

Hydraulic Fracturing and Water Supply Protection— Federal Regulatory Developments

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I. INTRODUCTION

Regulation of the technical aspects of oil and gas operations has historically been left largely to the states.¹ However, with recent technological advances allowing the development of significant new reserves of shale oil, including the Bakken formation in Montana and North Dakota, and of shale gas in Texas, West Virginia, New York, and Pennsylvania, regulation of oil and gas production activities, and specifically hydraulic fracturing, has become a hot button issue for a number of federal agencies. Thirty-three states are home to major shale plays.² The recent boom in shale gas, particularly in the major population centers of Pennsylvania and New York, has resulted in significant media

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¹ For an excellent discussion of the historic development of the decision to leave regulation of many technical oil and gas operations to the states, see Bruce M. Kramer, *Federal Legislative and Administrative Regulation of Hydraulic Fracturing Operations*, 44 TEX. TECH L. REV. 837, 838-40 (2012).

² TRIBAL AND ENERGY INFORMATION CLEARINGHOUSE, available at <http://teec.anl.gov/er/oilgas/restech/dist/index.cfm>.

attention being paid to the hydraulic fracturing process and concerns that the process negatively impacts water quality.³ In response, the federal government is showing an increased will to enact regulations aimed at regulating oil and gas exploration and production activities, with a focus on hydraulic fracturing, or “fracing.”⁴ This has led to a groundswell of new and proposed federal statutory and administrative enactments from a number of different, and in many cases surprising, sources. Not surprisingly, the oil and gas industry and states are objecting loudly to this regulatory power grab.

Some thirty years ago, a similar heated debate about the proper role for state versus federal regulation arose in the surface coal mining industry. In the 1970s and 1980s, surface coal mining became a hot-button environmental issue with environmental groups arguing for federal regulation of surface stripmining. At that time, regulation of surface coal mining was largely left to the states.⁵ The lack of “one size fits all” regulation of surface coal mining led to “a mosaic of diverse standards and, oftentimes, timidity in enforcement.”⁶ With the increasing number of large scale surface coal mines, in the context of the 1970s era “boom” in federal environmental regulation, Congress, after years of struggle, took regulatory aim at the surface coal mining industry with the enactment of the Surface Mining Control and Reclamation Act of 1977 (“SMCRA”).⁷ The aim of SMCRA was to include states in the regulation of coal mining, but to do so in the context of a robust federal regulatory scheme and oversight. SMCRA’s implementation was not without controversy, and involved a decade-long debate involving principles of federalism and the proper role of the federal government in the development of natural resources.

³ Some recent examples of public media attention include the Oscar-nominated documentary *Gasland*, chronicling claims of frac-related groundwater contamination and the scientific and regulatory framework surrounding fracing, and a recent *New York Times* series of op-ed pieces addressing natural gas production and hydraulic fracturing. See *Drilling Down Series*, http://www.nytimes.com/interactive/us/DRILLING_DOWN_SERIES.html?ref=opinion. Further, the Global Language Monitor, a company that tracks trends in language usage, named “fracking” its number three “new” word based on its frequency in appearing in the media. See GLOBAL LANGUAGE MONITOR, <http://www.languagemonitor.com/tag/fracking/>.

⁴ It should be noted that, as of yet, there have been no verified reports of groundwater contamination occurring as a result of the hydraulic fracturing process itself when fracing activities are carried out properly. However, there have been instances of groundwater contamination from associated oil and gas activities, such as bad cement lining jobs, poor water handling procedures, and instances where water handlers have broken the law outright by dumping produced water.

⁵ Terry D. Edgmon & Donald C. Menzel, *The Regulation of Coal Surface Mining in the Federal System*, 21 Nat. Res. J. 245 (1981).

⁶ *Id.*

⁷ 30 U.S.C. §§ 1201 *et seq.*

The current tension between state and federal regulation of hydraulic fracturing activities bears many similarities to the controversy surrounding regulation of surface coal mining. As with the surface coal mining debate, many within the environmental community are calling for a strong federal regulatory scheme for hydraulic fracturing, while many within the oil and gas industry argue that regulation of such activities is better left to the states.⁸ In a recent New York Times op-ed piece, former White House counselor for energy and climate change Jody Freeman argued that oil and gas exploration and production activities should be regulated in the same way the federal government regulates surface coal mining.⁹

Rather than revisit many of the existing statutes and regulations that exempt or exclude oil and gas activities, such as the Safe Drinking Water Act's hydraulic fracturing exclusion and the Resource Conservation and Recovery Act's and the Comprehensive Environmental Response, Compensation, and Liability Act's exemptions for oil and gas exploration and production wastes, discussed in detail in Section II, current recent federal regulatory efforts are largely grounded in new sources of authority or undertaken through agencies not traditionally involved in regulation of natural resource development or environmental issues. Advocates for increased federal regulation of hydraulic fracturing argue that state-by-state regulation of the process is ineffective and that a uniform federal system of oversight is necessary to provide the public with access to information and ensure that the oil and gas industry is engaging in uniform practices.

Is this new-found federal interest in regulation of oil and gas only a reflection of the campaign against fracing and the concerns of citizens unused to oil and gas, or is it also a recognition of the new role that gas plays in the U.S. energy future? Whether this move to federal regulation of oil and gas is a temporary and predictable reaction to vocal public concerns or heightened media coverage over groundwater contamination, or signifies a complete re-working of the regulatory framework for oil and gas production, remains to be seen.

II. EXISTING FEDERAL REGULATION

Widely used for decades in the oil and natural gas industries, hydraulic fracturing is a process by which water, sand, grains, ceramics and/or chemicals are injected underground into a wellbore at a rate sufficient to increase downhole pressure, causing the geologic formation to fracture and release natural gas and oil. Water is the primary component of hydraulic

⁸ Jennifer Dlouhy, "Energy Execs: States Should Regulate Hydraulic Fracturing," HOUSTON CHRONICLE, June 1, 2011, <http://www.chron.com/business/energy/article/Energy-execs-States-should-regulate-fracturing-1689187.php>.

⁹ Jody Freeman, "The Wise Way to Regulate Gas Drilling," N.Y. TIMES, July 5, 2012, <http://www.nytimes.com/2012/07/06/opinion/the-wise-way-to-regulate-hydraulic-fracturing.html>.

fracturing fluids, generally accounting for approximately 99 percent of the fracturing fluid volume. Fracing is estimated to be used in 9 out of 10 natural gas wells worldwide and has been utilized commercially since the late 1940s.¹⁰ Although the process has been used commercially for some time,¹¹ federal regulation of hydraulic fracturing is a relatively new phenomenon. Historically, there has been little regulation specific to the hydraulic fracturing process itself and ancillary regulation of the process has occurred primarily at the state level through state oil and gas conservation commissions.¹²

For the last century, “state governments have routinely regulated development and production of oil and gas to conserve these resources and protect the correlative rights of private landowners.”¹³ This regulatory authority largely applied even to oil and gas operations undertaken on federal lands, as discussed in more detail *infra*. State governments obtain the power to regulate oil and gas matters through their police powers, which are inherent in the states and recognized by the Tenth Amendment to the United States Constitution. Much of the regulation specific to oil and gas operations developed in order to protect correlative rights,¹⁴ a matter almost exclusively regulated by state oil and gas commissions and their own spacing unit regulations. As discussed by Professor Kramer in *Federal Legislative and Administrative Regulation of Hydraulic Fracturing Operations*, in the early years of oil and gas production, the federal government initially envisioned an active role in regulation of oil and gas development. However, with the early failure of several federal regulatory and legislative efforts, many states enacted their own oil and gas conservation statutes “that delegated to state agencies broadened powers to regulate the oil and gas industry.”¹⁵

This traditional division of regulatory authority has, until recently, remained largely untouched, with the states retaining primary authority over oil and gas development. While some statutes enacted during the

¹⁰ Steven E. Ingebritsen, Ward E. Sanford & Christopher E. Neuzil, *Groundwater in Geologic Processes* 167 (2d ed. 2006). For a comprehensive discussion of the history of hydraulic fracturing and description of the technical aspects of the process, see Terry W. Robinson, *Environmental Concerns of Hydraulically Fracturing a Natural Gas Well*, 32 UTAH ENV'T L. REV. 67, 68-77 (2012).

¹¹ Angela C. Cupas, *The Not-So-Safe Drinking Water Act: Why We Must Regulate Hydraulic Fracturing at the Federal Level*, 33 WM. & MARY ENVTL. L. & POL'Y REV. 605, 609 (2009).

¹² See Kramer, *supra* note 1, at 1-2 (interesting discussion of the political forces leading to the decision by the federal government to leave interstate regulation of oil and gas largely to the states).

¹³ David G. Ebner, “State and Local Regulation of Activities on Federal Oil and Gas Leases,” in 2 *Law of Fed. Oil & Gas Leases* § 24.01 (2012).

¹⁴ *Id.* at 24-3.

¹⁵ See Kramer, *supra* note 1, at 2.

heyday of federal environmental regulation of the late 1960s and 1970s, such as the Clean Water Act and Safe Drinking Water Act discussed in detail below, apply to certain components of the oil and gas development and hydraulic fracturing processes, in contrast to the current flood of new federal regulation, these statutes were not drafted with oil and gas production or fracing in mind and in many cases have significant exemptions and exclusions relating to exploration and production (“E&P”) activities.

Many of these existing federal statutes and regulations have not traditionally been applied to hydraulic fracturing or other E&P activities. However, certain federal agencies are beginning to use their existing powers under these older regulations in new ways to regulate hydraulic fracturing and associated activities. These agencies, particularly the Environmental Protection Agency (“EPA”), are beginning to re-assert themselves in the regulation of oil and gas both through new regulatory enactments, discussed in detail below at section III, and through asserting already-existing authority in new ways, while at the same time leaving the traditional oil and gas exemptions and exceptions untouched.

A. The Clean Water Act and Safe Drinking Water Act

The Clean Water Act (“CWA”)¹⁶ and the Safe Drinking Water Act (“SDWA”)¹⁷ are the two major pieces of federal legislation that have historically been implicated by hydraulic fracturing activities. The SDWA regulates underground injection of fluids into U.S. “drinking water,” while the CWA regulates the discharge of certain fluids into “waters of the United States,” currently defined to mean surface waters. Because the hydraulic fracturing process primarily involves injection of fluid into the subsurface, most of the provisions of the CWA do not apply to the process itself, but are rather triggered through surface disposal of flowback fluids. In contrast, the SDWA specifically applies to groundwater resources, but only protects U.S. drinking water and contains a significant exclusion applicable to hydraulic fracturing.

1. The Safe Drinking Water Act

The SDWA, enacted in 1974, “was established to protect the quality of drinking water in the U.S.” and “focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources.”¹⁸ The SDWA provides “two distinct regulatory

¹⁶ 33 U.S.C. §§ 1251 *et seq.*

¹⁷ 42 U.S.C. §§ 300f *et seq.*

¹⁸ EPA , “Summary of the Safe Drinking Water Act,” <http://www.epa.gov/lawsregs/laws/sdwa.html>.

schemes for ensuring the safety of public drinking water.”¹⁹ The first applies to “public water systems,” both surface and groundwater, primarily through “EPA-set regulations concerning maximum contaminant levels in drinking water, as well as monitoring and reporting requirements.”²⁰ The second regulatory scheme applies only to groundwater resources and is implemented through two primary mechanisms: (1) provisions specific to certain aquifers that are the “sole or principal” drinking water source for a particular population;²¹ and (2) through the Underground Injection Control (“UIC”) program.”²² It is this latter provision that is directly related to the hydraulic fracturing process.

a. SDWA Underground Water Protections

The “sole or principal” aquifer provision provides a triggering device for the protection of certain aquifers under which no federally assisted projects may be undertaken that would create a significant hazard to public health by contaminating the aquifer through its recharge zone.²³ The second major component of the SDWA’s groundwater protection scheme is the UIC program. The UIC program employs a permit system under which all underground injections are prohibited unless authorized or exempted from the regulation. Like the Clean Water Act’s National Pollutant Discharge Elimination System, discussed further *infra*,²⁴ the SDWA gives EPA the power to set national standards governing the maximum acceptable levels of water contaminants in public water systems,²⁵ and states are permitted to maintain their own regulatory scheme provided it meets EPA requirements and the state obtains EPA approval for its program. The state program must also have adequate inspection, monitoring, record-keeping, and administrative reporting programs.²⁶

Under the UIC program, EPA has adopted classifications for underground injection wells.²⁷ Typically, the administration of UIC Class II injection permits—which address oil and gas related injection wells—is delegated by EPA to state oil and gas conservation commissions. However, hydraulic fracturing, which does not permanently dispose of a fluid underground, has not historically been regulated by the SDWA. In

¹⁹ Rebecca Jo Reser & David T. Ritter, *State and Federal Legislation and Regulation of Hydraulic Fracturing*, 57 THE ADVOC. 31 (State Bar of Tex. 2011).

²⁰ 42 U.S.C. §§ 300g to 300g-9.

²¹ 42 U.S.C. § 300h-3(e).

²² 42 U.S.C. §§ 300h-1 to -3.

²³ *Id.* See also Lawrence Ng, *A Drastic Approach to Controlling Groundwater Pollution*, 98 YALE L.J. 773, 781 (1989).

²⁴ 33 U.S.C. § 1342.

²⁵ 424 U.S.C. § 300h(b).

²⁶ 42 U.S.C. § 300h(b)(1).

²⁷ 40 C.F.R. pts.144-148.

1995, Clinton Administration EPA Administrator Carol Browner²⁸ clarified EPA's position that hydraulic fracturing is not within the definition of "underground injection" because, in EPA's view, that term referred only to those wells whose primary function is to permanently place fluids underground.²⁹

b. Prelude to the Hydraulic Fracturing Controversy

i. The *LEAF* Cases

EPA's position that hydraulic fracturing was not subject to regulation under the SDWA's UIC program resulted in two rounds of litigation within the Eleventh Circuit, both related to a challenge to EPA's approval of Alabama's UIC program in the context of coalbed methane ("CBM") development. This litigation is the essential background to the current fracing controversy. Challenges were brought by an environmental organization called the Legal Environmental Assistance Foundation, Inc. ("LEAF"). LEAF argued that EPA's approval of Alabama's delegated UIC program was improper because Alabama did not regulate hydraulic fracturing under its UIC program.³⁰ EPA took the position, consistent with EPA Administrator Browner's, that "underground injection" did not include wells using hydraulic fracturing because "the principal purpose of these wells is not the underground emplacement of fluids; their principal function is methane gas production."³¹ EPA reasoned that, because the hydraulic fracturing activities at issue would take place in what would ultimately become CBM) production wells, the "principal function" of these wells was CBM production and not permanent injection of fluids into the subsurface.

On appeal, the Eleventh Circuit rejected the EPA's position, holding that the plain meaning of the SDWA term "underground injection" applies to all underground injection of fluids, regardless of whether the principal function of the injection is permanent placement of the fluids into the subsurface. The court rejected EPA's proffered "principal function" test, holding that it was not entitled to deference under *Chevron v. NRDC*³²

²⁸ Interestingly, Carol Browner later became President Obama's first Energy Coordinator, or so-called "Energy Czar." Frances Romero, "Energy Czar: Carol Browner," TIME (Dec. 15, 2008), available at <http://www.time.com/time/politics/article/0,8599,1866567,00.html>.

²⁹ S. Marvin Rogers, *History of Litigation Concerning Hydraulic Fracturing to Produce Coalbed Methane* (2009), available at <http://www.ioGCC.state.ok.us/Websites/ioGCC/Images/Marvin%20Rogers%20Paper%20of%20History%20of%20LEAF%20Case%20Jan.%202009.pdf>

³⁰ LEAF v. EPA (*LEAF I*), 118 F.3d 1467 (11th Cir. 1997).

³¹ *Id.* at 1471.

³² *Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837 (1984). Under the *Chevron* test, an administrative agency's statutory interpretation is entitled to deference if a two-part test is met: "First, always, is the question of whether Congress has directly spoken to the precise

because the statute was clear on its face and patently applied to all underground injection activities, regardless of function. Thus, the court held that “underground injection” entails “the subsurface emplacement of fluids by forcing them into cavities and passages in the ground through a well.”³³ The court concluded that hydraulic fracturing falls within the definition of “underground injection” “as it involves the subsurface emplacement of fluids by forcing them into cracks in the ground through a well.”³⁴ As such, the court concluded that all underground injection activities are governed by the SDWA and, thus, based on the plain meaning of “underground injection,” a Class II UIC permit was required for hydraulic fracturing operations.

Following the court’s decision in *LEAF I*, EPA remained obstinate and did not immediately move to disqualify Alabama’s UIC program or require its amendments be amended to include permitting for hydraulic fracturing operations.³⁵ In fact, LEAF was forced to seek a writ of mandamus to compel EPA’s compliance with the court’s order, to which the State of Alabama responded by itself submitting a revised UIC program to EPA.³⁶ The revised Alabama plan did not include a UIC permit requirement for hydraulic fracturing operations and instead sought to bring the UIC program under the SDWA’s provisions for “alternative demonstration.”³⁷ The alternative demonstration provisions are significantly more flexible requirements than the generally applicable UIC program requirements. However, the alternative demonstration provisions only apply to two types of UIC programs: (1) those relating to the underground injection of brine or other fluids that are brought to the surface in connection with oil or natural gas production or natural gas storage operations and (2) those relating to underground injection activities for the “secondary or tertiary recovery of natural gas.”³⁸

question at issue. If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress. . . . If, however, the court determines Congress has not directly addressed the precise question at issue,” the court must proceed to the second step wherein “the question for the court is whether the agency’s answer is based on a permissible construction of the statute.” 467 U.S. at 843. If the agency’s interpretation is reasonable, a reviewing court may not substitute its own construction of the statutory provision for that of the agency. *Id.* 844-45. Conversely, deference is not owed to an agency interpretation that is contrary to clear congressional intent. *Id.*

³³ *LEAF I*, 118 F.3d at 1475. For a very thorough discussion of the *LEAF* decision and a subsequent related appeal, see Kramer, *supra* note 1, at 12-17.

³⁴ *LEAF I*, 118 F.3d at 1474-75.

³⁵ *LEAF v. EPA (LEAF II)*, 276 F.3d 1253, 1256 (11th Cir. 2001).

³⁶ *Id.* at 1256.

³⁷ *Id.* The SDWA’s alternative demonstration provision can be found at 42 U.S.C. § 300h-4(a).

³⁸ *LEAF II*, 276 F.3d at 1256.

LEAF opposed Alabama's proposed revision, arguing that fracing did not fit within any of the alternative demonstration categories. Nonetheless, EPA approved the Alabama UIC program, once again taking the position that the SDWA did not cover hydraulic fracturing operations.³⁹ EPA found that the alternative demonstration provision related to secondary or tertiary recovery of natural gas applied to fracing operations.⁴⁰ EPA's reasoning was that hydraulic fracturing operations, while "not technically identical to secondary or tertiary recovery of natural gas, is an 'analogous process,' and therefore covered by the alternative [demonstration provisions of the SDWA]."⁴¹

LEAF responded by once again bringing suit, arguing that application of the secondary or tertiary recovery provision to hydraulic fracturing was contrary to the plain statutory language.⁴² Applying the *Chevron* test, the court determined that EPA's interpretation of the "secondary or tertiary recovery" provision was entitled to deference. The alternative demonstration provision procedure is available to state UIC programs that "relate[] to . . . any underground injection for the secondary or tertiary recovery of oil or natural gas." Therefore, although the statute was silent as to hydraulic fracturing, the court held that the EPA's interpretation of the statute was entitled to deference because hydraulic fracturing, while not identical to secondary or tertiary recovery of oil and gas, does "relate to" such operations.⁴³ Because Congress had not spoken directly to the subject, the court held that EPA's interpretation was reasonable and the court upheld EPA's decision to use the alternative demonstration program to approve the Alabama UIC program.⁴⁴

The *LEAF* litigation led neither to widespread litigation regarding state UIC programs nor any EPA-initiated re-evaluation of UIC programs and hydraulic fracturing. However, it did illustrate the need for congressional clarification of the issue.

ii. The Post-*LEAF* EPA Response

Following the 2001 *LEAF* decision, EPA began to study the hydraulic fracturing process in the context of CBM wells. During the study, EPA and several major well completion and stimulation contractors entered into a voluntary memorandum of agreement ("MOA") wherein the companies "agree[d] to eliminate diesel fuel in hydraulic fracturing fluids injected into [CBM] production wells in underground sources of drinking water (USDWs) and, if necessary, select replacements that will not cause

³⁹ *Id.*

⁴⁰ *Id.* at 1257.

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.* at 1258-59.

⁴⁴ *Id.* at 1259-61.

hydraulic fracturing fluids to endanger USDWs.”⁴⁵ Specifically, the MOA states that “[t]he Companies agree to eliminate diesel fuel in hydraulic fracturing fluids injected into *CBM production wells* in USDWs within 30 days of signing this agreement.”⁴⁶

EPA published its CBM study in 2004. The primary finding of the study was that hydraulic fracturing of CBM wells posed “little or no threat” to drinking water.⁴⁷ However, the study noted that frac fluids might affect groundwater quality through “direct injection of fracturing fluids into a USDW in which the coal is located, or injection of fracturing fluids into a coal seam that is already in hydraulic communication with a USDW.”⁴⁸ Alternatively, the study considered the possibility that groundwater contamination might occur through “creation of a hydraulic connection between the coalbed formation and an adjacent USDW.”⁴⁹ The study found that there was no confirmed evidence of groundwater contamination from any properly conducted hydraulic fracturing of a CBM well and that certain physical characteristics of groundwater minimize the likelihood that chemicals utilized in the hydraulic fracturing process would adversely affect USDWs. The study did identify certain chemicals used in hydraulic fracturing, including diesel fuel, as “constituents of potential concern.”⁵⁰ The study made particular note of the MOA, stating that it was designed to eliminate diesel fuel from the chemical constituents of hydraulic fracturing fluids.

While numerous industry groups and the EPA continue to cite the study for the proposition that there is very little danger to groundwater associated with the hydraulic fracturing process, the study has done relatively little to calm the opposition and fears of those who believe it causes widespread groundwater contamination. Over the eight years since its publication, the study has faced substantial criticism from opponents of the fracturing process who argue with both the methodologies utilized and the conclusions reached by the study.⁵¹

⁴⁵ A MEMORANDUM OF AGREEMENT BETWEEN THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND BJ SERVICES COMPANY, HALLIBURTON ENERGY SERVICES, INC., AND SCHLUMBERGER TECHNOLOGY CORPORATION 2 (Dec. 12, 2003), http://www.epa.gov/ogwdw/uic/pdfs/moa_uic_hyd-fract.pdf.

⁴⁶ *Id.* at 5 (emphasis added).

⁴⁷ EPA, EVALUATION OF IMPACTS TO UNDERGROUND SOURCES OF DRINKING WATER BY HYDRAULIC FRACTURING OF COALBED METHANE RESERVOIRS, EPA Doc. No. 816-R-04-003, at ES-16 (2004), available at http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_coalbedmethanestudy.cfm.

⁴⁸ *Id.* at ES-48.

⁴⁹ *Id.*

⁵⁰ *Id.* at fig. ES-5.

⁵¹ See, e.g., Dr. Michael Economides, “EPA’s Fracking Hysteria,” FORBES (Aug. 8, 2010).

c. Energy Policy Act of 2005

In light of *LEAF* and the 2004 EPA study, Congress, over the strong opposition of environmental groups, passed the Energy Policy Act of 2005,⁵² which amended the SDWA's definition of "underground injection" to specifically exclude "the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations."⁵³ The SDWA was amended as follows:

The term "underground injection"—

(A) means the subsurface emplacement of fluids by well injection; and

(B) excludes—

(i) the underground injection of natural gas for purposes of storage; and

(ii) the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities.⁵⁴

Thus, under the SDWA as amended, state UIC programs must only require a permit for hydraulic fracturing operations if diesel fuels are to be used. The Energy Policy Act's exemption of most hydraulic fracturing activities has been derisively referred to as "the Halliburton Loophole," in reference to the supposed lobbying efforts of Halliburton—a major well completion services provider—where Vice President Cheney once served as CEO.

d. EPA Hydraulic Fracturing Diesel Rulemaking

Neither the SDWA, the Energy Policy Act itself, nor any EPA regulations define what chemical constituents and substances constitute "diesel fuel," and there is not an accepted industry-wide definition of that term. This led to confusion within EPA and the oil and gas industry regarding compliance with the requirement that fracing operations utilizing diesel fuel must obtain a UIC permit.⁵⁵ For example, a 2010 congressional investigation found that drilling service companies have injected at least 32 million gallons of diesel fuel underground, in some instances without compliance with the SDWA UIC permit requirement.⁵⁶ In response to this

⁵² 42 U.S.C. § 300(h).

⁵³ As pointed out by Kramer, *supra* note 1, at 19, there was some back and forth between the House and Senate versions of the bill that would become the Energy Policy Act, with the initial House version excluding all hydraulic fracturing from the SDWA's definition of "underground injection." Substantial portions of the proposed exemption were removed from the Senate version, only to be largely returned to the bill during reconciliation of the House and Senate bills, accompanied by a specific reference to diesel fuel constituting an exception from the general hydraulic fracturing exemption.

⁵⁴ Energy Policy Act of 2005 § 322 (amending 42 U.S.C. § 300h(d)).

⁵⁵ Mike Soraghan, "Fracking Companies Injected 32M Gallons of Diesel, House Probe Finds," N.Y. TIMES, Jan. 31, 2011, available at <http://www.nytimes.com/gwire/2011/01/31/31greenwire-fracking-companies-injected-32m-gallons-of-die-24135.html?pagewanted=all>.

⁵⁶ *Id.*

congressional pressure, EPA has now begun efforts to provide some parameters for fracing operations using diesel fuels.

First, in a surprise move to resolve these issues, in late 2010, without notice, EPA published on its website guidance about hydraulic fracturing with diesel fuel, indicating that such operations required a Class II UIC permit. Industry groups protested, arguing that EPA's action amounted to adoption of new rules without proper notice and comment⁵⁷ and filed a legal challenge,⁵⁸ which was settled in February 2012.⁵⁹ The settlement agreement requires EPA to remove the language referencing Class II UIC permits from the website and go through formal rulemaking.⁶⁰

On May 4, 2012, EPA commenced formal rulemaking and published draft permitting guidance for using diesel fuel in oil and gas hydraulic fracturing.⁶¹ The purpose of the draft guidance is to clarify the means of compliance with the 2005 Amendments to the Safe Drinking Water Act and provide the EPA and those seeking permits with technical information regarding how to comply with the Energy Policy Act's requirement that hydraulic fracturing operations utilizing diesel fuels obtain a UIC permit.⁶² "EPA's goal" in issuing the draft guidance "is to explain existing requirements in order to provide regulatory certainty, improve compliance with the SDWA requirements and strengthen environmental protections consistent with existing law."⁶³ Significantly, the proposal would apply only in states where EPA, not the state, is the UIC II permitting authority.

The draft guidance attempts to define "diesel fuels," for purposes of the UIC program, by reference to six chemical abstract services registry numbers.⁶⁴ EPA acknowledges that "diesel fuels are described or defined in a variety of ways including use-based definitions, chemical and physical property-based definitions, and refining process-based definitions."⁶⁵ Further,

⁵⁷ Mike Soraghan, "EPA Pushes Back on Reports It Changed Fracking Rules," E&ENEWS (Jan. 20, 2011), <http://www.eenews.net/public/eenewspm/2011/01/20/3>.

⁵⁸ *Id.*

⁵⁹ Settlement Agreement, Independent Petroleum Ass'n of Am. v. EPA, No. 10-1233, doc. no. 1360150 (D.C. Cir. 2012), http://www.eenews.net/assets/2012/02/24/document_gw_01.pdf.

⁶⁰ *Id.*

⁶¹ EPA, "Permitting Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuels—Draft: Underground Injection Control Program Guidance # 84" (May 2012) (Draft UIC Permitting Guidance), available at <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/hfdieselfuelsguidance508.pdf>. Subsequent citations will be to the pagination provided in the PDF. See also 77 Fed. Reg. 27451 (May 10, 2012).

⁶² See Draft UIC Permitting Guidance, *supra* note 61.

⁶³ *Id.* at 2.

⁶⁴ *Id.*

⁶⁵ *Id.* at 7.

Diesel fuels include a variety of complex substances refined from petroleum or crude oil that are known to contain varying amounts of constituents or impurities that result from the refining process or that are intentionally included to enhance desired properties, such as long-term storage and thermal stability. The properties of diesel fuel(s) depend on the refining practice. Additionally, the exact make up of diesel fuels may differ from one refinery to another.⁶⁶

Based on a literature search and discussions with states, industry and others as to how to define “diesel fuels,” EPA determined that the best method to describe the term is by reference to six chemical identification numbers commonly associated with substances identified as “diesel fuels.” “EPA selected these six [chemical identification numbers] because either the primary name, or common synonyms, contain the term ‘diesel fuel’ and they meet the chemical and physical description of ‘diesel fuel.’”⁶⁷

The draft guidance also describes the existing legal requirements under the UIC Class II regulations. These include recommendations for permitting multiple wells on a single UIC permit, application of well closure requirements after fracing operations cease, diesel fuel specific considerations for permit applications, and application of the Class II well construction requirements to diesel fuel fraced wells.⁶⁸ The federal well integrity provision has raised alarms with states that fear this could become a federal regulatory floor even in states with UIC II primacy. The draft guidance also includes diesel fuel specific recommendations for permitting fracing under 40 C.F.R. § 144.52(a)(9), which provides approved UIC programs discretion to tailor permit requirements as needed to ensure that USDWs are protected.⁶⁹

In response to requests by oil and gas industry groups, non-governmental environmental organizations and individuals,⁷⁰ EPA extended the comment period on the proposed guidance by 45 days, closing it on August 23, 2012.⁷¹ Pending finalization of the rules, EPA will continue to make decisions about permitting hydraulic fracturing operations that use diesel fuels on a case-by-case basis.

e. EPA’s SDWA Emergency Powers

In another relatively new exercise of authority, EPA has recently begun utilizing its emergency powers under the SDWA to regulate hydraulic fracturing. Under section 1431 of the SDWA, EPA has long had

⁶⁶ *Id.*

⁶⁷ *Id.* at 9-10.

⁶⁸ *Id.* at 12-23.

⁶⁹ *Id.*

⁷⁰ EPA administrator telephone conversation with author, July 13, 2012.

⁷¹ 77 Fed. Reg. 40354 (July 9, 2012).

the power to issue emergency orders to protect the public health if it determines that a contaminant in an underground drinking water source “may” present an imminent and substantial threat to the health of persons.⁷² However, prior to the last several years, EPA has never used this authority to regulate hydraulic fracturing. But, beginning in 2010, EPA has issued several administrative orders related to hydraulic fracturing operations.

In December 2010, EPA issued an emergency administrative order to Range Resources Corporation and Range Production Company finding, among other things, that certain contaminants found in two domestic water wells “may present an imminent and substantial endangerment to the health of persons” and are “likely to be due to impacts from gas development and production activities in the area.”⁷³ The findings of fact concluded that the contamination was related to Range’s hydraulic fracturing activities, located within approximately 2,000 feet of the domestic wells. Range strongly disputed the findings and, in January 2011, EPA brought an enforcement action against Range. However in March 2012, after aggressively fighting to keep the emergency order in place, EPA dropped the enforcement action without explanation.⁷⁴

Similarly, EPA has used its emergency authority to issue administrative orders to three operators, Samson Hydrocarbons Company, Murphy Exploration and Production Company, and Pioneer Natural Resources USA, Inc., alleging contamination in the East Poplar oilfield, located within the Fort Peck Indian Reservation in Montana.⁷⁵ Although it

⁷² 42 U.S.C. § 300i(a). This provision applies to all hydraulic fracturing activities, regardless of whether or not they utilize diesel fuels.

⁷³ Emergency Administrative Order, *In re Range Res. Corp. & Range Prod. Co.*, No. SDWA-06-2010-1208, ¶¶ 27, 41 (Dec. 7, 2010).

⁷⁴ Barry Shlachter, “EPA Drops Action Against Range Resources over Parker County Water Wells,” FORT WORTH STAR TELEGRAM, Mar. 31, 2010, *available at* <http://www.star-telegram.com/2012/03/30/3849362/epa-drops-action-against-range.html>. The *Range* case is also interesting because it involved a regulatory/jurisdictional skirmish between the Texas Railroad Commission (the Texas state agency charged with administration of oil and gas matters) and the EPA. In response to the EPA’s emergency order, the Railroad Commission held a hearing to consider whether the operation of Range’s wells caused or contributed to the contamination of certain water wells. The Railroad Commission invited EPA to participate in the proceedings, but it declined to do so. The Railroad Commission ultimately found that Range’s operations did not lead to any well contamination. However, this finding notwithstanding, EPA proceeded with its enforcement action. *See Reser & Ritter, supra* note 19, at 35. Another interesting wrinkle in the *Range* case is the ancillary civil litigation that sprang from it: following commencement of the EPA enforcement action, the owners of the allegedly contaminated wells filed suit in state district court seeking \$6.5 million to compensate for the contamination on tort theories. Range counterclaimed on defamation grounds, seeking \$4.5 million in damages. The state court case is still proceeding, although no trial date has been set. *See Shlachter, supra* note 74.

⁷⁵ Emergency Administrative Order, *In re Samson Hydrocarbons Co.; Murphy Exploration & Prod. Co. & Pioneer Natural Res. USA, Inc.*, No. SDWA-08-2011-0006 (Dec. 16, 2010).

is not clear from the text of the orders whether the alleged contamination is related to hydraulic fracturing, they do reference “secondary recovery injection wells.”⁷⁶ All three companies have disputed the factual findings contained in the orders and filed petitions for review of the orders with the Third Circuit Court of Appeals.⁷⁷

2. The Clean Water Act

Although the Clean Water Act and its regulations focus exclusively on surface waters,⁷⁸ the CWA implicates the hydraulic fracturing process through regulation of disposal of flowback water (other than through underground injection). Historically, EPA has not used its CWA authority to regulate many of the technical aspects of oil and gas exploration and production. However, in recent years it has enacted several new rules and policies under the CWA aimed directly at oil and gas E&P activities and hydraulic fracturing.

a. Produced Water and NPDES

Among other things, the CWA prohibits the discharge of pollutants by “point sources” into the “waters of the U.S.” unless the discharge complies with specific provisions of the CWA.⁷⁹ Any party seeking to discharge into “waters of the U.S.” must obtain a National Pollutant Discharge Elimination System (“NPDES”) permit from either the EPA or an authorized state agency (or on Indian lands, the authorized tribal agency).⁸⁰ As with the SDWA, states (and tribes) are generally delegated primary enforcement authority following the EPA’s approval of the state (or tribal) NPDES program. EPA has approved NPDES programs in 45 states, with only Alaska, Idaho, Massachusetts, New Hampshire, and New Mexico not authorized to issue permits. If the EPA does not delegate authority to a tribal authority, EPA itself will administer issuance of NPDES permits.

After the hydraulic fracturing process is complete, a large portion of the frac water is recovered as flowback water. Produced water is water that is trapped underground in geologic formations and comes to the surface when oil and gas are produced. While flowback is not explicitly

⁷⁶ *Id.* ¶ 8.

⁷⁷ *Id.* See also Reser & Ritter, *supra* note 19, at 35.

⁷⁸ See 40 C.F.R. §§ 122.2 and 230.3(s) for the definition of “waters of the U.S.” As pointed out by Reser & Ritter, *supra* note 19, at n.17, the definition of “waters of the U.S.” is a “labyrinthine term” that has been interpreted differently at different times by numerous courts and the EPA. The U.S. Supreme Court recently shed light on the definition of this term. See *Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng’rs*, 531 U.S. 159 (2001). See also EPA, *Draft Guidance on Identifying Waters Protected by the Clean Water Act* (EPA CWA Draft Guidance), http://water.epa.gov/lawsregs/guidance/wetlands/upload/wous_guidance_4-2011.pdf.

⁷⁹ See 33 U.S.C. §§ 1341- 1342.

⁸⁰ 33 U.S.C. § 1342.

regulated under federal statute or regulation, it is treated in the same manner as produced water.⁸¹

Flowback water generally contains whatever additives were used in the frac solution itself and any naturally occurring formation water, “as well as substances that dissolve into the water from the rock formation that is fractured. These substances can include salts, naturally occurring radioactive materials, and dissolved solids.”⁸² Flowback water is typically disposed of in one of two ways: underground injection—governed by the provisions of the SDWA discussed *supra*—or through surface treatment and discharge—governed by the CWA’s NPDES requirements.⁸³ Thus, any operator seeking to directly discharge treated flowback water must do so under the parameters of the NPDES program and comply with the program’s requirements to utilize the best technology available when treating the water and not exceed the water quality based effluent limits set by EPA.

In 2003, in *Northern Plains Resources Council v. Fidelity Exploration and Development Co.* (“*Fidelity*”)⁸⁴ the Ninth Circuit Court of Appeals directly addressed the circumstances under which an NPDES permit is required for discharge of produced water, holding that unaltered produced groundwater can constitute a “pollutant” requiring an NPDES permit for discharge. There, as part of its operations, Fidelity, a CBM producer in the Powder River Basin of Montana and Wyoming, discharged produced water directly into tributaries of the Tongue River.⁸⁵ The Montana Department of Environmental Quality (“MDEQ”), the CWA delegated authority, took the position that Fidelity did not need an NPDES permit for the discharges because Montana state law exempts the discharge of unaltered groundwater from state water quality requirements.⁸⁶ Although Fidelity was

⁸¹ United States Department of Energy, Argonne National Laboratory, Environmental Science Division, *Produced Water Volumes and Management Practices in the United States*, ANL/EVS/R-09/1, available at <http://www.ipd.anl.gov/anlpubs/2009/07/64622.pdf>.

⁸² Keith B. Hall, *Hydraulic Fracturing: What Are the Legal Issues?* 59 LA. BAR J. 250, 251 (2012).

⁸³ Often, however, rather than permanently disposing of flowback water, operators will recycle it and re-use it in subsequent fracturing operations. “Companies have not yet developed the ability to recycle 100 percent of flowback, but they are increasing their recycle rates.” *Id.*

⁸⁴ 325 F.3d 1155 (9th Cir. 2003).

⁸⁵ *Id.* at 1158-59.

⁸⁶ *Id.* at 1158. MCA § 75-5-401(1)(b) provides:

Discharge to surface water of groundwater that is not altered from its ambient quality does not constitute a discharge requiring a permit under this part if: (i) the discharge does not contain industrial waste, sewage, or other wastes; (ii) the water discharged does not cause the receiving waters to exceed applicable standards for any parameters; and (iii) to the extent that the receiving waters in their ambient state exceed standards for any parameters, the discharge does not increase the concentration of the parameters.

discharging unaltered groundwater, the water was naturally high in sodium and total dissolved solids. The MDEQ informed Fidelity of its position, but warned that “the EPA, which provides state program oversight under the Federal Clean Water Act, does not agree with the Montana Water Quality Act permit Exclusion.”⁸⁷ Fidelity filed a NPDES permit application in 1999 to cover its ongoing discharges.⁸⁸

The Northern Plains Resource Council filed suit against Fidelity, the MDEQ and the EPA arguing that an NPDES permit was required.⁸⁹ On appeal, the Ninth Circuit held that produced CBM water is a “pollutant” within the meaning of the CWA because it constitutes “industrial waste” and is “derived in association with oil or gas production,” as included within the CWA definition of pollutant.⁹⁰ Further, the court concluded that the produced water was a pollutant because, under the CWA, “‘pollution’ is the ‘man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.’”⁹¹ Accordingly, the Ninth Circuit held that an NPDES permit was required for all unaltered produced CBM water discharges.

The *Fidelity* case illustrates an interesting dichotomy in the state versus federal regulatory scheme. In the ground, the water holding CBM in place is regulated by the state, as water rights are largely—if not exclusively—regulated by the states. However, once the water is produced, disposal of that water, either through underground injection or surface discharge, becomes a matter of federal regulation.⁹²

b. Stormwater

In 1987, Congress amended the CWA to require EPA to issue NPDES permits for stormwater discharge or runoff at parking lots and construction sites. The NPDES stormwater permit requirement is inapplicable to “discharges of stormwater runoff from . . . gas exploration, production, processing, or treatment operations or transmission facilities.”⁹³ After attempts by EPA to apply the program to oil and gas construction sites, in the Energy Policy Act of 2005, Congress expanded the natural gas-related stormwater permit exceptions to include:

all field activities or operations associated with exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling

⁸⁷ *Id.* at 1159.

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.* at 1161.

⁹¹ *Id.* (citing 33 U.S.C. § 1362(19)).

⁹² *Id.*

⁹³ Water Quality Act of 1987, Pub. L. No. 100-4, § 401, 101 Stat. 7 (amending 33 U.S.C. § 1342(l)(2)).

and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities.⁹⁴

EPA published a rule stating that construction activities at natural gas wells were not required to be undertaken pursuant to an NPDES permit.⁹⁵ Following a legal challenge to this rule brought by the Natural Resources Defense Council (NRDC), the Ninth Circuit Court of Appeals vacated the rule and reinstated the prior law, which required an NPDES stormwater discharge permit for construction related activities at natural gas production and treatment sites.⁹⁶

c. Effluent Limitation Guidelines

The CWA directs EPA to promulgate Effluent Limitation Guidelines (“ELG”), which are technology-based regulations aimed at reducing pollutant discharges from certain categories of industrial waste that discharge directly into waters of the U.S.⁹⁷ The ELGs reflect pollutant reductions that can be achieved by using “technologies that represent the appropriate level of control,” something that is determined by balancing the competing interests of reducing discharge of industrial waste and operating economically.⁹⁸ The CWA requires EPA to biennially publish ELG plans after notice and comment, considering additional industries and discharges that should be subject to specific regulation.⁹⁹

Beginning in 2007, EPA began a study¹⁰⁰ to determine whether ELGs should be set for the CBM industry as a proposed revision to the Oil and Gas Extraction Point Source Category.¹⁰¹ A final proposed rule was published in 2008, and hundreds of adverse comments were received.¹⁰² In 2009, EPA sent out an industry initial screening survey, and a second, more detailed screening survey was sent out six months later.¹⁰³ However, EPA did not reach a final conclusion on the proposed CBM ELGs in time for inclusion within the final 2010 ELGs.¹⁰⁴ EPA “plans to propose a

⁹⁴ 33 U.S.C. § 1362(24).

⁹⁵ Amendments to the NPDES Regulations for Stormwater Discharges Associated with Oil and Gas Activities, 40 C.F.R. § 122.26(a)(2)(ii).

⁹⁶ Nat. Res. Def. Council v. EPA, 526 F.3d 591 (9th Cir. 2008).

⁹⁷ 33 U.S.C. §§ 1311-1313(a).

⁹⁸ *Id.* § 1314(b)-(c).

⁹⁹ *Id.* § 1314(m)(1).

¹⁰⁰ 73 Fed. Reg. 53218 (Sept. 15, 2008).

¹⁰¹ 40 C.F.R. pt. 435.

¹⁰² EPA, “Coalbed Methane Extraction,” http://water.epa.gov/scitech/wastetech/guide/cbm_index.cfm.

¹⁰³ 73 Fed. Reg. 40575 (July 15, 2008).

¹⁰⁴ Interestingly, in 2010, the Montana Supreme Court, in *N. Cheyenne Tribe v. Mont. Dep’t of Envtl. Quality*, 234 P.3d 51 (Mont. 2010), held that the Montana implementation of

[new] rulemaking for Coalbed Methane Extraction” beginning in 2013, and will rely on the information obtained through the comments received in response to the 2008 proposal as well as the industry surveys in crafting the proposed ELGs.¹⁰⁵

Similarly, in 2010, EPA published notice that it would develop pretreatment standards for produced and flowback water from shale gas operations.¹⁰⁶ In the 2010 Plan, “after considering rulemakings already in development, the 2010 reviews, the preliminary Plan and public comments and input to determine what, if any, new rulemakings should be initiated,” EPA decided that development of pretreatment standards for produced and flowback water from shale gas operations was necessary.¹⁰⁷ The Federal Register notice of the 2010 Plan does not include any specific comments on the kind of standards EPA is contemplating, and final regulations are not slated for release until 2014.

The announcement of EPA’s plan to develop standards for flowback water from shale gas operations may signal a move on the part of EPA to focus regulatory authority for hydraulic fracturing on its CWA-granted powers, something it has not previously done.¹⁰⁸

B. Oil and Gas Exclusions from RCRA and CERCLA

Both the Resource Conservation and Recovery Act (“RCRA”)¹⁰⁹ and the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”)¹¹⁰ specifically exclude oil and gas exploration and production waste.

1. The Resource Conservation and Recovery Act, Subpart C

RCRA empowers the EPA to regulate hazardous waste according to technical criteria outlined in subpart C of the Act.¹¹¹ RCRA provides for

the CWA requires the Montana Department of Environmental Quality to impose technology-based effluent limitations in CBM related discharge permits on a case-by-case basis, even though no industry-wide effluent limitation guideline is available.

¹⁰⁵ See EPA, “Coalbed Methane Extraction,” *supra* note 102.

¹⁰⁶ Notice of Final 2010 Effluent Guidelines Program Plan, 76 Fed. Reg. 66286 (Oct. 26, 2011).

¹⁰⁷ *Id.*

¹⁰⁸ For a good discussion of this subject, see Eric Waeckerlin, “Is EPA Shifting Towards Regulating Fracking Under the Clean Water Act?,” Fracking Insider Blog (Mar. 11, 2011), available at <http://www.frackinginsider.com/regulatory/is-epa-shifting-towards-fracking-regulation-under-the-clean-water-act/>.

¹⁰⁹ 42 U.S.C. §§ 6901 *et seq.*

¹¹⁰ 42 U.S.C. §§ 9601 *et seq.*

¹¹¹ RCRA defines “hazardous waste” as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (b) pose a substantial

“cradle to grave” regulation of “hazardous waste,” defined as “waste with properties that make it dangerous or potentially harmful to human health or the environment.” RCRA and associated regulations¹¹² outline a management system for hazardous wastes containing requirements for hazardous waste identification, transportation, treatment, storage, and disposal.¹¹³

RCRA initially applied to E&P waste, but in 1980 its regulatory reach was significantly curtailed by the enactment of the Bevill and Bentsen amendments, which exempted “special wastes” from regulation under subpart C of the Act. The Bevill amendment exempted certain high-volume/low toxicity mining waste, fossil fuel combustion waste, and cement kiln dust.¹¹⁴ The Bentsen amendments provided a similar exemption for “drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy.”¹¹⁵ According to a Congressional Report, the exemptions were enacted because Congress was “concerned ... about creating regulatory disincentives that would slow development of the Nation’s energy resources.”¹¹⁶

The Bentsen and Bevill amendments were intended to apply only until “further study and assessment of risk could be performed” and required EPA to complete full assessments of each exempted waste and submit a formal report on its findings to Congress.¹¹⁷ Although all reports, with the exception of the cement kiln dust study, have been submitted to Congress, no action has been taken to amend either exemption, and the Bentsen and Bevill amendments are still in effect.¹¹⁸

As to E&P waste, EPA finished its required study in December 1987,¹¹⁹ after having been sued by the Alaska Center for Environment for

present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” 42 U.S.C. § 6903(5).

¹¹² 40 C.F.R. Parts 260-279.

¹¹³ *Id.*

¹¹⁴ Solid Waste Disposal Act of 1980, Pub. L. No. 96-482, § 3001(b)(3)(A) (codified as amended at 42 U.S.C. § 6921(b)(3)(A)).

¹¹⁵ Solid Waste Disposal Act of 1980, Pub. L. No. 96-482, § 3001(b)(2)(A) (codified as amended at 42 U.S.C. § 6921(b)(2)(A)).

¹¹⁶ U.S. Congress Office of Technology Assessment, *Managing Industrial Solid Waste From Manufacturing, Mining, Oil and Gas Production, and Utility Coal Combustion*, OTA-BP-O-82 (Washington, DC: U.S. Government Printing Office, Feb. 1992), available at <http://www.fas.org/ota/reports/9225.pdf>.

¹¹⁷ 24 U.S.C. § 6921(b)(2)(A), (3)(A). See also EPA, *Special Waste*, available at <http://www.epa.gov/osw/nonhaz/industrial/special/index.htm>.

¹¹⁸ *Special Waste*, *supra* note 117.

¹¹⁹ EPA, *Report to Congress: Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy*, Report No. EPA/530-SW-88-003 (1987).

failure to conduct the study and submit its findings to Congress.¹²⁰ The following year, EPA issued its Regulatory Determination for Oil, Gas, and Geothermal Exploration, Development and Production Wastes, stating that “EPA believes that regulation of oil and gas exploration and production wastes under RCRA Subtitle C is not warranted,” and EPA planned to address threats to drinking water posed by these substances through a “three-pronged” strategy by which EPA would (1) improve existing federal programs under Subpart D of RCRA and the SDWA; (2) work with states to encourage changes and improvements to their regulations and enforcement; and (3) work with Congress to develop any additional statutory authorities that may be required.¹²¹ This position was reasserted and further clarified by EPA in 2002 with the publication of a report entitled “Exemptions of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations.”¹²²

In the report, EPA provides an explanation of the E&P waste exemption, discusses the background leading to the exemption, and outlines the basic tools for determining the applicability of the exemption. The report provides that, “in general, the exempt status of an E&P waste depends on how the material was used or generated as waste, not necessarily whether the material is hazardous or toxic.”¹²³ Thus, EPA suggested a basic rule of thumb for determining whether the E&P waste is exempt:

Has the waste come from down-hole, i.e., was it brought to the surface during oil and gas E&P operations?

Has the waste otherwise been generated by contact with the oil and gas production stream during the removal of produced water or other contaminants from the product?

If the answer to either question is yes, then the waste is likely considered exempt from RCRA Subtitle C regulations.¹²⁴

Applying EPA’s proposed guidance to hydraulic fracturing produced water and flowback, both would be considered exempt. However, the EPA report specifically states that unused hydraulic fracturing fluids are not exempt.

More recently, some environmental groups have been calling for Congress and EPA to reexamine RCRA’s E&P waste exemption.¹²⁵ On

¹²⁰ *Id.*

¹²¹ Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes, 53 Fed. Reg. 25446 (July 6, 1988).

¹²² EPA, *Exemptions of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations* (2002), available at <http://www.epa.gov/osw/nonhaz/industrial/special/oil/oil-gas.pdf>.

¹²³ *Id.* at 8.

¹²⁴ *Id.*

September 10, 2010, the NRDC submitted a petition to the EPA requesting a reconsideration of the E&P exemption.¹²⁶ The NRDC petition makes specific reference to hydraulic fracturing and disposal of flowback water, and argues that “while . . . information demonstrates that these wastes [hydraulic fracturing wastewater] contain toxic compounds, the true extent of the risks associated with hydraulic fracturing wastewaters is currently unknown” and should therefore be regulated under subpart C of RCRA.¹²⁷ As of September 2012, EPA had taken no action on the NRDC petition, although it reported that EPA is still considering the issues raised in the petition.¹²⁸

2. The Comprehensive Environmental Response, Compensation, and Liability Act

CERCLA, commonly known as “Superfund,” was enacted by Congress in 1980 and has three major components: (1) establishing prohibitions and requirements concerning closed and abandoned hazardous waste sites; (2) providing for liability of persons responsible for releases of hazardous waste at these sites; and (3) establishing a trust fund to provide for cleanup when no responsible party can be identified. Similar to RCRA, the major provisions of CERCLA do not apply to oil and gas E&P wastes. CERCLA’s definition of “hazardous substance”:

does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance [in the first sentence] of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).¹²⁹

Thus, CERCLA is largely inapplicable to E&P waste and other oil and gas byproducts.

Despite this history, because hydraulic fracturing fluids contain certain non-petroleum substances, the EPA may have some existing authority under CERCLA to impose remedial measures for contamination caused by

¹²⁵ See e.g., Independent Petroleum Association of America Washington Report, *Oil and Natural Gas RCRA Exemption Under Attack* (Sept. 24, 2010), available at <http://www.ipaa.org/news/wr/2010/WR-2010-09-24.pdf>; Environmental Working Group, *Free Pass for Oil and Gas Environmental Protections Rolled Back as Western Drilling Surges* (2010), available at <http://www.ewg.org/reports/Free-Pass-for-Oil-and-Gas/Oil-and-Gas-Industry-Exemptions>.

¹²⁶ Petition for Rulemaking Pursuant to Section 6974(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy (Sept. 8, 2010).

¹²⁷ *Id.* at 8-9.

¹²⁸ EPA telephone conversation with author (July 17, 2012).

¹²⁹ 42 U.S.C. § 9601(14).

hydraulic fracturing fluids. It should be noted that, while EPA has not imposed monetary penalties under CERCLA related to contamination caused by hydraulic fracturing fluids, it has used its CERCLA section 104(e) authority to investigate allegations of water well contamination allegedly caused by hydraulic fracturing operations in Pavillion, Wyoming.¹³⁰ In the Pavillion EPA study, a draft of which was released in January 2011, EPA identified the presence of several “hazardous substances” within 11 of the 39 wells tested and noted that many of these substances were used in nearby hydraulic fracturing operations.¹³¹ However, the draft study made clear that EPA “has not reached any conclusions about how constituents of concern are occurring in domestic wells.”¹³²

These findings have been challenged by the oil and gas industry as well as the Governor of Wyoming,¹³³ and EPA agreed to delay its analysis of the study while its partners, Wyoming, the Northern Arapahoe and Eastern Shoshone tribes, and the United States Geological Survey, perform further tests.¹³⁴ EPA also agreed to extend the notice and comment period for the draft report through October 2012.¹³⁵

It will be interesting to see whether EPA continues to use its CERCLA investigatory powers to study future allegations of groundwater contamination. The Pavillion study has received a great deal of attention, from both industry groups and opponents of fracing,¹³⁶ regarding EPA’s

¹³⁰ John C. Martin et al., “Fractured Fairy Tales: The Context and Regulatory Constraints for Hydraulic Fracturing,” *Development Issues in the Major Shale Plays 3-1, 3-8* (Rocky Mt. Min. L. Fdn. (2010).

¹³¹ EPA, *Expanded Site Investigation - Analytical Results Report, Pavillion Area Groundwater Investigation, Pavillion, Fremont County, Wyoming* (Aug. 30, 2010), <http://www.epa.gov/region8/superfund/wy/pavillion/PavillionAnalyticalResultsReport.pdf>.

¹³² *Id.* at 38.

¹³³ Jennifer Haessig, *Governor Discusses Wyoming Energy*, *Kemmerer Gazette* (July 5, 2012). In an interesting twist, in June 2012, Wyoming Oil and Gas Conservation Commission supervisor Tom Doll resigned following a comment he made regarding possible groundwater contamination in the Pavillion area: “I believe greed is driving a lot of this . . . I think they are just looking to be compensated.” Governor Matt Mead’s office immediately distanced itself from Doll’s remarks, stating that Doll’s comments do not reflect Governor Mead’s views. *Wyoming Oil and Gas Supervisor Resigns after Pavillion Remark*, *Oil and Gas Journal* (June 18, 2012).

¹³⁴ Press Release, EPA, “EPA Statement on Pavillion, Wyoming Groundwater Investigation” (Mar. 8, 2012), *available at* <http://yosemite.epa.gov/opa/admpress.nsf/0/17640D44F5BE4CEF852579BB006432DE>.

¹³⁵ Draft Research Report: Investigation of Ground Water Contamination near Pavillion, WY, 77 Fed. Reg. 3770 (Jan. 25, 2012).

¹³⁶ *See, e.g.*, Kirk Johnson, “EPA Links Tainted Water in Wyoming to Hydraulic Fracturing for Natural Gas,” *PLATTS DAILY* (Dec. 8, 2011), *available at* <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/NaturalGas/8732954>; Shauna Theel, “Myths and Facts

use of its CERCLA investigatory power to pursue allegations of fracturing groundwater contamination. There is a fair amount of significance (both political and scientific) on the outcome of the Pavillion study and EPA's final determination.

III. RECENT, PROPOSED, AND PENDING FEDERAL STATUTES, REGULATIONS, AND STUDIES

The media and public and political attention paid to hydraulic fracturing have resulted in a number of federal regulatory initiatives aimed at direct regulation of hydraulic fracturing. Many of these come from agencies that have had no prior role in regulation of oil and gas or from agencies that have in the past regulated issues ancillary to oil and gas production, but are now asserting regulatory authority over these issues in new ways.

One common theme in the new and proposed statutes and regulations is the focus on gaining information about the interplay between hydraulic fracturing and groundwater and on disclosure to the public of information regarding the process, particularly the constituents of the frac fluid.

A. Proposed Federal Legislation

In 2009, Representative Diana DeGette (D-CO) and Senator Robert Casey (D-PA) introduced the Fracturing Responsibility and Awareness of Chemicals Act, commonly referred to as the "FRAC Act," in the House and Senate.¹³⁷ The FRAC Act would have imposed federal regulation on hydraulic fracturing in two ways: (1) repealing the SDWA's hydraulic fracturing exception and (2) requiring disclosure of the chemical constituents, but not the proprietary chemical formulas, of hydraulic fracturing fluids to the public at large and requiring complete disclosure of the formulas to the EPA, states, and medical personnel in cases of medical emergency. The FRAC Act failed to make it out of either body's committee in 2009. Representative DeGette and Senator Casey introduced substantially identical versions of the bills in 2011,¹³⁸ with the bills once again dying in committee. It is not yet clear whether the legislation will be proposed again in the coming congressional session, but it is likely.

On the opposite side of the aisle, on March 29, 2012, Republican House and Senate members introduced legislation entitled Fracturing Regulations are Effective in State Hands Act, aimed at giving states sole authority to regulate hydraulic fracturing activities on federal public lands.¹³⁹ This legislation appears to be an attempt to head off draft rules

about Natural Gas," MEDIA MATTERS (June 21, 2012), <http://mediamatters.org/mobile/research/2012/06/21/myths-and-facts-about-natural-gas/184994>.

¹³⁷ FRAC Act, S. 1215, H.R. 2766, 111th Cong. (2009).

¹³⁸ S. 587, H.R. 1084, 112th Cong. (2011).

¹³⁹ S. 2248, H.R. 4322, 112th Cong. (2012).

for hydraulic fracturing that were signaled by the President in his 2012 State of the Union address and announced by the Department of the Interior (“DOI”) in early May 2012. The DOI draft rules are discussed more thoroughly *infra*.

The body of the Act provides as follows:

(a) In General- A State shall have the sole authority to promulgate or enforce any regulation, guidance, or permit requirement regarding the underground injection of fluids or propping agents pursuant to the hydraulic fracturing process, or any component of that process, relating to oil, gas, or geothermal production activities on or under any land within the boundaries of the State.

(b) Federal Land- The underground injection of fluids or propping agents pursuant to the hydraulic fracturing process, or any components of that process, relating to oil, gas, or geothermal production activities on Federal land shall be subject to the law of the State in which the land is located.¹⁴⁰

The proposed legislation has received relatively little media attention or any promotion by its sponsors and remains in Committee.

B. Recent, Pending, and Proposed EPA Actions

1. New Source Performance Standards and Emission Standards for Oil and Gas Industry

On April 17, 2012, in response to a court-imposed deadline, EPA released new standards to reduce air pollution associated with natural gas production. The updated standards, which became effective on October 15, 2012, are required by the Clean Air Act and would target emissions from compressors, oil storage tanks, and other oil-and-gas sector equipment.¹⁴¹ Most of the regulations are aimed at capturing emissions that escape during natural gas production and, according to EPA, the regulations will cut 95 percent of smog-forming or ozone-forming and toxic emissions from hydraulically fractured wells.¹⁴² According to EPA, as wells are being prepared to be hydraulically fraced, they emit volatile organic compounds (“VOCs”) that contribute to ozone formation and air toxins, including benzene and hexane.¹⁴³

The new regulations significantly curtail the ability of operators to use flaring to comply with air quality regulations.¹⁴⁴ After January 1, 2015,

¹⁴⁰ *Id.* § 4.

¹⁴¹ See News Release, EPA, *EPA Issues Updated, Achievable Air Pollution Standards for Oil and Natural Gas* (Apr. 18, 2012); 77 Fed. Reg. 49490 (Aug. 16, 2012).

¹⁴² See News Release, *supra* note 141.

¹⁴³ *Id.*

¹⁴⁴ See 77 Fed. Reg. 49490.

operators will need to install so-called “green completions,” which are technologies that capture harmful emissions.¹⁴⁵

2. Congressionally Ordered Studies on Hydraulic Fracturing and Drinking Water

a. EPA Frac Study

In the EPA 2010 appropriations bill, “Congress directed EPA to prepare a study on ‘the relationship between hydraulic fracturing and drinking water, using a credible approach that relies on the best available science, as well as independent sources of information.’”¹⁴⁶ Congress required that the study was to be peer-reviewed and that EPA was to consult with “other Federal agencies as well as appropriate State and interstate regulatory agencies.”¹⁴⁷ In its scoping materials, EPA announced three major research categories on which the study would focus: (1) characterization of the hydraulic fracturing lifecycle; (2) potential relationships to drinking water resources; and (3) potential health and environmental risks.¹⁴⁸ Although EPA initially envisioned a broader study with a longer-term horizon for completion, in June 2010, the EPA’s Science Advisory Board thought the analysis should be narrowed and completed more rapidly. The Board’s advisory statement concluded that “hydraulic fracturing potentially affects water resources and drinking water supplies and has potential to pose human health and environmental risks,” but advised EPA to narrow the focus of the study in light of time and budgetary concerns.¹⁴⁹

Following a series of meetings and requests for information from nine major energy companies regarding the chemical components used in their fracing operations,¹⁵⁰ the final EPA study plan was released to Congress on November 7, 2011.¹⁵¹ Interestingly, the study plan focuses, in several parts, on the relationship between groundwater and surface waters and the potential for contaminants present in one to spread to another. This whole-water systems approach could signal a change in the way in which EPA has traditionally regulated waters, with the CWA applicable to surface

¹⁴⁵ *Id.* at 49497.

¹⁴⁶ Martin et al., *supra* note 130, at 3-8; *see* 75 Fed. Reg. 42087 (July 20, 2010).

¹⁴⁷ Martin et al., *supra* note 130, at 3-8.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.* at 3-9.

¹⁵⁰ *Id.* While eight of the nine companies agreed to provide information on the chemical components of their frac fluid voluntarily, Halliburton declined to disclose its chemical mixture. Utilizing its § 11(c) authority under the Toxic Substances Control Act, 15 U.S.C. § 2607(c), EPA subpoenaed Halliburton seeking such information.

¹⁵¹ EPA, *Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, available at http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/hf_study_plan_110211_final_508.pdf.

waters and the SDWA largely applicable to groundwater. EPA estimates that a first report on the study will be released for peer review in late 2012, with additional portions following in 2014.¹⁵²

b. NAS Frac Study

In addition to the EPA study, the National Academy of Sciences (“NAS”) undertook a study beginning in 2010 to evaluate the connection between hydraulic fracturing and shallow groundwater contamination in northwestern Pennsylvania. The NAS study, released on July 9, 2012, acknowledged the existence of pathways between deep formations where fracing occurs and shallow drinking water aquifers.¹⁵³ However, the study found that these pathways were not caused by the hydraulic fracturing process, but rather existed before any fracing activities began. The study found that there have been some instances of brine contamination in the shallow aquifers and that it was possible that the contamination was the result of migration from the deeper formations; however, the NAS found that the contamination did not correlate with the locations of existing shale gas wells.¹⁵⁴ Accordingly, the study concluded that there was no “direct link” between hydraulic fracturing and the studied aquifers.

3. Request for Regulation under the Toxic Substances Control Act

In late summer 2011, Earthjustice, the Environmental Defense Fund, the NRDC, and other organizations filed a petition with EPA requesting that it promulgate rules under section 21 of the Toxic Substances Control Act (“TSCA”)¹⁵⁵ regulating chemicals used in oil and gas exploration and production activities.¹⁵⁶ The Petition requests EPA to adopt a rule, under section 4 of the TSCA, requiring manufacturers and distributors (and notably not drilling or well completion companies) to conduct toxicity testing of all E&P chemicals and make that information publicly available. The Petition also requests a rule under TSCA section 8 requiring maintenance and production of various records related to E&P chemicals,

¹⁵² See EPA webpage addressing EPA’s study of hydraulic fracturing and its potential impact on drinking water resources, *available at* <http://www.epa.gov/hfstudy/index.html>.

¹⁵³ Nathan R. Warner et al., “Geochemical Evidence for Possible Natural Migration of Marcellus Formation Brine to Shallow Aquifers in Pennsylvania, Proceedings of the National Academy of Sciences of the United States of America,” *available at* <http://www.pnas.org/content/early/2012/07/03/1121181109.full.pdf+html>.

¹⁵⁴ *Id.*

¹⁵⁵ 15 U.S.C. § 2620.

¹⁵⁶ Earth Justice, “Citizen Petition under Toxic Substances Control Act Regarding the Chemical Substances and Mixtures Used in Oil and Gas Exploration or Production” (Aug. 4, 2011), *available at* <http://www.frackinginsider.com/Earthjustice%20TSCA%20Petition.pdf>.

including submission of existing health and safety studies related to E&P chemicals.¹⁵⁷

The Petition specifically notes that, because of the “the multiple loopholes” in the current regulatory scheme, including the E&P exemptions under RCRA and the SDWA, more stringent regulation under the TSCA is required.¹⁵⁸ The Petition also claims that TSCA disclosure rules are needed to fill gaps in state regulation, arguing that disclosure rules like the recently adopted Wyoming Oil and Gas Conservation Commission rules relating to chemical disclosure “fall short of what a rulemaking under TSCA sections 4 and 8 would provide.”¹⁵⁹

In November 2011, EPA announced that it would deny the portion of the Petition requesting that manufacturers and distributors conduct toxicity testing of E&P chemicals, but would partially grant the portion of the Petition requesting that EPA conduct rulemaking under TSCA section 8 to develop rules aimed at obtaining data on chemical substances and mixtures used in hydraulic fracturing.¹⁶⁰ Notably, the Petition requested that EPA also seek to collect information on chemicals used in the E&P sector in addition to those used in hydraulic fracturing; however, EPA granted the petition *only* as to chemicals used in the hydraulic fracturing process.¹⁶¹ In the letter partially granting the Petition, EPA stated that it would begin formal rulemaking, but noted that “our expectation is that the TSCA proposal would focus on providing aggregate pictures of the chemical substances and mixtures used in hydraulic fracturing. This would not duplicate, but instead complement, the well-by-well disclosure programs of states.”¹⁶²

EPA has announced plans to develop an Advance Notice of Proposed Rulemaking and initiate a stakeholder process to provide input on the design and scope of the TSCA reporting requirements.¹⁶³ However, EPA has not set a timetable for beginning formal rulemaking or issuance of proposed or final rules.

¹⁵⁷ *Id.*

¹⁵⁸ *Id.* at 5-7.

¹⁵⁹ *Id.* at 9-10.

¹⁶⁰ Stephen A. Owens, EPA Decision Letter Re: TSCA Section 21 Petition Concerning Chemical Substances and Mixtures Used in Oil and Gas Exploration and Production (Nov. 3, 2011), *available at* <http://www.epa.gov/oppt/chemtest/pubs/EPA-Letter-to-Earthjustice-on-TSCA-Petition.pdf>.

¹⁶¹ *Id.* at 2.

¹⁶² *Id.* at 2.

¹⁶³ EPA, “Hydraulic Fracturing Chemicals; Chemical Information Reporting under TSCA section 8(a) and Health and Safety Data Reporting under TSCA section 8(d),” *available at* <http://yosemite.epa.gov/opei/RuleGate.nsf/byRIN/2070-AJ93#3>.

4. EPA Draft Guidance of the Definition of “Waters of the United States”

As discussed above, the CWA applies only to “navigable waters,” and defines “navigable waters” as “the waters of the United States, including its territorial seas.”¹⁶⁴ In the 2006 Supreme Court case of *Rapanos v. United States*,¹⁶⁵ the Court issued a plurality opinion outlining what waters constitute “waters of the United States” under the CWA, holding that the phrase “the waters of the United States” includes only those “relatively permanent, standing or continuously flowing bodies of water ‘forming geographic features’ that are described in ordinary parlance as ‘streams,’ ‘oceans, rivers, [and] lakes,’ . . . and does not include channels through which water flows intermittently or ephemerally, or channels that periodically provide drainage for rainfall.”¹⁶⁶ The *Rapanos* decision had the effect of narrowing the definition of “waters of the United States” that had been applied by both the EPA and the Army Corps of Engineers.

In response to the narrowing of the definition of “waters of the United States,” and disagreement with the Bush-era guidance in April 2011, the EPA and Army Corps of Engineers developed draft guidance for determining whether a waterway, water body, or wetland is a “waters of the United States.”¹⁶⁷ Under the proposed guidance, the following five water bodies are defined as “waters of the United States”: (1) traditional navigable waters; (2) interstate waters; (3) wetlands adjacent to traditional navigable waters or interstate waters; (4) non-navigable tributaries to traditional navigable waters that are relatively permanent, meaning they contain water at least seasonally; and (5) wetlands that directly abut relatively permanent waters.¹⁶⁸

In addition, waters that upon fact-specific inquiry are determined to have a “significant nexus” to traditional navigable or interstate waters would be considered “waters of the United States.” Of particular interest in the context of hydraulic fracturing is that, although the “significant nexus” test is utilized, the draft guidance does *not* contemplate inclusion of groundwater that is hydrologically connected to tributary or surface waters within the definition of “waters of the United States.” However, a number of comments have urged expansion of the draft guidance to include such waters, and, if EPA chose to expand the definition to include groundwater, this would have significant impacts on regulation of hydraulic fracturing and completely re-order the regulatory framework.

¹⁶⁴ 33 U.S.C. § 1362(7).

¹⁶⁵ 547 U.S. 715(2006).

¹⁶⁶ *Id.* at 716 (alteration in original).

¹⁶⁷ See EPA CWA Draft Guidance, *supra* note 78; see also 76 Fed. Reg. 24479 (May 2, 2011).

¹⁶⁸ EPA CWA Draft Guidance, *supra* note 78.

C. U.S. Department of Energy

In March 2011, President Obama released a “Blueprint for a Secure Energy Future,”¹⁶⁹ outlining the administration’s “all-of-the-above” approach to American energy. The Blueprint directs the Department of Energy to establish a Secretary of Energy Advisory Board (“SEAB”) to, among other things, “provide advice and recommendations to the Secretary of Energy on the Department’s basic and applied research and development activities, economic and national security policy, educational issues, [and] operational issues.” The Blueprint called for establishing a Natural Gas Subcommittee within the SEAB, tasked with “making recommendations to improve the safety and environmental performance of natural gas hydraulic fracturing from shale formations.”¹⁷⁰ The subcommittee was required to make two 90-day reports, identifying “any immediate steps that can be taken to improve the safety and environmental performance of fracking and to develop, within six months, consensus recommended advice to the agencies on the practices for shale extraction to ensure the protection of public health and the environment.”¹⁷¹

The first 90-day report was filed on August 18, 2011, and included 20 recommendations on what federal and state agencies and industry should do to ensure safer operating practices. These recommendations include, among other things: (1) improving the public’s access to information about shale gas development through creation of a web-based portal; (2) improving communication among state and federal regulators; (3) reducing emissions of air pollutants through adoption of rigorous standards for new and existing sources of toxins; (4) protecting water quality through adoption of “a systems” approach to water management “based on consistent measurement and public disclosure of the flow and composition of water at every stage of the shale gas production process”; (5) disclosing of the composition of hydraulic fracturing fluids; (6) reducing in the use of diesel fuels; and (7) managing the “short term and cumulative impacts on communities, land use, wildlife and ecologies” through use of “multi-well drilling pads,” evaluation of water use, preservation of sensitive areas, and establishment of effective field monitoring and enforcement.¹⁷²

The final report was released on November 18, 2011, and focused on how and when to implement the recommendations outlined in the first

¹⁶⁹ White House, “Blueprint for a Secure Energy Future” (Mar. 30, 2011), *available at* http://www.whitehouse.gov/sites/default/files/blueprint_secure_energy_future.pdf.

¹⁷⁰ Memorandum for William J. Perry, Charge to Secretary of Energy Advisory Board Natural Gas Subcommittee to Examine Fracking Issues (May 5, 2011), *available at* http://www.shalegas.energy.gov/resources/Natural_Gas_Subcommittee_Charge_Memo_5_5_11.pdf.

¹⁷¹ Blueprint, *supra* note 169, at 13.

¹⁷² SEAB Shale Gas Production Subcommittee 90-Day Report (Aug. 18, 2011), http://www.shalegas.energy.gov/resources/081811_90_day_report_final.pdf.

report.¹⁷³ The second report breaks the 20 recommendations into three groups: (1) recommendations ready for implementation by federal agencies; (2) recommendations ready for implementation by states; and (3) recommendations that will require new partnerships and mechanisms. As to the first category, the subcommittee recommended that the Federal government, the Department of Energy and the Department of the Interior, in partnership with industry groups and non-governmental organizations, undertake measures to improve public access to information (including disclosure of chemicals), begin water and air quality testing around fracing operations, launch an interagency planning effort to acquire data about the overall greenhouse gas footprint of natural gas use, and eliminate the use of diesel fuels in fracing fluids.¹⁷⁴

D. U.S. Department of the Interior

1. BLM's Oil and Gas Regulatory Authority and Approach

The Bureau of Land Management (“BLM”) is an agency of the Department of the Interior and is charged with managing approximately 258 million surface acres and over 700 million acres of subsurface mineral estate throughout the United States.¹⁷⁵ With limited exceptions under the Federal Land Policy and Management Act (FLPMA), all public lands are managed for multiple use, including for oil and gas development.¹⁷⁶ In 2009, roughly eleven percent of the nation’s natural gas supply was produced from lands managed by the BLM.¹⁷⁷

The Mineral Leasing Act (“MLA”) provides authority for BLM management and development of federal mineral interests through a leasing program.¹⁷⁸ All oil and gas extraction activities on federal public lands, including hydraulic fracturing, are subject to BLM permitting requirements. Under BLM regulations and the MLA, once a party obtains a lease to extract oil and gas from public lands, the lessee must then obtain a federal permit, or application for permit to drill, commonly referred to as an “APD.”¹⁷⁹ The APD process itself and associated permitting procedures necessary for the development of federal minerals are guided by a detailed

¹⁷³ SEAB Shale Gas Production Subcommittee Second 90-Day Report (Nov. 18, 2011), available at http://www.shalegas.energy.gov/resources/111811_final_report.pdf.

¹⁷⁴ *Id.* at 4.

¹⁷⁵ Report to Congress, U.S. Department of Interior, “Framework for Geological Carbon Sequestration on Public Land,” at 10 (June 3, 2009), <http://groundwork.iogcc.org/sites/default/files/Framework%20for%20Geological%20Storage.pdf>.

¹⁷⁶ 43 U.S.C. §§ 1701-1782.

¹⁷⁷ David B. Hatch, *BLM, Stop Dithering Over Federal Oil and Gas Leases: Why The Leases Must Be Issued Within 60 Days*, 31 UTAH ENVTL. L. REV. 461, 463 (2011).

¹⁷⁸ 30 U.S.C. § 226.

¹⁷⁹ See 72 Fed. Reg. 10329 (Mar. 7, 2007).

statutory and regulatory scheme,¹⁸⁰ the details of which are beyond the scope of this article.¹⁸¹

In contrast to EPA's somewhat nebulous authority to directly regulate hydraulic fracturing, under the MLA and FLPMA, the BLM has direct authority to regulate such operations when they occur on federal lands,¹⁸² and in fact has a robust regulatory scheme in place.¹⁸³ However, the BLM frequently acts in tandem with state governments in oil and gas development occurring on federal public lands. "[T]he federal oil and gas lease forms and regulations promulgated under the Mineral Leasing Act are far from silent on the conservation, health, and safety objectives of the various states."¹⁸⁴ Although general principles of preemption apply to development of oil and gas on federal lands, meaning that any state laws that conflict with federal law or regulation must yield to the federal law, there is a "long history of comity and cooperation among federal, state, and local governments in respect to oil and gas operations of federal lands."¹⁸⁵

The practice of cooperation between BLM and particular states is often formalized with the execution of a Memorandum of Understanding ("MOU") between the BLM and a state oil and gas conservation agency.¹⁸⁶ The MOUs are entered into pursuant to FLPMA, which authorizes cooperation between the Secretary of the Interior and state officials to enforce state law¹⁸⁷ and cooperative federal-state agreements to manage public lands.¹⁸⁸ Generally, the MOU will authorize the state commission to exercise jurisdiction over federal lands in the absence of a specific protest by the BLM. Specifically, the MOU may delegate to the state agency regulation of downhole activities, well spacing, or any other activity addressed by the state's conservation laws. For example, the MOU between the BLM and the Colorado Oil and Gas Conservation Commission allows the Commission to undertake any regulatory action affecting both fee and federal lands in the absence of a BLM protest. However, if the BLM does protest an action, the Commission must either

¹⁸⁰ See, e.g., 30 U.S.C. §§ 181 *et seq.*; BLM Onshore Oil and Gas Orders Nos. 1, 7; 43 C.F.R. subpts. 3160 *et seq.*

¹⁸¹ See generally *Law of Fed. Oil & Gas Leases* (2012).

¹⁸² See 30 U.S.C. § 181; Ebner, *supra* note 13, at 24-10.

¹⁸³ See, e.g., BLM Onshore Oil and Gas Orders Nos. 1, 7; 43 C.F.R. subpts. 3160 *et seq.*

¹⁸⁴ Ebner, *supra* note 13, at 24-9.

¹⁸⁵ *Id.* at 24-13.

¹⁸⁶ See generally Kemp Wilson, "State Spacing and Jurisdiction Over Conservation," *Federal Onshore Oil and Gas Pooling and Unitization II* § 2.05 (Rocky Mt. Min. L. Fdn. 1990).

¹⁸⁷ 43 U.S.C. § 1733(d).

¹⁸⁸ 43 U.S.C. § 1737(b).

incorporate the conditions of the protest into its order or relinquish jurisdiction over the matter.¹⁸⁹

Thus, although the BLM clearly has the authority to regulate the technical aspects of oil and gas development on public lands, and in fact does so in detail through its statutory and regulatory scheme, it has often chosen to do so within the state's already existing regulatory process. However, with the increased attention being paid to oil and gas development on federal lands, the hydraulic fracturing process generally and the SEAB reports encouraging federal agency action, BLM recently released a proposed rule directly aimed at regulation of hydraulic fracturing.

2. BLM Hydraulic Fracturing Rules

In May 2012, pursuant to authority granted it by the Federal Land Policy and Management Act ("FLPMA") and the Mineral Leasing Act, the BLM released the text of a proposed rule governing hydraulic fracturing on BLM and Indian lands.¹⁹⁰ An earlier version of the rule was leaked to the public in January 2012, and was met with significant resistance from members of the oil and gas industry and certain Native American tribes.¹⁹¹ Each proposed version of the rule includes three major components: (1) disclosure of the chemical constituents of hydraulic fracturing fluid; (2) a broadened definition of waters to be protected during fracing operations; and (3) strengthened wellbore integrity requirements.

As to disclosure, much of the oil and gas industry push-back against the January version of the draft rule centered around the timing of the chemical disclosure requirement. Under the earlier draft, pre-frac chemical disclosure was required, meaning that operators would have to provide notice of the chemicals they would utilize in their frac fluids prior to beginning the frac. Numerous environmental groups had pushed for this requirement, arguing that it would more adequately inform the public of what was going to occur.¹⁹² Oil and gas groups argued that it would

¹⁸⁹ Wilson, *supra* note 186, at 2-36 n.128; Memorandum of Understanding Between the Colorado Bureau of Land Management and the Colorado Oil and Gas Conservation Commission (Aug. 22, 1991), *available at* <http://cogcc.state.co.us/Library/mou-moa/MOU-BLM.htm>.

¹⁹⁰ See 77 Fed. Reg. 27691 (May 11, 2012).

¹⁹¹ See, e.g., Letter from Jimmy R. Newton, Jr., Chairman of Southern Ute Indian Tribal Council to Jim Stockbridge, Bureau of Land Management, Re: Government-to-Government Consultation Concerning BLM Development of Hydraulic Fracturing Regulations for Federal and Tribal Trust Lands (Jan. 18, 2012), *available at* http://www.whitehouse.gov/sites/default/files/omb/assets/oira_1004/1004_02292012-1.pdf.

¹⁹² See, e.g., Brianna Mordlick, "A Tale of Two Agencies: How the BLM and EPA Will (and Won't) Regulate Hydraulic Fracturing," SWITCHBOARD: NATURAL RESOURCES DEFENSE COUNCIL STAFF BLOG, May 10, 2012, *available at* http://switchboard.nrdc.org/blogs/bmordick/a_tale_of_two_agencies_how_the.html.

significantly interfere with their operations by preventing them from changing their frac mixture during the course of a frac job in response to geologic conditions.¹⁹³ The question of whether the rules would require pre-frac or post-frac chemical disclosure was a major point of contention between environmental and industry groups.¹⁹⁴

BLM significantly re-worked certain provisions of the draft rules, particularly those related to the timing of any chemical disclosure. Under the May draft rule, 30 days *after* the fracturing is completed, operators would have to provide a Subsequent Report Sundry Notice detailing the total volume of fracturing fluid, the fracturing additives, the chemical makeup of all materials used in the fracturing fluid, the volume of recovered flowback water, the actual disposal method for those fluids, and reports of deviations from the originally approved plans.

Disclosure of the chemical components of the fracturing fluid is to be accomplished through use of the already-existing FracFocus website and database.¹⁹⁵ FracFocus is a hydraulic fracturing chemical registry website, which is a joint project of the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. Currently, the information contained on the FracFocus website is provided voluntarily by operators and well completion companies. Many of the states that require disclosure of fracturing fluid under state law require FracFocus for disclosure of data.¹⁹⁶

Secondly, the DOI rule broadens the definition of waters to be protected during the drilling process from “fresh waters” to “usable waters,” thus encompassing water used for construction, agriculture, and other purposes. Existing BLM regulations state that “fresh water” is to be protected during the hydraulic fracturing process.¹⁹⁷ However, in its oil and gas onshore orders, BLM has “sought to protect all usable waters during drilling operations, not just fresh water.”¹⁹⁸ Thus, through the new rule, BLM has enlarged the category of waters to be protected to include both “fresh water and water that is of lower quality than fresh water. The BLM intends to be more protective when it seeks to protect all usable water during drilling operations, not just fresh water.”¹⁹⁹

¹⁹³ Dennis Webb, “BLM Frack Disclosure Proposal Similar to Colorado’s Regulation,” THE DAILY SENTINEL, May 4, 2012, <http://www.gjsentinel.com/news/articles/blm-frack-disclosure-proposal-similar-to-colorados>.

¹⁹⁴ John M. Broder, “New Proposal on Fracking Gives Ground to Industry,” N.Y. TIMES, May 4, 2012, *available at* http://www.nytimes.com/2012/05/05/us/new-fracking-rule-is-issued-by-obama-administration.html?_r=2&hp.

¹⁹⁵ *Id.*

¹⁹⁶ Some environmental groups have expressed concern with the regulatory utilization of FracFocus, specifically arguing that a governmentally run database would be more accountable to the public, and that the site does not allow for aggregation of information.

¹⁹⁷ 43 C.F.R. § 3162.5-2(d).

¹⁹⁸ 77 Fed. Reg. 27691, 27695 (May 11, 2012).

¹⁹⁹ *Id.*

The BLM rule contains strengthened requirements aimed at ensuring wellbore integrity, and requires BLM approval for all “well stimulation” activities. “Well stimulation” is defined as “those activities conducted in an individual well bore designed to increase the flow of hydrocarbons from the rock formation to the well bore by modifying the permeability of the reservoir rock. Examples of well stimulation operations are acidizing and hydraulic fracturing.”²⁰⁰

For new wells, the operator can obtain BLM approval for “well stimulation activities” at the APD stage, and for wells permitted prior to the effective date of the new rule, the operator would be required to submit a Sundry Notice and Report on Wells prior to commencement of stimulation activities. As part of the approval process, operators would have to detail their hydraulic fracturing plans, including engineering designs, water use estimates, and a disposal plan for the flowback of water used to fracture a well. Existing and future wells would also be required to pass a mechanical integrity test before any subsequent fracturing operations. Operators would have to reapply for preapproval either if operations did not commence within five years after receiving approval or if the operator has “significant new information” about the area’s geology, the well stimulation technology to be used, or the anticipated impacts. The proposal does not, however, define what information would be considered “significant new information.”²⁰¹

The rule also requires additional record keeping, requiring, among other things, the operator to submit a report that includes the geological names, geological description, and depth of the top and bottom of the formation into which hydraulic fracturing fluids would be injected. The operator would also be required to submit a cement bond log, consisting of reports and data from required wellbore probes.²⁰² “The log is a document that reports the data from a probe of the wellbore that uses sonic technology to detect gaps or voids in the cement and the casing,” and would be used by BLM “to verify that the operator has taken the required precautions to prevent migration of fluids in the annulus from the fracture zone to the usable water horizons.”²⁰³ The BLM could grant a variance to allow for the use of logs other than cement bond logs (e.g., slim array sonic tool, ultrasonic imager tool) if it was satisfied that the alternative logs would meet or exceed the objectives outlined in the rule.

The proposed rule also contains requirements for disclosure of information relating to produced and flowback water. For example, the rule would require the operator to submit to the BLM an estimate of the

²⁰⁰ *Id.*

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Id.* at 27696.

volume of fluid to be recovered during flow back, swabbing, and recovery from production facility vessels. “This information is required to ensure that the facilities needed to process or contain the estimated volume of fluid will be available on location.”²⁰⁴ Similarly, the operator would be required to submit to the BLM the proposed methods of managing the recovered fluids and a “description of the proposed disposal method of the recovered fluids.” A description of the disposal method is currently required by existing BLM regulations (i.e., Onshore Order Number 7, Disposal of Produced Water (58 Fed. Reg. 47354 (Sept. 8, 1993))), but is requested in connection with the new BLM rule “so that the BLM has all necessary information regarding disposal of chemicals used in the event it is needed to protect the environment and human health and safety and to prevent unnecessary or undue degradation of the public lands.”²⁰⁵

Although the industry has argued that the BLM rule contains new requirements with which it will be costly to comply, BLM has taken the position that the rule imposes few new regulatory requirements that are not already being met at the state level and that it would not slow the granting of drilling permits.²⁰⁶ The draft rules were accompanied by an economic analysis gauging the potential costs of disclosure and compliance with the flowback pit requirements, putting the cost of compliance per well stimulation event at roughly \$11,833 when the rules’ “benefits” are calculated.²⁰⁷ The energy industry has uniformly expressed doubt at this optimistic figure, estimating it to be significantly lower than the actual cost of compliance.²⁰⁸ The industry points out that BLM’s calculations do not factor in the delay that will result from these requirements.²⁰⁹

Energy industry groups have also estimated that not only will it be costly for industry to comply with the new BLM regulations, but that compliance will impose a “cost to society,” measured in terms of benefits

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ Broder, *supra* note 194.

²⁰⁷ 77 Fed. Reg. at 27702.

²⁰⁸ Phil Taylor, *BLM Releases Chemical Disclosure, Well Bore Safety Rules*, E&ENEWS, May 4, 2012, <http://www.eenews.net/public/Greenwire/2012/05/04/1>.

²⁰⁹ *See, e.g.*, Letter from Paul N. Cicio, President, Industrial Energy Consumers of America to BLM, Re: Oil and Gas; Well Stimulation, Including Hydraulic Fracturing, on Federal and Indian Lands (June 20, 2012), http://www.ieca-us.com/wp-content/uploads/06.20.12_BLM-Hydraulic-Fracturing-Comments.pdf. Permitting delay is already a major concern for oil and gas operators. For example, in 2011, the average wait time for issuance of an APD was 289 days. *See* BLM Report on APD Processing (Apr. 2012). *See also* Anardarko Petroleum Corporation presentation to United States Office of Management and Budget (Apr. 3, 2012), *available at* http://www.whitehouse.gov/sites/default/files/omb/assets/oira_1004/1004_04032012-1.pdf.

to the economy and surrounding community, of approximately \$253,000 per new well.²¹⁰

BLM initially scheduled the proposed rule for a 60-day comment period; however, in response to requests from states BLM elected to extend the period to September 10, 2012.²¹¹ Nonetheless, shortly after extending the comment period, a top Obama administration energy aide, told reporters that the administration expects the BLM regulations to be completed by the end of 2012 and that finalization of the regulations are an administration priority, particularly given the upcoming election.²¹²

E. United States Department of Agriculture

Although there has been relatively little discussion of hydraulic fracturing within the Department of Agriculture (in large part, a function of the fact that the minerals underlying U.S. Forest Service lands are managed by BLM), a few forests have addressed issues relating to fracing.

The George Washington National Forest, located in the Appalachian Mountains of Virginia, West Virginia, and Kentucky, and over the Marcellus shale formation recently included a ban on horizontal drilling in its draft Forest Plan. It is odd that the Forest Plan framed the prohibition in terms of horizontal drilling (which, because the draft plan permits oil and gas leasing, would have the effect of requiring more well pads and more surface impacts), but it is clear that the aim of the ban was to prevent hydraulic fracturing in the Forest, over half of which sits atop the Marcellus.²¹³ The draft environmental impact statement for the Forest's revised land and resource manage plan, containing the proposed ban, was released in May 2011.²¹⁴

In response to the draft plan, on July 8, 2011, the House held a joint hearing before the House Committee on Natural Resources, Subcommittee on Energy and Mineral Resources and the House Agricultural Committee, Subcommittee on Conservation, Energy and Forestry, addressing the

²¹⁰ Western Energy Alliance, BLM Hydraulic Fracturing Rule Position Paper (June 2012), *available at* <http://westernenergyalliance.org/wp-content/uploads/2009/05/Western-Energy-Alliance-BLM-Hydraulic-Fracturing-Rules.pdf>.

²¹¹ Press Release, BLM, "BLM Extends Public Comment Period for Proposed Hydraulic Fracturing Rule" (June 28, 2012), *available at* http://www.blm.gov/wo/st/en/info/newsroom/2012/june/NR_06_25_2012.html.

²¹² Ben Geman, "Top Obama Energy Aide: 'Fracking' Rules Coming by Year's End," THE HILL (June 25, 2012), *available at* <http://thehill.com/blogs/e2-wire/e2-wire/234577-white-house-gas-fracking-rule-on-track->.

²¹³ *Virginia Residents Back Horizontal Drilling Ban in National Forest*, RICHMOND TIMES-DISPATCH, Apr. 24, 2012, <http://www2.timesdispatch.com/news/2012/apr/24/va-residents-back-horizontal-drilling-ban-national-ar-1864564/>.

²¹⁴ See 76 Fed. Reg. 32197 (June 3, 2011).

proposed ban on horizontal drilling.²¹⁵ At the hearing, Joel Holtrop, Deputy Chief, National Forest System, testified that the proposed ban is “place-specific based on the particular circumstances of the [George Washington National Forest], and does not represent a broader policy with regard to hydraulic fracturing There are no Forest Service discussions or efforts under way to develop a national policy to ban horizontal drilling.”²¹⁶ In response to a question regarding why horizontal drilling and hydraulic fracturing within the George Washington National Forest is being singularly targeted, Tony Ferguson, director of Minerals and Geology Management at the U.S. Forest Service, explained that vertical drilling has occurred in the forest for decades but horizontal drilling would be new to the area and indicated that more time was needed to study the process.²¹⁷

No record of decision on the George Washington National Forest Plan has been released as of yet. However, interestingly, other forests may be following suit. In November 2011, 3,000 acres of public land in the Wayne National Forest, located in central Ohio and overlying the Utica shale formation, were scheduled to be auctioned at a federal oil and gas lease sale.²¹⁸ However, forest managers cancelled the sale pending a Forest Service review of “the best scientific information available” regarding the surface effects of hydraulic fracturing. After the review of information has been completed, forest managers will then determine whether the Forest Plan should be revised to ban hydraulic fracturing. In a comment on the sale cancellation, Wayne National Forest Supervisor Anne Carey stated that “conditions have changed since the 2006 Forest Plan was developed. The technology used in the Utica and Marcellus Shale formations need[s] to be studied to see if potential effects to the surface are significantly different than those identified in the Forest Plan.”²¹⁹

²¹⁵ See Natural Resources Committee: Joint Subcommittee Oversight Hearing on “Challenges Facing Domestic Oil and Gas Development: Review of Bureau of Land Management/U.S. Forest Service Ban on Horizontal Drilling on Federal Lands” (July 8, 2011), <http://naturalresources.house.gov/Calendar/EventSingle.aspx?EventID=249479>.

²¹⁶ Statement of Joel Holtrop, Deputy Chief, National Forest System, testimony before the House Committee on Natural Resources, Subcommittee on Energy and Mineral Resources, Re: *Challenges Facing Domestic Oil and Gas Development: Review of Bureau of Land Management/U.S. Forest Service Ban on Horizontal Drilling on Federal Lands* (July 8, 2011), available at <http://naturalresources.house.gov/UploadedFiles/HoltropTestimony07.08.11.pdf>.

²¹⁷ *Id.*

²¹⁸ Press Release, U.S. Forest Service, “Forest Service Halts Sale of Mineral Leases until Further Review,” (Nov. 15, 2011), <http://www.fs.usda.gov/detail/wayne/news-events/?cid=STELPRDB5339420>.

²¹⁹ *Id.*

F. U.S. Department of Defense—U.S. Army Corps of Engineers

In November 2011, the Delaware River Basin Commission, a commission established by the U.S. Army Corps of Engineers, which oversees the water supply for Philadelphia, half the population of New York City, and surrounding communities, issued revised draft natural gas drilling regulations.²²⁰ The draft regulations significantly increase the financial security operators must post prior to commencing drilling, from \$125,000 per well to \$5 million per well, and change well set-back requirements.²²¹ Pending finalization of the regulations, the Commission has ordered a moratorium on all Marcellus shale drilling projects in the four states making up the Delaware River basin—Delaware, New York, Pennsylvania, and New Jersey. At the May 5, 2012 meeting, the Commission chair announced that the commissioners would be convening further meetings to discuss the draft rules and hoped to have a final rule in place by the end of 2012. However, until that time, the moratorium remains in effect.

Similarly, the Susquehanna River Basin Commission, also established and overseen by the Army Corps of Engineers, issued proposed natural gas drilling regulations in June 2011 that went into effect in April 2012.²²² These rules provide a number of technical requirements for inter- and intra-basin transfers of flowback water, outline a process for approval of water sources that may be utilized for hydraulic fracturing, and “memorialize the current practice of requiring post-hydrofracture reporting.”²²³

G. U.S. Securities and Exchange Commission

In August 2011, the Securities and Exchange Commission (“SEC”) began requesting detailed information from publicly traded natural gas companies regarding their use of specific hydraulic fracturing chemicals and their efforts to minimize water use and other environmental impacts of the process. According to the *Wall Street Journal*, government officials have said the SEC’s interest in fracing is in ensuring investors are being told about risks a company may face related to its operations, such as lawsuits, compliance costs and other uncertainties.²²⁴ At this point in time, rather than requiring broad, standardized disclosure of hydraulic fracturing information, the requests are voluntary and treated as confidential by the SEC. Notably, the financial sector has been largely supportive of the

²²⁰ *DRBC Tweaks Proposed Gas Drilling Regulations*, WALL ST. J., Nov. 8, 2011, <http://online.wsj.com/article/AP7f80ad53e651483eb2130415309ab5cb.html>.

²²¹ *Id.*

²²² 77 Fed. Reg. 8095 (Feb. 14, 2012).

²²³ *Id.*

²²⁴ Deborah Solomon, *SEC Bears Down on Fracking*, WALL STREET J., Aug. 25, 2011, available at <http://online.wsj.com/article/SB10001424053111904009304576528484179638702.html>.

SEC's increased interest in disclosure and Institutional Shareholder Services, an influential proxy advisory firm, finalized a new policy supporting shareholder requests for greater disclosure related to hydraulic fracturing.²²⁵

H. U.S. Department of Health and Human Services

The U.S. Department of Health and Human Services, through the Center for Disease Control and Prevention ("CDC") and the Agency for Toxic Substances and Disease Registry ("ATSDR"), issued a public media statement in May 2012 calling for further study on hydraulic fracturing and its effects on human health.²²⁶ The statement, which has received widespread media attention, states: "CDC and ATSDR do not have enough information to say with certainty whether natural gas extraction and production activities including hydraulic fracturing pose a threat to public health. We believe that further study is warranted to fully understand potential public health impacts."

ATSDR, whose charge is to "serve[] the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to toxic substances,"²²⁷ has only recently become involved in the hydraulic fracturing debate. In 2010, ATSDR began its own study of the toxicity and possible adverse health effects that could be caused by exposure to fracturing fluids and is also working in conjunction with EPA on related studies. In 2011, ATSDR participated in the analysis of groundwater samples from incidents involving allegations of fracturing-caused groundwater contamination in Pavillion, Wyoming and Bradford County, Pennsylvania. As with EPA's findings in the Pavillion and Bradford County studies, ATSDR was unable to make a determination as to whether the claimed groundwater contamination was in fact a result of hydraulic fracturing activities in the area.²²⁸

I. U.S. Occupational Safety and Health Administration and Workplace Safety Regulations

Certain federal regulations and statutes require workplaces to disclose any hazardous chemicals to which employees could be exposed.

²²⁵ Institutional Shareholder Services, "Hydraulic Fracturing Proposals (U.S.)," *available at* <http://issgovernance.com/policy/2012comment/FrackingProposals>.

²²⁶ Media Statement, CDC & ATSDR, "CDC/ATSDR Hydraulic Fracturing Statement" (May 3, 2012), *available at* http://www.cdc.gov/media/releases/2012/s0503_hydraulic_fracturing.html.

²²⁷ See <http://www.atsdr.cdc.gov/>.

²²⁸ ATSDR, "Health Consultation—Chesapeake ATGAS 2H Well Site" (Nov. 4, 2011), *available at* <http://www.atsdr.cdc.gov/hac/pha/ChesapeakeATGASWellSite/ChesapeakeATGASWellSiteHC110411Final.pdf>.

Specifically, the Occupational Safety and Health Administration (“OSHA”) requires the employer to identify these chemicals using a form of set data sheets that identify the chemicals but do not require the disclosure of the specific chemical constituents or the quantities that may be present at the worksite.²²⁹ On June 21, 2012, OSHA issued a hazard alert to workers involved in hydraulic fracturing activities stating that “employers must ensure that workers are properly protected from overexposure to silica.”²³⁰ The alert goes on to describe how a combination of engineering controls, work practices, protective equipment and product substitution, where feasible, along with worker training, can protect workers who are exposed to silica.²³¹

J. White House

The importance of natural gas to the United States economy and the public debate over hydraulic fracturing has clearly caught the attention of the White House. In the 2012 State of the Union address, President Obama laid out his plans for the expanded role that natural gas will play in the future, but also noted the need for public disclosure of chemicals used to produce natural gas:

We have a supply of natural gas that can last America nearly one hundred years, and my Administration will take every possible action to safely develop this energy. Experts believe this will support more than 600,000 jobs by the end of the decade. And I’m requiring all companies that drill for gas on public lands to disclose the chemicals they use.²³²

In response to federal agency “piling on” of regulations specific to hydraulic fracturing, on May 13, 2012, President Obama signed an executive order establishing a high-level task force charged with coordinating federal oversight of domestic natural-gas development.²³³ The order, titled “Supporting Safe and Responsible Development of Unconventional Domestic Natural Gas Resources,” states its purposes are “to coordinate the efforts of Federal agencies responsible for overseeing the safe and responsible development of unconventional domestic natural

²²⁹ Kramer, *supra* note 1, at 20 (citing 29 C.F.R. § 1910.120).

²³⁰ OSHA Notice, “Worker Exposure to Silica During Hydraulic Fracturing” (June 21, 2012), *available at* http://www.osha.gov/dts/hazardalerts/hydraulic_frac_hazard_alert.html; this was followed in July by NIOSH and OSHA research on silica sand exposure in oil and gas operations.

²³¹ *Id.*

²³² President Barack Obama, 2012 State of the Union Address (Jan. 24, 2012), *available at* <http://www.whitehouse.gov/state-of-the-union-2012>.

²³³ Exec. Order No. 13605, 77 Fed. Reg. 23107 (Apr. 13, 2012).

gas resources and associated infrastructure and to help reduce our dependence on oil.”²³⁴

The Order establishes an “Interagency Working Group” to be chaired by the Director of the Domestic Policy Council, and membership is to be comprised of deputy-level representatives or equivalent officers from the following Departments: Defense; Interior; Agriculture; Commerce; Health and Human Services; Transportation; Energy; Homeland Security; EPA; the Council on Environmental Quality; the Office of Science and Technology Policy; the Office of Management and Budget; the National Economic Council; and “such other agencies or offices as the Chair may invite to participate.”²³⁵ The working group is tasked with coordinating agency policy activities, “ensuring [] efficient and effective operation and facilitating cooperation among agencies,” coordinating the sharing of “scientific, environmental, and related technical and economic information” among agencies, and engaging in “long-term planning” to promote responsible development of natural research and infrastructure.²³⁶

Although nothing in the Executive Order specifically references hydraulic fracturing, coordination of fracking regulations and studies is clearly one of the primary objectives of the Order. The formation of the Working Group has largely been met favorably from within the oil and gas industry. For example, the American Petroleum Institute claimed the formation of the Working Group as a victory, stating “[w]e’re pleased that the White House recognizes the need to coordinate the efforts of the ten federal agencies that are reviewing, studying or proposing new regulations on natural gas development and hydraulic fracturing. . . . We have called on the White House to rein in these uncoordinated activities to avoid unnecessary and overlapping federal regulatory efforts and are pleased to see forward progress.”²³⁷

However, one point of particular note is the Executive Order’s silence regarding state regulation of hydraulic fracturing or efforts aimed at coordination with states or their oil and gas commissions. It is perhaps a negative sign that the White House elected not to include any specific requirement that the Working Group should coordinate with states, particularly those with robust regulatory requirements already in place.

²³⁴ *Id.*

²³⁵ *Id.*

²³⁶ *Id.*

²³⁷ “API Applauds New Unconventional Natural Gas Interagency Working Group,” EAGLE INDUSTRY NEWS AND EVENTS (Apr. 17, 2012), available at <http://eaglemap.com/news/bid/77091/API-Applauds-New-Unconventional-Natural-Gas-Interagency-Working-Group>.

IV. LARGER CONTEXT

The recent federal studies and regulations aimed at hydraulic fracturing are just one piece of the regulatory framework that is being written for hydraulic fracturing. There has been substantial development of regulation for hydraulic fracturing within several important oil and gas producing states such as Colorado, Pennsylvania, Wyoming, Montana, Texas and New Mexico. There has also been a raft of hydraulic fracturing-specific regulations at the local governmental level, and, while many of these have yet to pass constitutional muster, many attempt to ban use of hydraulic fracturing within the community.²³⁸ The state of Vermont has also imposed an all-out ban on hydraulic fracturing and New York has only begun to consider whether and how to lift a ban on fracing.²³⁹ These extreme regulatory examples show that there is a growing unease about use of the process, something that the new federal regulatory efforts are no doubt intended to quell. These efforts come along at a time when there is a growing awareness about the importance of natural gas to the world's energy future, and the potential promise of shale gas for energy security, economic growth and carbon reduction. This was recently addressed in the International Energy Agency's ("IEA") "Golden Rule Report," where the IEA acknowledged the incredible potential for shale gas development, but noted that "industry and other stakeholders must work together to address legitimate public concerns about the associated environmental and social impacts."²⁴⁰ The federal regulatory efforts described in this paper will develop or not as part of this larger context. Events at a global or local level will have a significant impact on these federal efforts.

V. CONCLUSION

One thing that has become clear through both the relatively new federal enactments and certain agencies' regulatory actions undertaken pursuant to older, already existing environmental statutes is that the federal government has an increased appetite to tackle regulation of the technical aspects of oil and gas production. This signals a shift away from the federal government's traditional deference to state regulation and likely

²³⁸ See, e.g., Scott Rochat, Longmont Council Approves Oil/Gas Rules 5-2, LONGMONT TIMES-CALL, July 17, 2012, available at http://www.timescall.com/news/longmont-local-news/ci_21098770/longmont-council-approves-oil-gas-rules-5-2?source=most_viewed. In the November 2012 election, Longmont voters banned hydraulic fracturing within the City of Longmont by approving Ballot Question 300.

²³⁹ *Vermont's Legislature Votes to Ban Hydraulic Fracturing*, PLATTS DAILY, May 4, 2012, available at <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/NaturalGas/6264761>.

²⁴⁰ International Energy Agency, "IEA Sets Out the 'Golden Rules' Needed to Usher in a Golden Age of Gas" (May 29, 2012), available at <http://www.iea.org/newsroom/andevents/pressreleases/2012/may/name,27266,en.html>.

shows that the federal government will not shy away from engaging in regulation of the technical “nitty gritty” of oil and gas operations in the future. This story is evolving. Whether oil or gas go the way of coal and become regulated by a more dominant federal agency sharing power with the states or remain more state regulated with a narrower federal role will play out over the next decade or more.