landowner whose property borders on a border of water or has the right to make use of the water."⁵² However, much of the riparian rights involved in fracking are subterranean aquifers that gleefully cross all conventional earth-bound property boundaries and property rights. This may cause a problem. There is an almost never-ending list of governmental regulations that pertains to the fracking process. "State rules vary greatly, but permits often cover well security bonds, design and casing standards, frack fluid content disclosures, air emissions limitations, minimum distances from drinking water sources, ground disturbances minimalization, fresh water withdrawal rights wastewater disposal plans and post-production well-closing and site medication requirements."⁵³ Riparian rights involve fresh-water withdrawal rights, wastewater disposal plans and the possible contamination of aquifers and ground water.⁵⁴

A well can be fracked multiple times, called stages: each stage can involve the injection of millions of gallons of water. About 40% of the frack fluid will return to the surface as "flowback water," which must be safely disposed since it could contain harmful ingredients. At this time, a permanent wellhead is installed at the top of the well, connected to a pipeline. "Produced water" continues to flow from the well, which is

50. *Congress Takes on "Fracking," supra* note 48.

51. *OSHA Issues Hazard Alert for Fracking*, 29 No. 15 EMP. ALERT 8 (2012) ("This hazard alert will help ensure that employers take appropriate steps to protect workers from silica exposure.").

52. BLACK'S LAW DICTIONARY 1352 (8th ed. 1999).

53. Block et al., *supra* note 1.

54. *Id.* (The fracking process begins with the injection of "drilling mud;" when the hole reaches the deepest freshwater aquifer, casing is lowered and then drilling continues horizontally. At that time it's perforated to create holes, which allow the fluids to push the natural gas to enter the well. Fracking injects gels, mostly water, at high pressure until fractures form and spread; a proppant, usually sand, is added to reduce friction, inhibit oxidation, or adjust the pH level.).

naturally occurring subsurface water that also must be disposed.⁵⁵ Water is the key to fracking: “In South Texas, tensions are rising as companies scramble to lock up water to drill natural gas and oil wells. All across the state, companies have been on a buying spree, snapping up rights to scarce river water—easily outbidding traditional users such as farmers and cities.”⁵⁶

Hydraulic fracturing uses a great deal of water. For example, a typical well in Louisiana’s Haynesville Shale uses about four million gallons using groundwater from the Carrizo-Wilcox aquifer, the same aquifer that supplies the drinking water for many landowners; many of these private waters are “going dry.”⁵⁷ Under traditional groundwater rules, fracking companies owned the water well, or at least had permission to use it, and were entitled to pump as they wish even to the disadvantage of others caused by the drop in the aquifer’s water level.⁵⁸

Accepting that the riparian right is a right of reasonable use that may necessitate diminution of the water body, the question becomes whether ‘use’ generally allows ‘taking’ water, and to what extent such consumptive use is reasonable. Even if one assumes the use of water for fracking is a consumptive and somewhat polluting use, those characteristics [alone] would probably not remove water drawn for fracking from the pool of acceptable riparian uses.⁵⁹

VI. CONTAMINATION LITIGATION

The question is whether the alleged increasing problem of gas contamination is due to a greater awareness of naturally occurring methane

55. *Id.* See also Keith B. Hall, *Hydraulic Fracturing: What are the Legal Issues?*, 59 LA B. J. 250, 251 (2012).

56. Gold & Campoy, *supra* note 33.

57. Hall, *supra* note 55, at 251; see Laura Springer, *Waterproofing the New Fracking Regulation: The Necessity of Defining Riparian Rights in Louisiana’s Water Law*, 72 LA L. REV. 225, 227–28 (2011); Michael Dillon, *Water Scarcity and Hydraulic Fracturing in Pennsylvania: Examining Pennsylvania Water Law and Water Shortage Issues Presented by Natural Gas Operations in the Marcellus Shale*, 84 TEMP. L. REV. 201, 209–11 (2011).

58. Hall, *supra* note 55, at 251. See also, e.g., *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1 (Tex. 2008) (royalty interest owners of natural gas lease sued operator for, *inter alia*, subsurface trespass, and breach of implied covenant to protect against drainage).

59. Springer, *supra* note 57, at 237.

levels in water or a result of fracking operations.⁶⁰ “In some states, landowners have brought suit alleging that fracking has contaminated their drinking water.”⁶¹ The typical suit alleges that fracking causes the migration of the toxic chemicals, including methane and hydrogen sulfide, resulting in the contamination of soil, groundwater, lakes, ponds, reservoirs, drinking water wells, and air.⁶²

In *Berish v. Southwestern Energy Production Company*, a federal district court allowed Pennsylvania residents, who claimed water-well contamination with toxic chemicals from fracking, to pursue their lawsuits in strict liability.⁶³ The lawsuit claimed that the plaintiffs were exposed to hazardous chemicals including barium, manganese, and strontium.⁶⁴

“Drilling sites can be noisy, smell, dusty, brightly lit (to allow drilling around the clock), and the focus of increased traffic.”⁶⁵ The EPA noted that fracturing creates several opportunities for wastewater contaminants to enter the drinking water supply.⁶⁶ The current, most popular fracking technique

60. Block et al., *supra* note 1.

61. Hall, *supra* note 55, at 253. See generally David Pierce, *Developing a Common Law of Hydraulic Fracturing*, 72 U. PITT. L. REV. 685 (2011); Hannah Coman, *Balancing the Need for Energy and Clean Water: The Case for Applying Strict Liability in Hydraulic Fracturing Suits*, 39 B.C. ENVTL. AFF. L. REV. 131 (2012).

62. See *Tucker v. Sw. Energy Co.*, Nos. 1:11-cv-44-DPM, 1:11-cv-45-DPM, 2012 WL 528253 (E.D. Ark. Feb. 17, 2012) (\$6 million class-action lawsuit).

63. *Berish v. Sw. Energy Prod. Co.*, 763 F. Supp. 2d 702, 704 (M.D. Pa. 2011). See Complaint, *Rodriguez v. Krancer*, 2012 WL 3113620 (M.D. Pa. 2012) (Pennsylvania doctor challenges constitutionality of so called “medical gag rule” contained in the state’s recently enacted law that prevents disclosure to patients about fracking chemicals). See also *PSD’s Dispute with Fracking Customer Prompts Call for Policy Review in West Virginia*, PUR UTIL. REG. NEWS, Jun. 1, 2012, at 1 (ALJ found that public service district unlawfully discriminated against fracker by refusing to connect him to the district’s water system.).

64. *Berish*, 763 F. Supp. 2d at 703.

65. Hall, *supra* note 55, at 252.

66. Allen, *supra* note 10, at 59 (Contaminates can enter through man-made fractures, improperly sealed abandoned wells, well leaks, spilled water, and occasionally the direct injection of fracking chemicals.). See also *Opportunity for Stakeholders Input on EPA’s Hydraulic Fracturing Research Study*, U.S. ENVTL. PROT. AGENCY (Jul. 4, 2010), <http://www.epa.gov/tribal/pdf/discussion-document-case-study-criteria.pdf>. See generally Schremmer, *supra* note 34, at 1220-21 (Fracking litigation plaintiffs allege that frack fluids have contaminated their USDW (underground sources of drinking water). However, the EPA concluded that the injection of fracking fluids into coalbed methane wells posed little or no threat to USDW); Dillon, *supra* note 57, at 202 (“To drill a single well in the Marcellus Shale, a natural gas company requires, on average, around seven million gallons of fresh water. To get all of this freshwater, natural gas companies are making impermissible use of Pennsylvania’s rivers and streams. Some of Pennsylvania’s streams have already gone dry on account of this activity. Dry streams and reduced stream flow will likely be a recurring problem for Pennsylvania. . . .” (footnotes omitted)).

is called “slick water,” which requires the use of proppants, like sand or ceramics, and very large volumes of freshwater that have been treated with a friction-reducing gel.⁶⁷

The SDWA gives the EPA power to issue emergency orders if there is an imminent and substantial danger to public health.⁶⁸ However, the so-called “Halliburton exceptions” exclude an underground injection, other than diesel fuel, from the EPA’s alleged emergency powers, but §1431 contains some waffle language, which implies that a statute violation is not necessary to invoke its emergency powers.⁶⁹ The Range Production Company invoked §1431 emergency powers⁷⁰ for fracking contaminants that allegedly fouled two drinking wells.⁷¹ One day after the EPA’s emergency order, the Texas Railroad Commission (RRC) set a hearing for Range; the EPA, however, did not participate in the RRC hearing.⁷² Range then sued the EPA, challenging the EPA’s refusal to allow Range employees from appearing at depositions.⁷³ Range argued that there is no evidence that their contamination soiled the drinking water well; the RRC, not so surprisingly, agreed with Range.⁷⁴ The EPA then sued Range to enforce its emergency order.⁷⁵ Range filed a petition for review in the Fifth Circuit.⁷⁶

There are four Texas cases that allege contamination from fracking; all four cases include allegations of nuisance, trespass, negligence, and

67. Allen, *supra* note 10, at 57.

68. Vandrovec, *supra* note 47, at 391; 42 U.S.C. § 300i(a) (2002); *see* Dillon, *supra* note 57, at 208.

69. Vandrovec, *supra* note 47, at 391; 42 U.S.C. § 300h(d)(1)(B).

70. Vandrovec, *supra* note 47, at 391; *see also* United States v. Range Prod. Co., 793 F. Supp. 2d 814 (N.D. Tex. 2011) (EPA sues seeking to enforce Emergency Administrative order pursuant to SDWA).

71. Vandrovec, *supra* note 47, at 391; Res. Corp. and Range Prod. Co., SDWA-06-2010-1208, http://www.frackinginsider.com/emergency_range_order%5B1%5D.pdf (E.P.A. Dec. 7, 2010).

72. Vandrovec, *supra* note 47, at 391.

73. *Id.*; *see* Range Prod. Co., v. U.S. Env’tl. Prot. Agency, No. 1:11-cv-11, 2011 WL 90134 (W.D. Tex. 2011); United States v. Range Prod. Co., No. 3:11-cv-00116, 2011 WL 200016 (N.D. Tex. 2011); Range Prod. Co. v. U.S., No. 3:10-cv-02655, 2010 WL 5562110 (N.D. Tex. 2010); United States v. Range Prod. Co., No. 3:11-cv-00116-F, 2011 WL 1938585 (N.D. Tex. 2011); Range Res. Corp., v. U.S. Env’tl. Prot. Agency, No. 11-60040, 2011 WL 2191307 (5th Cir. 2011).

74. Vandrovec, *supra* note 47, at 391.

75. *Id.*

76. *Id.* at 391–92; Reply Brief for Petitioner, Range Res. Corp. v. U.S. Env’t Prot. Agency, No. 11-60040, 2011 WL 2179582 (5th Cir. 2011).

punitive damages.⁷⁷ In *Scoma v. Chesapeake Energy Corp.*, plaintiffs alleged that fracking contaminated their water well and that tests indicated a heightened level of harmful petroleum by-products.⁷⁸ In *Mitchell v. Encana Oil & Gas, Inc.*,⁷⁹ plaintiffs alleged that their well water became slick, oily, and odorous.⁸⁰ In *Harris v. Devon Energy Production Co.*, plaintiff alleged contamination with a gray sediment.⁸¹ In *Parr v. Aruba Petroleum, Inc.*, the plaintiff alleged that release of various materials injured his family and livestock.⁸²

VII. PROTECTING ENVIRONMENTALLY SENSITIVE AREAS

Fracking raises a number of issues in global warming, including environmental and land-use concerns. These issues may include contamination of aquifers by methane, fracking fluids, or dislodged radioactive gunk.⁸³ Particular fracking fluid components are primarily determined by the formation's unique geology.⁸⁴ Fracking is specifically exempted from the Safe Drinking Water Act's underground injection control program, unless the frack contains diesel fuel (the so-called "Halliburton loophole").⁸⁵

Fracking also initiates the "degradation of environmentally sensitive areas, including critical habitat, wetlands, hillsides, open space, and Native-American cultural burial grounds. Fracking removes millions of gallons of . . . freshwater. . . . Pollution from truck traffic, chemical contamination around storage tanks, habitat fragmentation and damage from drilling to

77. Vandrovec, *supra* note 47, at 392; see also Barclay Nicholson & Kadian Blanson, *Tracking Fracking Case Law: Hydraulic Fracturing Litigation*, NAT. RESOURCES & ENV'T 25, 26–28 (Fall 2011).

78. Vandrovec, *supra* note 47, at 392; see *Scoma v. Chesapeake Energy Corp.*, No. 3:10-CV-1385-N, 2010 WL 3706170 (N.D. Tex. 2010).

79. Complaint, *Mitchell v. Encana Oil & Gas, Inc.*, No. 3:10CV02555, 2010 WL 5384210 (N.D. Tex. 2010).

80. *Id.*; see also 'Fracking' for Natural Gas Contaminated Water Wells, 2 Suits Say *Harris v. Devon Energy Prod. Co.*, WESTLAW J. ENVTL., 2011 WL 195580, Jan. 2011, at *1; Gilbert, *supra* note 10, at 199.

81. Nicholson & Blanson, *supra* note 77, at 27; Complaint, *Harris v. Devon Energy Prod. Co.*, No. 3:10CV02554, 2010 WL 5384209 (N.D. Tex. 2010).

82. Gilbert, *supra* note 10, at 200; Vandrovec, *supra* note 47, at 395–96.

83. Robert Freilich, *Oil and Gas Fracking Issues*, SU010 ALI-ABA 413, 413 (Aug. 8, 2012).

84. Block et al., *supra* note 1.

85. 42 U.S.C. § 300h(d) (2012).

environmentally sensitive areas. . . .”⁸⁶ After a well is fracked, about 30% to 40% of the injected water is returned to the surface.⁸⁷ The reemerged wastewater is extremely saline since it was in contact with below-surface minerals containing nine percent salt.⁸⁸ Frack water “may also contain radioactive metals, detergents, fracking chemicals, and other highly toxic pollutants.”⁸⁹

There is a synergistic result in the rate, timing, and location of water withdrawals that can have an adverse impact on aquifers and wetlands.⁹⁰ Limiting water withdrawals based on calculations listed on the fracking

86. Freilich, *supra* note 83, at 415–16; see David Baker, *Methane Detectors Take to the Skies*, HOUS. CHRON. (Dec. 2, 2012, 5:44 PM), <http://www.chron.com/business/energy/article/Methane-detectors-take-to-the-skies-4082783.php>; see also Jennifer Hiller, *Producers Watch the Clock in Eagle Ford*, HOUS. CHRON. (Dec. 2, 2012, 6:01 PM), <http://www.chron.com/business/energy/article/Producers-watch-the-clock-in-Eagle-Ford-4082310.php> (“ . . . [T]he truck traffic that has inundated South Texas is probably at its worst right now as companies build drilling pods and place rigs in a race to meet lease obligations.”).

87. Dillon, *supra* note 57, at 208.

88. *Id.*; see also Marianne Lavelle, *Forcing Gas out of Rock with Water*, NAT’L GEOGRAPHIC (Oct. 17, 2010), <http://news.nationalgeographic.com/news/2010/10/101022-energy-marcellus-shale-gas-science-technology-water/>.

89. Dillon, *supra* note 57, at 208.

90. Gruza, *supra* note 47, at 10333; see e.g., 77 FR 8632-01 (codified at 50 CFR Part 17) (Feb. 14, 2012) (endangered status for rayed bean and snuffbox mussels); 77 FR 14914-01 (codified at 50 CFR Part 17) (March 13, 2012) (endangered status for spectacle case and sheep freshwater mussels); 77 FR 43906-01 (codified at 50 CFR Part 17) (July 26, 2012) (proposed addition of the diamond darter to the endangered species list); 77 FR 59488-01 (codified 50 CFR Part 17) (Sept. 27, 2012) (proposed addition of grotto sculpin to the endangered species list); 77 FR 60617-01 (codified at 18 CFR Parts 806 and 808) (Oct. 1, 2010) (final rules that amend project review regulations of the Susquehanna River Basin Commission to include subsidiary allocations for public water supply systems under the scope of withdrawals requiring review and approval, etc.). Chesapeake Energy Corporation requested permission to exclude a shareholder proposal from its 2010 proxy materials, which requested a report summarizing the environmental impact of Chesapeake’s fracturing operations, potential policies for Chesapeake to adopt to reduce environmental concerns regarding fracturing. Chesapeake argued that the proposal was inherently vague and related to ordinary business operations. The Division of Corporation Finance was unable to accept Chesapeake’s view and concluded that exclusion of the proposal from proxy materials was inappropriate. Chesapeake Energy Corp., 2010 WL 673784, S.E.C. No-Action Letter (Apr. 13, 2010). See also Cabot Oil & Gas Corp., 2010 WL 4922501, S.E.C. No-Action Letter (Jan. 28, 2010) (report on environmental impact of fracturing operations); EOG Resources, 2010 WL 4922493, S.E.C. No.-Action Letter (Feb. 3, 2010) (environmental impact of fracturing); Ultra Petroleum Corp., 2010 WL 620062, S.E.C. No.-Action Letter (Mar. 26, 2010) (environmental impact of fracturing); Exxon Mobil Corp., 2011 WL 219633, S.E.C. No-Action Letter (Mar. 14, 2011); Exxon Mobil Corp., 2012 WL 243734, S.E.C. No-Action Letter (Feb. 10, 2012) (Exxon requests no-action letter concerning shareholder proposal which asked for board to adopt qualitative goals to reduce greenhouse gas emissions; the matter is moot since proponent had withdrawn proposal).

permit application will determine the rates necessary to maintain aquatic habitats. Water withdrawals from other surface water bodies can also impact aquatic habitats.⁹¹

Well pad delivery of chemicals and equipment, their storage, the fracking operation, the storage of waste material and wastewater, and the transportation of wastes to disposal facilities possess the potential to create spills and discharges on the well pad.⁹² Management practices to eliminate pollutants in storm water should include:

spill prevention and response activities, ready availability of spill containment and cleanup material and equipment, use of spill and overflow protection devices, availability of manual shutoff valves, and inspections and preventive maintenance protocols for containers, pumping systems, and piping systems, including manned monitoring points during additive transfer mixing, and pumping activities.⁹³

VIII. DOES ENVIRONMENTAL CONSEQUENCES OUTWEIGH ECONOMIC BENEFITS?

A lead story from the *New York Times* on fracking indicates, “Pennsylvania residents point to fouled wells, deformed livestock and poisoned fish near natural gas wells that blast underground rock with water and chemicals.”⁹⁴ “One resident invoked the 1968 zombie thriller “Night of the Living Dead”—“streams of people came to the public meeting here [Canonsburg, PA] armed with stories of yellowed and foul-smelling well water, deformed livestock, poisoned fish and itchy skin.”⁹⁵ “In other

91. In New York, the Department of Environmental Conservation (DEC) also requires evaluation of the effect of withdrawal rates to ensure draw-down levels do not have adverse impacts even during droughts. See generally Gilbert *supra* note 10, at 195.

92. Gruza, *supra* note 47, at 10335; see Allen *supra* note 10, at 59–61.

93. Gruza, *supra* note 47, at 10335.

94. Tom Zeller Jr., *E.P.A. Considers Risks of Gas Extraction*, N.Y. TIMES (July 23, 2010), http://www.nytimes.com/2010/07/24/business/energy-environment/24gas.html?pagewanted=all&_r=0.

95. *Id.*; see generally Robert B. Jackson et al., *Research and Policy Recommendations for Hydraulic Fracturing and Shale-Gas Extraction*, Center on Global Change (Duke Univ., 2011).

instances, water well and even houses have exploded from methane contamination of aquifers resulting from faulty gas-well casings.”⁹⁶

The economic benefits of fracking are obvious, but the downside appears to be nothing more than mere risks.⁹⁷ The question is clear: “What level of environmental risk is acceptable to reap the most benefits of this new technology?”⁹⁸

IX. ENVIRONMENTAL FEDERALISM

The regulatory problem with hydraulic fracturing stems largely from the federal government’s decision to leave regulation to the states. This flies in the face of the environmental federalism “movement.”⁹⁹ However, scholars differ on the current scope of environmental federalism.

A hallmark of environmental federalism is that neither federal nor state governments limit themselves to what many legal scholars have deemed to be their appropriate domains. The federal government continues to regulate local issues, such as remediation of contaminated industrial sites, which have few direct interstate connections and few benefits from

96. Brent Allen & Leslie Lawrence-Hammer, *Hydraulic Fracking and Marcellus Shale: Drilling for Mass Torts*, 13 ABA ENVTL. LITIG. & TOXIC TORTS COMMITTEE NEWSL. 3, 4 (2011); see generally Thomas Swartz, *Hydraulic Fracturing Risks and Risk Management*, 26 NAT. RESOURCES & ENV’T 30 (2011).

97. Block et al., *supra* note 1; but see Simone Sebastian, *Lower Prices Trim Profit at ConocoPhillips*, HOUS. CHRON. (Oct. 25, 2012), <http://www.chron.com/business/article/Lower-prices-trim-profit-at-ConocoPhillips-3982544.php>; Jeannie Keever, *A Tale of One Shale Helped Guide Another*, HOUS. CHRON. (Oct. 7, 2012, 5:35 PM), <http://www.chron.com/business/energy/article/A-tale-of-one-shale-helped-guide-another-3924232.php>.

98. Block et al., *supra* note 1; see Andrew Cuomo, *Some Fear Drilling and Wine Don’t Mix*, HOUS. CHRON. (Oct. 26, 2012), <http://www.houstonchronicle.com/business/energy/article/Some-fear-drilling-and-wine-don-t-mix-3982543.php>; Dillon, *supra* note 57, at 207–08; see also Don Hopey, *Do Gas Wells Pose Health Risk? Expert Says More Research Needed*, PITT. POST-GAZETTE (Aug. 28, 2010, 12:00 AM), <http://www.post-gazette.com/stories/local/state/do-gas-wells-pose-health-risk-261487/> (highlighting the speech of Dr. Volz, director of the University of Pittsburgh’s Center for Health Environments and Communities, at a seminar audience where he indicated that more study is needed to assess fracking’s risks to humans).

99. Powers, *supra* note 45, at 913–15; see also *Congress Takes on “Fracking,”* 273 ENV’T. COUNS. 11 (May 2011); *Congress Take on “Fracking,”* 298 CORP. COUNS. MONITOR 25 (June 2011) (explaining that two bills were introduced in Congress on March 15, 2011 to extend the federal law governing the safety of drinking water to regulate fracturing, but no action has occurred on these bills yet [Feb. 2013]).

federal uniformity. At the same time, state and local governments are not content to confine their attention to issues of local concern, but are developing policies on environmental issues of national or even international scale, such as global climate change. Nor do environmental issues ‘stay’ in the control of any particular level of government, but rather tend to pass back and forth between them like the proverbial football.¹⁰⁰

“The difficult choices hydrofracking poses and the nature of its potential harms illustrate the character of federalism concerns within the context of environmental problems.”¹⁰¹

Congress enacted a federal environmental policy that espouses a broad goal of protecting public resources including air, water, human health, and ecological integrity. As a whole, these laws “embody an unprecedented and comprehensive approach to protection that acknowledges the irreplaceable value of our environment.”¹⁰² The fracturing microcosm allows a perfect opportunity to demonstrate the importance of an “adaptive approach to environmental federalism that includes an active role for the federal government and regulatory flexibility both within applicable federal agencies and between state and local actors to respond to changing information and circumstances.”¹⁰³

X. PREEMPTION CONCERNS

There is no federal preemption of oil and gas drilling on non-federal lands, and, without federal statutes, fracking regulations are left to state governments: Fracking is exempt from the underground injection control requirements applicable to class II oil and gas wells pursuant to the Federal Safe Drinking Water Act, except for when diesel fuels are used.¹⁰⁴

However, the Supreme Court of Pennsylvania in *Range Resources Appalachia, L.L.C. v. Salem Township* held that a township ordinance that regulated certain surface development associated with oil and gas well

100. David Adelman & Kirsten Engel, *Adaptive Federalism: The Case Against Reallocating Environmental Regulatory Authority*, 92 MINN. L. REV. 1796, 1796 (2008).

101. Powers, *supra* note 45, at 914.

102. *Id.* at 930.

103. *Id.* at 961.

104. Freilich, *supra* note 83, at 416.

drilling was preempted by the state's Gas Act.¹⁰⁵ However, the Supreme Court of Pennsylvania in *Huntley & Huntley, Inc. v. Borough Council of the Borough of Oakmount* held that a local zoning ordinance—denying conditional use application to allow drilling—was not preempted by the state's Oil and Gas Act.¹⁰⁶ Professor Matt Willie suggests that fracking decisions are best left to the states, since local and regional industry realities vary from state to state and shale region to region and are, thus, highly dependent on more than 50 years of history of state oil and gas commission control and regulation.¹⁰⁷ This seems to be the reality of the probable future; however, the Obama Administration in 2012 has proposed updated rules that would only broker a compromise that postpones “comprehensive regulations” to give oil and gas producers an additional two years to comply with the proposed rules.¹⁰⁸

The EPA's decision to delay the rules until January 2015 reflects the intensive lobbying by the oil and gas industry, which expressed its unhappiness at federal regulation asserting that the regulation of fracking should be left to state regulators rather than the federal government imposing a ‘one size fits all’ regime.¹⁰⁹

XI. ALLEGED TORTIONS, ANCILLARY DAMAGES

“Already, fleets of silver water tanker trucks have become a familiar sight . . . where fracking predominates mostly rural communities. A few hundred water tankers driving to a drill pad is the equivalent of several million cards passing over roads not built for heavy traffic.”¹¹⁰ These trucks will also cause severe damage to rural air quality.¹¹¹ Fracking produces heavy vehicular traffic and ultimately road degradation.¹¹² Fracking noise is sometimes a concern; some towns might consider

105. *Range Res. Appalachia, L.L.C. v. Salem Twp.*, 964 A.2d 869, 877 (Pa. 2009).

106. *Huntley & Huntley, Inc. v. Borough Council*, 964 A.2d 855, 869–70 (Pa. 2009).

107. Matt Willie, *Hydraulic Fracturing and “Spotty” Regulation: “Why the Federal Government Should Let States Control Unconventional Onshore Drilling*, 2011 BYU L. REV. 1743, 1746 (2011).

108. Freilich, *supra* note 83, at 417.

109. *Id.* As many as 700 tanker-loads of water are used at one site, which puts great stress on the infrastructure of country roads.

110. Dillon, *supra* note 57, at 209.

111. *Id.*

112. NEGRO, *supra* note 45, at 8.

restricting the noise to certain hours or implementing other ways to minimize the noise.¹¹³

XII. COST BENEFIT ANALYSIS VS. ENVIRONMENTAL BALANCING

There have been recent demonstrations in the United States and other countries protesting against fracking, which protesters claim threaten public health and the environment. However, the U.S. EPA counters that fracking can be done safely and in fact can help reduce pollution.¹¹⁴

The benefits to both the national and local economies cannot be minimalized. The most noteworthy benefit to fracking's positive boost to U.S. gas production is that natural gas imports have fallen dramatically. This boost has a positive effect on both the trade balance and national security. In fact, the U.S. will be a net exporter of natural gas by 2035. Natural gas prices have decreased, which lowers home heating costs. Clean-burning natural gas is also environmentally sound since it is a "greenish" alternative to other "less green" energy sources. Also, state treasures have profited from increased corporate net income. Opponents claim that fracking contaminates subsurface drinking water. Frackers counter that injection occurs at depths of a mile or more, whereas water supplies are only 100 feet from the surface and are separated by thousands of feet of rock.¹¹⁵

113. *Id.*

114. Associated Press, *Fracking Protest Crosses U.S., Circles Globe*, HOUS. CHRON. (Sept. 23, 2012), <http://www.houstonchronicle.com/news/nation-world/article/Fracking-protest-crosses-U-S-circles-globe-3886620.php>; Block et al., *supra* note 1. In Texas, the railroads have greatly benefited from hydraulic fracturing. See Jennifer Hiller, *Shale Spawns Another Rail Project*, FUEL FIX (Oct. 22, 2012, 7:09 AM), <http://fuelfix.com/blog/2012/10/22/shale-spawns-another-rail-project/>; see Jennifer Hiller, *Shale Bounty Presents Transportation Challenge*, FUEL FIX (Oct. 16, 2012, 6:51 PM), <http://fuelfix.com/blog/2012/10/16/shale-bounty-presents-transportation-challenge>.

115. Block et al., *supra* note 1. The EPA adopted a two-step schedule for implementing its plan. In the first phase, new hydraulically fractured wells (those drilled after August 23, 2011) must reduce their VOC emissions and are encouraged to use a green completion process for doing so. However, they are permitted to use an alternative completion combustion device instead. In the second stage, effective January 1, 2015, it will no longer be enough to simply lower fracking-related VOC emissions. Rather, well operators will be required to capture the gas and make it available for use or sale. The EPA declared that this approach would promote improvements in air quality in a measured, cost-effective manner that would not impede further development of new wells. See *Re Oil and Natural Gas*

States and localities are hard pressed to ignore fracking's economic benefits and reject the "gold rush" by regulating it out of existence.¹¹⁶

XII. CONCLUSION

The future of fracking appears to be "reduced emissions completion" or "green completion." And, according to the new proposed EPA rules, it should result in a nearly 95% decrease in volatile organic compounds (VOC) from fracking facilities, including methane, which is a major compound of greenhouse gas. This process relies on special equipment that separates gas and liquid hydrocarbons from the flow-back. After that, gas and hydrocarbons can be tested, made "green," and then used or sold.

Hydraulic fracturing is a perfect storm of economic largess for state, local, and federal governments. It is good for the economy in many subtle ways; it appears to answer President Obama's plea for cleaner fuels and less dependency on foreign energy. It is good for the trucking industry; it is good for the railroad industry; it is good for the economy since it creates high paying jobs. Even the American Lung Association says that fracked gas, because it burns cleaner than other fuels, will assist in the laudable social and health goal of reducing pollution.

So, what's the down side? Environmentalists say it will create another dust bowl. However, there seems to be no hard evidence to prove their contentions. The EPA appears to "side" with the frackers; what other inference can be gathered from their new "tough" regulations that will not be effective for another two years allowing gas producers sufficient time to easily meet these new standards? The "Halliburton loophole" proves that the federal government is "fracking friendly." Regardless of "environmental federalism," the federal government appears quite content to allow the states to take the lead in regulating fracturing. The new EPA regulations appear to be a compromise, since they give some lip service to the complaints of the environmental lobby; however, at the end of the day, the regulations are still essentially "pro-fracking."

Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 40 C.F.R. § 63 (Apr. 17, 2012).

116. See NEGRO, *supra* note 45.