

# THE (RE)FEDERALIZATION OF FRACKING REGULATION

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## INTRODUCTION

In November 2012, Harvard historian and conservative commentator Niall Ferguson announced that the oil and gas production technique known as hydraulic fracturing—or, more colloquially, as “fracking”—will usher in “a new economic ‘golden age’” for the United States.<sup>1</sup> The “good times that lie ahead,” according to Professor Ferguson, include surging energy sector jobs, a “renaissance in manufacturing,” and a strong dollar.<sup>2</sup> Around the same time, Focus Features released *Promised Land*, a feature film starring Matt Damon and John Krasinski, directed by Gus Van Sant, and co-written by Dave Eggers.<sup>3</sup> *Promised Land* tells the story of one small, rural community’s response to a large, out-of-state energy company’s attempt to frack the oil and gas beneath their farms and town. These media moments are emblematic of the debate that has dominated so much of the national discourse on fracking. On the one hand, you have the revitalization of American empire;<sup>4</sup> on the other hand, you have the deterioration of American values.<sup>5</sup> Who, then, should one believe? The venerable Niall Ferguson? Or Matt Damon and his crew?

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1. Andrew Stevens, *U.S. Set for Fracking Bonanza, Says Historian Ferguson*, CNN.COM (Nov. 23, 2012), <http://edition.cnn.com/2012/11/23/business/america-shale-gas-ferguson-stevens/index.html>. *But see* U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2013 WITH PROJECTIONS TO 2040, at 2 (2013), available at [http://www.eia.gov/forecasts/aeo/pdf/0383\(2013\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf) (“Tight oil development is still at an early stage, and the outlook is highly uncertain.”).

2. Stevens, *supra* note 1.

3. PROMISED LAND (Focus Features 2012).

4. For a summary of shale gas’s role in our national energy policy, see *Energy in Brief*, U.S. ENERGY INFO. ADMIN., [http://www.eia.gov/energy\\_in\\_brief/about\\_shale\\_gas.cfm](http://www.eia.gov/energy_in_brief/about_shale_gas.cfm) (last updated Dec. 5, 2012).

5. *See, e.g.*, Richard Manning, *Bakken Business: The Price of North Dakota’s Fracking Boom*, HARPER’S MAG., Mar. 2013, at 29; Edwin Dobb, *The New Oil Landscape*, NAT’L GEOGRAPHIC MAG., Mar. 2013, at 28; *see also* Nancy D. Perkins, *The Fracturing of Place: The Regulation of Marcellus Shale Development and the Subordination of Local Experience*, 23 FORDHAM ENVTL. L. REV. 44, 47 (2012) (“As thousands of well pads transform hundreds of thousands of acres of Pennsylvania’s land in the coming years, shale will be cracked open deep below the earth, local vistas will be scarred, waterways will be stressed, and the peace and quiet of the Commonwealth’s communities will be shattered by

Fracking is all the rage.<sup>6</sup> There are approximately thirty-one states where industry has shown an interest in fracking or that otherwise have significant shale gas reserves.<sup>7</sup> Fracking operations in multiple states frequently draw simultaneously from cross-boundary “plays,” such as the Marcellus, Bakken, Antrim, New Albany, and Niobrara formations.<sup>8</sup> The industry has had an extraordinary impact on local, state, and national economies.<sup>9</sup> But it has also been dogged by controversy, most of which is attributable to several interrelated factors: the undisclosed chemical contents of so-called “fracking fluids,” mixtures injected down drilled wells into the earth to stimulate or enhance well production; the uncertain risks of groundwater contamination and the fear and dread that risk inspires;<sup>10</sup> the inadequate regulation of hazardous wastewater at the surface; and the booming industry’s highly visible environmental and community impacts.<sup>11</sup> In addition,

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seismic testing, round-the-clock drilling operations, and the constant coming and going of large diesel-fueled trucks.”).

6. Fracking is a process used to stimulate producing formations—such as oil and gas shales, coal beds, tight sandstones, carbonate, and sandstone—and to enhance recovery of oil or natural gas, by pumping a mixture of water, gels, and other substances—including chemicals, diesel fuels, and/or propping agents—into the target geologic formation under extreme pressure, causing a network of fissures in the rock formations that provide the otherwise trapped oil or natural gas a pathway to travel to the well for extraction. For a diagram of the fracking process, see Graham Roberts, Mika Gröndahl & Bill Marsh, *Extracting Natural Gas from Rock*, N.Y. TIMES (Feb. 26, 2011), <http://www.nytimes.com/interactive/2011/02/27/us/fracking.html>.

7. Ctr. for Energy Econ. & Policy, *A Review of Shale Gas Regulations by State*, RESOURCES FOR THE FUTURE, [http://www.rff.org/centers/energy\\_economics\\_and\\_policy/Pages/Shale\\_Maps.aspx](http://www.rff.org/centers/energy_economics_and_policy/Pages/Shale_Maps.aspx) (last updated May 22, 2013); see also NATURAL RES. DEF. COUNCIL, PROTECTING AMERICANS FROM THE RISKS OF FRACKING 2 (2012), available at <http://www.nrdc.org/energy/files/frackingrisks.pdf> (identifying approximately thirty states with active fracking operations).

8. See, e.g., U.S. ENERGY INFO. ADMIN., LOWER 48 STATES SHALE PLAYS 1 (2011), available at [http://www.eia.gov/oil\\_gas/rpd/shale\\_gas.pdf](http://www.eia.gov/oil_gas/rpd/shale_gas.pdf).

9. See, e.g., Henry D. Jacoby, Francis M. O’Sullivan & Sergey Paltsev, *The Influence of Shale Gas on U.S. Energy and Environmental Policy*, 1 ECON. ENERGY & ENVTL. POL’Y 37 (2012) (demonstrating shale gas benefits to national economy and greenhouse emissions reductions); Thomas W. Merrill & David M. Schizer, *The Shale Oil and Gas Revolution, Hydraulic Fracturing, and Water Contamination: A Regulatory Strategy*, 98 MINN. L. REV. 145, 157-61 (2013) (detailing economic benefits of fracking); see also N.Y. STATE DEP’T OF ENVTL. CONSERVATION, REVISED DRAFT: SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT ON THE OIL, GAS AND SOLUTION MINING REGULATORY PROGRAM 17 (2011), available at <http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf> (estimating positive economic impacts of fracking in New York State).

10. See Rena I. Steinzor, *Unfunded Environmental Mandates and the “New (New) Federalism”*: Devolution, Revolution, or Reform?, 81 MINN. L. REV. 97, 184 (1996) (“No contemporary environmental problem cuts to the quick of public anxiety more than the safety of our drinking water . . .”).

11. The environmental and community impacts have been the subject of extensive reportage. See, e.g., Ian Urbina, *Drilling Down Series*, N.Y. TIMES,

some industry critics have argued that the newfound abundance of fossil fuels affords the country a diversion from the increased renewable energy production and eventually carbon-free economy necessary to combat climate change and ensure economic and environmental sustainability in a post-peak oil world.<sup>12</sup> The controversy surrounding these issues has been exacerbated because fracking is exempt in important ways from several federal environmental laws, including the Safe Drinking Water Act (SDWA),<sup>13</sup> the Resource Conservation and Recovery Act (RCRA),<sup>14</sup> and the Emergency Planning and Community Right to Know Act (EPCRA).<sup>15</sup>

The debate over who should regulate fracking—the federal government or the states—has followed a parallel track to the broader cultural debates, and the corresponding rhetorical alliances are well established. Those who envision private profit and the expansion of American power tend to favor state regulation. Those who fear environmental and public health risks, along with the perpetuation of the fossil fuel economy, tend to favor federal regulation. Putting aside these apparent precommitments, however, the question of the appropriate scale of fracking regulation also engages with a number of underexamined theoretical concerns, which I group together under the rubric of “federalism choice” analysis.<sup>16</sup> This analysis

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[http://www.nytimes.com/interactive/us/DRILLING\\_DOWN\\_SERIES.html](http://www.nytimes.com/interactive/us/DRILLING_DOWN_SERIES.html) (last updated May 15, 2012); *Fracking: Gas Drilling's Environmental Threat*, PROPUBLICA, <http://www.propublica.org/series/fracking> (last updated Aug. 13, 2013); see also GASLAND (HBO Documentary Films 2010); GASLAND PART II (HBO Documentary Films 2013); NatGasNow, *The Truth About Gasland*, YOUTUBE (Jan. 31, 2011), [http://www.youtube.com/watch?feature=player\\_embedded&v=Y1W8MnveFq8](http://www.youtube.com/watch?feature=player_embedded&v=Y1W8MnveFq8) (arguing, in a film produced by America's Natural Gas Alliance, that *Gasland* “is a deeply flawed documentary” and “gets several important facts wrong”).

12. See, e.g., Daniel P. Schrag, *Is Shale Gas Good for Climate Change?*, 141 DÆDALUS 72, 77-78 (2012) (arguing that natural gas production is in competition with development of renewable energy and carbon capture and storage technologies); Jacoby, O'Sullivan & Paltsev, *supra* note 9, at 50 (concluding that shale gas development hinders investments in renewable energy and carbon capture and storage technologies); see also ENERGY MODELING FORUM, STANFORD UNIV., CHANGING THE GAME?: EMISSIONS AND MARKET IMPLICATIONS OF NEW NATURAL GAS SUPPLIES 16 (2013), available at <http://emf.stanford.edu/files/pubs/22532/Summary26.pdf> (predicting that increased natural gas production will have little impact on long-term domestic greenhouse gas emissions because it will displace renewable and nuclear energy production and because economic growth will increase energy use).

13. 42 U.S.C. §§ 300f to 300j-26 (2006 & Supp. 2012).

14. *Id.* §§ 6901-6992k.

15. *Id.* §§ 11001-11050. Fracking, as an oil and gas exploration and production activity, is also exempt from the stormwater permit provisions of the Clean Water Act. See 33 U.S.C. § 1342(l) (2006 & Supp. 2012); 40 C.F.R. § 122.26(a)(2), (c)(1)(iii), (e)(8) (2013); see also *Natural Res. Def. Council v. EPA*, 526 F.3d 591 (9th Cir. 2008) (vacating oil and gas construction stormwater regulation).

16. See Michael Burger, *Consistency Conflicts and Federalism Choice: Marine Spatial Planning Beyond the States' Territorial Seas*, 41 ENVTL. L. REP. 10602 (2011).

acknowledges that governments possess a number of options available to answer the question of whether regulation of a given activity (such as fracking) or environmental or public health impact (such as groundwater contamination or greenhouse gas emissions) should flow from a global, national, state, or local level and seeks to discern which level of governance is most appropriate by considering a number of different factors.

This Article argues that a federalism-choice analysis favors shared federal–state regulation of potential impacts on underground drinking-water supplies and of hazardous waste management, and federal regulation of information disclosure, under the existing regimes created by our nation’s environmental laws. Curiously, despite the resources devoted to both political and public campaigns on either side of fracking’s federalism question, the scholarship to date on the issue is sparse, and what little there is tends to favor the status quo, including state regulation of potential drinking-water contamination, hazardous waste management, and toxic chemical release information disclosure.<sup>17</sup> But theoretical arguments in favor of the status quo underestimate the threat they pose to the existing environmental law para-

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17. See, e.g., David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PA. L. REV. 431 (2013); Merrill & Schizer, *supra* note 9, at 201-62; Thomas W. Merrill, *Four Questions About Fracking*, 63 CASE W. RES. L. REV. 971, 985-89 (2013). The fracking federalism discourse has been deeply informed by the extensive studies conducted by Hannah Wiseman on fracking regulation, enforcement, and regulatory gaps at various scales. See Hannah Jacobs Wiseman, *Remediating Regulatory Diseconomies of Scale*, 94 B.U. L. REV. (forthcoming 2014) [hereinafter Wiseman, *Diseconomies of Scale*]; Hannah J. Wiseman, *Risk and Response in Fracturing Policy*, 84 U. COLO. L. REV. 729 (2013) [hereinafter Wiseman, *Risk and Response*]; Hannah Wiseman, *Fracturing Regulation Applied*, 22 DUKE ENVTL. L. & POL’Y F. 361 (2012); Hannah Jacobs Wiseman & Francis Gradijan, *Regulation of Shale Gas Development, Including Hydraulic Fracturing* (Univ. of Tulsa Legal Studies Research Paper No. 2011-11), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1953547](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1953547); Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 FORDHAM ENVTL. L. REV. 115 (2009) [hereinafter Wiseman, *Untested Waters*]; Hannah Wiseman, *Regulatory Adaptation in Fractured Appalachia*, 21 VILL. ENVTL. L.J. 229 (2010) [hereinafter Wiseman, *Regulatory Adaptation*]; Hannah Wiseman, *Trade Secrets, Disclosure, and Dissent in a Fracturing Energy Revolution*, 111 COLUM. L. REV. SIDEBAR 1 (2011). Environmental advocacy groups have also examined regulatory failures, particularly at the state level and advocated increased federal involvement. See, e.g., MATTHEW MCFEELEY, NATURAL RES. DEF. COUNCIL, STATE HYDRAULIC FRACTURING DISCLOSURE RULES AND ENFORCEMENT: A COMPARISON (2012), available at <http://www.nrdc.org/energy/files/Fracking-Disclosure-IB.pdf>. Industry groups have opposed new federal regulatory measures. AM. PETROLEUM INST., “THE PRESIDENT’S BACKWARD ENERGY POLICY WON’T HELP LOWER GASOLINE PRICES”: ENERGY MYTHS & FACTS 2 (2012), available at <http://www.api.org/~media/Files/Policy/Exploration/Energy-Myths-and-Facts.pdf> (arguing that a “potential avalanche of new rules will discourage further natural gas development”). The dynamics of competing political, environmental, and industry federalism agendas is theorized and examined in Charles Davis & Katherine Hoffer, *Federalizing Energy? Agenda Change and the Politics of Fracking*, 45 POL’Y SCI. 221 (2012).

digm. The relevant statutes addressed here—SDWA, RCRA, and EPCRA—are all designed to protect against particular adverse environmental and public health impacts. Thus, if states represent the proper scale at which to regulate these impacts in regards to fracking, then, in theory, they must be the proper scale at which to regulate these impacts for other activities, too. Such a conclusion undermines existing federal protections in a fundamental way. Yet, the conclusion necessarily follows, unless there is something distinctive about fracking that makes its impacts different from—and somehow less than—those associated with other activities that produce the same impacts. To date, no one has explained why this should be. Nor can they. For while there may well be economic, political, geo-political, or even environmental reasons to encourage the further expansion of the fracking industry,<sup>18</sup> there is no plausible justification under a theoretical federalism analysis to treat it differently from any other polluting activity.

The purpose of this Article, then, is to defend environmental law's federalism choices from the insinuation that they do not match fracking's environmental impacts and to demonstrate that fracking does indeed belong under the umbrella of federal law. The Article proceeds in four Parts. Part I establishes the federalism-choice analysis framework and applies it to both state and federal regulation of fracking. Part II buttresses the conclusion that federal regulation of potential impacts on underground drinking-water supplies is appropriate through a fresh and extensive examination of the statutory scheme and legislative history of SDWA. Part III offers further support for federal law's applicability to fracking through a more abbreviated look at RCRA and EPCRA. Part IV details the ongoing trend toward federalization of fracking regulation under environmental law, offers a new federalism analysis of several possible regulatory measures, and proposes that, in the absence of direct federal regulation, either the federal government or the states should ramp up efforts to promote policy diffusion and the spread of best practices. A brief conclusion follows.

## I. FRACKING AND FEDERALISM CHOICE

Questions of environmental federalism are often answered through one of three filters: dual federalism, cooperative federalism, and the “matching principle.”<sup>19</sup> Dual federalism is most frequently invoked in judicial opin-

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18. See, e.g., JOHN D. PODESTA & TIMOTHY E. WIRTH, CTR. FOR AM. PROGRESS, NATURAL GAS: A BRIDGE FUEL FOR THE 21ST CENTURY (2009), available at <http://www.americanprogress.org/wpcontent/uploads/issues/2009/08/pdf/naturalgasmemo.pdf>. But see J. DAVID HUGHES, POST CARBON INST., WILL NATURAL GAS FUEL AMERICA IN THE 21ST CENTURY? (2011), available at <http://www.postcarbon.org/reports/PCI-report-nat-gas-future.pdf>.

19. The contours of environmental federalism as a distinct subfield of federalism theory have been well drawn elsewhere. See, e.g., Ann E. Carlson, *Iterative Federalism and*

ions and in scholarship that emphasizes the centrality of state autonomy to “Our Federalism.”<sup>20</sup> It possesses at least three essential characteristics: it emphasizes conflict between federal and state governments; it views the federal government as one of limited purposes and powers; and it maintains that the states and the federal government are sovereign within their separate spheres.<sup>21</sup> Cooperative federalism, by contrast, derives from statutory origins rather than constitutional ones.<sup>22</sup> Rather than divide governance in the United States into exclusive power domains, it seeks to legitimate the partnerships that pervade federal–state relations. Accordingly, it emphasizes partnership between federal and state governments rather than conflict; views the federal government as one of expansive powers and purposes; and maintains that the states and the federal government often operate in areas of overlapping authority and jurisdiction.<sup>23</sup> Meanwhile, scholars seeking to

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*Climate Change*, 103 NW. U. L. REV. 1097 (2009); William W. Buzbee, *Contextual Environmental Federalism*, 14 N.Y.U. ENVTL. L.J. 108 (2005); David E. Adelman & Kirsten H. Engel, *Adaptive Federalism: The Case Against Reallocating Environmental Regulatory Authority*, 92 MINN. L. REV. 1796 (2008); Kirsten H. Engel, *Harnessing the Benefits of Dynamic Federalism in Environmental Law*, 56 EMORY L.J. 159 (2006); Jonathan H. Adler, *Jurisdictional Mismatch in Environmental Federalism*, 14 N.Y.U. ENVTL. L.J. 130 (2005). For an interesting critique of the “muddle” of environmental federalism theory, see David A. Dana, *One Green America: Continuities and Discontinuities in Environmental Federalism in the United States*, 24 FORDHAM ENVTL. L. REV. 103, 104–11 (2013).

20. *Younger v. Harris*, 401 U.S. 37, 44 (1971) (using the term to refer to “a proper respect for state functions [and a] belief that the National Government will fare best if the States and their institutions are left free to perform their separate functions in their separate ways”). For a concise account of the arguments for and against the accuracy of the autonomy/sovereignty model of dual federalism, see Heather K. Gerken, *Foreward: Federalism All the Way Down*, 124 HARV. L. REV. 4, 11–21 (2010). See also ERIN RYAN, *FEDERALISM AND THE TUG OF WAR WITHIN* 109–44 (2012); and ROBERT A. SCHAPIRO, *POLYPHONIC FEDERALISM: TOWARD THE PROTECTION OF FUNDAMENTAL RIGHTS* 32–37 (2009). Although dual sovereignty has largely been displaced in this area by the cooperative federalism frameworks of statutory environmental law, it nonetheless remains a vital element of constitutional law issues that arise in environmental law scenarios, including preemption cases, Dormant Commerce Clause cases, and Tenth Amendment challenges to federal environmental laws.

21. See Gerken, *supra* note 20.

22. See *id.* at 18–20 (identifying public law areas—including environmental law, consumer protection law, financial regulation, and telecommunications law—where dual sovereignty account of “Our Federalism” falls short); see also RYAN, *supra* note 20, at 145–80; SCHAPIRO, *supra* note 20, at 40–47.

23. See *City of Arlington v. FCC*, 133 S. Ct. 1863, 1874–75 (2013) (applying *Chevron* deference to agency interpretation of jurisdictional reach under federal statute); Gerken, *supra* note 20, at 19 (“These institutional arrangements feature a powerful national government with its finger in every regulatory pie, integrated and interdependent state and federal regimes, states wielding power that is not their own, and a complex administrative structure involving a variegated set of state and local decisionmakers.”); see also Philip J. Weiser, *Towards a Constitutional Architecture for Cooperative Federalism*, 79 N.C. L. REV. 663 (2001); Joseph F. Zimmerman, *National–State Relations: Cooperative Federalism in the Twentieth Century*, 31 PUBLIUS 15 (2001). But see *Train v. Natural Res. Def. Council*, 421

identify an appropriate level of regulatory authority over one or another environmental problem often invoke the “matching principle” and attempt to “match” the jurisdiction to the scale and scope of the problem.<sup>24</sup>

In the last few decades, environmental and constitutional law scholars have also developed theoretical frameworks in which to analyze questions of federalism choice. Several rationales are usually proffered to justify arguments in favor of federalization, or centralization, of environmental law. First, the problem of interstate externalities requires a federal response.<sup>25</sup> Second, federalization counteracts the problem of the “race to the bottom,” in which state and local governments caught in a prisoner’s dilemma lower environmental standards to potentially harmful levels in order to attract industry.<sup>26</sup> Third, federal uniformity in the regulation of products manufactured for and distributed on a national scale may be desirable,<sup>27</sup> as uniform standards provide economic efficiencies to regulated entities.<sup>28</sup> Fourth, cen-

U.S. 60, 64 (1975) (describing cooperative federalism regime instituted by the 1970 Clean Air Act amendments as Congress “taking a stick to the States”).

24. See Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority*, 14 YALE L. & POL’Y REV. 23, 25 (1996); Adler, *supra* note 19, at 158-60.

25. In economics, externalities are spillover costs or adverse consequences imposed on non-parties to a transaction. See, e.g., Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1215-16 (1977) (explaining that spillover costs are insufficiently accounted for in decentralized governance); Richard L. Revesz, *Federalism and Interstate Environmental Externalities*, 144 U. PA. L. REV. 2341 (1996) (arguing that federal law has not effectively addressed the problems arising from interstate externalities).

26. See, e.g., Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the “Race-to-the-Bottom” Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992) [hereinafter Revesz, *Rehabilitating Interstate Competition*]; Peter P. Swire, *The Race to Laxity and the Race to Undesirability: Explaining Failures in Competition Among Jurisdictions in Environmental Law*, 14 YALE L. & POL’Y REV. 67 (1996); Kirsten H. Engel, *State Environmental Standard-Setting: Is There a “Race” and Is It “to the Bottom”?*, 48 HASTINGS L.J. 271 (1997); Richard L. Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, 82 MINN. L. REV. 535 (1997) [hereinafter Revesz, *A Response to Critics*]; Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 HARV. L. REV. 553 (2001); see also Richard Webster, *Federal Environmental Enforcement: Is Less More?*, 18 FORDHAM ENVTL. L. REV. 303 (2007) (arguing that a race to the bottom exists in relation to enforcement).

27. See Revesz, *A Response to Critics*, *supra* note 26, at 544 (“Uniformity . . . can be desirable for products with important economies of scale in production.”); Alan Schwartz, *Statutory Interpretation, Capture, and Tort Law: The Regulatory Compliance Defense*, 2 AM. L. & ECON. REV. 1, 6-10 (2000) (discussing “inefficiencies” associated with disparate state standards); James E. Krier, *On the Topology of Uniform Environmental Standards in a Federal System—and Why It Matters*, 54 MD. L. REV. 1226, 1240-41 (1995) (arguing that uniform standards under the Clean Air Act and Clean Water Act had proven “foolish”).

28. But see, e.g., Engel, *supra* note 26, at 369 (noting that uniform standards benefit industry by stifling competition and freeing it from having to satisfy diversity of requirements); Robert L. Glicksman & Richard E. Levy, *A Collective Action Perspective on Ceiling*



tralization can effectively pool resources for gathering technical information, generating scientific knowledge, creating durable rules, and providing for enforcement.<sup>29</sup> Fifth, centralization may enable a different balance of interest group influence, as groups excluded from local political and development machines may gain greater voice at the federal level.<sup>30</sup> Sixth, federalization can overcome NIMBYism, the “not in my backyard” attitude often evident in conflicts surrounding the siting of hazardous waste disposal sites and other locally undesirable land uses.<sup>31</sup> Finally—and importantly in regards to fracking—federalization may respond to the sense of a national moral imperative.<sup>32</sup>

On the other side of the debate, several rationales have come to dominate arguments in favor of devolution, or decentralization, of environmental law. First, decentralization may enable decision making that is both more democratic<sup>33</sup> and more responsive to local preferences.<sup>34</sup> Second, innovation can occur when states and localities act as “laboratories of democracy” or experimentation.<sup>35</sup> Third, decentralization may enable decision making that is tailored more narrowly to variable local environmental conditions.<sup>36</sup>

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*Preemption by Federal Environmental Regulation: The Case of Global Climate Change*, 102 Nw. U. L. REV. 579, 599 n.95 (2008) (noting that uniform standards are “more concerned with reducing regulatory burdens than improving the effectiveness of environmental regulation”).

29. See, e.g., Carlson, *supra* note 19, at 1104.

30. See Stewart, *supra* note 25, at 1213-15; Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 598 (1996).

31. See, e.g., MICHAEL B. GERRARD, *WHOSE BACKYARD, WHOSE RISK: FEAR AND FAIRNESS IN TOXIC AND NUCLEAR WASTE SITING* (1994); Michael B. Gerrard, *The Victims of NIMBY*, 21 FORDHAM URB. L.J. 495 (1994) (discussing NIMBY responses to waste disposal facilities, low-income housing, and social service centers); Barak D. Richman & Christopher Boerner, *A Transaction Cost Economizing Approach to Regulation: Understanding the NIMBY Problem and Improving Regulatory Responses*, 23 YALE J. ON REG. 29 (2006).

32. See Stewart, *supra* note 25, at 1221-22.

33. The benefits of scaling down for democracy have been at the core of much of the scholarship on localism. See, e.g., Roderick M. Hills, Jr., *Against Preemption: How Federalism Can Improve the National Legislative Process*, 82 N.Y.U. L. REV. 1 (2007); Richard Briffault, *Our Localism: Part I—The Structure of Local Government Law*, 90 COLUM. L. REV. 1 (1990); see also Roderick M. Hills, Jr., *Is Federalism Good for Localism? The Localist Case for Federal Regimes*, 21 J.L. & POL. 187, 189-95 (2005) [hereinafter Hills, *Is Federalism Good for Localism?*] (distinguishing “democratic decentralization” from “managerial decentralization”).

34. See, e.g., James L. Huffman, *Making Environmental Regulation More Adaptive Through Decentralization: The Case For Subsidiarity*, 52 U. KAN. L. REV. 1377 (2004).

35. See *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting) (“It is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.”); David L. Markell, *States as Innovators: It’s Time for a New Look to Our “Laboratories of Democracy” in the Effort to Improve Our Approach to Environmental Regulation*, 58 ALB. L. REV. 347 (1994).

36. See, e.g., Stewart, *supra* note 25, at 1219-20; Esty, *supra* note 30, at 606-07.

Fourth, decentralization can enable adaptive management or other experimentalist or “New Governance” regimes.<sup>37</sup> Fifth, decentralization might spur inter-jurisdictional competition, which can lead to economically efficient regulation<sup>38</sup> or even a “race to the top.”<sup>39</sup>

In the remainder of this Section, I apply these frameworks to fracking. For the purposes of this Article, “fracking” refers not just to the moment when an operator literally fractures an unconventional formation, but also to the exploration and production process of which that is a part.<sup>40</sup> In brief, that process entails the following: after the necessary testing has determined that oil and gas are present in a given site and after acquisition of the necessary rights and permits to drill, an operator constructs the well site and, if necessary, the access road to it. The operator then carries in the requisite water, sand, chemicals, equipment, and facilities; mixes the chemicals and sand with the water to create his “fracking fluid”; and begins drilling. In the unconventional formations where fracking occurs, the operator will drill down thousands of feet—often well below most conventional oil and gas reserves and most, if not all, likely underground drinking-water supplies—by applying various drilling muds and fluids to the rock. Drilling, and the production that follows, results in natural water from the formation—called “produced water”—rising through the well to the surface. The operator will store the produced water—which may contain high levels of salts and brines, as well as naturally occurring radioactive material—in a pit or enclosed tank at the site. The operator will then dispose of the produced water either through underground injection into a separate disposal well (for which it will need a permit issued under SDWA), through discharge into a wastewater treatment plant (for which it will need a permit issued under the CWA) or through land application (for which it may require a permit under state law). Next, the operator hydraulically fractures the formation by injecting millions of gallons of highly pressurized water mixed with chemicals and proppants

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37. See, e.g., Bradley C. Karkkainen, *Adaptive Ecosystem Management and Regulatory Penalty Defaults: Toward a Bounded Pragmatism*, 87 MINN. L. REV. 943 (2003); Bradley C. Karkkainen, *Environmental Lawyering in the Age of Collaboration*, 2002 WIS. L. REV. 555; Charles Sabel, Archon Fung & Bradley Karkkainen, *Beyond Backyard Environmentalism*, in BEYOND BACKYARD ENVIRONMENTALISM 3 (Joshua Cohen & Joel Rogers eds., 2000); Jody Freeman, *Collaborative Governance in the Administrative State*, 45 UCLA L. REV. 1 (1997). But see Douglas NeJaime, *When New Governance Fails*, 70 OHIO ST. L.J. 323 (2009).

38. See, e.g., Revesz, *Rehabilitating Interstate Competition*, *supra* note 26.

39. See generally Michael Burger, “It’s Not Easy Being Green”: *Local Initiatives, Preemption Problems, and the Market Participant Exception*, 78 U. CIN. L. REV. 835 (2010). See also Alexandra B. Klass, *State Standards for Nationwide Products Revisited: Federalism, Green Building Codes, and Appliance Efficiency Standards*, 34 HARV. ENVTL. L. REV. 335, 363 (2010) (discussing the “ratchet” approach to energy efficiency standards used in Japan and Australia).

40. See generally Wiseman, *Risk and Response*, *supra* note 17.

down the well. The pressure causes perforations in the well, through which chemicals and proppants flow into the rock. Some of the water and chemicals return through the well to the surface—so-called “flowback water”—and are stored in a pit or tank before disposal or reuse. Finally, after the oil or gas has been extracted, the operator completes the well, or else plugs and abandons it.<sup>41</sup>

Throughout this process, there are numerous opportunities for air pollution, water pollution, hazardous waste spills, and toxic chemical releases. The process entails the release of toxic chemicals into the environment; the transport, storage, handling, and disposal of hazardous waste and toxic chemicals; and the potential to contaminate underground drinking supplies through any of a number of potential surface and subsurface pathways.<sup>42</sup> These facts necessarily form the basis for the federalism choice analysis that follows. Here, I begin with what I believe is the weaker set of arguments in favor of allocating primary regulatory authority to the states. It is imperative to remember throughout this recitation that *this approach allows states the option of not regulating at all*, as it presumes that *no* federal minimum standards have been set under SDWA, RCRA, or EPCRA. I then turn to what I believe is the stronger set of arguments in favor of federal intervention.

#### A. The Theoretical Arguments for State Regulation

Several theoretical rationales typically offered in support of allocating regulatory authority to the states are relevant in this context. First, the geology, geography, hydrography, hydrology, and other local environmental conditions—including differences in population density and the presence of rare or protected resources—differ among the various formations and shale plays.<sup>43</sup> These differences must be accounted for in any regulatory regime or

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41. See *Oil and Gas Well Drilling and Servicing eTool*, OCCUPATIONAL SAFETY & HEALTH ADMIN., [http://www.osha.gov/SLTC/etools/oilandgas/well\\_completion/well\\_completion.html](http://www.osha.gov/SLTC/etools/oilandgas/well_completion/well_completion.html) (last visited Jan. 22, 2014).

42. As discussed further below, the “pathways” of drinking water contamination are presently the subject of a much-watched EPA report, which is expected to be issued in 2014. See U.S. ENVTL. PROT. AGENCY, EPA 601/R-12/011, *STUDY OF THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING ON DRINKING WATER RESOURCES: PROGRESS REPORT (2012)* [hereinafter 2011 EPA REPORT], available at <http://www2.epa.gov/sites/production/files/documents/hf-report20121214.pdf>; U.S. ENVTL. PROT. AGENCY, EPA/600/R-11/122, *PLAN TO STUDY THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING ON DRINKING WATER RESOURCES 34-41 (2011)*, available at [http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/hf\\_study\\_plan\\_110211\\_final\\_508.pdf](http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/hf_study_plan_110211_final_508.pdf).

43. See, e.g., Tom Myers, *Potential Contaminant Pathways from Hydraulically Fractured Shale to Aquifers*, 50 GROUNDWATER 872, 875 (2012).

permitting program. Second, different communities and political constituencies experience different levels of risk tolerance and weigh differently the balance between the jobs and economic growth that may come with fracking and the potential for adverse environmental, public health, and community character impacts.<sup>44</sup> Third, allowing states to serve as “laboratories” for experimentation and innovation can produce a diversity of technologies and regulatory approaches that can improve environmental performance and achieve economic efficiency without sacrificing the aforementioned political preferences.<sup>45</sup> Finally, allocation to the state level may plausibly result in greater voice and democratic participation than would result from a federal regime by permitting local citizens who would otherwise opt out or be shut out from the decision-making process to participate in it.

However, only the last of these rationales is persuasive. As discussed in Section I.B, the benefits of local tailoring to environmental conditions and political preferences, and the possibility that states may serve as “laboratories” of experimentation and innovation, are also captured by the cooperative federalism regimes established under SDWA, RCRA, and other environmental statutes.<sup>46</sup> Moreover, as discussed in Section IV.C, the evidence available shows that the “laboratories” rationale has fallen short in practice. State regulatory regimes remain inconsistent, with some states actively seeking to address the problems generated by fracking, and others not.<sup>47</sup> The result is a highly variable regulatory terrain that leaves many significant gaps unfilled.<sup>48</sup>

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44. See, e.g., N.Y. STATE DEP'T OF ENVTL. CONSERVATION, *supra* note 9; N.C. DEP'T OF ENV'T & NATURAL RES. & N.C. DEP'T OF COMMERCE, NORTH CAROLINA OIL AND GAS STUDY UNDER SESSION LAW 2011-276 (2012), available at [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=9a3b1cc1-484f-4265-877e-4ae12af0f765&groupId=14](http://portal.ncdenr.org/c/document_library/get_file?uuid=9a3b1cc1-484f-4265-877e-4ae12af0f765&groupId=14); Discussion Draft of Regulations Hydraulic Fracturing Regulations Banner, CAL. DEP'T OF CONSERVATION (2012), <http://www.conservation.ca.gov/index/Pages/hfrk-discussiondraft.aspx>; 225 ILL. COMP. STAT. 732/1 (2013); see also Merrill & Schizer, *supra* note 9, at 256 (noting that differences between state property rights regimes may influence allocation of authority to states).

45. See *infra* Part IV.

46. See *infra* Section I.B.

47. See, e.g., Wiseman, *Untested Waters*, *supra* note 17, at 167 (discussing the various tiers at which states are regulating fracking operations).

48. See Wiseman & Gradijan, *supra* note 17, at 108-09 tbl.10a; Wiseman, *Untested Waters*, *supra* note 17, at 167 (“Most states are, at minimum, collecting data on the fracturing fluids used and the formation that has been fractured. A few address groundwater withdrawal and disposal concerns specific to fracturing. And still fewer allow public participation in the decision to grant a permit to drill and frac, beyond complaints of traditional neighboring landowner concerns such as drainage of the oil and gas beneath their property. Few states have banned the use of hazardous fracturing fluids, and few have specifically addressed the concerns that arise where fractures extend further than anticipated and enable fracturing fluids to flow into neighboring formations.”); Wiseman, *Regulatory Adaptation*, *supra* note 17, at 235 (concluding that “progress has been made in reducing the risk of surface contami-

David Spence has taken an alternative approach to fracking federalism analysis—applying the “matching principle” and arguing that current scientific information indicates that the impacts of fracking are largely local, and so the proper scale of governance is, for the most part, at the state level.<sup>49</sup> As noted above, fracking’s impacts include air emissions, such as methane emissions and volatile organic compound emissions; potential groundwater contamination from underground injection and surface spills; and surface water contamination from hazardous wastewater management and disposal and stormwater runoff.<sup>50</sup> Other impacts include water supply depletion, alteration of community character and landscapes, and increased nonporous surface area.<sup>51</sup> Some of these impacts are easy enough to allocate to one or another level of government under the matching principle: water supply depletion and community character and landscape impacts may generally be considered localized impacts properly regulated under state or local law.<sup>52</sup> Methane emissions that commingle with other greenhouse gases in the atmosphere and contribute to climate change should be considered national or international impacts properly regulated under federal law.<sup>53</sup>

But many of fracking’s impacts are more difficult to “match.” Should localized emissions of hazardous air pollutants be regulated solely by the states? What about contamination of drinking-water supplies that do not cross state lines and are not sold into interstate commerce? What about hazardous waste spills into soils or waters that never directly cross state lines? What about stormwater runoff into local streams or creeks? Read literally, the matching principle might well allocate all of these impacts to the states. However, our nation’s environmental laws—Clean Air Act (CAA), SDWA, RCRA, and CWA—have allocated authority over these impacts to cooperative federalism regimes that provide for minimum national standards and state implementation, largely because the environmental and public health impacts were found to implicate national interests and because state regula-

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nation from fracking activities but that more is needed in some areas” and that “[i]n light of the current absence of federal regulation of several stages of the fracking process, states and the federal government must reevaluate the assumption that individual state regulations consistently and adequately fill each and every federal gap”).

49. See generally Spence, *supra* note 17.

50. See, e.g., *id.* at 483-93; Wiseman, *Risk and Response*, *supra* note 17, at 753-75, 778-94, 799-808.

51. Spence, *supra* note 17, at 479-82; Wiseman, *Risk and Response*, *supra* note 17, at 775-79, 794-99.

52. However, there are important exceptions to this conclusion. First, water supply depletion may be subject to an interstate compact governing surface water or aquifer use. Second, water supply depletion in a time of extended drought, such as that being experienced in the American Southwest, may begin to raise issues that are more regional or national in scope. Third, as discussed further below, community character and landscape impacts can, if widespread, become an issue of greater-than-local concern. See *infra* Subsection I.B.3.

53. See Spence, *supra* note 17, at 483-87 (discussing methane emissions).

tion had proven insufficient. Fracking has been exempted from these federal laws in significant ways; however, none of those exemptions relies on either the theoretical factors discussed above or on the matching principle.<sup>54</sup>

David Schizer and Tom Merrill also argue that states are the proper scale of governance, positing that regulatory authority over oil and gas exploration and production on private property has, as a historical matter, been left to the states and that this historical fact weighs in favor of leaving fracking's legislative and regulatory exemptions in place.<sup>55</sup> However, states' historic regulation of conventional oil and gas exploration and production activities does not justify exempting fracking from SDWA, RCRA, or EPCRA. For one thing, conventional oil and gas exploration and production activities—and other enhanced recovery activities including fracking that use diesel fuel—are in fact regulated by SDWA.<sup>56</sup> In addition, the EPA's decisions to exempt oil and gas exploration and production from RCRA and EPCRA are not statutorily required; rather, they represent discretionary actions that were made based on then-current technologies and the scale of conventional oil and gas production. These regulatory exemptions have not yet accounted for the chemical content of fracking fluids, the sudden and extraordinary expansion of unconventional oil and gas production in this country, or new technologies that make waste management economically feasible.<sup>57</sup> In short, then, history does not favor state regulation of fracking's potential impacts. Rather, it highlights the primary reason the federal government has been slow to react to what may have otherwise been an activity that very rapidly fell under federal law.

It bears noting here that politicians, bureaucrats, and industry groups who favor state regulation have focused on a handful of talking points that bear little relation to these loftier theoretical considerations.<sup>58</sup> First and foremost, political proponents of state regulation argue that fracking has been around for a long time—since the middle of the twentieth century<sup>59</sup>—and it is environmentally safe. Along these same lines, advocates of state regulation maintain that there are no known instances of groundwater con-

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54. See *infra* Parts II-III (discussing exemptions).

55. See Merrill & Schizer, *supra* note 9, at 151, 251-53.

56. See *infra* notes 144-56 and accompanying text (discussing statutory scheme).

57. See *infra* notes 219-22 and accompanying text (discussing petitions).

58. For a codification of these talking points, see, for example, AM. LEGISLATIVE EXCH. COUNCIL, RESOLUTION TO RETAIN STATE AUTHORITY OVER HYDRAULIC FRACTURING (n.d.), available at <http://s3.documentcloud.org/documents/346244/alec-resolution-to-retain-state-authority-over.pdf>. For an analysis of its use as political rhetoric, see Davis & Hoffer, *supra* note 17.

59. Jennifer L. Miskimins, Jeff Johnson & Mark Turner, *The Technical Aspects of Hydraulic Fracturing*, in HYDRAULIC FRACTURING: CORE ISSUES AND TRENDS 1, 1-4 (Rocky Mountain Mineral L. Found. 2011) (identifying 1947 as the year of the first frack); Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 7 (Tex. 2008) (identifying 1949 as the year of the first commercial frack).

tamination from fracking.<sup>60</sup> This number—zero—is critical to the rhetorical force of the argument and explains the zeal with which reports of contamination of groundwater in Dimock, Pennsylvania and Pavillion, Wyoming have been contested.<sup>61</sup> Proponents also argue that states already regulate fracking under their oil and gas regulatory programs and additional regulation is unnecessary;<sup>62</sup> that federal regulation will add costs, reduce the number of projects, and thereby threaten the nation's energy security;<sup>63</sup> and that variable geology and geography require state expertise and local knowledge.<sup>64</sup> Of these political arguments, only two are relevant to theoretical analysis: the argument that state regulation is sufficient and the local tailoring argument. As we shall soon see, though, there are significant gaps in state regulation, and local conditions are explicitly accounted for under SDWA.

## B. The Theoretical Arguments for Federal Regulation

There are three main points to be made in support of the theoretical argument that regulation of fracking should be allocated to the cooperative federalism regimes of SDWA and RCRA and to the federal Toxic Release Inventory program (TRI) implemented under the EPCRA. First, the theoretical benefits of state-level regulation are effectively captured by cooperative federalism structures, in which states assume primacy, or are delegated authority by developing an approvable regulatory program, while the federal presence garners benefits unavailable in a state regulation regime. Second,

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60. *But see* Jim Efstathiou, Jr. & Mark Drajem, *Drillers Silence Fracking Claims with Sealed Settlements*, BLOOMBERG (June 6, 2013, 12:00 AM), <http://www.bloomberg.com/news/2013-06-06/drillers-silence-fracking-claims-with-sealed-settlements.html> (describing confidential settlements of private lawsuits and administrative complaints filed against fracking companies for drinking water contamination).

61. For a neat summary of the messy business surrounding the EPA's study of potential drinking water supply contamination in Wyoming, see PETER FOLGER, MARY TIEMANN & DAVID M. BEARDEN, CONG. RESEARCH SERV., R42327, *THE EPA DRAFT REPORT OF GROUNDWATER CONTAMINATION NEAR PAVILLION, WYOMING: MAIN FINDINGS AND STAKEHOLDER RESPONSES 1-2* (2012). For a short summary of the Dimock controversy, see Michael Rubinkam, *Dimock, PA Water Tests Conducted by EPA Amid Fracking Concerns*, HUFFINGTON POST (July 25, 2012, 9:10 PM), [http://www.huffingtonpost.com/2012/07/25/dimock-pa-water\\_n\\_1702992.html](http://www.huffingtonpost.com/2012/07/25/dimock-pa-water_n_1702992.html).

62. *See* Spence, *supra* note 17, at 507; Merrill & Schizer, *supra* note 9, at 253-57; *see also* Charles Davis, *The Politics of "Fracking": Regulating Natural Gas Drilling Practices in Colorado and Texas*, 29 REV. POL'Y RES. 177, 181-82 (2012).

63. *But see* INT'L ENERGY AGENCY, GOLDEN RULES FOR A GOLDEN AGE OF GAS: WORLD ENERGY OUTLOOK SPECIAL REPORT ON UNCONVENTIONAL GAS 53 (Robert Priddle ed., 2012), *available at* [http://www.iea.org/publications/freepublications/publication/WEO2012\\_GoldenRulesReport.pdf](http://www.iea.org/publications/freepublications/publication/WEO2012_GoldenRulesReport.pdf) (estimating that regulation will increase the cost of natural gas by 7%).

64. *See, e.g.*, AM. LEGISLATIVE EXCH. COUNCIL, *supra* note 58.

even in the absence of direct interstate externalities, the environmental statutes reflect the interstate nature of drinking water, hazardous waste, and toxic chemical release impacts, as well as the federal interest in those impacted resources and the public health. Third, the rapid development of fracking and its tremendous scale have increased the likelihood that the industry is producing previously under-accounted cumulative effects, as well as impacts on American communities that potentially implicate national moral concerns.

### 1. *The Benefits of Cooperative Federalism*

The cooperative federalism structures of SDWA, RCRA, the CWA, and the CAA are all designed to capture the benefits that inure to state regulation of environmental pollution without sacrificing a baseline of protectiveness that ensures greater equality, and environmental and public health, across the country.<sup>65</sup> In particular, state primacy under SDWA and state delegated authority under RCRA (as well as the CWA and CAA) allow states to apply local knowledge and to tailor their permitting to local environmental conditions; to respond to local democratic preferences to either surpass federal minimum standards or to simply abide by them; to increase citizen voice; and to engage in technical and regulatory experimentation that can help inform their own and others' further regulatory choices.<sup>66</sup> Thus, with cooperative federalism, the federal government's intrusion into the "market" for regulatory options accommodates many of the primary concerns voiced by the theoretical argument for state regulation while also ensuring a degree of interstate equality and protection of human health and the environment.

### 2. *The Federal Interest in Drinking Water, Hazardous Waste Management, and Toxic Release Information Disclosure*

The relevant environmental statutes and their legislative histories all reflect earlier congressional determinations that drinking water, hazardous waste management, and toxic release information disclosure are matters that involve sufficient federal interests to warrant federal regulation, regardless of whether individual pollution events transgress state borders or whether

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65. See, e.g., Philip J. Weiser, *Federal Common Law, Cooperative Federalism, and the Enforcement of the Telecom Act*, 76 N.Y.U. L. REV. 1692, 1695-703 (2001) (discussing the character of and rationales for cooperative federalism).

66. See *id.* at 1699-703.



adverse effects are felt in multiple jurisdictions.<sup>67</sup> But for the EPA's discretionary exemptions to RCRA and EPCRA for the oil and gas industry, and the so-called "Halliburton Loophole" carved into SDWA for fracking alone, fracking would already fall under these statutes. These exemptions, however, derive from technical analyses that are, at the very least, outdated and from a political decision that appears to reflect a unique instance of legislative capture.<sup>68</sup> There is little support to be found in these decisions, other than the simple fact of them, for keeping fracking's impacts out from the purview of federal law.<sup>69</sup>

Although the federal statutes were born of a concern about inadequate state standards and enforcement practices that may have resulted from a "race to the bottom," there does not appear to be sufficient evidence to support the conclusion that states are currently engaged in such a "race" to secure the presence of the fracking industry and the economic benefits it ostensibly brings.<sup>70</sup> Yet, states do fall along a range of regulation, from the *laissez-faire* to the outright prohibition. Given the existing range, there are additional benefits to be gained from an increased federal presence and the imposition of federal minimum standards. First, the patchwork of regulation and non-regulation denies the American citizenry a baseline of protectiveness. Federal minimum standards would ensure some level of national uniformity. Second, an increased presence would enable the federal government to take a more active role in resource pooling and knowledge sharing. The importance of these informational and institutional benefits are already visible in two EPA decisions, one to require some chemical information disclosure under the Toxic Substances Control Act (TSCA),<sup>71</sup> the other to undertake its groundwater contamination study.<sup>72</sup>

### 3. Cumulative Effects and National Interests

Finally, earlier analyses of fracking's federalism choice question have not fully accounted for the rapidly expanding industry's cumulative effects.<sup>73</sup> Fracking operations, which essentially doubled in number to more

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67. See *infra* notes 115, 170, 201, 268 (discussing SDWA purposes and legislative history); *infra* notes 219-22 (discussing RCRA purposes); *infra* notes 224-25 (discussing EPCRA purposes).

68. See *infra* note 191 (discussing Halliburton loophole history).

69. See Uma Outka, *Environmental Law and Fossil Fuels: Barriers to Renewable Energy*, 65 VAND. L. REV. 1679, 1704-11 (2012).

70. See Spence, *supra* note 17, at 463 (discussing the race to the bottom).

71. See *infra* notes 97-192 and accompanying text (discussing TSCA petition).

72. See *infra* Part II (discussing the EPA groundwater contamination study).

73. See Wiseman, *Diseconomies of Scale*, *supra* note 17 (discussing distinct scaling problems caused by independent-but-cumulative risks, interdependent harms, and uneven impacts).

than 500,000 wells between 1990 in 2010,<sup>74</sup> continue to rapidly expand across the United States. Companies in Arkansas, Colorado, Louisiana, Montana, Oklahoma, Texas, Utah, and Wyoming collectively reported that “18,158 wells were readied for production or were newly producing” between April 2011 and the end of 2011.<sup>75</sup> In 2012, more than 22,000 new wells were fracked.<sup>76</sup> Some states, such as North Dakota and Pennsylvania, have seen particularly dramatic increases in the scale of fracking operations.<sup>77</sup> Meanwhile, California is said to be sitting on a shale oil reserve larger than the Bakken,<sup>78</sup> and fracking has begun or is expected to soon begin in states where it previously did not exist, such as Illinois.<sup>79</sup>

It is inarguable that this rush of activity has resulted in an overall increased risk of environmental pollution and an overall increased number of pollution events.<sup>80</sup> Quite simply, the more wells there are, the more likely it is that there will be drinking-water contamination events (whether it be from the remote risk that injection of fracking fluids will contaminate groundwater or the higher risk that improper casing or well construction will), as well as hazardous wastewater spills, chemical spills, methane leaks, and so on.<sup>81</sup>

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74. Dan Vergano, *Natural Gas Gold Rush: Is Your State Next?*, USA TODAY (July 2, 2012, 12:44 PM), <http://usatoday30.usatoday.com/news/nation/story/2012-05-29/fracking-environment-gas/55845708/1> (asserting that there were 510,000 wells in 2010).

75. See Benjamin Haas et al., *Fracking Hazards Obscured in Failure to Disclose Wells*, BLOOMBERG (Aug. 14, 2012, 6:26 PM), <http://www.bloomberg.com/news/2012-08-14/fracking-hazards-obscured-in-failure-to-disclose-wells.html>.

76. ELIZABETH RIDLINGTON, FRONTIER GRP. & JOHN RUMPLER, ENV'T AM. RESEARCH & POLICY CTR., *FRACKING BY THE NUMBERS: KEY IMPACTS OF DIRTY DRILLING AT THE STATE AND NATIONAL LEVEL 20* (2013), available at [http://www.environmentamerica.org/sites/environment/files/reports/EA\\_FrackingNumbers\\_srn.pdf](http://www.environmentamerica.org/sites/environment/files/reports/EA_FrackingNumbers_srn.pdf).

77. See Joe Carroll, *Fracking Market to Grow 19% to \$37 Billion Worldwide in 2012*, BLOOMBERG (Jan. 19, 2012, 5:34 PM), <http://www.bloomberg.com/news/2012-01-19/frack-market-to-grow-19-in-2012-to-37-billion-correct.html> (discussing new production on the Bakken shale formation, which lies beneath North Dakota and Montana, and the Marcellus shale formation, which lies beneath Pennsylvania).

78. Jane Wells, *California's Monterey Shale, the Next Oil Boom?*, CNBC.COM (Feb. 21, 2013, 10:26 AM), <http://www.cnbc.com/id/100480051/print>; see also U.S. ENERGY INFO. ADMIN., *REVIEW OF EMERGING RESOURCES: U.S. SHALE GAS AND SHALE OIL PLAYS* (2011), available at <http://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf> (noting that the Monterey and Santos shale formations, which underlie 1,752 square miles of the San Joaquin and Los Angeles basins, are estimated to hold upwards of fifteen billion barrels of oil, which equates to approximately 64% of the shale oil).

79. See Kerry Lester, *Illinois Fracking Bill: State Legislature Passes Nation's Toughest Fracking Regulations*, HUFFINGTON POST (May 31, 2013, 11:06 PM), [http://www.huffingtonpost.com/2013/06/01/illinois-fracking-bill-st\\_n\\_3371690.html](http://www.huffingtonpost.com/2013/06/01/illinois-fracking-bill-st_n_3371690.html).

80. See Wiseman, *Diseconomies of Scale*, *supra* note 17 (discussing independent harms).

81. See Wiseman, *Risk and Response*, *supra* note 17, at 746, 765-66 (describing methane leaks, wastewater spills, and leaks from pits and tanks); ROYAL SOC'Y & ROYAL ACAD. OF ENG'G, *SHALE GAS EXTRACTION IN THE UK: A REVIEW OF HYDRAULIC FRACTURING*

As Hannah Wiseman notes, while “the [probability] of a problematic incident occurring at any one shale gas or oil site [has] not, in many cases, risen substantially . . . when one multiplies this risk by nearly 2,000, as in Pennsylvania, or 16,000 in the case of north central Texas, it is substantially different.”<sup>82</sup> In addition, the expansion of the industry increases the likelihood that wells will be located in border areas where interstate spillovers might more easily occur.<sup>83</sup> Admittedly, state oil and gas laws are in place in many instances to address these harms. However, they are uneven, inconsistent, and not designed to deal with the sheer quantity of activity. Moreover, state agencies do not necessarily have the personnel available, or the political will, to enforce the existing state laws and regulations.<sup>84</sup> Fracking seems to have outgrown the oil and gas industry’s state regulatory framework.

In addition, the increased activity nationwide may lead to more highly concentrated well sites in certain locations; these concentrated zones may result in pollution events that interact with one another to cause a greater harm than a single event would.<sup>85</sup> The accumulation of water withdrawals from a limited water supply, the aggregation of spills into a given water body, and the combination of multiple underground injections into potentially seismically unstable rock formations all have the potential to increase the magnitude of adverse impacts. The concern with this kind of synergistic, or cumulative, effect has led some to recommend that regulators “should pay greater attention to the combination of impacts from multiple drilling, production and delivery activities . . . and make efforts to plan for shale development impacts on a regional scale.”<sup>86</sup>

Finally, the expansion of fracking has had extensive impacts on rural communities, raising an issue that potentially touches on issues of national moral concern.<sup>87</sup> Small-town residents across the country have expressed

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55 (2012), available at [http://royalsociety.org/uploadedFiles/Royal\\_Society\\_Content/policy/projects/shale-gas/2012-06-28-Shale-gas.pdf](http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/projects/shale-gas/2012-06-28-Shale-gas.pdf) (arguing that British regulators need to pay attention to how “risks [would] scale up if a shale gas industry develops nationwide”).

82. See Wiseman, *Diseconomies of Scale*, *supra* note 17, at 15 (footnotes omitted).

83. See, e.g., Press Release, Douglas F. Ganser, Md. Attorney Gen., Attorney General Gansler Notifies Chesapeake Energy of the State’s Intent to Sue for Endangering the Health of Citizens and the Environment (May 2, 2011), available at <http://www.oag.state.md.us/Press/2011/050211.html> (describing Maryland’s intent to file a suit and seek injunctive relief and civil penalties against an energy company for releasing thousands of gallons of fracking fluids into a major river).

84. Wiseman, *Diseconomies of Scale*, *supra* note 17, at 16-17.

85. *Id.* at 17-20.

86. See SEAB SHALE GAS PROD. SUBCOMM., NINETY-DAY REPORT 3 (2011), available at [http://www.shalegas.energy.gov/resources/081111\\_90\\_day\\_report.pdf](http://www.shalegas.energy.gov/resources/081111_90_day_report.pdf).

87. A law student at Columbia Law School offers an elegant depiction of these impacts:

worries about fracking's disruption of the historic qualities of their hometowns.<sup>88</sup> In response, many local governments have sought to ban or impose a moratorium on fracking in their communities.<sup>89</sup> In New York, "dozens of counties and towns . . . have imposed moratoriums or bans on fracking,"<sup>90</sup> a practice that has thus far been held up against legal challenges.<sup>91</sup> Rural communities in Colorado,<sup>92</sup> New Mexico,<sup>93</sup> and elsewhere<sup>94</sup>

[Fracking] dramatically and often irreversibly alters the character of local landscapes, regardless of the stringency of state regulations. Forests are fragmented by roads and rights of way; land is clear-cut and covered over by cement well pads; the rural ambience is replaced by the drone of compressor stations, drilling and fracking equipment, and diesel truck engines; and rural sceneries are punctuated by metal towers rising among forest or farmland. These changes are not merely subjective intrusions: they can impact local economies and the character of local communities dependent on rural tourism and recreation, uses that are essentially incompatible with an industrialized landscape.

Andrew Meyer, "Get The Frack out of Town:" *Preemption Challenges to Local Fracking Bans in New York*, COLUM. J. ENVTL. L. FIELD REP. 6 (2012), [http://www.columbiaenvironmentallaw.org/articles/get-the-frack-out-of-town-preemption-challenges-to-local-fracking-bans-in-new-york#\\_ftn33](http://www.columbiaenvironmentallaw.org/articles/get-the-frack-out-of-town-preemption-challenges-to-local-fracking-bans-in-new-york#_ftn33) (footnote omitted); see also David B. Spence, *Backyard Politics, National Policies: Understanding the Opportunity Costs of National Fracking Bans*, 30 YALE J. ON REG. ONLINE 30, 33 (2013), <http://jreg.common.s.yale.edu/backyard-politics-national-policies-understanding-the-opportunity-costs-of-national-fracking-bans/> ("[W]hen a well is being drilled and fracked, the production area is a hive of truck traffic, power generators, and other activities that can transform a quiet rural or suburban landscape into an industrial area."); FOOD & WATER WATCH, *THE SOCIAL COSTS OF FRACKING: A PENNSYLVANIA CASE STUDY* 5-9 (2013), available at <http://www.scribd.com/doc/170377773/The-Social-Costs-of-Fracking>.

88. See, e.g., Associated Press, *The Oil Boom Is Destroying Small Towns Across America*, BUSINESSINSIDER.COM (Mar. 2, 2012, 3:01 PM), <http://www.businessinsider.com/the-oil-boom-is-destroying-small-towns-across-america-2012-3> (describing how violent crime and traffic jams accompanying the boom in fracking operations have "turned [a] little town upside down"); JEFFREY JACQUET, NE. REG'L CTR. FOR RURAL DEV. & PA. STATE UNIV., *ENERGY BOOMTOWNS & NATURAL GAS: IMPLICATIONS FOR MARCELLUS SHALE LOCAL GOVERNMENTS & RURAL COMMUNITIES* 4-27 (2009), available at <http://aese.psu.edu/nercrd/publications/rdp/rdp43/view> (surveying the boomtown literature and describing boom and bust cycles in the past).

89. See *A List of Bans Worldwide*, KEEP TAP WATER SAFE, <http://keeptapwatersafe.org/global-bans-on-fracking/> (last updated Jan. 7, 2014).

90. Paul Gallay, *Hydrofracking: A Bad Bet for the Environment—and the Economy*, HUFFINGTON POST BLOG (Jan. 5, 2012, 3:42 PM), [http://www.huffingtonpost.com/paul-gallay/fracking-environment\\_b\\_1186998.html](http://www.huffingtonpost.com/paul-gallay/fracking-environment_b_1186998.html); see also William J. Kemble, *Rosendale Schedules Hearing on Law That Would Ban Fracking in Town*, DAILY FREEMAN (Aug. 9, 2012, 7:20 PM), <http://www.dailyfreeman.com/articles/2012/08/09/news/doc5024299153a3b154598681.txt> (citing fracking's potential impact on "small-town character" as one of several reasons the Town Board of Rosedale, New York wants to ban the practice).

91. See *Norse Energy Corp. USA v. Town of Dryden*, 964 N.Y.S.2d 714 (App. Div. 2013); *Cooperstown Holstein Corp. v. Town of Middlefield*, 964 N.Y.S.2d 431 (App. Div. 2013); *Weiden Lake Prop. Owners Ass'n v. Klansky*, 936 N.Y.S.2d 62 (Sup. Ct. 2011).

have imposed local bans. In Pennsylvania, the state's attempt to override local bans was found to be unconstitutional by the Pennsylvania Supreme Court.<sup>95</sup> Most fracking occurs in rural areas, and the message these local bans send is clear: the increasing scale of operations and increasing risk of pollution and community impacts are a widespread concern in rural America.<sup>96</sup>

In summary, then, the advantages of cooperative federalism, the interstate nature of and federal interest in drinking-water protection and toxic pollution prevention, and the scaling up that results from cumulative effects and widespread rural impacts all support the federalization of fracking regulation. Of course, we are not working with a blank slate; there are existing federal laws that directly address each of these issues. Parts II and III examine the federal laws in greater detail, demonstrating that fracking properly falls under their regimes.

## II. FRACKING AND THE SAFE DRINKING WATER ACT: A STATUTORY INTERPRETATION OF THE ACT'S COOPERATIVE FEDERALISM STRUCTURE AND PURPOSES

Consistent with its general purpose "to assure that water supply systems serving the public meet minimum national standards for protection of public health,"<sup>97</sup> SDWA mandates regulation of underground injection activities in order to protect groundwater resources, including underground drinking-water supplies.<sup>98</sup> The EPA regulates these activities through its

92. Jack Healy, *With Ban on Drilling Practice, Town Lands in Thick of Dispute*, N.Y. TIMES (Nov. 25, 2012), <http://www.nytimes.com/2012/11/26/us/with-ban-on-fracking-colorado-town-lands-in-thick-of-dispute.html>.

93. Julie Cart, *New Mexico County First in Nation to Ban Fracking to Safeguard Water*, L.A. TIMES (May 28, 2013), <http://articles.latimes.com/2013/may/28/local/la-me-fracking-ban-20130529>.

94. See Ctr. for Energy Econ. & Policy, *supra* note 7; see also Wiseman, *Diseconomies of Scale*, *supra* note 17, at 18-20.

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

96. A full account of the impact of fracking operations on rural America is far beyond the scope of this Article, but the story is a frequently told one, and it has proven sticky. See, e.g., *supra* note 5 and accompanying text; Eliza Griswold, *The Fracturing of Pennsylvania*, N.Y. TIMES (Nov. 17, 2011), <http://www.nytimes.com/2011/11/20/magazine/fracking-amwell-township.html>; Katharine Q. Seelye, *Gas Drillers Invade Hunters' Pennsylvania Paradise*, N.Y. TIMES (Nov. 11, 2011), <http://www.nytimes.com/2011/11/12/us/pennsylvania-hunting-and-fracking-vie-for-state-lands.html>; see also NATURAL RES. DEF. COUNCIL, *supra* note 7.

97. Safe Drinking Water Act, 93-523, 1974 U.S.C.A.N. (93 Stat.) 6454.

98. See 42 U.S.C. § 300h(b)(1)(B) (2006 & Supp. 2012) (stating that applicants for underground injection permits "must satisfy the State that the underground injection will not endanger drinking water sources").

Underground Injection Control (UIC) permit program.<sup>99</sup> Under the UIC-permitting process, the EPA and states that have primacy pursuant to SDWA's cooperative federalism regime regulate the permitting, siting, construction, operation, monitoring, and closure of underground injection wells.<sup>100</sup> As a general matter, oil and gas injection wells—including so-called “enhanced recovery” wells like fracking wells—are regulated under the UIC program's Class II requirements.<sup>101</sup> However, in the Energy Policy Act of 2005 (EPA Act),<sup>102</sup> Congress amended the definition of “underground injection” under SDWA to specifically exclude “the underground injection of fluids or propping agents (other than diesel fuels)” associated with fracking.<sup>103</sup> As a result, fracking operations may now inject anything other than diesel without first obtaining a UIC permit.<sup>104</sup> This exemption has contributed to the substantial controversy surrounding and public opposition to fracking. Nonetheless, subsequent legislative efforts to repeal the amendment to the definition have thus far failed to advance beyond committee.<sup>105</sup>

The amended statute could, in theory, provide proponents of state regulation with some evidence that Congress has reconsidered the federalism question presented by drinking-water protection and reached a rational conclusion that fracking's impacts are best left managed by the states. However, a thorough examination of the statute and legislative history of SDWA demonstrates not only that the Act represents a long-considered and clearly articulated federalism choice regarding protection of the nation's drinking-water supplies, but also that the Act contemplates regulating oil and gas exploration and production that might adversely impact drinking-water supplies. By contrast, the 2005 amendment offers no explanation whatsoever for its revision of the existing federalism choice or for its removal of fracking from SDWA's cooperative federalism regime.

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99. See 40 C.F.R. § 144.11 (2011) (“Any underground injection, except into a well authorized by rule or except as authorized by permit issued under the UIC program, is prohibited.”).

100. See *id.* § 144.1; U.S. ENVTL. PROT. AGENCY, GUIDANCE FOR STATE SUBMISSIONS UNDER SECTION 1425 OF THE SAFE WATER DRINKING ACT: GROUND WATER PROGRAM GUIDANCE #19, at 13-17 (last visited Jan. 22, 2014), available at [http://www.epa.gov/ogwdw/uic/pdfs/guidance/guide\\_uic\\_guidance-19\\_primacy\\_app.pdf](http://www.epa.gov/ogwdw/uic/pdfs/guidance/guide_uic_guidance-19_primacy_app.pdf).

101. See 40 C.F.R. § 144.6(b)(2).

102. Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified as amended in scattered sections of 42 U.S.C.).

103. 42 U.S.C. § 300h(d).

104. See U.S. ENVTL. PROT. AGENCY, PERMITTING GUIDANCE FOR OIL AND GAS HYDRAULIC FRACTURING ACTIVITIES USING DIESEL FUELS—DRAFT: UNDERGROUND INJECTION CONTROL PROGRAM GUIDANCE #84, at 6 (2012), available at <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/hfdieselfuelsguidance508.pdf>.

105. See *infra* text accompanying note 257 (discussing the Fracturing Responsibility and Awareness of Chemicals Act).

## A. The Need for a Federal Role in Drinking-Water Protection

Although the earliest federal efforts to regulate drinking-water safety date back to the turn of the twentieth century, when Congress established the Public Health Service Hygienic Laboratory to study water-borne illnesses, most public drinking-water supplies did not have to meet federal safety standards until 1974, when SDWA was enacted.<sup>106</sup> There was also no national program for underground injection control prior to that point.

Spurred by a number of highly visible instances of water-borne illness and drinking-water contamination—including the 1968 incident at the Hamermill Paper Company in Erie, Pennsylvania, where overpressurization of a geological formation caused by an injection well was reported to have resulted in groundwater contamination about five miles from the well site—Congress began in 1970 to consider a national drinking-water protection program.<sup>107</sup> Several published reports also proved influential. In 1970, the Bureau of Water Hygiene of the Public Health Service issued the Community Water Supply Study, which documented deteriorating water quality, increasing incidents of waterborne disease, and serious questions regarding the efficacy of then-existing treatment plant technology.<sup>108</sup> Subsequent studies issued by the EPA and the Environmental Defense Fund in 1974, linking carcinogens to pollutants found in drinking water, lifted the legislation over two final hurdles: (1) the National Governors' Conference, which objected to federal regulation of water safety; and (2) the oil and gas industry, which lobbied hard against the underground injection control provisions of the proposed legislation.<sup>109</sup>

Federalism issues were at the heart of the early Congressional debates and lobbying activity. Ultimately, Congress perceived a need for federal intervention in drinking-water protection for a number of reasons. On a programmatic level, Congress perceived a misplaced and ill-founded public confidence in public drinking-water supply quality; pervasive infrastructure deficiencies, including inadequate protections for groundwater; inadequate-

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106. For a concise general history of SDWA and its various provisions, and a close reading of the extensive legislative history, see generally Thomas J. Douglas, *Safe Drinking Water Act of 1974—History and Critique*, 5 ENVTL. AFF. 501 (1976). For histories specific to safe drinking water standards, see Steinzor, *supra* note 10, at 187-99; Charles D. Larson, *Historical Development of the National Primary Drinking Water Regulations*, in SAFE DRINKING WATER ACT: AMENDMENTS, REGULATIONS AND STANDARDS 3-14 (Edward J. Calabrese, Charles E. Gilbert & Harris Pastides eds., 1989).

107. U.S. ENVTL. PROT. AGENCY, TECHNICAL PROGRAM OVERVIEW: UNDERGROUND INJECTION CONTROL REGULATIONS 3 (2002), available at [http://www.epa.gov/safewater/uic/pdfs/uic\\_techovrview.pdf](http://www.epa.gov/safewater/uic/pdfs/uic_techovrview.pdf).

108. BUREAU OF WATER HYGIENE, U.S. DEP'T OF HEALTH, EDUC. & WELFARE, COMMUNITY WATER SUPPLY STUDY: ANALYSIS OF NATIONAL SURVEY FINDINGS, at i-xii (1970); see Douglas, *supra* note 106, at 506-08.

109. Douglas, *supra* note 106, at 517-18.

ly trained plant operators; and a general lack of monitoring and enforcement.<sup>110</sup> More broadly, Congress was of the view that “the national economy may be expected to be harmed by unhealthy drinking water and the illnesses which may result therefrom.”<sup>111</sup> Harms to the national economy were thought likely to coincide with the predicted impacts of waterborne disease on tourism, travel, worker productivity, and agricultural worker mobility.<sup>112</sup> Accordingly, Congress surmised, “[T]he unavailability of a reliably safe drinking water supply may well be a primary limiting factor in the economic growth of a town or region and ultimately in the growth of the Nation’s economy.”<sup>113</sup> In addition, Congress concluded that federal action was appropriate because the source of contaminants that endanger the public health are “frequently . . . business[es] engaged in or enterprises affecting interstate commerce”; because underground drinking-water supplies cross state lines; because drinking-water-related disease could prove a drain on healthcare financing; and because it was “abundantly clear that additional Federal assistance, research, and support is necessary in order to enable State and local efforts to provide safe water to be successful.”<sup>114</sup>

The legislative history of the Act and its later amendments also illuminates that Congress has, from the outset, responded to what was perceived to be a national moral imperative to provide sanitary drinking water and to protect existing and potential future drinking-water supplies.<sup>115</sup> As noted by President Gerald Ford in the signing statement accompanying the 1974 Act:

Nothing is more essential to the life of every single American than clean air, pure food, and safe drinking water. There have been strong national programs to improve the quality of our air and the purity of our food. This bill will provide us with the protection we need for drinking water.<sup>116</sup>

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110. See H.R. REP. NO. 93-1185, at 4-8 (1974), *reprinted in* 1 ENV’T & NATURAL RES. POLICY DIV., CONG. RESEARCH SERV., A LEGISLATIVE HISTORY OF THE SAFE DRINKING WATER ACT TOGETHER WITH A SECTION-BY-SECTION INDEX 533, 536-40 (Comm. Print 1982) [hereinafter A LEGISLATIVE HISTORY VOL. I]; S. REP. NO. 93-231, at 3-4 (1973), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra*, at 793, 797-98.

111. H.R. REP. NO. 93-1185, at 4, *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 540.

112. *Id.*

113. *Id.*

114. *Id.* at 540-41; see also Douglas, *supra* note 106, at 508-17 (providing further discussion of congressional deliberations on the federalism question).

115. See H.R. REP. NO. 93-1185, *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 533; see also U.S. ENVTL. PROT. AGENCY, *supra* note 107, at 4 (“Due to disparate levels of protection afforded ground water under the State injection well programs at the time, Congress passed the SDWA of 1974 . . . requiring EPA to establish a Federal-State system of regulation of injection activities.”).

116. The President’s Statement on Signing the Safe Drinking Water Act (Dec. 17, 1974), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 398.



The Senate Commerce Committee Report voiced a similar concern: “No need is more basic for all human beings than a dependable, disease-free supply of drinking water. The supply of adequate amounts of high quality drinking water has become a service that is not only hoped for but expected.”<sup>117</sup> Subsequent Congresses have reiterated the national moral imperative justifying the federal role in drinking-water protection, announcing at different times that “the Safe Drinking Water Act stands at the center of the national effort to protect the public health from dangerous chemicals”;<sup>118</sup> that SDWA “was enacted in 1974 in order to assure that all citizens served by public water systems would be provided high quality water supplies”;<sup>119</sup> and that it “has become an essential component of the Federal laws passed by Congress to protect public health.”<sup>120</sup>

Although drinking-water protection programs have undoubtedly improved as a result of forty years of SDWA implementation, the fundamental premises behind Congress’s decision to create a federal–state partnership to protect drinking-water supplies are as applicable today as they were in 1974. Drinking water has the same relationship to the national economy, and it remains a vital national moral imperative to provide safe drinking water and to protect potential future drinking-water supplies.

#### B. The Plain Meaning of “Underground Injection” Includes Oil and Gas Production Activities—Such as Fracking

Protection of groundwater is a vital component of SDWA and a necessary part of any program with the goal of protecting the nation’s drinking-water supplies. According to the EPA, approximately 142,400 of the nation’s 156,600 public water systems, or about 91%, rely on groundwater; approximately 40,000 of the nation’s 51,700 community water systems, or about 77%, do so.<sup>121</sup> The UIC permit program provisions were included “in recognition of the fact that the best means of assuring present and future

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117. S. REP. NO. 93-231, at 2 (1973), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 793, 796.

118. See H.R. REP. NO. 98-1034, at 15 (1984), *reprinted in* 2 ENV’T & NATURAL RES. POLICY DIV., CONG. RESEARCH SERV., A LEGISLATIVE HISTORY OF THE SAFE DRINKING WATER ACT AMENDMENTS 1983-1992, TOGETHER WITH A SECTION-BY-SECTION INDEX 735, 749 (Comm. Print 1993) [hereinafter A LEGISLATIVE HISTORY VOL. II].

119. S. REP. NO. 99-56, at 1 (1985), *reprinted in* A LEGISLATIVE HISTORY VOL. II, *supra* note 118, at 305.

120. H.R. REP. NO. 99-168, at 16 (1985), *reprinted in* A LEGISLATIVE HISTORY VOL. II, *supra* note 118, at 511, 526.

121. See MARY TIEMANN, CONG. RESEARCH SERV., RL31243, SAFE DRINKING WATER ACT (SDWA): A SUMMARY OF THE ACT AND ITS MAJOR REQUIREMENTS 8 n.2 (2010).

supplies of safe drinking water is to protect the sources from contamination.”<sup>122</sup>

Prior to the 2005 EPA Act amendment to SDWA, fracking squarely fit into the definition of “underground injection” and therefore required a permit pursuant to the UIC program. Accordingly, when the EPA declared in the early 1990s that hydraulic fracturing was a “well stimulation technique associated with production” and was not subject to control under the UIC program,<sup>123</sup> the Eleventh Circuit found the EPA’s definition inconsistent with the plain language of SDWA.<sup>124</sup> The court held that all “underground injection” activities, including fracking, must be regulated under the statute.<sup>125</sup> Several years later, the Eleventh Circuit overruled a subsequent attempt by the EPA to apply a lesser regulatory standard to fracking.<sup>126</sup> In that case, the court found that the EPA’s determination that fracking did not require Class II permits but could, instead, be issued a unique permit for “Class II-like underground injection activit[ies]” was inconsistent with the plain language of the agency’s own regulations.<sup>127</sup> The relevant EPA regulation defines a Class II well as one that injects fluids “[f]or enhanced recovery of oil or natural gas.”<sup>128</sup> The legislative history also supports the conclusion that Congress intended both that the terms of the Act be broadly construed and that they be applied to oil and gas production activities like fracking. For example, in the House Report, the Energy and Natural Resources Committee stated its intention that the definition of “underground injection activities” is to be “liberally construed so as to effectuate the preventative and public health protective purposes of the bill. The Committee seeks to protect not only currently-used sources of drinking water, but also potential drinking water sources for the future.”<sup>129</sup> The Committee was also

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122. See S. REP. NO. 98-641, at 2 (1984), reprinted in A LEGISLATIVE HISTORY VOL. II, *supra* note 118, at 893, 894.

123. *Hydraulic Fracturing Background Information*, U.S. ENVTL. PROTECTION AGENCY, [http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells\\_hydrowhat.cfm](http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_hydrowhat.cfm) (last updated May 9, 2012).

124. *Legal Envtl. Assistance Found. v. EPA (LEAF I)*, 118 F.3d 1467, 1475 (11th Cir. 1997).

125. *Id.*

126. See *Legal Envtl. Assistance Found. v. EPA (LEAF II)*, 276 F.3d 1253, 1264 (11th Cir. 2001).

127. *Id.* at 1263-64.

128. 40 C.F.R. § 144.6 (2013). The agency at that time defined hydraulic fracturing as “a temporary and intermittent process in which fluids are injected underground at high pressures to create fractures in the coals seam that enhance the recovery of methane gas by creating pathways for the gas to flow to the surface.” 65 Fed. Reg. 2889, 2892 (Jan. 19, 2000).

129. H.R. REP. NO. 93-1185, at 32 (1974), reprinted in 1974 U.S.C.C.A.N. 6454, 6484; see also H.R. REP. NO. 98-1034, at 27 (1984), reprinted in A LEGISLATIVE HISTORY VOL. II, *supra* note 118, at 735, 761 (“Under the 1974 Act, EPA was required to establish

concerned that its definition of “endangering drinking water sources” be construed liberally:

Injection which causes or increases contamination of such sources may fall within this definition even if the amount of contaminant which may enter the water source would not by itself cause the maximum allowable levels to be exceeded. The definition would be met if injected material were not completely contained within the well, if it may enter either a present or potential drinking water source, and if it (or some form into which it might be converted) may pose a threat to human health or render the water source unfit for human consumption.<sup>130</sup>

Moreover, Congress expressly considered the role of oil and gas production activities and decided that those operations would fall under the ambit of the UIC permit program. For instance, in discussing the ways in which the underground injection of contaminants had become a national problem, the Committee noted that “[e]nergy production companies are using injection techniques to increase production”<sup>131</sup> and that “[t]he definition of ‘underground injection’ is intended to be broad enough to cover any contaminant which may be put below ground level and which flows or moves, whether the contaminant is in semi-solid, liquid, sludge, or any other form or state.”<sup>132</sup> Importantly, and in direct contrast to arguments advanced by those who believe the original SDWA was not intended to cover fracking, “[t]his definition is not limited to the injection of wastes or to injection for disposal purposes; it is intended also to cover, among other contaminants, the injection of brines and the injection of contaminants for extraction or other purposes.”<sup>133</sup>

In crafting the UIC permit program provisions, Congress also rejected an amendment that would have included an exclusion analogous to that contained in § 502(6) of the CWA.<sup>134</sup> That provision excludes from the definition of “pollutant” all

water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if such State determines that such injection or disposal will not result in the degradation of ground or surface water resources.<sup>135</sup>

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minimum requirements for State programs controlling underground injection. (Underground injection is the process of forcing liquids underground through a well). Improperly done, underground injection can contaminate drinking water supplies.”)

130. H.R. REP. NO. 93-1185, at 32 (1974), reprinted in A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 533, 564.

131. *Id.* at 561.

132. *Id.* at 563.

133. *Id.*

134. *Id.*

135. Federal Water Pollution Control Act § 502(6), 33 U.S.C. § 1362 (2006 & Supp. 2012).

Instead, the Committee adopted an amendment including a provision that UIC permit program requirements not unnecessarily “interfere with or impede” oil and gas production.<sup>136</sup> This decision expressed the Committee’s intent “not to authorize needless interference with oil or gas production.”<sup>137</sup> Regulations of oil and gas production under SDWA, then, would be limited to situations in which they were “essential to assure that underground sources of drinking water will not be endangered” by oil and gas exploration and production (E&P) activity.<sup>138</sup> This limitation was not meant to handcuff the EPA’s ability to regulate oil and gas production but to “assure that constraints on energy production activities would be kept as limited in scope as possible while still assuring the safety of present and potential sources of drinking water.”<sup>139</sup> The “essential” slate of regulations were to include pre-injection tests; geological and hydrological tests; pre-treatment measures; “best available techniques for design, siting, construction, operation, maintenance, and abandonment”; and monitoring.<sup>140</sup>

Some argue that the plain language of SDWA does not indicate an intent to place fracking under the statute’s cooperative federalism regime because, the argument goes, in referring to “enhanced recovery” Congress meant to use the phrase as “a term of art that refers to particular types of [recovery] operations.”<sup>141</sup> This view, however, directly contradicts the EPA’s current interpretation, which is that “hydraulic fracturing [is] another enhanced recovery process.”<sup>142</sup> What’s more, it is even inconsistent with the EPAct, which does not exempt fracking with diesel fuels from SDWA.<sup>143</sup> If fracking with diesel fuels is enhanced recovery, then fracking with other chemicals that accomplish the same thing must be enhanced recovery, as well.

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136. 42 U.S.C. § 300h(b)(2) (2006 & Supp. 2012).

137. H.R. REP. NO. 93-1185, at 31, *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 533, 563.

138. *Id.*

139. *Id.*

140. *Id.* at 561; *see also* Policy on Subsurface Emplacement of Fluids by Well Injection; Administrator’s Decision, 39 Fed. Reg. 12,922, 12,922 (Apr. 9, 1974).

141. *See, e.g.,* Keith B. Hall, *Regulation of Hydraulic Fracturing Under the Safe Drinking Water Act*, 19 BUFF. ENVTL. L.J. 1, 22 (2011).

142. *Class II Wells—Oil and Gas Related Injection Wells (Class II)*, U.S. ENVTL. PROTECTION AGENCY, <http://water.epa.gov/type/groundwater/uic/class2> (last updated May 9, 2012).

143. 42 U.S.C. § 300h(d)(1)(B)(ii) (2006 & Supp. 2012).

### C. The Statutory Structure of the UIC Permit Program and the Oil and Gas Production Provisions

The statutory structure of the UIC permit program provides for a fairly typical cooperative federalism regime: it is designed to establish minimum standards to protect against a particular environmental impact—the contamination of the nation’s underground drinking-water supplies. Accordingly, the statute directed the EPA to publish a list of states that would require a UIC program “to assure that underground injection [would] not endanger drinking water sources.”<sup>144</sup> The EPA has included all fifty states on this list.<sup>145</sup> The statute also required the EPA to promulgate regulations governing state UIC programs to ensure that the state programs would satisfy the statutory mandate to prevent endangerment.<sup>146</sup> To be approved by the EPA, a state control program has to meet certain statutory standards: (a) it must prevent underground injection unless authorized by permit or rule; (b) it may authorize underground injection only where it is demonstrated that the injection will not endanger drinking-water sources; and (c) it must “include inspection, monitoring, recordkeeping, and reporting requirements.”<sup>147</sup> Where a state fails to comply with the statute or its regulations—whether by submitting an inadequate program or none at all—the EPA is required to design, implement, and enforce a regulatory program for that state.<sup>148</sup>

SDWA includes several provisions designed to avoid disrupting oil and gas production. Importantly here, the EPA’s regulations may not “interfere with or impede” the production or recovery of oil or natural gas unless the interference or impediment is essential to assure that underground injection will not endanger underground sources of drinking water.<sup>149</sup> This means that neither the EPA nor the states can regulate fracking pursuant to SDWA in such a way as to “stop or substantially delay” oil and gas production unless the practice endangers drinking-water supplies.<sup>150</sup> If the production activity *does* endanger drinking-water supplies, then the statute clearly contemplates regulation under the cooperative federalism regime. However, if regulation would “stop or substantially delay” oil and gas production and the activity does *not* endanger drinking-water supplies, then the statute ap-

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144. *Id.* § 300h-1(a).

145. 40 C.F.R. § 144.1(e) (2013).

146. 42 U.S.C. § 300h(a)(1), (b)(1).

147. *Id.* § 300h(b)(1)(A)-(C).

148. *See id.* § 300h-1(c).

149. *Id.* § 300h(b)(2).

150. H. R. REP. NO. 93-1185, at 31 (1974), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 533, 563. According to the House Report, the “test” of essentiality would only be relevant upon a demonstration that a requirement would “stop or substantially delay” such production. *Id.*

parently does not apply. This was true even before passage of the 2005 EPAAct amendment.

In addition, two other statutory provisions bear directly on fracking's federalism-choice analysis. First, the EPA's regulations must reflect variations in "geologic, hydrological, or historical conditions" between the states.<sup>151</sup> Thus, the "local tailoring to environmental conditions" argument offered by political proponents of state regulation of fracking and by scholars taking a more theoretical approach is anticipated by the statute and incorporated into its text. Second, to the extent feasible, the EPA may not promulgate rules that "unnecessarily disrupt" state UIC programs that were earlier in effect.<sup>152</sup> Thus, where states have existing programs that satisfy the endangerment standard, the law provides for their continuation.<sup>153</sup> Again, arguments raised by political and scholarly proponents of state regulation—including the benefits provided by regulatory diversity and state experimentation, the desire for local tailoring to political preferences and risk tolerances, and respect for state decision-making processes and the participation they garner—are all addressed by these provisions of the federal statute.

Nonetheless, the goal of protecting underground drinking-water supplies remains paramount. According to the statute, none of the provisions discussed above "shall be construed to alter or affect the duty to assure that underground sources of drinking water will not be endangered by any underground injection."<sup>154</sup> This commitment to non-endangerment reflects the statute's precautionary purpose.<sup>155</sup> The precautionary purpose has, in turn, been recognized by the courts, which have repeatedly rejected the notion that the UIC permit requirements are directed only to certain forms of underground injection rather than toward the general purpose of protecting underground drinking-water supplies:

Unusable ground water is unusable ground water no matter whether the original source of the pollution arrived in a loose, free form manner, or in containers injected into the ground. We find no language in the SDWA showing that Congress meant to regulate only certain forms of underground pollution, while overlooking other forms of contamination of ground water via underground injection.<sup>156</sup>

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151. § 300h(b)(3)(A).

152. *Id.* § 300h(b)(3)(B).

153. *See infra* notes 170-73 and accompanying text (discussing the legislative history of the 1980 amendments).

154. § 300h(b)(3)(C).

155. *Id.* § 300h(d)(2) ("Underground injection endangers drinking water sources if such injection may result in the presence in underground water which supplies or can reasonably be expected to supply any public water system of any contaminant, and if the presence of such contaminant may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.").

156. *Natural Res. Def. Council, Inc. v. EPA*, 824 F.2d 1258, 1271 (1st Cir. 1987); *see also supra* notes 124-27 and accompanying text (discussing *LEAF I* and *LEAF II* lawsuits).

Thus, the plain meaning of the statute, and its purposes and structure, demonstrates that the UIC permit program requirements were intended to cover all underground injection activities that endanger drinking-water supplies; although accommodations are made for the oil and gas industry, the statute is not to be applied categorically on an industry-by-industry or practice-by-practice basis. Moreover, the plain meaning and statutory purposes and structure provide ample support for the federalization of fracking regulation and exhibit the well-grounded federalism choices made by Congress in allocating shared power to the federal government and the states in this area. A closer examination of the legislative history further supports this reading of the statute.

#### D. Legislative History and SDWA's Federalism Choice

As mentioned above, the legislative history of SDWA and its various amendments demonstrates that the scope of coverage under the Act was intended to be broad in order to respond appropriately to what was recognized to be a national problem with drinking-water security. The legislative history also shows that Congress has consistently and explicitly addressed the federalism questions arising from federal intervention in setting water quality standards and mandating UIC permit programs that meet minimum national standards. This history provides further support for regulating fracking's potential impacts on underground drinking-water supplies under SDWA's UIC permit program.

In the signing statement accompanying the 1974 passage of SDWA, President Ford noted that the division of powers between the federal government and the states had been a contested issue: "During the extensive consideration of this legislation, spokesmen [sic] for the Administration opposed extensive Federal involvement in what has traditionally been State and local regulatory matters and unnecessary costs to the Federal Government."<sup>157</sup> The House and Senate committees charged with putting together the bill both shared President Ford's concern. However, the House Committee noted that although it "views the problem of unsafe drinking water as a matter which is and should be primarily the concern of State and local governments, the Committee has determined that the Federal government also has a responsibility to ensure the safety of the water its citizens drink."<sup>158</sup> Two factors were particularly influential in this determination: first, the fact that "the causes and effects of unhealthy drinking water are not confined within the borders of State or local jurisdictions"; and second, the fact that

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157. The President's Statement on Signing the Safe Drinking Water Act (Dec. 17, 1974), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 398.

158. H.R. REP. NO. 93-1185, at 8 (1974), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 533, 540.

“the solution to the problem . . . must be found in a cooperative effort in which the Federal government assists, reinforces, and sets standards for the State and local efforts.”<sup>159</sup> The Senate Committee was of a similar view, noting that “prime responsibility for maintaining the quality of drinking water will remain with State and local government, but the Federal Government will exercise a new responsibility to set standards and provide assistance in order to protect public water supplies from contamination.”<sup>160</sup>

The underground injection control program has been a central, if controversial, component of the federalism question from the beginning.<sup>161</sup> Indeed, the express purpose of the Act was not only to authorize the EPA “to establish Federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems” but also to “establish a joint Federal–State system for . . . protecting underground sources of drinking water.”<sup>162</sup> Notably, the concern over underground injection was just as vital ten years later, when a proposal for what would become the Safe Drinking Water Act Amendments of 1986 was under consideration: “[I]t has become increasingly apparent that the quality of our Nation’s drinking water sources . . . supplied by underground aquifers is one of the most urgent environmental and health problems facing us today.”<sup>163</sup>

That the 1974 House Committee was conscious of underground injection for oil and gas extraction purposes—and not just for disposal purposes—is, as discussed earlier, evident.<sup>164</sup> The industry’s concerns with regulation in this area continued to factor into the development of the statute, beginning with the Safe Drinking Water Amendments of 1977.<sup>165</sup> The primary purpose of the 1977 amendments was to give more assistance to states and allow them more time to come into compliance with the Act.<sup>166</sup> In the course of the enactment of those amendments, the oil and gas industry raised a number of concerns over the obligations imposed by the UIC program. In response to these “forcefully expressed concerns,” the House Committee reiterated that a federal response was warranted and that local tailoring had been built into the Act:

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159. *Id.*

160. S. REP. NO. 93-231, at 1 (1973), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 795.

161. *See supra* note 109 and accompanying text (discussing the oil and gas industry’s lobbying efforts).

162. H.R. REP. NO. 93-1185 (1974), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 533.

163. 130 CONG. REC. 20,346 (1984) (statement of Rep. Eckart).

164. *See supra* notes 129-40 and accompanying text (discussing oil and gas provisions in plain meaning section).

165. Safe Drinking Water Amendments of 1977, Pub. L. No. 95-190, 91 Stat. 1393.

166. H.R. REP. NO. 95-338 (1977), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 268.



The Committee believes that national underground injection control guidelines are essential for the protection of [the] public health and for the prevention of [the] contamination of present and potential future underground sources of drinking water. . . .

On the other hand, the Committee recognizes the existence of varying geological, hydrological, and historic conditions [sic] in different States and in different areas within a State. The committee intends the Administrator's national guidelines would be sufficiently flexible to permit States to take account of these varying conditions in their underground [sic] injection control programs. These varying conditions should be considered for the purpose of assuring protection of underground water sources, while preventing unnecessary interference with oil and gas production.

This authority for reasonable flexibility should not be construed to undermine or reduce the State's duty to assure protection of underground water sources. It means, for example, that detailed technical and procedural specifications of the guidelines may be relaxed or modified if the State shows that under special local conditions such specifications are not necessary to protect underground water resources.<sup>167</sup>

In addition, the Committee noted that concerns had been raised with the EPA regarding the "alleged adverse effect" the guidelines could have on oil and gas production; though it took no position on the validity of the concerns, the committee urged the EPA "to exercise due care [with regard to] striking [a] proper balance in its guidelines with respect to stripper well production."<sup>168</sup> At the same time, the Committee cautioned that its words should not "be construed as requiring the Administrator to subordinate the concern for protection of underground water sources to that of energy production. . . . [I]t remains a critical task to conserve and safeguard our Nation's present and future supplies of drinking water."<sup>169</sup>

The 1980 amendments offer further evidence of how legitimate federalism concerns have consistently factored into SDWA. The 1980 amendments created § 1425, which provides an alternative method for EPA approval of the state UIC permit program for oil and gas related activities.<sup>170</sup>

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167. *Id.* at 278.

168. *Id.* The EPA obviously took the Committee's caution to heart. See OFFICE OF DRINKING WATER, U.S. ENVTL. PROT. AGENCY, NATIONAL UIC PROGRAM DOCKET CONTROL, STATEMENT OF BASIS AND PURPOSE: UNDERGROUND INJECTION CONTROL REGULATIONS (1980), *available* at [http://www.epa.gov/ogwdw/uic/pdfs/rept\\_uic\\_statemt\\_basis\\_purpose\\_uic\\_1980.pdf](http://www.epa.gov/ogwdw/uic/pdfs/rept_uic_statemt_basis_purpose_uic_1980.pdf) (noting that final UIC permit program regulations differed from earlier proposals "in that they furnish a greater degree of flexibility to State Directors in regulating well injection" and that the EPA made this adjustment because "it became more fully aware of [the] various well injection practices, the characteristics of substrata into which fluids are injected, and the range of methods by which well injection is accomplished").

169. H.R. REP. NO. 95-338, *reprinted* in A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 279.

170. Safe Water Drinking Act Amendment of Dec. 5, 1980, Pub. L. No. 96-502, § 1425, 94 Stat. 2737, 2737-38.

The provision was created because, as the House Committee on Interstate and Foreign Commerce noted:

Most of the 32 states that regulate underground injection related to the recovery or production of oil or natural gas (or both) believe they have programs already in place that meet the minimum requirements of the Act including the prevention of underground injection which endangers drinking water sources. This is especially true of the major producing states where underground injection control programs have been underway for years.<sup>171</sup>

In recognition of this fact, the Committee expressed its “intent that states should be able to continue these programs unencumbered with additional Federal requirements if they demonstrate that they meet the requirements of the Act.”<sup>172</sup>

The legislative history affirms that the available pro-decentralization rationales for underground injection are built into the cooperative federalism regime established under SDWA. Moreover, the particular concerns expressed by the oil and gas industry have also been accommodated by the dual federal–state governance structure.<sup>173</sup> Accordingly, there appears to be greater support for the federalization of fracking regulation than for decentralization.

171. H.R. REP. NO. 96-1348 (1980), *reprinted in* A LEGISLATIVE HISTORY VOL. I, *supra* note 110, at 63.

172. *Id.*; *see also* OFFICE OF DRINKING WATER, U.S. ENVTL. PROT. AGENCY, NATIONAL UIC PROGRAM DOCKET CONTROL, STATEMENT OF BASIS AND PURPOSE: UNDERGROUND INJECTION CONTROL REGULATIONS (1979), *available at* [http://www.epa.gov/ogwdw/uic/pdfs/rept\\_uic\\_statemnt\\_basis\\_purpose\\_uic\\_1979.pdf](http://www.epa.gov/ogwdw/uic/pdfs/rept_uic_statemnt_basis_purpose_uic_1979.pdf) (“The Director need not require additional casing and cementing for Class II injection wells located in existing injection fields if: (1) the state in which the well is located has had applicable regulatory controls in effect prior to the introduction of the federal program; (2) the Director imposes those pre-existing controls; and (3) well injection under these circumstances will not create any significant risk to the health of persons using the water for drinking purposes.”).

173. The EPA’s regulations further implement the statute’s purposes and cooperative federalism structure. *See, e.g.*, 40 C.F.R. § 144.1 (2013) (establishing minimum requirements for state UIC permit programs); *id.* § 145.11(b)(1) (stating that state regulations must establish requirements “at least as stringent” as federal regulations, but also “may impose more stringent requirements”); *id.* § 145.31(d) (mandating approval of state programs that conform to applicable requirements); *id.* § 144.1(g) (prohibiting injections that result “in the movement of fluid containing any contaminant into underground sources of drinking water . . . if the presence of that contaminant may cause a violation of any primary drinking water regulation . . . or may adversely affect the health of persons”); *id.* §§ 146.6, .8 (requiring study of geological formations to address migration of pollutants through strata of rock); *id.* §§ 146.13(a)(1), .23(a)(1), .33(a)(1) (requiring well injection pressure to be controlled to prevent opening fractures in the confining strata or otherwise causing the rise of fluids into an overlying protected zone).

### E. Federalism Choice and the 2005 Amendment

One might challenge the argument that the language, purposes, structure, and legislative history of SDWA substantiate a theoretical pro-federalization argument by pointing to the 2005 EPA Act amendment, which defined fracking without diesel fuel out of the statute. This challenge might well succeed if the language, purposes, structure, or legislative history of the amendment offer evidence that support state regulation over and against the well-considered rationales offered in support of federal regulation. However, there is no evidence that federalism concerns played any role in the amendment.

Regarding plain meaning, the language of the 2005 EPA Act and what is now § 1421(d)(1) of SDWA—the definitional exclusion of fracking from “underground injection activities”—is clear enough; however, it is also left entirely unexplained. Moreover, the continuing inclusion of fracking with diesel fuel within the definition of “underground injection activities” is problematic for the decentralization argument. The injection of fracking fluids with diesel fuel occurs in the same way as the injection of fracking fluids without it; the “underground injection” is identical, though the content of the fluids is not. The distinction, then, cannot relate to the aspects of fracking that fall under federal regulation—well siting, construction, operation, maintenance, reporting, and closure—but to a greater perceived risk posed by fracking with diesel fuels.<sup>174</sup>

Two problems are immediately apparent here. First, as described above, actual endangerment of drinking-water supplies is a necessary criterion for SDWA to apply at all. If fracking without diesel fuels does not endanger water supplies, then the statute does not apply.<sup>175</sup> There is no need to specifically exempt the practice. In any event, defining one type of practice

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174. See U.S. ENVTL. PROT. AGENCY, EPA 816-R-04-003, EVALUATION OF IMPACTS TO UNDERGROUND SOURCES OF DRINKING WATER BY HYDRAULIC FRACTURING OF COALBED METHANE RESERVOIRS, at ES-1 to -2, -16 to -17 (2004), available at <http://nepis.epa.gov/Adobe/PDF/P100A99N.PDF> (noting that diesel fuels contain BTEX compounds, which are regulated under SDWA, and that the agency had entered into a Memorandum of Agreement with three major hydraulic fracturing companies to voluntarily suspend use of diesel fuel); see also Letter from Henry A. Waxman, Ranking Member, Comm. on Energy & Commerce, House of Representatives, 112th Cong., Edward J. Markey, Ranking Member, Comm. on Natural Res., House of Representatives, 112th Cong. & Diana DeGette, Ranking Member, Subcomm. on Oversight & Investigations, House of Representatives, 112th Cong., to Lisa Jackson, Adm’r, U.S. Env’tl. Prot. Agency (Jan. 31, 2011), available at <http://democrats.energycommerce.house.gov/sites/default/files/documents/Jackson-Diesel-Hydraulic-Fracturing-2011-1-31.pdf> (noting the committee finding that fracking companies, including signatories to the Memorandum of Agreement, had injected 32.2 million gallons of diesel fuel or fracking fluids including diesel fuel in nineteen states between 2005 and 2009).

175. See 42 U.S.C. § 300h(b)(1) (2006 & Supp. 2012).

as underground injection and another identical practice as not cannot have anything to do with federalism concerns. Second, according to the statute, if fracking fluids contain toxic chemicals that share the characteristics of diesel fuel, they are nonetheless excluded from the statute.<sup>176</sup> This “distinction without a difference” fails to correlate with arguments pertaining to local tailoring, “laboratories” of democracy, the matching principle, or any other component of federalism analysis.

The history of the 2005 amendment does not help the decentralization argument’s theoretical cause. In 1999, the EPA initiated a study of potential impacts of coalbed methane well fracking on drinking-water supplies.<sup>177</sup> When President George W. Bush took office in 2001, with the study still ongoing, he assigned Vice President Dick Cheney, former CEO of Halliburton,<sup>178</sup> to lead the National Energy Policy Development Group (Energy Task Force), which was charged with developing a new national energy policy.<sup>179</sup> Records indicate that energy industry representatives had grossly disproportionate access to Vice President Cheney during the formulation of the national policy.<sup>180</sup> The Energy Task Force eventually recommended that the President “promote enhanced oil and gas recovery from existing wells through new technology.”<sup>181</sup>

The EPA issued its study in 2004, concluding “the injection of hydraulic fracturing fluids into [coalbed methane] wells poses little or no threat to underwater sources of drinking water (USDW) and does not justify addi-

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176. In its 2004 Report, the EPA explained that it was especially concerned with diesel fuel and its BTEX compound constituents because it did not “believe” that other chemicals present in fracturing fluids were being introduced “in concentrations high enough to pose a significant threat” to underground drinking water supplies. U.S. ENVTL. PROT. AGENCY, *supra* note 174, at 4-17. The agency also concluded that “the same hydrodynamic phenomena” that would reduce the risk of contamination from diesel fuel would control the movement of non-diesel fuel chemicals. *Id.* Ultimately, the EPA’s conclusions regarding the content of fracking fluids were based solely on “conversations with field engineers and on witnessing three separate fracturing events.” *Id.*

177. *See id.* at ES-1. The study did not examine drinking water impacts of fracking in tight sands or shale formations. *Id.*

178. Though Halliburton did not invent fracking, the company was the first to patent and commercially market the technique. *See* Carl T. Montgomery & Michael B. Smith, NSI Techs., *Hydraulic Fracturing: History of an Enduring Technology*, J. PETROLEUM TECH., Dec. 2010, at 26, 27, available at <http://www.spe.org/jpt/print/archives/2010/12/10Hydraulic.pdf>. Halliburton is also one of the three largest fracking companies in the United States. U.S. ENVTL. PROT. AGENCY, *supra* note 174, at 7.

179. NAT’L ENERGY POLICY DEV. GRP., RELIABLE, AFFORDABLE, AND ENVIRONMENTALLY SOUND ENERGY FOR AMERICA’S FUTURE: REPORT OF THE NATIONAL ENERGY POLICY DEVELOPMENT GROUP, at viii (2001).

180. Michael Abramowitz & Steven Mufson, *Papers Detail Industry’s Role in Cheney’s Energy Report*, WASH. POST, July 18, 2007, at A1.

181. NAT’L ENERGY POLICY DEV. GRP., *supra* note 179, at 5-20.

tional study at this time.<sup>182</sup> The report did not recommend that Congress or the agency enact a categorical exemption for fracking, nor was it the EPA's position that an exemption was even appropriate.<sup>183</sup> Moreover, the study itself has been subject to scrutiny. An agency whistleblower claimed that the EPA's conclusion that fracking "pose[d] little or no threat" was completely unsupportable<sup>184</sup> and that the study was flawed because the agency "conducted limited research" and because five of the seven members on the Peer Review Panel had conflicts of interest.<sup>185</sup> Representative Henry Waxman (D-CA) requested that the EPA Inspector General examine whether political influence had an improper role in the study,<sup>186</sup> but before any action could be taken, Congress passed the EPAct, and SDWA exemption became law.<sup>187</sup>

The problems with the 2004 study were not limited to the insinuations of bad science and political tampering. The report was also facially inconsistent with a 1987 EPA report that concluded that fracking in a natural gas well in West Virginia had contaminated an underground drinking-water source.<sup>188</sup> The 1987 report also noted that the instance was intended to be "fairly illustrative" of a broader pollution problem associated with hydraulic fracturing.<sup>189</sup> The 1987 report was not mentioned in the EPA's 2004 study, and there is no evidence that Congress reviewed the report during its consideration of the 2005 amendment. Notably, although it remains a hotly

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182. U.S. ENVTL. PROT. AGENCY, *supra* note 174, at ES-1; *see also supra* note 174 and accompanying text (discussing diesel fuel migration).

183. Abraham Lustgarten, *Former Bush EPA Official Says Fracking Exemption Went Too Far; Congress Should Revisit*, PROPUBLICA (Mar. 9, 2011), <http://www.propublica.org/article/former-bush-epa-official-says-fracking-exemption-went-too-far>.

184. Letter from Weston Wilson, Env'tl. Eng'r, U.S. Env'tl. Prot. Agency, to Wayne Allard, Colo. Senator, 108th Cong., Ben Nighthorse Campbell, Colo. Senator, 108th Cong. & Diana DeGette, Colo. Representative, 108th Cong. (Oct. 8, 2004), *available at* <http://latimes.image2.trb.com/lanews/media/acrobat/2004-10/14647025.pdf>.

185. *Id.*

186. Letter from Henry A. Waxman, Ranking Minority Member, Comm. on Gov't Reform, House of Representatives, 108th Cong., to Nikki L. Tinsley, Inspector Gen., U.S. Env'tl. Prot. Agency (Oct. 14, 2004), *available at* [http://waxman.house.gov/sites/waxman.house.gov/files/Letter\\_to\\_EPA\\_IG.pdf](http://waxman.house.gov/sites/waxman.house.gov/files/Letter_to_EPA_IG.pdf).

187. *See generally* Wiseman, *Untested Waters*, *supra* note 17, at 116, 170-79 (providing a more detailed account of these events).

188. 1 OFFICE OF SOLID WASTE & EMERGENCY RESPONSE, U.S. ENVTL. PROT. AGENCY, EPA/530-SW-88-003, REPORT TO CONGRESS: MANAGEMENT OF WASTES FROM THE EXPLORATION, DEVELOPMENT, AND PRODUCTION OF CRUDE OIL, NATURAL GAS, AND GEOTHERMAL ENERGY, at IV-22 (1987), *available at* <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=20012D4P.pdf>.

189. *See id.* at IV-11; *see also* Ian Urbina, *A Tainted Water Well, and Concern There May Be More*, N.Y. TIMES, Aug. 4, 2011, at A13 (offering detailed background information on the 1987 report).

debated subject, the EPA's most recent research found that fracking can contaminate underground drinking water.<sup>190</sup>

In addition, there is no other evidence from the legislative history that Congress considered whether states or the federal government should regulate fracking during the lead up to the 2005 amendment. The official Committee Reports entirely avoid the issue.<sup>191</sup> What's more, the legislative history actually reveals that the decision to seek the exemption was made prior to the EPA's 2004 report.<sup>192</sup> In short, then, SDWA exemption appears to be essentially disconnected from any argument that could be, or was, made in favor of state regulation of fracking.

At the end of the day—regardless of the acknowledged need for a federal role in drinking-water protection, the plain meaning of “underground injection,” the ways in which SDWA's statutory structure and legislative

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190. See DOMINIC C. DIGIULIO, RICHARD T. WILKIN & CARLYLE MILLER, U.S. ENVTL. PROT. AGENCY, EPA 600/R-00/000, INVESTIGATION OF GROUND WATER CONTAMINATION NEAR PAVILLION, WYOMING 33 (2011), available at [http://www.epa.gov/region8/superfund/wy/pavillion/EPA\\_ReportOnPavillion\\_Dec-8-2011.pdf](http://www.epa.gov/region8/superfund/wy/pavillion/EPA_ReportOnPavillion_Dec-8-2011.pdf) (reporting groundwater contamination near wells using fracking service).

191. Meanwhile, during the floor debates, opponents of the amendment offered stinging rebukes that warned of drinking water contamination. 151 CONG. REC. 19,076 (2005) (statement of Sen. Feingold) (“[T]he energy conference report includes provisions that significantly weaken our commitment to the environment and to the health of U.S. citizens. . . . The bill . . . exempts hydraulic fracturing from the Safe Drinking Water Act, and by doing so, risks contaminating drinking water supplies.”); 151 CONG. REC. 19,087 (statement of Sen. Jeffords) (“The American people do not want enhanced energy production at the expense of the environment, particularly if it jeopardizes their drinking water wells.”); 151 CONG. REC. 14,039 (statement of Sen. Jeffords) (“We need to be moving in the right direction—taking steps to ensure that hydraulic fracturing is appropriately regulated under the Safe Drinking Water Act.”); 151 CONG. REC. 7114 (statement of Rep. Markey) (“[T]his is truly a bad bill. . . . There is a special provision in this bill to protect Halliburton from ever facing any Federal regulation of a practice of drilling for oil using the hydraulic fracturing technique that actually injects diesel fuel into the water supply.”); 150 CONG. REC. 12,183-84 (2004) (statement of Rep. Hinchey) (“It undermines the Clean Water Act. It threatens drinking water supplies, public health, and the environment by exempting hydraulic fracturing, a drilling technique which injects chemicals into the groundwater.”).

192. 149 CONG. REC. 9128 (2003) (statement of Rep. Markey) (“The oil and gas-related provisions in the Commerce and Resources titles would strip away environmental protections relating to the oil and gas industry. It would . . . prevent the EPA from barring the injection of diesel fuel into underground sources of drinking water during hydraulic fracturing by excluding oil and gas operations from the Safe Drinking Water Act . . . .”); 148 CONG. REC. 2765 (2002) (statement of Sen. Bingaman) (“States already have the authority to regulate hydraulic fracturing. They do that through measures such as requiring casing or lining of oil and gas wells where those wells cross through aquifers. The State regulatory programs have been effective to date. And although there have been over a million hydraulic fracturing jobs conducted in the last 5 years, there have been zero confirmed instances of hydraulic fracturing contaminating drinking water. There is not one time that contamination has been established.”); 148 CONG. REC. 2766 (statement of Sen. Inhofe) (requesting to include in the record a letter from Carl Smith of the Office of Fossil Energy).

history reflect on a long-established federalism bargain, and the glaring holes in the 2005 amendment's rationale—§ 1421(d)(1) is the law of the land. Part IV addresses this reality directly. The next Section, however, examines the regulatory exemptions to RCRA and EPCRA that fall within the EPA's jurisdiction.

### III. FEDERALISM CHOICE AND THE EXISTING REGULATORY EXEMPTIONS FROM RCRA AND EPCRA

Like SDWA, both RCRA and EPCRA offer clear answers to federalism-choice questions. Congress enacted Subtitle C of RCRA in 1976 as a "cradle to grave" regulatory framework for managing hazardous wastes.<sup>193</sup> Ten years later, Congress enacted EPCRA as a comprehensive regime requiring companies to disclose information related to the storage and use of hazardous and toxic chemicals.<sup>194</sup> Unlike SDWA, however, where Congress has exempted non-diesel fuel fracking from regulation, the EPA is responsible for the existing exemptions under RCRA and EPCRA. This Section provides an abbreviated overview of these statutes in order to explore the existing regulatory exemptions in light of federalism choice.

#### A. The Resource Conservation and Recovery Act

Subtitle C of RCRA provides federal standards for the management of hazardous wastes from the time of their generation through their disposal.<sup>195</sup> The statute allows the EPA to delegate implementation and enforcement of hazardous waste regulations to the states, so long as the state programs are at least as stringent as the federal regulations.<sup>196</sup> Currently, forty-eight states have received authorization to manage their own hazardous-waste programs under RCRA.<sup>197</sup>

As with SDWA, RCRA's cooperative federalism structure is intended to respect state and local priorities while addressing the national problem of hazardous waste.<sup>198</sup> As reflected in the legislative history, the purpose of the

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193. See *City of Chicago v. Env'tl. Def. Fund*, 511 U.S. 328, 331 (1994).

194. See 42 U.S.C. § 11022(d)(2) (2006 & Supp. 2012).

195. *Id.* § 6922(a)(4) (regulating the creation, transport, treatment, and disposal of hazardous wastes).

196. *Id.* § 6926(b); 40 C.F.R. § 271 (2013).

197. See U.S. ENVTL. PROT. AGENCY, AUTHORIZATION STATUS OF ALL RCRA/HSWA RULES, (2013), available at <http://www.epa.gov/epawaste/laws-regs/state/stats/authall.pdf>. Alaska and Iowa have yet to gain approval for an initial program. See *id.*

198. H.R. REP. NO. 94-1491, at 24 (1976), reprinted in 1 ENV'T & NATURAL RES. POLICY DIV., CONG. RESEARCH SERV., A LEGISLATIVE HISTORY OF THE SOLID WASTE DISPOSAL ACT, AS AMENDED, TOGETHER WITH A SECTION-BY-SECTION INDEX 585 (Comm. Print 1991) [hereinafter A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I] ("It is the Committee's intention that the States are to have primary enforcement authority and if

legislation was to “assist the cities, counties and states in the solution of the discarded materials problem and to provide nationwide protection against the dangers of improper hazardous waste disposal.”<sup>199</sup> Hazardous waste was understood to be, and is, fundamentally different from other forms of waste management: “Many of these substances can blind, cripple or kill. They can defoliate the environment, contaminate drinking-water supplies and enter the food chain under preset, largely unregulated disposal practices.”<sup>200</sup> Both respect for state authority and the guarantee of federal minimum standards were crucial to the overall plan.<sup>201</sup> Indeed, Congress opted for the cooperative federalism structure because

(1) it provides uniformity among the states as to how hazardous wastes are regulated, (2) it provides industry and commercial establishments that generate such wastes [sic] uniformity among states, (3) by providing such uniformity a state with environmentally sound laws does not drive business out of the state to a state

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at any time a State wishes to take over the hazardous waste program it is permitted to do so, provided that the State laws meet the Federal minimum requirements . . .”).

199. *Id.* at 11. In contrast to the cooperative federalism regime for hazardous waste management, Congress elected to keep solid waste management in state and local hands. This decision reflected the conclusion that “[s]olid waste management is essentially a local matter.” 121 CONG. REC. 23,850 (1975) (statement of Sen. Randolph), *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 192; 122 CONG. REC. 21,401 (1976) (statement of Sen. Randolph), *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 387 (“[T]he members of the Committee on Public Works recognized that solid waste is a uniquely local problem and that programs in this area should be developed and managed at the local government level.”).

200. H.R. REP. NO. 94-1491, at 11 (1976), *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 558, 572.

201. The federalization of hazardous waste management was due to a number of factors. First, the generation, storage, transport, and disposal of hazardous waste is a wholly interstate matter. *See* S. REP. NO. 94-988, at 16 (1976), *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 317, 334 (stating that federal permitting program aims to develop “a coherent system for transporting and handling hazardous wastes in interstate situations”); H.R. REP. NO. 94-1491, at 3, *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 558, 564 (“[M]uch of the hazardous waste disposed of in an environmentally sound manner is in interstate commerce without adequate monitoring of its movement or disposition.”). Second, it is a threat to which a degree of uniformity is required. *See, e.g.*, 122 CONG. REC. 21,401 (1976) (statement of Sen. Randolph), *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 388 (“One of the most urgent solid waste needs to be faced is a uniform approach to the handling of potentially hazardous materials.”); 122 CONG. REC. 21,403 (statement of Sen. Stafford), *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 391 (noting that hazardous waste is “the one area where danger to public health and welfare calls for direct Federal regulation”); H.R. REP. NO. 94-1491, at 3-4, *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 558, 564-65 (“Unless neutralized or otherwise properly managed in their disposal, hazardous wastes present a clear danger to the health and safety of the population and to the quality of the environment. . . . Without a regulatory framework, such hazardous waste will continue to be disposed of in ponds or lagoons or on the ground in a manner that results in substantial and sometimes irreversible pollution of the environment.”).



which, for economic reasons, decides to be a dumping ground for hazardous wastes, and (4) by permitting states to develop and implement hazardous waste programs equivalent to the federal program, the police power of the states are [sic] utilized rather than the creation of another federal bureaucracy to implement this act.<sup>202</sup>

Nonetheless, Congress understood that “federal minimum standards are necessary if the hazardous waste problem is to be understood and solutions are to be found.”<sup>203</sup>

In passing amendments to RCRA in 1980, Congress temporarily exempted oil and gas exploration and production wastes from regulation under the statute and mandated that the EPA later determine whether to include them.<sup>204</sup> This temporary exemption was granted because Congress determined that a set of regulations proposed by the EPA that would have covered drilling fluids, produced waters, and other oil and gas exploration and production wastes “could have a significant economic impact” on the industry, and further information on the degree of risk and the efficacy of existing state and federal programs was required.<sup>205</sup>

In 1988, the EPA concluded that federal regulation of oil and gas exploration and production wastes under RCRA was unnecessary, and regulatory goals would be better served by strengthening the UIC permitting process under SDWA, passing regulations under another subsection of RCRA, working with the states to “encourage changes in their regulations and enforcement to improve some programs,” and working with Congress to potentially create new statutory authority.<sup>206</sup> The EPA’s conclusion was premised on its finding that alternative regulations were infeasible, state regulations were adequate, and the economic harm suffered by the oil and gas industry would be severe.<sup>207</sup>

Of the factors informing the EPA’s decision to exempt oil and gas exploration and production from RCRA, only the second—the adequacy of existing state regulation—represents a consideration relevant to the theoretical federalism analysis discussed above.<sup>208</sup> Assuming state regulations were

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202. H.R. REP. NO. 94-1491, at 30, *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 558, 591.

203. *Id.*

204. *See* 42 U.S.C. § 6921(b)(2)(A)-(B) (1982).

205. S. REP. NO. 96-172, at 6 (1979), *reprinted in* A LEGISLATIVE HISTORY OF SOLID WASTE DISPOSAL ACT VOL. I, *supra* note 198, at 935, 940.

206. Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes, 53 Fed. Reg. 25,446, 25,446-47 (July 6, 1988).

207. *Id.* at 25,446.

208. The adequacy of existing state law, though not specifically identified as an independent factor for federalism choice analysis, is implicit in many of the factors on both sides of the federalization–decentralization debate, including the federalization concerns with dealing effectively with interstate externalities and preventing a “race to the bottom” and the decentralization concerns with local tailoring and experimentation.

adequate at the time of the EPA's exemption decision,<sup>209</sup> there is reason to believe that they are not adequate now.<sup>210</sup> For one thing, although the EPA did consider hydraulic fracturing in reaching its decision to exempt the industry,<sup>211</sup> the practice has evolved significantly since then and now involves different chemical mixes, the practice of horizontal drilling, and other innovations that should give the EPA cause to reconsider its determination that state laws are adequate.<sup>212</sup> Second, the current status of state regulation of hazardous waste at fracking sites varies considerably, and there are significant gaps.<sup>213</sup> For example, of the twenty-eight states that allow for some fluid storage in open pits, only seventeen impose "[f]reeboard [r]equirements," which require a certain amount of space in the pit between the maximum water level and the top of the pit, a separation that helps prevent overflow of fluids during wet weather events.<sup>214</sup> Only twenty-one of the twenty-eight open-pit states impose mandatory pit-liner requirements; several have conditional pit liner requirements, and four have none.<sup>215</sup> As for transportation of fracking wastewater, approximately half of the states with

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209. *But see* Hazardous Waste Guidelines and Regulations, 43 Fed. Reg. 58,946, 58,948 (proposed Dec. 18, 1978) (to be codified at 43 C.F.R. pt. 250) (describing improper hazardous waste disposal as a national problem requiring federal intervention).

210. *See generally* Wiseman, *Untested Waters*, *supra* note 17, at 142-82 (describing a host of regulatory failures at the state and federal levels); Wiseman, *Regulatory Adaptation in Fractured Appalachia*, *supra* note 17, at 241-75 (discussing failures in regulation in the Appalachian region).

211. *See* Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes, 53 Fed. Reg. at 25,449 (July 6, 1988) ("The major categories of wastes responsible for damages include reserve pit wastes, fracturing and acidizing fluids, stimulation chemicals, waste crude oil, produced water, and other miscellaneous wastes generated by the exploration, development, and production of crude oil and natural gas."); *id.* at 25,453-54 (including produced water, drilling fluids, and "stimulation fluids" in exempt wastes category and excluding "[u]nused fracturing fluids" from exempt wastes category).

212. *See* Wiseman, *Risk and Response*, *supra* note 17, at 753-79 (discussing risks and potential regulatory responses associated with use of new and more chemicals, production of increased quantities of waste, increased water usage, and use of horizontal drilling techniques and equipment).

213. The non-profit think-tank Resources for the Future's Center for Energy Economics and Policy has undertaken an initiative to identify risks associated with fracking and to recommend strategies for more responsible exploration and production. As part of this project, the Center is analyzing regulations and surveying regulators in the thirty-one states that currently have significant shale gas reserves or where industry has shown interest in shale gas development. Ctr. for Energy Econ. & Policy, *supra* note 7 (providing maps illustrating state regulation across a broad range of areas).

214. *See id.* (follow "[Wastewater Storage and Disposal \(5\)](#)" hyperlink; then follow "[Freeboard Requirements](#)" hyperlink).

215. *See id.* (follow "[Wastewater Storage and Disposal \(5\)](#)" hyperlink; then follow "[Pit Liner Requirements](#)" hyperlink).

fracking activities have no reporting requirements whatsoever.<sup>216</sup> The lack of transport regulations is critical, as that is where a manifest is created, and the government obtains the ability to track the route and destination of the hazardous waste. Without a manifest, there is no incentive for the industry to ensure proper treatment and disposal of the waste.<sup>217</sup>

These gaps in state regulations and the differences among the state approaches indicate that RCRA's overarching concerns—providing nationwide protection from hazardous wastes and promoting uniformity among the states—would best be served by rescinding the regulatory exemption.<sup>218</sup>

In September 2010, a coalition of environmental groups represented by the Natural Resources Defense Council petitioned the EPA to regulate hazardous waste associated with oil and gas exploration and production activities, including fracking, under RCRA.<sup>219</sup> The petition argues persuasively that fracking produces hazardous waste<sup>220</sup> and that there are significant gaps in existing state regulatory regimes that warrant federal intervention to fulfill the statute's purposes.<sup>221</sup> The EPA has not yet formally responded to the petition, though it is still considering its regulatory options.<sup>222</sup>

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216. See *id.* (follow “Wastewater Storage and Disposal (5)” hyperlink; then follow “Wastewater Transportation Tracking Regulations” hyperlink).

217. See OFFICE OF SOLID WASTE MGMT. PROGRAMS, U.S. ENVTL. PROT. AGENCY, SW-115, REPORT TO CONGRESS: DISPOSAL OF HAZARDOUS WASTES 17 (1974) (concluding that the lack of comprehensive national plan disincentivizes proper management of hazardous waste); *id.* at 21 (recommending that transport and handling should be regulated to “ensure that hazardous wastes are properly marked, containerized, and transported”).

218. See *id.* at 22 (discussing problems with the “State-only approach” to hazardous waste management regulation and benefits of the cooperative federalism approach).

219. Letter from Amy Mall, Senior Analyst, Natural Res. Def. Council & Diane Donnelly, Legal Intern, Natural Res. Def. Council, to Lisa Jackson, Adm’r, U.S. Env’tl. Prot. Agency (Sept. 8, 2010), available at [http://docs.nrdc.org/energy/files/ene\\_10091301a.pdf](http://docs.nrdc.org/energy/files/ene_10091301a.pdf).

220. *Id.* at 7-17 (demonstrating toxicity of waste and identifying risks to human health, wildlife, and livestock); *id.* at 37-41 (arguing that wastes satisfy regulatory criteria for hazardous waste).

221. *Id.* at 17-30 (identifying gaps in regulation of pits, land application, injection wells, wastewater treatment facilities, and other intentional and unintentional spills and leaks).

222. *Natural Gas Extraction—Hydraulic Fracturing*, U.S. ENVTL. PROTECTION AGENCY, <http://www2.epa.gov/hydraulicfracturing> (last visited Jan. 22, 2014) (“EPA is working with states and other key stakeholders to help ensure that natural gas extraction does not come at the expense of public health and the environment. The Agency’s focus and obligations under the law are to provide oversight, guidance and, where appropriate, rulemaking that achieve the best possible protections for the air, water and land where Americans live, work and play. The Agency is investing in improving our scientific understanding of hydraulic fracturing, providing regulatory clarity with respect to existing laws, and using existing authorities where appropriate to enhance health and environmental safeguards.”).

## B. The Emergency Planning and Community Right to Know Act

The EPCRA was enacted in 1986, following the catastrophic chemical explosion in Bhopal, India.<sup>223</sup> The statute does not impose any pollution control requirements on companies; rather, it uses information disclosure as a means to better inform both decision makers and the public, and to encourage industry to reduce or prevent the release of hazardous or toxic chemicals.<sup>224</sup> Accordingly, the statute requires companies to file annual reports on the amounts of toxics released into the environment or else recycled, treated, or disposed of in impoundments or landfills.<sup>225</sup> The reports are published in the Toxic Releases Inventory (TRI) and are made available online.<sup>226</sup>

Under EPCRA, facilities in the manufacturing sector are the only ones that must be included in the TRI;<sup>227</sup> however, the EPA has the authority to add additional industry sectors at its discretion.<sup>228</sup> The EPA has recognized that the original statutory list was meant to serve as a “starting point,” and Congress intended for the TRI program to “evolve to meet the information needs of a better informed public and to fill information gaps that would become more apparent over time.”<sup>229</sup> This is consistent with the broad purposes of the statute to provide a “complete profile of toxic chemical releases and other waste management activities,” to create a national database that can be used to help measure the “success of environmental regulations,” and to ensure “easy” public access to information about toxic chemical releases.<sup>230</sup>

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223. Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613, 1728-58 (codified at 42 U.S.C. §§ 11001-50 (2006 & Supp. 2012)).

224. Memorandum for the Administrator of the Environmental Protection Agency and the Heads of Executive Departments and Agencies, 60 Fed. Reg. 41,791 (Aug. 11, 1995); see also JOHN FELLEMAN, DEEP INFORMATION: THE ROLE OF INFORMATION POLICY IN ENVIRONMENTAL SUSTAINABILITY 139 (1997) (“EPCRA is a major example of informational federalism.”).

225. Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613, 1741-47 (codified at 42 U.S.C. §§ 11001-50).

226. See *National Training Conference on TRI and Environmental Conditions in Communities*, U.S. ENVTL. PROTECTION AGENCY, [www2.epa.gov/toxics-release-inventory-tri-program](http://www2.epa.gov/toxics-release-inventory-tri-program) (last updated Dec. 16, 2013).

227. See 40 C.F.R. §§ 372.22-.23 (2011). The EPA demands that industries classified by certain Standard Industrial Classification Codes (SICs) must adhere to specified reporting requirements. *Id.* § 372.22. However, “Major Group 13: Oil and Gas Extraction” is not one of the SICs included. *Id.* § 372.23.

228. See 42 U.S.C. § 11023(b)(1)(B).

229. Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. 23,834 (May 1, 1997) (to be codified at 40 C.F.R. pt. 372).

230. *Id.* at 23,886.

In 1995, President Bill Clinton directed the agency to expand the range of industries covered under the Act.<sup>231</sup> In 1996 and 1997, pursuant to § 313(b)(1)(B), the EPA added several sectors to the list, including mining for coal and mining for metals.<sup>232</sup> Although the EPA considered the oil and gas extraction industry a “Tier I” candidate for inclusion—meaning it was among those whose toxic release disclosures would best serve the purposes of the statute<sup>233</sup>—the agency ultimately deferred reconsideration because of uncertainty about how or whether individual drilling wells would fit under the statutory definition of “facilit[y].”<sup>234</sup> As a result, the chemical contents of fracking fluids remain, like chemicals used in other oil and gas exploration and production activities, exempt from EPCRA.<sup>235</sup>

In October 2012, a coalition of environmental groups spearheaded by the Environmental Integrity Project petitioned the EPA to initiate rulemaking under EPCRA to add the entire oil and gas extraction industry to the list of facilities required to report toxic releases under the TRI.<sup>236</sup> In deciding whether to add an industrial sector to the TRI list, the EPA will consider three factors: (1) the “‘chemical’ factor,” which asks whether it is likely that one or more toxic chemicals will be present at facilities within the industry; (2) the “‘activity’ factor,” which asks whether facilities within the sector “‘manufacture,’ ‘process,’ or ‘otherwise use’” the present toxic chemicals; and (3) the “‘information’ factor,” which asks whether disclosure by facili-

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231. Memorandum for the Administrator of the Environmental Protection Agency and the Heads of Executive Departments and Agencies, 60 Fed. Reg. 41,791 (Aug. 11, 1995).

232. Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. at 23,834.

233. Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 61 Fed. Reg. 33,591-92 (proposed June 27, 1996).

234. *Id.* at 33,592.

235. An emergency report, however, must be prepared if a hazardous substance release exceeds certain thresholds. 42 U.S.C. § 11004(a)(2)(B) (2006 & Supp. 2012) (requiring an operator to report a release of an “extremely hazardous substance” listed in §103(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601(14)); see also Susan Phillips, *EPA Fines Talisman Energy for Fracking Violations*, STATEIMPACT PA. (July 25, 2012, 1:30 PM), <http://stateimpact.npr.org/pennsylvania/2012/07/25/epa-fines-talisman-energy-for-fracking-violations/>.

236. See Letter from Eric Schaeffer, Exec. Dir., Env'tl. Integrity Project & Adam Kron, Attorney, Env'tl. Integrity Project, to Lisa Jackson, Adm'r, U.S. Env'tl. Prot. Agency (Oct. 24, 2012) [hereinafter Letter from Eric Schaeffer], available at [http://www.environmentalintegrity.org/news\\_reports/documents/2012\\_10\\_24TRIPetitionFINALSIGNED.pdf](http://www.environmentalintegrity.org/news_reports/documents/2012_10_24TRIPetitionFINALSIGNED.pdf). The petitioners define the oil and gas extraction industry to include all aspects of well exploration and development, including “drilling,” well construction, “hydraulic fracturing,” “processing,” “abandonment,” and “associated components . . . such as waste pits, storage tanks, and compressors.” *Id.* at 2 n.2.

ties within the industry will increase the amount of information available or “otherwise further the purposes of EPCRA.”<sup>237</sup> Of these, only the third factor raises questions that pertain to federalism; the other two factors may be answered one way or another regardless of whether an industrial sector is located entirely within one state’s borders or operates nationwide.<sup>238</sup>

The federalism question raised by the “information” factor of the EPA’s TRI analysis asks whether existing state and, arguably, voluntary information disclosure rules provide an adequate amount of information to satisfy the statute’s purposes. With regard to fracking, the answer is “No.”<sup>239</sup> A number of states with fracking operations have adopted their own fracking fluid disclosure requirements, but approximately half of them have not.<sup>240</sup> Of the states that do require both disclosure of some of the substances and public access to the information, none require comprehensive disclosure,<sup>241</sup> and none provide accessibility to the same degree as the TRI. In addition, studies have found enforcement of state disclosure rules to be uneven.<sup>242</sup> These failures at the state level undermine any possible argument that state activity in this area militates against federal regulation. Rather, federal action appears to be necessary to achieve the statutory purposes of a “complete profile of toxic chemical releases,” of providing information with

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237. Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. at 23,836.

238. See Letter from Eric Schaeffer, *supra* note 236, at 22-59 (applying the first two factors to oil and gas extraction industry).

239. See *id.* at 63-66 (discussing state fracking disclosure requirements).

240. See Ctr. for Energy Econ. & Policy, *supra* note 7 (follow “Hydraulic Fracturing (2)” hyperlink; then follow “Fracking Fluid Disclosure Regulations” hyperlink). See generally MCFEELEY, *supra* note 17.

241. As a general matter, disclosure rules provide an exemption for confidential information that falls under “trade secret” protection. See MCFEELEY, *supra* note 17, at 6; see also Ben Elgin, Benjamin Haas & Phil Kuntz, *Fracking Secrets by Thousands Keep U.S. Clueless on Wells*, BLOOMBERG.COM (Nov. 30, 2012, 12:01 AM), <http://www.bloomberg.com/news/2012-11-30/frack-secrets-by-thousands-keep-u-s-clueless-on-wells.html> (reporting that companies in Texas claimed trade secret exemption from disclosure 19,000 times through August of that year); Michael Anderson, *The Problem with Fracking Trade Secrets*, GEO. INT’L ENVTL. L. REV. BLOG (Apr. 25, 2013), <http://gielr.wordpress.com/2013/04/25/the-problem-with-fracking-trade-secrets/> (discussing lack of disclosure resulting from trade secret protections in state regulations).

242. See MCFEELEY, *supra* note 17, at 8-9; see also Wiseman, *Risk and Response*, *supra* note 17, at 758-59 (describing state disclosure rules); Wiseman, *Fractured Appalachia*, *supra* note 17, at 276 (noting that “the regulations in some states fail to require the production of information that will be necessary to inform future, improved analysis of regulatory needs with respect to fracing”).

which to measure the efficacy of environmental regulations, and of ensuring “easy” public access for affected communities.<sup>243</sup>

There are at least two other counterarguments to regulating fracking under EPCRA that warrant mention here. First, as with the question of whether fracking fits under the definition of “underground injection,” there is some question as to whether EPCRA properly applies to fracking. The question of applicability, however, is, again, an entirely separate question from the federalism question that is the subject of this Article. The federalism question asks whether the disclosure of information pertaining to toxic chemical releases is properly conceived as a regulatory choice best allocated to the federal government or the states. Congress has determined, and with good reason, that it is a choice best left to the federal government.<sup>244</sup> The question of whether EPCRA should apply to fracking, then, is not a federalism question at all; rather, it is an implementation question, properly considered under the EPA’s multi-factor analysis for adding new industry sectors to the TRI.<sup>245</sup>

Second, one might argue that other proposed federal regulations slated for enactment will adequately fill the gaps left by state regulation and voluntary information disclosure. Two proposed federal regulations are relevant here. First, in response to a petition filed by the environmental group Earthjustice,<sup>246</sup> the EPA has committed to regulating chemical disclosure under the Toxic Substances Control Act (TSCA).<sup>247</sup> The EPA will initiate

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243. Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. 23,836 (May 1, 1997) (to be codified at 40 C.F.R. pt. 372).

244. See, e.g., Guest Blogger, *State, Local Officials Try to Halt Federal TRI Cut-backs*, CTR. FOR EFFECTIVE GOV’T (Feb. 7, 2006), <http://www.foreffectivegov.org/node/2777> (noting that the EPA asserted that changes to TRI program “did not have any federalism implications”).

245. See Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. at 23,836; see also *supra* notes 236, 238-39 (discussing Environmental Integrity Project petition).

246. See generally Letter from Deborah Goldberg & Megan Klein, Earthjustice, to Lisa P. Jackson, Adm’r, U.S. Env’tl. Prot. Agency (Aug. 4, 2011), available at [http://earthjustice.org/sites/default/files/fracking\\_petition.pdf](http://earthjustice.org/sites/default/files/fracking_petition.pdf) (discussing the Citizen Petition Under Toxic Substances Control Act Regarding the Chemical Substances and Mixtures Used in Oil and Gas Exploration or Production).

247. See Letter from Stephen A. Owens, Assistant Adm’r, U.S. Env’tl. Prot. Agency, to Deborah Goldberg, Earthjustice (Nov. 23, 2011) [hereinafter Letter from Stephen A. Owens], available at [http://www.epa.gov/oppt/chemtest/pubs/EPA\\_Letter\\_to\\_Earthjustice\\_on\\_TSCA\\_Petition.pdf](http://www.epa.gov/oppt/chemtest/pubs/EPA_Letter_to_Earthjustice_on_TSCA_Petition.pdf) (regarding TSCA Section 21 Petition Concerning Chemical Substances and Mixtures Used in Oil and Gas Exploration or Production). The letter also denied the petition’s request to require disclosure related to chemicals used for purposes other than hydraulic fracturing. *Id.* at 2.

rulemaking that will obtain data on chemical substances and mixtures used in hydraulic fracturing from manufacturers and processors.<sup>248</sup> Notably, in its decision letter, the EPA recognized that the chemical content of fracking operations raises specifically federal concerns and that “TSCA may be a valuable authority to provide a national picture of the chemical substances and mixtures used in hydraulic fracturing.”<sup>249</sup> Second, in May 2012, the Bureau of Land Management (BLM) in the Department of Interior issued a proposed rule for fracking on public lands and Indian reservations.<sup>250</sup> The proposed rule—which would require that some contents of fracking fluids be disclosed on the industry-funded inventory FracFocus while allowing companies to keep other contents secret<sup>251</sup> and would require that companies conduct a well integrity test on a single well in a field, rather than each well<sup>252</sup>—represented a scaling back from an earlier proposal, which would have required full disclosure and more testing.<sup>253</sup> The oil and gas industry have continued to oppose the rule, and many environmentalists have voiced dissatisfaction with it as well.<sup>254</sup>

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248. See Chemical Substances and Mixtures Used in Oil and Gas Exploration or Production; TSCA Section 21 Petition; Reasons for Agency Response, 78 Fed. Reg. 41,768, 41,768-71 (July 11, 2013) (to be codified at 40 C.F.R. ch. 1).

249. Letter from Stephen A. Owens, *supra* note 247. The EPA also denied the petition in part, rejecting the request to require that manufacturers and processors conduct toxicity testing on the same chemicals. *Id.* In addition, the EPA has already issued at least one rule pursuant to TSCA requiring that companies notify the EPA of their intent to use certain chemicals used in fracking. See Significant New Use Rules on Certain Chemical Substances, 78 Fed. Reg. 27,048, 27,048-57 (May 9, 2013) (to be codified at 40 C.F.R. pts. 9 & 721).

250. Oil and Gas; Well Stimulation, Including Hydraulic Fracturing, on Federal and Indian Lands, 77 Fed. Reg. 27,691, 27,691-92 (proposed May 11, 2012) (to be codified at 40 C.F.R. pt. 3,160). The rule is being issued pursuant to the agency’s authority under the Federal Land Policy and Management Act, the Mineral Leasing Act, the Mineral Leasing Act for Acquired Lands, and the Indian Mineral Leasing Act. *Id.* at 27,694.

251. *Id.*

252. *Id.* at 27,705-08.

253. *Id.* at 27,691, 27,702-03.

254. See, e.g., John M. Broder, *New Fracking Rules Proposed for U.S. Land*, N.Y. TIMES, May 17, 2013, at A15 (“D.O.I. still has not justified the rule from an economic or scientific point of view. It continues to second-guess states and tribes, and will hurt job creation and economic growth in Western communities.” (quoting a spokesperson for Western Energy Alliance)); Meg Handley, *New Federal Fracking Rules Rile Environmentalists, Oil and Gas Industry*, U.S. NEWS & WORLD REP., May 17, 2013, at 1 (“The states are the best regulators for the industry . . . The Department of Interior doesn’t need to take on another layer of regulation when they have no personnel or budget to support it.” (quoting an energy company executive)); *Id.* (“States are much better suited to regulate hydraulic fracturing and have done an effective job. The new rule is duplicative to state regulation and the Department of Interior’s rule fails to provide a credible rationale as to why another set of regulations are needed.” (quoting an U.S. Chamber of Commerce Institute for the 21<sup>st</sup> Century executive)).



The problem with the argument that the EPA's and BLM's proposed federal regulations weigh against the theoretical argument for federal regulation under EPCRA is apparent on its face: the fact that other federal agencies are regulating some part of chemical content disclosure does not support the argument that the federal government is not the proper scale of governance on this issue. In fact, it would seem to support the precisely opposite view.<sup>255</sup> Moreover, there are crucial differences among the statutory regimes: the EPA's TSCA regulations will not regulate toxic chemical release information disclosure in the way that EPCRA does, and BLM's proposed rule applies only to fracking operations on federal public lands or Indian lands, not to private property (where much fracking is done) or non-federal public lands. Thus, once these regulations are in place, the purposes of EPCRA will still not be satisfied.

This Part and the one that preceded it have demonstrated that a close reading of the relevant statutes, their legislative histories, and the trajectory of regulatory decision making leads to the conclusion that fracking *should*, as a matter of both theory and law, be regulated under SDWA, RCRA, and EPCRA. The final Part further examines current regulatory developments and what steps might be taken to fill the remaining gaps in fracking regulation.

#### IV. THE (RE)FEDERALIZATION OF FRACKING REGULATION: UPDATES AND PROPOSALS

As the public controversy surrounding hydraulic fracturing's environmental impacts continues and the economic boom it produces spreads nationwide, the federal government is adopting an increasingly involved role in regulation. This final Part provides a summary status update on the various ways in which Congress and federal agencies are or are considering regulating fracking. It then considers the federalism questions attendant to a number of possibilities for future regulation, including repealing the 2005 SDWA amendment, establishing a "one-stop shop" for federal permitting, regulating underground injection of fracking fluids through existing state SDWA programs, and creating a new mechanism to promote policy and technology innovation through a federal- or state-level collaborative network.

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255. See *Natural Gas Extraction—Hydraulic Fracturing*, *supra* note 222; LINDA-JO SCHIEROW, CONG. RESEARCH SERV., RL 34118, THE TOXIC SUBSTANCES CONTROL ACT (TSCA): IMPLEMENTATION AND NEW CHALLENGES 10-11 (updated ed. 2008); LINDA-JO SCHIEROW, CONG. RESEARCH SERV., THE TOXIC SUBSTANCES CONTROL ACT (TSCA): IMPLEMENTATION AND NEW CHALLENGES 6-7, 20-22 (2007) (discussing TSCA's structure and federalism balance in regulation of toxic chemicals).

### A. The Current Status of Federal Regulation

In May 2013, U.S. Representatives Diana DeGette (D-CO) and Chris Gibson (R-NY) reintroduced the Fracturing Responsibility and Awareness of Chemicals Act (FRAC Act).<sup>256</sup> The bipartisan bill would undo the 2005 amendment exempting non-diesel fuel fracking from SDWA and explicitly include the underground injection of fluids and other agents used in hydraulic fracturing within SDWA regulations; the FRAC Act would also require disclosure of the chemical constituents of fracking fluids (though not the formulas) to either the EPA or the relevant state agency, depending on the regulatory framework in place.<sup>257</sup> The bill's prospects, however, are dim. The FRAC Act was previously introduced in 2009 and 2011, and has never made it out of committee.<sup>258</sup> Given the current political climate, even if the EPA were to conclude beyond any doubt that fracking poses a significant risk to underground drinking-water supplies, there is little reason to believe that the bill would gain traction any time in the foreseeable future.

Meanwhile, federal agencies have undertaken a number of measures—in addition to the likely regulations under TSCA and the BLM's oil and gas leasing program—that have begun to regulate fracking in significant ways. Perhaps the most important federal action to date, at least for the purposes of this Article, occurred in May 2012, when the EPA issued a draft permitting guidance for fracking operations that involve the underground injection of fluids, including diesel fuel.<sup>259</sup> The draft guidance states that it is the EPA's interpretation that fracking wells that inject diesel fuels are subject to the UIC program's Class II permit requirements<sup>260</sup> and provides recommendations on how permit writers should implement requirements related to applications and review, permit duration and well closure, and well construction.<sup>261</sup> For states that have primacy under either § 1422 or § 1425 of SDWA, the guidance offers a number of recommendations for how to approach regulation.<sup>262</sup>

The draft guidance is necessarily premised, in part, on the agency's conclusion that fracking with diesel fuel can endanger underground drink-

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256. Fracturing Responsibility and Awareness of Chemicals Act of 2013, H.R. 1921, 113th Cong. (2013).

257. *Id.* The bill would also require the immediate disclosure of trade secret chemicals and proprietary formulas of hydraulic fracturing fluids used in the case of an emergency. *Id.*

258. See Fracturing Responsibility and Awareness of Chemicals (FRAC) Act, S. 1215, 111th Cong. (2009); Fracturing Responsibility and Awareness of Chemicals Act, S. 587, 112th Cong. (2011).

259. U.S. ENVTL. PROT. AGENCY, *supra* note 104.

260. *Id.* at 1.

261. *Id.* at 12-31.

262. *Id.* at 31-34.

ing-water supplies; this endangerment may occur through any of a number of different “pathways,” including migration of fluids through a faulty injection well casing, through the annulus between the well casing and the well bore, from an injection zone through the formation’s confining strata, and through improperly abandoned or completed wells.<sup>263</sup> As noted above, the EPA is currently studying these same “pathways of contamination” (along with others at the surface) as part of its effort to help better inform governments and the public regarding the risks involved with fracking that does not use diesel fuels.<sup>264</sup> These pathways are the same that have informed the EPA’s UIC permit program regulations since their first promulgation.<sup>265</sup>

A great deal of attention has been placed on the EPA study, which is expected to be issued in 2014 and to reach a conclusion one way or the other regarding the potential for fracking to contaminate drinking-water supplies. This attention has put enormous political pressure on what is supposed to be a politically neutral risk assessment, potentially ruining the prospect that it will provide a satisfactory answer for anyone. Significantly, at least for the purposes of this Article, this attention is misplaced. Indeed, the focus on the EPA study is emblematic of the miscomprehension that plagues much of the debate about the appropriate scale of governance in this area, for the EPA study will not resolve fracking’s federalism question. Rather, the EPA study is designed to answer a question about SDWA’s *applicability*—that is, whether injection of fracking fluids underground, including into areas beneath potential underground drinking-water supplies, has the potential to endanger drinking-water supplies. As noted above,<sup>266</sup> if there is such a potential then, in the absence of the “Halliburton loophole,” the statute would apply. If, however, regulation would “stop or substantially delay” oil and gas production and there is not a potential to endanger drinking-water supplies, then SDWA would quite simply not apply. Given the fracking exemption to SDWA, however, it does not matter what the EPA’s study reveals. Whatever the results, SDWA will not, without further Congressional action, apply to fracking that does not use diesel fuel. Perhaps such a finding would encourage states to go further than the federal statute requires, but it would not necessarily require it.<sup>267</sup> This result would be plainly inconsistent with the language of the pre-2005 SDWA, with the pur-

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263. *Id.* at A-1 to A-4.

264. *See* 2011 EPA REPORT, *supra* note 42, at 27-35, 62-75.

265. *See* OFFICE OF DRINKING WATER, *supra* note 168, at 7-17.

266. *See supra* notes 144-56.

267. *But see infra* notes 291-94 and accompanying text (discussing the California lawsuit).

poses and structure of the Act, and with the federalism choices it represents.<sup>268</sup>

Meanwhile, the EPA is also moving towards increased regulation of fracking under the CWA. As part of this project, the EPA is developing effluent limitations guidelines for the discharge of wastewater from both coalbed methane wells and shale gas wells.<sup>269</sup> Direct discharges from fracking operations are already subject to federal regulations under the National Pollutant Discharge Elimination System permit program, but the EPA has not yet established the guidelines necessary to create the technology-based effluent limitations that must be included in permits.<sup>270</sup> The agency expects the rule to be issued in 2014. In addition, the EPA is also updating its chloride water quality standards for protection of aquatic life.<sup>271</sup> Chloride is a major component of total dissolved solids, which are present in high levels in fracking wastewater.<sup>272</sup>

The EPA has also begun regulating air emissions from fracking wells. In 2012, in response to litigation filed by environmental groups, the EPA issued a final rule imposing new regulations on emissions of volatile organic compounds (VOCs) from fracking operations.<sup>273</sup> The agency believes the rule is likely to produce the co-benefit of reduced methane emissions.<sup>274</sup> The

268. See discussion *supra* Sections II.B-C. The result is also inconsistent with the precautionary approach of the statute and the balancing of public and private interests it embodies. Typically, SDWA places the burden on an applicant for an UIC permit to show that there is no endangerment, and so the costs for studying the issue are borne by the industry. The current arrangement has created the assumption that there is no endangerment and put the costs for studying the issue on the public, through government studies such as the EPA's and through private lawsuits seeking compensation after the fact of harm. See 42 U.S.C. § 300h(b)(1)(B) (2006 & Supp. 2012).

269. Notice of Final 2010 Effluent Guidelines Program Plan, 76 Fed. Reg. 66,286 (Oct. 26, 2011).

270. See *Unconventional Extraction in the Oil and Gas Industry*, ENVTL. PROTECTION AGENCY, <http://water.epa.gov/scitech/wastetech/guide/oilandgas/unconv.cfm> (last visited Jan. 22, 2014).

271. See *Natural Gas Extraction-Hydraulic Fracturing*, *supra* note 222.

272. *Id.*

273. Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 77 Fed. Reg. 49,490, 49,492 (Aug. 16, 2012) (to be codified at 40 C.F.R. pts. 60, 63) ("For fractured and refractured gas wells, the rule generally requires owners/operators to use reduced emissions completions, also known as 'RECs' or 'green completions,' to reduce VOC emissions from well completions.").

274. *Id.* at 49,513 ("[T]he control measures that the EPA is requiring for VOC result in substantial methane reductions as a co-benefit."). The quantity of methane emissions from fracking wells has been a hotly debated topic. See R.L. SANTORO, R.H. HOWARTH & A.R. INGRAFFEA, *AGRIC., ENERGY, & ENV'T PROGRAM, CORNELL UNIV., INDIRECT EMISSIONS OF CARBON DIOXIDE FROM MARCELLUS SHALE GAS DEVELOPMENT 14* (2011), available at [http://www.eeb.cornell.edu/howarth/IndirectEmissionsofCarbonDioxidefromMarcellusShaleGasDevelopment\\_June302011%20.pdf](http://www.eeb.cornell.edu/howarth/IndirectEmissionsofCarbonDioxidefromMarcellusShaleGasDevelopment_June302011%20.pdf); Robert W. Howarth, Renee Santoro & Anthony

EPA further maintains that fracking operations may be subject to greenhouse gas reporting requirements, and voluntary efforts under the agency's Natural Gas STAR program and Clean Construction USA program produce further air quality benefits.<sup>275</sup> Numerous parties have filed lawsuits challenging the rule.<sup>276</sup>

The above actions demonstrate that the federalization of fracking regulation is already well underway and that, consistent with this Article's argument, more and more aspects of the process are being brought under the management of existing federal regimes. However, significant regulatory gaps remain. The next Section analyzes several possibilities for prospective regulation that may help fill those gaps.

## B. Possible Next Steps

Politicians, advocates, and scholars have posited a number of possible next steps for fracking regulation, including (1) enacting the FRAC Act; (2) establishing a "one-stop shop" or comprehensive program at the federal level for fracking permits; (3) granting the remaining regulatory petitions and continuing the ad hoc, media-specific approach adopted to date; and (4) regulating the underground injection of fracking fluids pursuant to existing state SDWA laws and regulations. The federalism-choice issues involved in granting the remaining RCRA and EPCRA petitions and otherwise proceeding with the status quo have been discussed earlier in the Article. Accordingly, this Section considers the other three possibilities in light of federalism choice. In addition, recognizing the unlikelihood of direct federal regulation and the failure of the states to fill remaining regulatory gaps when

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Ingraffea, *Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations*, 106 CLIMATIC CHANGE 679, 685 (2011); Lawrence M. Cathles III et al., *A Commentary on "The Greenhouse-Gas Footprint of Natural Gas in Shale Formations" by R.W. Howarth, R. Santoro, and Anthony Ingraffea*, 113 CLIMATIC CHANGE 525, 533 (2012); Robert W. Howarth, Renee Santoro & Anthony Ingraffea, *Venting and Leaking of Methane from Shale Gas Development: Response to Cathles et al.*, 113 CLIMATIC CHANGE 537, 538-39 (2012); Press Release, Lawrence M. Cathles et al., Response to Howarth et al.'s Reply (Feb. 29, 2012), available at <http://www.geo.cornell.edu/eas/PeoplePlaces/Faculty/cathles/Natural%20Gas/Response%20to%20Howarth's%20Reply%20Distributed%20Feb%2030,%202012.pdf>; L.M. Cathles, *Assessing the Greenhouse Impact of Natural Gas*, GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS, June 19, 2012, at 1, 1-2, available at <http://onlinelibrary.wiley.com/store/10.1029/2012GC004032/asset/ggge2195.pdf?v=1&t=hqyc319d&s=96f206113bfb8cd0b3a1e9fb94d1ddd90ad33385>; David T. Allen et al., *Measurements of Methane Emissions at Natural Gas Production Sites in the United States*, 110 PNAS 17768, 17768 (2013).

275. *Natural Gas Extraction-Hydraulic Fracturing*, *supra* note 222.

276. *Am. Petroleum Inst. v. EPA*, No. 12-1405 (D.C. Cir. filed Oct. 15, 2012).

acting independently, I make a proposal for a new interstate mechanism to promote policy diffusion.

### 1. *Enactment of the FRAC Act*

Enactment of the FRAC Act, with its proposed revocation of SDWA exemption and requirement for toxic chemical content disclosure on a well-by-well basis, would be fully consistent with the federalism-choice analyses presented above. Passage of the bill would resolve the discontinuity between the law's treatment of fracking and other industrial activities with similar risks and impacts. However, the bill, at least as currently drafted, would not address the hazardous waste management issue. Thus, it would represent a substantial improvement over the current state of affairs, but it would not offer a total solution. Of course, as previously noted, the FRAC Act as drafted has little chance of passing through Congress.<sup>277</sup>

### 2. *Establishment of a "One-Stop Shop" for Fracking Permits*

One potential work-around congressional resistance to legislatively reinstating SDWA's full jurisdictional reach and overriding the TRI reporting exemption could be to create a new "one-stop shop" for federal fracking permits within the EPA or a state agency that has been delegated authority to implement federal environmental statutes.<sup>278</sup> Such a program could be established through legislation or administrative action. If done administratively, the program could coordinate the permitting process under existing or forthcoming regulatory requirements under the CWA (for surface-level wastewater disposal), the CAA (for VOCs emissions), SDWA (for underground injection of wastewater and underground injection of fracking fluid that includes diesel fuel), and the TSCA (for disclosure of chemical content), as well as any potentially forthcoming requirements under RCRA and the EPCRA. The permit process could also include permits necessary for underground injection of fracking fluids in states that may require a permit pursuant to their state SDWA program.<sup>279</sup> If done legislatively, Congress could decide to revoke the 2005 EPA Act amendment and bring Underground Injection Control permitting into the same consolidated process.

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277. See *supra* notes 258-60.

278. See Jody Freeman, *The Wise Way to Regulate Gas Drilling*, N.Y. TIMES, July 6, 2012, at A23 (arguing for uniform federal regulation of fracking); *Should the Federal Government Regulate Fracking?*, WALL ST. J. (Apr. 14, 2013), <http://online.wsj.com/article/SB10001424127887323495104578314302738867078.html> (providing short arguments for and against uniform minimum standards for fracking).

279. See *infra* Subsection IV.B.4.

Such a process would reopen the debate to legislative bargaining, and it would not be without precedent. For example, the 2005 EPAct granted authority to the Federal Energy Regulatory Commission to coordinate the processing of federal and state authorizations required under federal law for natural gas projects and to maintain a consolidated record of decisions for judicial review.<sup>280</sup> On the state level, Article 10 of the New York State Public Service Law provides for a uniform process for permitting power plants in the state.<sup>281</sup>

Notably, both liquefied natural gas (LNG) permitting under the EPAct and power plant siting in New York under Article 10 have preemptive effects—the EPAct on state and local authority,<sup>282</sup> Article 10 on localities' home-rule power.<sup>283</sup> The preemptive reach of these consolidated processes is important in the case of fracking because passage of any legislation—whether it be the FRAC Act or new legislation focused on permitting—would likely depend on the oil and gas industry reaching the conclusion that federalization would serve its own interests and therefore shifting its support toward federal regulation.<sup>284</sup> Most likely, industry's position would adjust if it perceived federal uniformity as a stabilizing factor that would serve its economic ends, either because state regulations become so uneven and “patchwork-y” that they are unwieldy for national companies to navigate or because a uniform, consolidated federal permitting process would add enough efficiency to warrant the additional cost. Either way, the dramatic shift in the industry's position would almost certainly necessitate a trade-off: support for federal regulation in exchange for preemption of local bans and moratoria.<sup>285</sup> A thorough analysis of the localism issues raised by this probability is beyond the scope of this Article;<sup>286</sup> however, the trade-off may well be a necessary consideration in the progress of a new federal law.

### 3. Regulation Under State SDWA Programs

While Congress has amended SDWA to exempt fracking from the UIC permit program, at least some states with primacy under the Act have

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280. See Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594, 685, 688 (codified in scattered sections of 42 U.S.C. (2006 & Supp. 2012)).

281. N.Y. PUB. SERV. LAW §§ 160-173 (McKinney 2013).

282. Energy Policy Act of 2005 §311(e)(1), 119 Stat. at 686.

283. N.Y. PUB. SERV. LAW § 172.

284. See generally William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547 (2007); Glicksman & Levy, *supra* note 28, at 583.

285. I am indebted to Rick Hills for highlighting this important probability.

286. For useful starting points on this issue, see Hills, *Is Federalism Good for Localism?*, *supra* note 33, at 189-95; Briffault, *supra* note 33, at 452.

not amended their statutes and regulations to reflect this exemption.<sup>287</sup> Accordingly, it may be that fracking should, as a matter of law, be regulated under any number of state UIC permitting programs or other state environmental statutes.

This possibility is currently percolating through the agencies and courts in California. In November 2012, the California Division of Oil, Gas, and Geothermal Resources (DOGGR) responded to a critical EPA report on its UIC permit program by committing to initiate rulemaking to increase groundwater protection.<sup>288</sup> In the plan, DOGGR indicates the rulemaking will address the UIC program as well as well construction and plugging and abandonment regulations.<sup>289</sup> However, in a Discussion Draft of proposed fracking regulations, DOGGR declared that “[w]ell stimulation . . . operations, including hydraulic fracturing, are not underground injection or disposal projects and are not subject to” the state’s UIC permit program.<sup>290</sup> The agency was subsequently sued by the Center for Biological Diversity, which claims that the agency’s failure to adequately regulate fracking wells violates both the UIC regulations and the state’s Public Resources Code.<sup>291</sup> Plaintiffs’ theory, in short, is that California’s existing UIC program, under which it assumed primacy, was more protective than SDWA; that the state had not, until recently, changed the definition of underground injection in the wake of the 2005 amendments; and that other requirements pertaining to oil and gas wells were not being applied to fracking wells.<sup>292</sup> California has

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287. See UTAH ADMIN. CODE r. 317-7-6 (2013); OHIO ADMIN. CODE 1501:9-1-02 (2013); ARK. CODE R. § 17.501 (LexisNexis 2013); WIS. ADMIN. CODE NR § 815.07 (2013); OKLA. ADMIN. CODE 252:652-1-2 (2013); W. VA. CODE R. § 47-13-1 (2013); WASH. ADMIN. CODE § 173-218-110 (2013); N.D. ADMIN. CODE 33-25-01-06 (2013); 30 TEX. ADMIN. CODE § 331.201 (2013); 15A N.C. ADMIN. CODE 02C.0211 (2013); 25 PA. CODE § 78.11 (2013); NEV. REV. STAT. § 445A.470 (2013); 26-2 MISS. CODE R. § 1.63 (LexisNexis 2013); N.Y. ENVTL. CONSERV. LAW § 552.1 (McKinney 2013).

288. See Letter from Tim Kustic, State Oil & Gas Supervisor, to David Albright, Ground Water Office, Env'tl. Prot. Agency (Nov. 16, 2012), available at <http://www.conservation.ca.gov/dog/Documents/DOGGR%20cover%20letter%20for%20USEPA%20response.pdf>; DIV. OIL, GAS, & GEOTHERMAL RES., CAL. DEP'T OF CONSERVATION, UNDERGROUND INJECTION CONTROL ACTION PLAN (2012), available at <http://www.conservation.ca.gov/dog/Documents/DOGGR%20response%20to%20USEPA%20underground%20injection%20report.pdf>.

289. DIV. OIL, GAS, & GEOTHERMAL RES., *supra* note 288.

290. *Discussion Draft of Regulations Hydraulic Fracturing Regulations Banner*, *supra* note 44.

291. Complaint at 4, *Ctr. for Biological Diversity v. Cal. Dep't of Conservation*, No. RG13664534 (Cal. Super. Ct. Jan. 24, 2013).

292. *Id.* at 9.



subsequently proposed a comprehensive permit regime for fracking,<sup>293</sup> and industry defendants have moved to dismiss the lawsuit as moot.<sup>294</sup>

It is plausible that environmental groups in other states may challenge the failure of states to regulate fracking under their own unamended state statutes and state regulatory programs. Ultimately, these lawsuits may result in more states regulating fracking under their UIC permit programs or, like California, under new permitting programs, which may impact the federalism analysis by strengthening the adequacy of existing state regulations and detracting from the need for federal intervention. Alternatively, these lawsuits may result in states amending statutes and regulations to mimic Congress's legislative exemption, which would tilt the balance in the other direction, potentially highlighting the need for federal action. In either event, the role of the states in providing for drinking-water protection under state law will undoubtedly remain a prominent part of the federalism discussion.

#### 4. *Promoting Policy Diffusion Through Federal Intervention or Interstate Collaboration*

The thrust of this Article has been that federal regulation of hydraulic fracturing is appropriate because the existing legislative and regulatory exclusions do not reflect a legitimate theoretical federalism analysis, the language and purposes of the relevant statutes, or the realities of the industry today. Nonetheless, largely due to partisan politics and the strong influence of industry interest groups, federal regulation has been slow to develop. Moreover, future federal regulation in these areas ranges from possible to improbable to nearly impossible to imagine. A new question, then, arises: in the absence of direct federal regulation of drinking-water impacts, hazardous waste management, and toxic release information disclosure, how can the federal government and/or states ensure that innovative policies and best practices spread from state to state?

The political science literature on policy diffusion provides a helpful lens through which to examine this question. "Policy diffusion" refers to the process through which innovations spread from one government to another, where "innovation" refers to any policy that is new to a government.<sup>295</sup> Here, such innovations would include any regulation of fracking's potential drinking-water impacts and the spread of best practices pertaining to haz-

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293. S.B. 4, 2013 Leg., Reg. Sess. (Cal. 2013).

294. See *Oil Industry Cites New Law in Seeking Dismissal of California Fracking Suit*, INSIDE EPA.COM (Oct. 24, 2013), <http://insideepa.com/Inside-Cal/EPA/Inside-Cal/EPA-10/25/2013/oil-industry-cites-new-law-in-seeking-dismissal-of-california-fracking-suit/menu-id-1097.html>.

295. Jack L. Walker, *The Diffusion of Innovations Among the American States*, 63 AM. POL. SCI. REV. 880, 881 (1969).

ardous wastewater produced by the process and information disclosure pertaining to the chemical content of fracking fluids. Studies of policy diffusion have analyzed how innovations reach a significant level of prominence among policy makers, the effect of regional ties and different types of professional networks on diffusion, and what effects the success of innovations have on their spread.<sup>296</sup> There are at least four major mechanisms at play in policy diffusion: (1) *learning* from early adopters; (2) *economic competition* among proximate adopters; (3) *imitation* or *emulation*; and (4) *coercion* by supreme governments.<sup>297</sup> A short assessment of the applicability of these mechanisms to fracking demonstrates that coercion by supreme governments is the most likely mechanism to promote the spread of policy innovations in this area.<sup>298</sup>

First, as previously noted, the “learning” component of policy diffusion is an important component of the “laboratories” argument common to American federalism; that is, for the idea that a diversity of state approaches produces useful knowledge to have any force, the information being generated in one state must actually be shared and used elsewhere.<sup>299</sup> *Learning*, then, occurs when a government actually has the opportunity to observe the political process and impact that an innovation has elsewhere. In order to effectively learn, governments must make an appraisal of whether an innovation has been successful elsewhere; success is viewed both politically, by

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296. See Michael Mintrom & Sandra Vergari, *Policy Networks and Innovation Diffusion: The Case of State Education Reforms*, 60 J. ON POL. 126, 126-27 (1998); Michael Mintrom, *Policy Entrepreneurs and the Diffusion of Innovation*, 41 AM. J. POL. SCI. 738, 738-39 (1997); Craig Volden, *States as Policy Laboratories: Emulating Success in the Children's Health Insurance Program*, 50 AM. J. POL. SCI. 294, 295 (2006); Craig Volden, *The Politics of Competitive Federalism: A Race to the Bottom in Welfare Benefits?*, 46 AM. J. POL. SCI. 352, 352-54 (2002).

297. Charles R. Shipan & Craig Volden, *The Mechanisms of Policy Diffusion*, 52 AM. J. POL. SCI. 840, 840, 851 (2008) (noting all four of these mechanisms as producing “strong patterns of policy diffusion”).

298. While “policy innovation” in general refers to any previously unutilized policy, here I mean to refer specifically to policies that provide for protection of drinking water supplies, stringent regulation of hazardous wastes, and disclosure of information related to toxic releases.

299. See, e.g., Craig Volden, Michael M. Ting & Daniel P. Carpenter, *A Formal Model of Learning and Policy Diffusion*, 102 AM. POL. SCI. REV. 319, 319 (2008) (“[T]he devolution of authority in federal systems is often based on the argument that states and localities may act as policy laboratories, experimenting with various alternatives, abandoning the failures, and adopting successful policies found elsewhere. If such learning and diffusion is in fact quite limited, then one of the major justifications for decentralization is lost.”); Hannah Wiseman, *Fixing the Information Deficit in Federalism* (unpublished manuscript), available at [http://www.law.northwestern.edu/faculty/programs/searlecenter/events/energy/documents/Wiseman\\_Fixing\\_Information\\_Deficit\\_Federalism\\_rough\\_draft\\_Nov\\_12.pdf](http://www.law.northwestern.edu/faculty/programs/searlecenter/events/energy/documents/Wiseman_Fixing_Information_Deficit_Federalism_rough_draft_Nov_12.pdf).

a lack of repeal, and on policy grounds, through the effectiveness in general of the innovation.<sup>300</sup>

Yet, there is little evidence that there has been any real *learning* with regard to state fracking regulations.<sup>301</sup> This is true despite the existence of extensive professional networks and ample opportunities for information sharing.<sup>302</sup> The primary means for interstate *learning* in this context are the website FracFocus.org, published by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission (IOGCC),<sup>303</sup> and the State Review of Oil & Gas Environmental Regulations (STRONGER), a non-profit organization with members from industry, government, and the non-profit sector whose mission is to share information about state regulations.<sup>304</sup> FracFocus.org provides centralized access to some information on the chemical content of some fracking fluids, as well as a database of state regulations related to fracking. STRONGER provides the opportunity for states to submit their regulations for review. However, FracFocus.org is far from comprehensive and has been heavily criticized for its limitations.<sup>305</sup> As

300. Shipan & Volden, *supra* note 297, at 842.

301. The only instance I am of aware of in which a state agency has made explicit reference to another state's regulations was to demonstrate how the other state had fallen short. See N.Y. DEP'T OF ENVTL. CONSERVATION, FACT SHEET: WHAT WE LEARNED FROM PENNSYLVANIA (2011), available at [http://www.dec.ny.gov/docs/administration\\_pdf/pafactsheet072011.pdf](http://www.dec.ny.gov/docs/administration_pdf/pafactsheet072011.pdf) (describing New York Department of Environmental Conservation officials' visit to a Pennsylvania fracking site that was experiencing equipment failure). This limited evidence of intergovernmental learning is consistent with what some political scientists have identified as a potential trend. See Volden, Ting & Carpenter, *supra* note 299, at 320 (“[M]any current techniques to uncover evidence of diffusion could find such patterns even if government decisions were made independently of one another.”).

302. Researchers have long recognized that policy networks create communications that result in policy diffusion. Katharina Füglistler, *Where Does Learning Take Place? The Role of Intergovernmental Cooperation in Policy Diffusion*, 51 EUR. J. POL. RES. 316, 316 (2012); Ramona S. McNeal et al., *Innovating in Digital Government in the American States*, 84 SOC. SCI. Q. 52, 52 (2003); Steven J. Balla, *Interstate Professional Associations and the Diffusion of Policy Innovations*, 29 AM. POL. RES. 221, 222 (2001); Mintrom & Vergari, *supra* note 296, at 126; Mintrom, *supra* note 296, at 739; Walker, *supra* note 295, at 896. Membership in such a network is not in itself sufficient, however, as networks can lead undesirable emulation of imperfect or less effective practices. Füglistler, *supra*, at 320-21.

303. FRACFOCUS, <http://www.fracfocus.org> (last visited Jan. 22, 2014).

304. State Review of Oil & Natural Gas Envtl. Regulations, STRONGERINC.ORG, <http://www.strongerinc.org/> (last visited Jan. 22, 2014).

305. See KATE KONSCHNIK WITH MARGARET HOLDEN & ALEXA SHASTEEN, HARVARD LAW SCH., LEGAL FRACTURES IN CHEMICAL DISCLOSURE LAWS: WHY THE VOLUNTARY CHEMICAL DISCLOSURE REGISTRY FRACFOCUS FAILS AS A REGULATORY COMPLIANCE TOOL (2013), available at <http://blogs.law.harvard.edu/environmentallawprogram/files/2013/04/4-23-2013-LEGAL-FRACTURES.pdf>; Haas et al., *supra* note 75. Importantly, the Ground Water Protection Council and the IOGCC have been opposed to federal regulation of drinking water impacts. See U.S. DEP'T ENERGY, OFFICE OF FOSSIL ENERGY & NAT'L ENERGY TECH. LAB., STATE OIL AND NATURAL GAS REGULATIONS DESIGNED TO PROTECT WATER

for STRONGER, only six of the thirty-one states with shale gas reserves have thus far submitted their fracking regulations for review.<sup>306</sup> Accordingly, after nearly two decades of the modern fracking era, there is little support for the proposition that interstate learning has led or will lead to the fracking policy diffusion.

Second, *economic competition* is unlikely to promote the spread of fracking policy innovations. Economic competition in this context refers to the proposition that governments look to the possible effects of adoption, or lack of adoption, when compared to neighboring governments.<sup>307</sup> Naturally, state governments tend to shy away from policies that will negatively impact the state's economy and to embrace ones that will create a positive impact.<sup>308</sup> Given the potentially extraordinary local economic benefits, the economics of fracking do not lend themselves to the spread of more stringent regulation; rather, economic competition is more likely to produce lower standards. As noted earlier, however, there does not appear to be any evidence of fracking inducing a "race to the bottom."<sup>309</sup> Nor, however, does there appear to be a "race to the top."<sup>310</sup> Rather, it appears most likely that internal determinants play the predominant role in fracking policymaking.<sup>311</sup>

Similarly, there is no evidence of "imitation" in this area, nor does it seem particularly likely. *Imitation* occurs when a government merely copies the policy of another without regard for the consequences.<sup>312</sup> Whereas *learning* will focus on the action—the adoption of the new policy—imitation

RESOURCES 7 (2009), available at <http://energyindepth.org/wp-content/uploads/2009/03/oil-and-gas-regulation-report-final-with-cover-5-27-20091.pdf> ("State oil and gas regulations are adequately designed to directly protect water resources through the application of specific programmatic elements such as permitting, well construction, well plugging, and temporary abandonment requirements.").

306. See State Review of Oil & Natural Gas Evtl. Regulations, *Past Reviews*, STRONGERINC.ORG, <http://www.strongerinc.org/past-reviews> (last visited Jan. 22, 2014).

307. See, e.g., Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416 (1956); Frederick J. Boehmke & Richard Witmer, *Disentangling Diffusion: The Effects of Social Learning and Economic Competition on State Policy Innovation and Expansion*, 57 POL. RESOL. Q. 39, 39 (2004) ("[E]conomic competition may explain policy diffusion as a response to inter-state pressures in the form of lost business, tax revenues and jobs.").

308. See Shipan & Volden, *supra* note 297, at 851.

309. See Spence, *supra* note 17, at 493-97.

310. See, e.g., Boehmke & Witmer, *supra* note 307, at 40 ("[C]ompetition over policies that provide financial resources . . . may provide an incentive to increase the extent of the policy as neighboring states compete over business and tax revenue . . ." (citing Frances Stokes Berry & William D. Berry, *State Lottery Adoptions as Policy Innovations: An Event History Analysis*, 84 AM. POL. SCI. REV. 395 (1990); Frances Stokes Berry & William D. Berry, *Tax Innovation in the States: Capitalizing on Political Opportunity*, 36 AM. J. POL. SCI. 715, 717 (1992); William R. Eadington, *The Economics of Casino Gambling*, J. ECON. PERSP., Summer 1999, at 173, 174).

311. See Volden, Ting & Carpenter, *supra* note 299.

312. Shipan & Volden, *supra* note 297, at 842-43.

focuses on the identity of the earlier adopting government. States viewed as leaders have consistently been found more likely to be imitated, since smaller governments will attempt to raise their profile by also appearing to be innovative.<sup>313</sup> Yet, with fracking, states are not following usual environmental “leaders,” such as California, which has passed a law requiring the state’s natural resources agency to study potential impacts on drinking water and to develop comprehensive permitting regulations by 2015 but which will allow fracking to proceed as is for the time being,<sup>314</sup> or New York, which has imposed a statewide moratorium on the practice pending its own study. Nor are states following “leaders” on the other side of regulatory spectrum, such as North Dakota, an early adopter of a highly permissive approach to fracking regulation.<sup>315</sup>

Thus, neither learning, economic competition, nor imitation appears to have been particularly influential in the spread of fracking policy innovation, nor do they appear likely to become so. Rather, internal determinants—including local economic benefits and intrastate politics—appear to be far more important. In such a situation, *coercion*, either through a centralized regulatory regime under federal law or through a mandated interstate collaborative, would likely produce a far greater amount of resource pooling, technical and regulatory information sharing, and knowledge generation than the current decentralized approach.<sup>316</sup> The goal of such a collaborative could be to allow for the sharing of information for its own sake, to better inform state decision makers; alternatively, the goal could be to create convergence, a uniform set of standards states must implement.<sup>317</sup>

There are a number of models available for such an interstate collaborative. States could band together under the auspices of a nationwide com-

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313. *Id.* at 843.

314. S.B. 4, 2013 Leg., Reg. Sess. (Cal. 2013).

315. See Hannah Wittmeyer, *North Dakota Fracking Regulations*, FRACKWIRE (July 20, 2013), <http://frackwire.com/north-dakota-fracking-regulations/>.

316. One can expect that there will be opposition to the prospect of a mandatory collaborative, rather than an informal, network. Indeed, there are many examples of successful informal networks. For instance, the Interstate Alliance on Stem Cell Research (IASCR) is a voluntary organization that seeks to advance stem cell research by forging interstate collaborations and assisting states in developing research programs. This organization has helped pave the way for funding agreements, regulatory harmonization, and federal and state policy development. See Geoffrey P. Lomax et al., *Policy Harmonization Through Collaboration: The Interstate Alliance on Stem Cell Research*, in GENETICS POL’Y INST., 2010 WORLD STEM CELL REPORT (2010), available at [http://nas-sites.org/iascr/files/2013/01/Lomax\\_IASCR\\_2010\\_publication.pdf](http://nas-sites.org/iascr/files/2013/01/Lomax_IASCR_2010_publication.pdf). However, the informal nature of the IASCR works because the participants are trying to solve a common problem to mutually benefit affiliated institutions and the interests they represent. The situation with fracking is very different.

317. See Füglistler, *supra* note 302, at 318 (“[T]he outcomes of diffusion can be manifold: convergence is just one possible result of a diffusion process.”).

pact.<sup>318</sup> Alternatively, they could form a number of regional compacts or commissions, which may be better situated to tailor uniform standards to the local environmental and geological conditions.<sup>319</sup> However, unlike situations in which national and regional compacts have proven successful, states apparently do not perceive fracking to be a common problem that needs to be addressed by multiple actors in a coordinated way to ensure success. Rather, states appear to perceive fracking as an opportunity for intrastate economic development, and the focus on risks is largely on the local impacts to specific places.

Thus, some other institutionalized form of intergovernmental cooperation likely offers the best opportunity for fracking policy diffusion.<sup>320</sup> States have committed to such networks before in order to address environmental risks, perhaps most prominently in the Regional Greenhouse Gas Initiative (“RGGI”). RGGI, established in the absence of federal action on climate change, created a market for greenhouse gas emissions trading that demands uniformity among the states to ensure the integrity of the market.<sup>321</sup> In a slightly less ambitious vein, but perhaps more immediately analogous to fracking, states have formed a collaborative that sets appliance energy efficiency standards in areas where the federal government has not.<sup>322</sup>

Yet, a federal intervention remains the best answer, even if the federal intervention is to require that the states form a network to share relevant information or set appropriate uniform standards. In the two instances mentioned just above, the need for interstate collaboration was paramount—the northeastern states that are members of RGGI could not have had a signifi-

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318. Thad L. Beyle, *New Directions in Interstate Relations*, 416 ANNALS AM. ACAD. POL. & SOC. SCI. 108, 112 (1974).

319. For example, several states have recently formed a compact to try to solve numerous problems associated with development of the health insurance exchanges required under the Affordable Care Act. *See* NEW ENGLAND STATES COLLABORATIVE INS. EXCHANGE SYS., <http://www.nescies.org/> (last visited Jan. 22, 2014); *see also* Frank J. Thompson & Courtney Burke, *Executive Federalism and Medicaid Demonstration Waivers: Implications for Policy and Democratic Process*, 32 J. HEALTH POL. POL'Y & L. 971, 985 (2007) (finding evidence of state policy diffusion in the ninefold proliferation of major managed care initiatives during the 1990s).

320. Füglistner, *supra* note 302 (showing that membership of policy makers in health policy-specific intergovernmental bodies promotes the spread of best practices in health insurance subsidy policies in Switzerland); *see also* Wiseman, *supra* note 299; Note, *To Form a More Perfect Union?: Federalism and Informal Interstate Cooperation*, 102 HARV. L. REV. 842 (1989).

321. *See* REGIONAL GREENHOUSE GAS INITIATIVE, <http://www.rggi.org/> (last visited Jan. 22, 2014); *see also* Kirsten H. Engel, *Mitigating Global Climate Change in the United States: A Regional Approach*, 14 N.Y.U. ENVTL. L.J. 54, 65-66 (2005); Eleanor Stein, *Regional Initiatives to Reduce Greenhouse Gas Emissions*, in AM. BAR ASS'N, GLOBAL CLIMATE CHANGE AND U.S. LAW 315, 316-17 (Michael B. Gerrard ed., 2007).

322. *See* Klass, *supra* note 39, at 359-61 (discussing the Multi-State Appliance Standards Collaborative).

cant political or environmental impact acting alone, and doing so would put them at an immediate economic disadvantage. Similarly, a single state's requiring energy efficiency standards for appliances not otherwise covered would have negligible effects on energy consumption, while potentially costing residents money. Since the drinking water, hazardous waste, and toxic release impacts of fracking are perceived to be primarily local—though, as discussed above, these local impacts do implicate federal interests—there is likely less of a perceived need to collaborate. Accordingly, the federal government most likely needs to step in to ensure that states are adequately protecting those interests.

#### CONCLUSION

This Article has operated from the presumption that however big the fracking boom already is, and however big it eventually turns out to be, it should not come at the expense of public health and the environment. Such a trade-off is, as a practical matter, unnecessary, is theoretically unsound, and is inconsistent with our nation's environmental laws. Thus, this Article has argued that the theoretical factors involved in federalism-choice analysis indicate that fracking should be regulated under the existing cooperative federalism regimes of SDWA and RCRA and the more unilateral regime of EPCRA. It has also argued that federal regulation is fully consistent with the original language, structure, and purposes of those statutes, as evidenced by the statutes themselves and their legislative and regulatory histories. The federal government is undertaking a number of efforts to increase regulation of fracking, but these critical areas of drinking water, hazardous waste, and toxic release information disclosure remain largely unregulated under federal law. In the absence of direct federal regulation, a second-best solution may still be available to ensure that policy innovations diffuse among the states. This solution can be in the form of an interstate collaborative to share information or establish uniform standards; however, given the economics and politics of fracking today, the federal government will almost certainly have to be the impetus for the creation of any such network.

