

FEDERAL LEGISLATIVE AND ADMINISTRATIVE REGULATION OF HYDRAULIC FRACTURING OPERATIONS

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I.	INTRODUCTION	837
II.	THE FEDERAL ENVIRONMENTAL REVOLUTION.....	838
III.	THE SAFE DRINKING WATER ACT	840
	<i>A. The Statutory Framework</i>	840
	<i>B. The Case Law</i>	842
	<i>C. Preemption and the Safe Drinking Water Act</i>	845
IV.	THE <i>LEAF</i> DECISIONS	848
V.	THE EPA RESPONSE IN 2003–2004	853
VI.	THE ENERGY POLICY ACT OF 2005	855
VII.	RELATED FEDERAL LEGISLATIVE AND REGULATORY PROGRAMS.....	856
VIII.	THE 2009 CONGRESSIONAL SESSION.....	857
IX.	THE LATEST EPA STUDY.....	857
X.	THE BLM RESPONSE	858
XI.	THE SECRETARY OF ENERGY ADVISORY BOARD (SEAB)	859
XII.	CONCLUSION.....	862

I. INTRODUCTION

Well before the onset of the modern era of federal environmental law ushered in by the enactment of the National Environmental Policy Act in 1969, President Calvin Coolidge created the Federal Oil Conservation Board (OCB).¹ The OCB consisted of the Secretaries of War, Navy, Interior, and Commerce.² Henry L. Doherty, an independent oil and gas executive, was undoubtedly a major stimulus in the creation of the OCB.³ In 1926, the OCB held hearings on the need for a federal statutory unitization law in order to prevent the very wasteful practices that Mr. Doherty asserted were a threat to national security.⁴ At the hearings, the American Petroleum Institute hired former Chief Justice

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1. National Environmental Policy Act of 1969, Pub. L. No. 91-190, 83 Stat. 852 (codified as amended at 42 U.S.C. §§ 4321 et seq. (2006)); ROBERT E. HARDWICKE, *ANTITRUST LAWS, ET AL. V. UNIT OPERATION OF OIL OR GAS POOLS 6* (1961) [hereinafter *UNIT OPERATION*].

2. See *UNIT OPERATION*, *supra* note 1, at 6.

3. *Id.* at 6-7.

4. *Id.* at 19.

Charles Evans Hughes to argue against a federal role in regulating oil and gas development.⁵ The industry was successful in limiting future OCB activities to studies and hearings, and when President Franklin D. Roosevelt was inaugurated in 1933, he did not reappoint members of his Cabinet to the Board.⁶ The OCB studies may have been instrumental in supporting the inclusion of voluntary unitization provisions in the temporary Mineral Leasing Act of 1930,⁷ the Mineral Leasing Act of 1931,⁸ and the compulsory unitization provisions passed in 1935 as an amendment to the 1931 Act.⁹ President Roosevelt, as part of his New Deal legislation, created a Petroleum Code that was designed to deal with postproduction issues consistent with the regulatory approach taken under the National Industrial Recovery Act (NIRA).¹⁰ The fate of the Petroleum Code, as well as all of the other codes adopted under the aegis of the NIRA, was sealed by the Supreme Court's decision in *A.L.A. Schechter Poultry Corp. v. United States*, holding that Title 1 of the NIRA was unconstitutional because it amounted to an unlawful delegation of legislative authority to the Executive Branch.¹¹ Thus, the decades of the 1930s and 1940s became ones where states responded to the lack of federal regulation with the enactment of state oil and gas conservation statutes that delegated to state agencies broadened powers to regulate the oil and gas industry.¹²

II. THE FEDERAL ENVIRONMENTAL REVOLUTION

The decade of the 1970s¹³ will forever be remembered as the launching point for the federal government's increased involvement in matters relating to

5. *Id.* at 20-23.

6. *Id.* at 36.

7. *See* Act of July 3, 1930, ch. 853, 46 Stat. 1007.

8. *See* Act of March 4, 1931, ch. 506, 46 Stat. 437.

9. *See* Act of August 21, 1935, ch. 599, 49 Stat. 676.

10. *See* Act of June 16, 1933, ch. 90, 48 Stat. 195. The development of the legislation dealing with the Petroleum Code is set forth in CONSERVATION OF OIL AND GAS—A LEGAL HISTORY 640-52 (Blakely M. Murphy ed., 1948).

11. *A.L.A. Schechter Poultry Corp. v. United States*, 295 U.S. 495, 551 (1935).

12. 1 BRUCE M. KRAMER & PATRICK H. MARTIN, *THE LAW OF POOLING AND UNITIZATION* § 3.02[2] (3d ed. 2011); *see* UNIT OPERATION, *supra* note 1, at 75-104. State regulation of oil and gas operations began in the 19th century, not long after the domestic expansion of oil and gas operations. KRAMER & MARTIN, *supra*, § 3.01[1]; *see also* Jas. L. Shepherd, *Foreword* to ABA, *LEGAL HISTORY OF CONSERVATION OF OIL AND GAS*, at v-vi (1938). The federal government was not entirely silent on the issue of regulation through unitization as there were a number of hearings between 1931 and 1943 that studied the problem and came out with some recommendations that were not followed. *See* Shepherd, *supra*, at v-vi.

13. I am fudging by one year the onset of the federal environmental revolution, which most people agree was commenced with the enactment of the National Environmental Policy Act of 1969 (NEPA). *See* National Environmental Policy Act of 1969, Pub. L. No. 91-190, 83 Stat. 852 (codified as amended at 42 U.S.C. § 4321 et seq. (2006)). NEPA is in many ways much different in its scope and approach to environmental issues than the statutes that followed it. Specifically, it applies only to actions of the federal government, does not impose any particular standard of conduct, and is a "procedural" statute by which decisions can be made that are not environmentally driven so long as environmental factors have been analyzed prior to that decision being made. *See generally* DANIEL MANDELKER & A.D. TARLOCK, *ENVIRONMENTAL PROTECTION: LAW AND POLICY* 191-206 (1999) (explaining the legislative purpose and history of NEPA).

environmental regulation. Starting with the enactment of the Clean Air Act Amendments of 1970,¹⁴ the federal government enacted a series of environmental statutes that embraced what was called “cooperative federalism.” Instead of regulatory programs whereby the standards would be set at the federal level and the enforcement mechanism would reside with the newly created Environmental Protection Agency (EPA), these statutes embodied a sharing of responsibilities, mostly in the enforcement and implementation arena, between the state and federal governments.¹⁵ The Clean Air Act Amendments of 1970 were the forerunner of the cooperative federalism statutes.¹⁶ In 1972, Congress enacted the Federal Water Pollution Control Act Amendments (FWPCA), which followed closely the cooperative federalism approach embodied in the Clean Air Act Amendments of 1970.¹⁷

There was some debate following the enactment of the FWPCA of 1972 as to the scope and extent to which the EPA, the states, or both would be able to regulate the discharge of pollutants into the groundwater. On its face, the statute prohibits the “discharge of any pollutant” into the waters of the United States without a permit.¹⁸ There is also legislative history showing that Congress was aware of the relationship between surface water and groundwater while noting that surface water quality issues were, for the moment, perceived to be a more serious and pressing problem than groundwater quality issues.¹⁹ But there was an express exemption made for certain types of subsurface discharges from the no discharge without a permit requirement.²⁰ The statute provided that the term “pollutant” does not include:

water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if such State determines that such injection or disposal will not result in the degradation of ground or surface water resources.²¹

14. See Clean Air Act Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676.

15. See Bruce M. Kramer, *The 1970 Clean Air Amendments: Federalism in Action or Inaction*, 6 TEX. TECH L. REV. 47, 67-71 (1974).

16. See *id.* at 103-04.

17. See Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816 (codified at 33 U.S.C. §§ 1251-1376 (2006)). Substantial modifications were made to the FWPCA in 1977 that led to it being given the new moniker, the Clean Water Act. See Clean Water Act of 1977, Pub. L. No. 95-217, 91 Stat. 1566.

18. 33 U.S.C. §§ 1362(7) (2006), 1362(12) (2006); see *United States Steel Corp. v. Train*, 556 F.2d 822, 829 (7th Cir. 1977).

19. S. Rep. No. 92-424, at 73 (1971).

20. See § 1362(6)(B) (2006).

21. *Id.*

While some argued that with the specified exclusions from groundwater regulation the EPA would have the authority to regulate those pollutants not expressly excluded, the EPA took the position in litigation that groundwater did not fit within the definition of navigable waters of the United States and, thus, could not be regulated.²² It was also unclear as to how one would prove that the groundwater discharge would affect surface waters or whether deep well disposal is “associated” with surface water discharges.²³ In *Exxon Corp. v. Train*, the court approved the issuance of a National Pollutant Discharge Elimination System (NPDES) permit to Exxon relating to both surface and injection well disposal of brine, produced water, and other pollutants, while noting that Exxon, in seeking the permit, was not endorsing the view that it needed to get an NPDES permit for the injection well operations.²⁴ The EPA acquiesced to *Exxon*, but in a way that still left some wiggle room for Clean Water Act authority if the evidence established a close nexus between groundwater and surface water quality.²⁵

III. THE SAFE DRINKING WATER ACT

A. *The Statutory Framework*

The Safe Drinking Water Act (SDWA) was first enacted in 1974 after a two-year review period through the halls of Congress.²⁶ It has two basic strategies for dealing with the protection of groundwater. The first is triggered by a determination that a particular aquifer is “the sole or principal drinking water source” for a given region.²⁷ The second strategy relates to the Underground Injection Control (UIC) Program, which is the cornerstone of the regulatory scheme and is directly related to hydraulic fracturing operations and the disposal of frac water, produced water, and other by-products of drilling operations.²⁸ In many ways, the UIC program serves the same purposes as the NPDES program for surface water discharges. The UIC program, like the air and water programs, entails the basic principles of cooperative federalism. The Act provides conditions for state UIC programs,²⁹ federal takeovers,³⁰ and

22. See *Exxon Corp. v. Train*, 554 F.2d 1310, 1320 (5th Cir. 1977).

23. See *id.* at 1325-26.

24. *Id.* at 1331.

25. Memorandum from EPA Gen. Counsel to Region II Dir., Water Div. (May 29, 1979), http://water.epa.gov/scitech/swguidance/standards/upload/1999_11_03_standards_underground.pdf.

26. Safe Drinking Water Act, Pub. L. No. 93-523, 86 Stat. 1660 (1974) (codified as amended at 42 U.S.C. §§ 300h to 300h-8 (2006)).

27. 42 U.S.C. § 300h-3(e) (2006). This provision was allegedly added at the request of Representative Henry Gonzalez of San Antonio who was opposed to a large-scale residential development that would be built over a small portion of the Edwards Aquifer. See WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW § 4.8 (1986).

28. § 300h-1, -2, -3.

29. *Id.* § 300h(b)(1).

30. § 300h-1(b)(3).

federal management in the absence of an approved state program.³¹ As with the Clean Water Act, a state program must prohibit all underground injections, except those specifically exempted, unless such injections are authorized.³² State programs must also require the following: that permitted injections do not endanger drinking water sources; that the state has an adequate inspection, monitoring, record-keeping, and reporting administrative program; and that federal injections must be subject to state regulation.³³

In implementing the SDWA, the EPA developed a classification scheme for various types of injection wells. Class I wells are wells used to dispose of hazardous, industrial, or municipal wastes beneath underground sources of drinking water.³⁴ Class II wells deal with the injection of fluids associated with conventional oil or natural gas production, enhanced recovery of oil or natural gas, underground storage of natural gas, or the storage of liquid hydrocarbons.³⁵ Class III wells cover those that inject fluids in mining operations, other than oil and gas operations.³⁶ Class IV wells, which are prohibited, inject hazardous or radioactive material into or above a formation within one-quarter mile of an underground source of drinking water.³⁷ Class V wells deal with all wells not classified as Class I-IV wells.³⁸

The EPA adopted a rule that “grandfathered” existing injection wells that antedated the enactment of the SDWA but made an exception for enhanced recovery and hydrocarbon storage injections.³⁹ A regulatory provision also exists allowing for the issuance of emergency permits to either avert an imminent or substantial endangerment to human health or a substantial and irretrievable loss of oil and gas resources.⁴⁰ For oil and gas related emergency permits there must be a finding that the injection will not result in the contamination of underground sources of drinking water.⁴¹ The permit applicant must also show that it was not dilatory in seeking a regular UIC permit.⁴² These emergency permits are to last only so long as they are needed to prevent the emergency, which in the oil and gas scenario, means only so long as the threat exists to lose oil or gas resources.⁴³ Regular Class II UIC permits can have durations of up to the useful life of the facility involved in the injection program.⁴⁴

31. § 300h-1(c).

32. 40 C.F.R. §§ 144.11, 145.11(a)(5) (2011).

33. 42 U.S.C. § 300h(b)(1).

34. 40 C.F.R. § 145.6(a) (2011).

35. *Id.* § 144.6(b).

36. § 144.6(c).

37. § 144.6(d).

38. § 144.6(e).

39. *Id.* § 144.21(a) (2011).

40. *Id.* §§ 144.31 et seq. (2011).

41. *Id.* § 144.34(b).

42. *Id.*

43. *Id.*

44. *Id.*

One of the sticks in the carrot-and-stick cooperative federalism approach to protecting groundwater under the Act is through a reasonably strong federal enforcement authority that was beefed up in the 1986 amendments to the Act.⁴⁵ If the EPA becomes aware of a state UIC violation, it must notify the state, which then has thirty days to commence an enforcement action.⁴⁶ If the state fails to act, the EPA must either issue an administrative compliance order or initiate a civil enforcement action.⁴⁷ While the EPA administrative penalty powers allow for the assessment of up to \$10,000 for each day of any violation with a maximum assessment of \$125,000, the daily penalty is reduced to no more than \$5,000/day when the injection is related to: “the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production, or any underground injection for the secondary or tertiary recovery of oil or natural gas.”⁴⁸ In addition to administrative fines, the EPA may order the violator to comply with the applicable permit or regulation.⁴⁹ There is no distinction made between oil and gas and non-oil and gas operations for civil enforcement action fines, which may be levied up to \$25,000 for each day of violation.⁵⁰

B. The Case Law

There is little litigation relating to the SDWA and the oil and gas industry prior to the *LEAF* litigation to be discussed in Section IV. One such case, *Phillips Petroleum Co. v. United States*, involved a challenge to an EPA regulation that sought to apply the UIC program to oil and gas operations taking place on the Osage Indian Reservation in Oklahoma.⁵¹ The court noted that the SDWA’s definition of an underground injection is quite broad because it entails the “subsurface emplacement of fluids by well injection.”⁵² The court also cited legislative history noting that Congress was aware that the UIC program would have a serious impact on oil and gas operations, at least those that endangered underground drinking water supplies.⁵³ The main issue in the case was whether or not the EPA could adopt rules relating to UIC wells for tribal lands because the statute was unclear in how tribes were to be treated.⁵⁴ While the Oklahoma UIC program was approved by the EPA, the Oklahoma program omitted regulation of the Osage Tribe’s reservation.⁵⁵ The court rejected

45. T.A. VANDERVER ET AL., ENVIRONMENTAL LAW HANDBOOK 242 (1994).

46. 42 U.S.C. § 300h-2(a)(1) (2006).

47. § 300h-2(c)(1).

48. § 300h-2(c)(2).

49. § 300h-2(a)(2).

50. § 300h-2(b).

51. *Phillips Petroleum Co. v. United States*, 803 F.2d 545, 547 (10th Cir. 1986).

52. *Id.* at 547 n.2 (quoting 42 U.S.C. § 300h(d)(1)).

53. *Id.* (quoting H.R. 1185, 93d Cong. (2d Sess. 1974)).

54. *Id.* at 547.

55. *Id.* at 549.

Phillips's argument that the statutory reference to state UIC programs being approved and receiving primacy status precluded the EPA from promulgating its own set of regulations relating to tribal lands because tribes are not states.⁵⁶ The court concluded:

Considering the amount of oil and gas exploration and production on Indian lands from 1974 to 1986, the SDWA would be eviscerated in large part by Phillips' interpretation. The statute is sufficiently ambiguous on its face to permit us to explore and apply congressional intent, search for national policy, and be guided by general legal precepts relating to Indian tribes and lands.⁵⁷

The rest of the opinion is spent looking at the legislative history, discerning national policy, and supporting the court's ultimate conclusion that Congress would not have wanted to leave Indian tribes out of the public health objectives of the SDWA by not authorizing the EPA and the Tribes to adopt the UIC system for the protection of Tribal groundwater resources.⁵⁸

A second case involved the classification system of the SDWA.⁵⁹ In *ARCO Oil & Gas Co. v. Environmental Protection Agency*, ARCO was operating a carbon dioxide extraction and processing project in Colorado.⁶⁰ As part of the production/extraction process, certain waste fluids were brought to the surface and then disposed of in an existing underground injection well.⁶¹ In April 1985, the EPA directed ARCO to apply for a Class I permit for hazardous, industrial, or municipal wastes, rather than a Class II permit for most oil and gas operations.⁶² Class I permit requirements are admittedly more onerous than the Class II permit requirements.⁶³ ARCO's principal argument was that the production of carbon dioxide is covered under the Class II regulations dealing with the production of natural gas.⁶⁴ While challenging the Class I designation in this litigation, ARCO also applied for a Class I permit, which was issued some four years later.⁶⁵ At that time, the EPA reaffirmed its view that carbon dioxide was not natural gas and, therefore, not covered by the Class II regulations.⁶⁶ ARCO sought the required administrative review, which upheld the Regional Office's determination.⁶⁷

56. *Id.* at 553.

57. *Id.*

58. *See id.* at 553-63.

59. *ARCO Oil & Gas Co. v. EPA*, 14 F.3d 1431, 1432-33 (10th Cir. 1993).

60. *Id.* at 1432.

61. *Id.* The carbon dioxide was processed and then transported to West Texas for use in tertiary recovery projects in older oil fields in the Permian Basin. *Id.*

62. *Id.*

63. *Id.*; *see* 40 C.F.R. § 146.14(b)(6) (2011). Most of the additional requirements deal with information other than the compatibility of the waste stream within the injection zone.

64. *ARCO Oil & Gas Co.*, 14 F.3d. at 1432-33.

65. *Id.* at 1433.

66. *See id.*

67. *Id.*

Because the litigation involved matters relating to statutory and regulatory interpretation, the court had to apply the ubiquitous *Chevron* deference principles developed in *Chevron U.S.A., Inc. v. NRDC*.⁶⁸ *Chevron* deference has two levels. If Congress has directly spoken to the issue and its intent is clear, that is the end of the matter.⁶⁹ Both the agency and the court must give effect to the unambiguously expressed intent.⁷⁰ If, however, the court determines that either Congress has not directly addressed the issue or has addressed the issue in an ambiguous way, then the court must accept the agency's interpretation if it is based on a "permissible construction of the statute."⁷¹

In this case the SDWA does not define the term "natural gas" and only refers to it twice in the sections dealing with administrative penalties and once again in excluding the injection of natural gas into underground storage facilities from SDWA regulation.⁷² Because Congress has not spoken directly on the issue, the court is then authorized to examine legislative history to glean Congress's intent.⁷³ The legislative history was also unclear, although the court does explore the balance that Congress reached in discouraging domestic oil and gas production with the preservation of present and potential sources of drinking water.⁷⁴ The court's view of that legislative history is that the protection of groundwater used for drinking water purposes is the primary objective of the SDWA, while a secondary objective is not to hinder domestic oil and gas production.⁷⁵

Because there is nothing in the statute or the legislative history evincing a clear understanding of what Congress intended insofar as it used the term "natural gas," the court is constrained by *Chevron* to ask the question: Is the EPA's interpretation permissible? Relying on *Phillips Petroleum*, the court concluded that given the primary objective of protecting drinking water sources, an interpretation that furthered that objective is clearly permissible.⁷⁶ Because Class I regulations are more stringent and ostensibly more protective

68. *Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837 (1984). There probably is not a more important administrative law case in the past fifty years than *Chevron*. For a brief analysis of how *Chevron* deference has worked in dealing with oil and gas regulatory matters, see KRAMER & MARTIN, *supra* note 12, §§ 24.05, 24.06.

69. *Chevron*, 467 U.S. at 842.

70. *Id.* at 842-43.

71. *Id.* at 843.

72. *ARCO Oil & Gas Co.*, 14 F.3d at 1434. The court refers to two other cases dealing with ownership issues in federal patents and grants that determined that the term "natural gas" is ambiguous. See *Exxon Corp. v. Lujan*, 970 F.2d 757 (10th Cir. 1992); *Aulston v. United States*, 915 F.2d 584 (10th Cir. 1990), *cert. denied*, 500 U.S. 916 (1991).

73. *ARCO Oil & Gas Co.*, 14 F.3d at 1435.

74. *Id.*

75. *Id.* at 1435-36.

76. *Id.*

than the EPA's interpretation, Class I regulations would be upheld as permissible under the statutory language.⁷⁷

C. Preemption and the Safe Drinking Water Act

Even if there are federal statutory or regulatory provisions relating to hydraulic fracturing, that does not necessarily mean that state government or sub-state units of government will be preempted from likewise regulating such operations. There are three ways for the federal government to preempt state and local powers: (1) express statutory preemption, (2) implied preemption by conflict, and (3) implied preemption by occupation of the field.⁷⁸

The complexity of the preemption doctrine is reflected in a case involving the SDWA. In *Bath Petroleum Storage, Inc. v. Sovas*, Bath was the operator of an underground storage facility for liquified petroleum gas (LPG).⁷⁹ Bath's operations consisted of initially injecting water into underground salt formations that dissolved the salt and left underground caverns.⁸⁰ When Bath received LPG product, it pumped out the brine solution, temporarily stored it in surface impoundments, injected the LPG, and when orders came in, re-injected the brine solution, which pushed the LPG into producing wells.⁸¹ Because New York did not have an approved UIC program, Bath applied to the EPA for two UIC permits: a Class IID permit to allow Bath to dispose of the solution-mined brine through a IID injection well, and a Class III permit to expand the caverns and use fresh water in its solution mining operation.⁸² New York argued that Bath needed a State Pollutant Discharge Elimination System (SPDES) permit for its brine disposal operations because of the potential to impact not just underground sources of drinking water but all underground sources of water.⁸³ New York also sought to impose a permit requirement on the storage of LPGs in the modified and expanded caverns.⁸⁴ New York wanted Bath to conduct sonar surveys on the cavern in order to ascertain the cavern's integrity.⁸⁵

The court applied the tri-partite approach to preemption discussed above, including express preemption, implied preemption by conflict, and implied preemption by occupation of the field.⁸⁶ It is clear that the SDWA does not have an express preemption provision.⁸⁷ Therefore, the court looked to the two implied preemption doctrines.⁸⁸ The length of the analysis for both doctrines is

77. *Id.*

78. *See generally* KRAMER & MARTIN, *supra* note 12, § 24.04[2].

79. *Bath Petroleum Storage, Inc. v. Sovas*, 309 F. Supp. 2d 357, 364 (N.D.N.Y. 2004).

80. *See id.*

81. *See id.*

82. *See id.* at 364-65.

83. *See id.* at 365.

84. *See id.*

85. *See id.*

86. *See id.* at 365-74.

87. *See id.* at 366.

88. *Id.*

a good indication that both doctrines entail a type of balancing test whereby the judiciary is attempting to ascertain the unascertainable relating to implied congressional intent to preempt.

In defining the term “actual conflict,” which is the standard that must be met in order to have preemption, the court noted that actual conflicts exist only where compliance with both federal and state regulations is either a physical impossibility or where the state regulations are an obstacle to the attainment of congressional purposes or objectives.⁸⁹ Given the overall nature of the cooperative federalism principle, courts should find that dual regulatory systems are not necessarily in conflict with each other even if they are not entirely complementary.

As an ad hoc test, the court must review each of New York’s regulations to see if an actual conflict exists.⁹⁰ On the issue of New York’s attempted imposition of a sonar survey requirement, that issue was the subject of a specific comment by New York in the Class III UIC permit process.⁹¹ The EPA addressed New York’s concerns by saying that it would not impose such a requirement now but that it would leave open that issue for future consideration.⁹² The court noted that the sonar survey would not be part of the Class III permit, and therefore, the state’s imposition of the requirement would not be in direct conflict with the permit.⁹³ That seems to be a bit of a semantic game being played by the court because the EPA considered and rejected the sonar survey requirement, and if it was not part of the Class III permit application, it should not have been discussed by the EPA. Nonetheless, the court found that the sonar survey requirement was aimed at monitoring the integrity of the storage facility containing hydrocarbons and thus was not an obstacle to the SDWA’s primary purpose of protecting underground drinking water supplies.⁹⁴

Bath also argued that the SPDES permit was a direct obstacle to the effectiveness of federal law because it would require a federal permit-holder to seek another permit, which may be denied or conditionally granted, and thus prevent the federal permit-holder from exercising its rights under the federal permit.⁹⁵ Again, the court found that requiring Bath to get an SPDES permit would not frustrate the full objectives of the SDWA because the SDWA and the Clean Water Act are complementary and must be implemented together.⁹⁶

The court’s implied preemption by occupation of the field analysis involves two steps: defining the field and then determining whether New

89. *Id.* at 370.

90. *See id.*

91. *Id.*

92. *Id.*

93. *Id.* at 371.

94. *Id.* at 371-72.

95. *Id.* at 372.

96. *Id.*

York's regulations improperly intrude onto the federal field.⁹⁷ The court found that the SDWA does occupy a regulatory field and defines that field as "public drinking water regulation."⁹⁸ Because the UIC program is part of the system of protecting public drinking water supplies, it too occupies the field.⁹⁹ Clearly, by not seeking primacy, New York has conceded that it has no authority to regulate through the UIC program.¹⁰⁰ But, where the EPA has consistently granted UIC permits conditioned on receiving state or local permits, there can be no preemption.¹⁰¹ The EPA concedes that New York regulates hydrocarbon storage activities and surface discharges through the SPDES system.¹⁰² Thus, to the extent to which New York is not regulating through its own UIC permit system but through its surface water and LPG storage permit system, there will be no preemption.¹⁰³

As with the conflict preemption analysis, the court looked at the sonar survey and SPDES requirements separately to see if they encroach upon the federal field.¹⁰⁴ The court determined that Bath's Class II permit only authorized it to operate an injection well for the extraction of minerals and for the injection of fluids to displace the LPG stored in the caverns and that this permit was outside the field of New York's sonar survey requirement, which involved the field of hydrocarbon storage.¹⁰⁵ Hydrocarbon storage was a proper subject of state regulation that did not invade the field of drinking water supplies or injection facilities.¹⁰⁶ As such, there was no field preemption.¹⁰⁷

Likewise, the SPDES permit was concerned with surface spills emanating from the above-ground storage facilities and from the surface well equipment.¹⁰⁸ That was also beyond the field of injection operations and drinking water supplies.¹⁰⁹ In addition, the Class IID permit specifically noted that it did not deal with surface disposal of fluids.¹¹⁰ The permit recognized

97. *Id.*

98. *Id.* (citing *ARCO Oil & Gas Co. v. EPA*, 14 F.3d 1431, 1436 (10th Cir. 1993); *Mattoon v. City of Pittsfield*, 980 F.2d 1, 4 (1st Cir. 1992)).

99. *See id.* at 367.

100. *Id.*

101. *See id.* at 366-67.

102. *Id.*

103. *See id.* The SDWA has, as most federal environmental statutes do, a savings provision that seeks to allow states to adopt or enforce any laws or regulations. 42 U.S.C. § 300h-2(d) (2006). The court interpreted that "savings clause" as merely reinforcing the states' retention of authority so long as that authority did not impinge upon the UIC program being administered through the EPA or the states where primacy approval has been given. *Bath Petroleum Storage*, 309 F. Supp. 2d at 366-67.

104. *Bath Petroleum Storage*, 309 F. Supp. 2d at 368.

105. *See id.* at 368-69.

106. *Id.*

107. *Id.* at 370.

108. *See id.* at 368-69.

109. *Id.* at 369.

110. *See id.* at 369-70.

that because New York has enforcement authority under the Clean Water Act, an SPDES permit would be required to deal with surface disposal issues.¹¹¹

The fact that a state regulatory program may impose additional costs on a federal permit-holder is insufficient to support a preemption claim.¹¹² As *Bath* suggested, finding implied preemption under either of the two theories will be a fact-intensive inquiry that will lead to little predictability on the scope and extent of state and local regulatory powers.¹¹³

IV. THE *LEAF* DECISIONS¹¹⁴

Under the SDWA, Alabama sought a primacy determination so that it could administer the UIC program.¹¹⁵ Initially, the EPA approved having the Class II UIC program administered by the State Oil and Gas Board in 1982.¹¹⁶ It took another year for the EPA to approve the Alabama Department of Environmental Management's (DEM) control over the other classes of UIC wells.¹¹⁷ During the decade of the 1980s, there was a marked increase in the development of the coalbed methane (CBM) resources of the Black Warrior Basin of Alabama.¹¹⁸ Hydraulic fracturing was a widely used technique to increase production of CBM.¹¹⁹ After an initial inquiry by the nongovernmental organization, Legal Environmental Assistance Foundation, Inc. (LEAF), to both the Oil and Gas Board and the DEM resulted in LEAF being told that neither body treated hydraulic fracturing as an "underground injection," LEAF filed a petition with the EPA, seeking to challenge the EPA's approval of Alabama's UIC program.¹²⁰ The challenge was based on Alabama's failure to regulate hydraulic fracturing operations under its UIC program.¹²¹ On May 5, 1995, the EPA denied the petition because it determined that hydraulic fracturing operations did not fall within the statutory definition of an "underground injection."¹²² Under the EPA interpretation of "underground injection," only "those wells whose 'principal function' is the underground emplacement of fluids" must be regulated under the UIC program.¹²³ Because the hydraulic fracturing operations take place in what ultimately will be CBM production

111. *Id.* at 370.

112. *See id.* at 368.

113. *See id.* at 369-70.

114. *Legal Envtl. Assistance Found., Inc. v. EPA (LEAF I)*, 118 F.3d 1467 (11th Cir. 1997); *Legal Envtl. Assistance Found., Inc. v. EPA (LEAF II)*, 276 F.3d 1253 (11th Cir. 2001), *reh'g en banc denied*, 34 Fed. App'x 392 (11th Cir. 2002), *cert. denied*, 527 U.S. 989 (2002).

115. *See LEAF I*, 118 F.3d at 1469.

116. 40 C.F.R. § 147.50 (2011).

117. *Id.* § 147.51.

118. *See LEAF I*, 118 F.3d at 1470-71 & n.5.

119. *See, e.g., id.* at 1470.

120. *Id.* at 1469-72.

121. *Id.* at 1471.

122. *Id.*

123. *Id.*

wells, the principal function of those wells is CBM production and not the injection of fluids into underground strata.¹²⁴ The EPA also disputed the claims of two LEAF members who asserted that nearby hydraulic fracturing operations had diminished the quality of their well water.¹²⁵

The court had to deal with a preliminary issue regarding the nature of the challenge raised by LEAF. If the litigation was seen as an appeal of the EPA's denial of LEAF's petition, the case clearly fell within the court's jurisdiction because the appeal was filed within the forty-five day statute of limitations contained in the SDWA.¹²⁶ But if, as the EPA urged, the action was really a challenge to the original decisions giving Alabama primacy to regulate underground injections, those decisions were made many years earlier and the statute of limitations would have run.¹²⁷ Likewise, if the challenge was to the adoption of regulations that occurred several years prior to the institution of this litigation, the court would lack jurisdiction either due to the application of the limitations provision or because the appeal was a collateral attack on the earlier EPA decisions.¹²⁸ The court held that where there is a substantive challenge to an interpretation of a regulation and its consistency with the statutory mandate, that challenge can be made following the denial of the petition where the issue is raised as opposed to seeking judicial review upon the initial promulgation of the regulation.¹²⁹

Because this case involved an agency's interpretation of its own regulations, as well as the SDWA, the *Chevron* framework was again applicable.¹³⁰ The EPA interpretation involved the "principal function" test as a determinant to whether or not a well that was physically injecting substances into the sub-strata was required to have a UIC Class II permit and whether it must be consistent with the SDWA mandates in order to be valid.¹³¹ The court applied the two-step *Chevron* approach of seeing whether Congress had clearly expressed its intent in the language of the statute.¹³² The court looked to the particular statutory language at issue but also looked at the "language and design of the statute as a whole."¹³³ The "four corners" approach was important in this case because it emphasized the overall purpose and scheme of the SDWA, which is to prevent underground injection that endangers drinking water supplies through a UIC regulatory program that prohibits all such injections that are not authorized by either an individual permit or by

124. *Id.*

125. *Id.*

126. See 42 U.S.C. § 300j-7(a)(2) (2006); *LEAF I*, 118 F.3d at 1472-73.

127. See *LEAF I*, 118 F.3d at 1472.

128. See *id.*

129. See *id.* at 1472-73.

130. See *id.* at 1474.

131. See *id.* at 1473-74.

132. *Id.* at 1474.

133. *Id.* (citing *K Mart Corp. v. Cartier, Inc.*, 486 U.S. 281, 291 (1988)).

categorical permits allowed by a State that has received primacy status.¹³⁴ Only then does the court turn to the statutory definition of “underground injection.” The SDWA defined that term as “the subsurface emplacement of fluids by well injection.”¹³⁵ Such a term does not include “the underground injection of natural gas for purposes of storage.”¹³⁶

While the definition appears to be straightforward with no ambiguity and a single express exception, the EPA contended that Congress, by failing to further define the term “well injection,” created an ambiguity that the EPA resolved through its “primary function” test.¹³⁷

The court’s approach was as straightforward as the statutory definition, namely that Congress chose its words and phrases carefully and with precision.¹³⁸ Only where Congress has left a gap in the statutory language or created an ambiguity should *Chevron* deference apply to the agency interpretation.¹³⁹ Underground injection entails “the subsurface emplacement of fluids by forcing them into cavities and passages in the ground through a well.”¹⁴⁰ “[H]ydraulic fracturing [clearly] falls within this definition, as it involves the subsurface emplacement of fluids by forcing them into cracks in the ground through a well.”¹⁴¹ The plain meaning of underground injection clearly encompasses a hydraulic fracturing operation.¹⁴²

At that point the *Chevron* analysis had been completed and the result was clear, namely that hydraulic fracturing operations are underground injections that must be permitted as a Class II well in order to comply with the SDWA.¹⁴³ The court nonetheless went on to deal with the EPA’s arguments as to why its primary function test was a permissible interpretation of the statute.¹⁴⁴ The EPA relied heavily on legislative history to support its interpretation, notwithstanding the fact that under the *Chevron* analysis, legislative history is not to be considered where Congress has directly and plainly addressed the relevant issue.¹⁴⁵ Furthermore, the court cited to legislative history, which belied the EPA argument that Congress did not intend to regulate all kinds of

134. *See id.* The court specifically identified 42 U.S.C. § 300h(b)(1), which sets forth the purpose of preventing damage to drinking water supplies, and § 300h(b)(1)(A), thus setting forth the minimum criteria by which states can attain primacy status. *See id.*

135. 42 U.S.C. § 300h(d)(1) (2006).

136. *Id.*

137. *LEAF I*, 118 F.3d at 1474.

138. *See id.*

139. *Id.*

140. *Id.*

141. *Id.* at 1474-75 (footnote omitted).

142. *See id.* In a footnote, the court noted and soundly rejected an Alabama argument that because not all frac fluids are left in the ground, hydraulic fracturing is not an underground injection. *See id.* at 1474 n.10. As the court stated, this view is untenable given the admitted fact that some fluids are left in the ground and are never recovered. *Id.* In addition, the EPA regulates a number of other operations where fluids are temporarily injected and then produced along with other products. *Id.*

143. *See id.* at 1475.

144. *See id.* at 1475-77.

145. *See id.*

underground injections.¹⁴⁶ Although Congress did not intend to regulate oil and gas drilling operations, the court found that hydraulic fracturing operations are not exempt drilling operations.¹⁴⁷ The court also rejected the EPA's claim that Congress had implicitly ratified the EPA interpretation of underground injection by not overturning it when it enacted the SDWA amendments in 1986.¹⁴⁸ There was no reference in the legislative history of the 1986 amendments that Congress was aware of the EPA interpretive position, much less that it intended to ratify that position.¹⁴⁹

The court stated:

In sum, we conclude that hydraulic fracturing activities constitute "underground injection" under Part C of the SDWA. EPA's contrary interpretation cannot be squared with the plain language of the statute and thus must fall. "[T]hat is the end of the matter." Broad as EPA's discretion in formulating regulatory policy within the framework of the SDWA may be, "it must bow to the specific directives of Congress."¹⁵⁰

The EPA's response to the initial court order finding that its approval of the Alabama UIC program without it covering hydraulic fracturing operations was something less than an embrace of the Eleventh Circuit's interpretation of the SDWA.¹⁵¹ LEAF had to seek a writ of mandamus against the EPA to enforce the court's mandate.¹⁵² "[The] EPA subsequently initiated proceedings to withdraw approval of Alabama's Class II UIC program."¹⁵³ Because the administrative mechanism for withdrawal of approvals and primacy moved along quite slowly, Alabama responded by submitting a revised UIC program to the EPA.¹⁵⁴ Alabama still did not want to issue individual permits for hydraulic fracturing operations, so it sought to bring its UIC program under the alternative demonstration provision of the SDWA.¹⁵⁵ LEAF filed public comments opposing Alabama's proposed revisions based on LEAF's claim that hydraulic fracturing operations did not fit within any of the categories listed in the SDWA for the alternative demonstration procedure.¹⁵⁶ Not surprisingly, the EPA rejected LEAF's contentions and then approved the Alabama UIC program submission while clearly stating that the UIC regulations under the

146. *See id.*

147. *See id.* at 1477.

148. *See id.*

149. *See id.*

150. *Id.* at 1478 (alteration in original) (internal citation omitted).

151. *See id.* at 1471.

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

153. *Id.* The notice is published at 64 Fed. Reg. 27,744 (May 21, 1999).

154. *LEAF II*, 276 F.3d at 1256. The notice is published at 64 Fed. Reg. 56,986 (Oct. 22, 1999).

155. *LEAF II*, 276 F.3d at 1256.

156. *Id.*; *see* 42 U.S.C. § 300h-4(a) (2006).

SDWA did not cover hydraulic fracturing operations, notwithstanding what the Eleventh Circuit had mandated.¹⁵⁷

LEAF again challenged the EPA approval of the Alabama UIC program as revised.¹⁵⁸ LEAF first claimed that hydraulic fracturing is not the same as the injection of fluids or gases for secondary or tertiary recovery purposes for which the alternative demonstration procedure was available.¹⁵⁹ It also argued that hydraulic fracturing operations clearly fall within the definition of what Class II wells are supposed to permit, as determined in *LEAF I*.¹⁶⁰ Finally, LEAF had argued that if the court treated hydraulic fracturing as falling within the alternative demonstration procedure, the EPA approval was still arbitrary and capricious.¹⁶¹ The SDWA provides two procedures for federal approval of state UIC programs.¹⁶² The § 1425 procedure (alternative demonstration procedure) is admittedly more flexible with fewer federal mandates than the § 1422 procedure.¹⁶³ As with *LEAF I*, the principal issue boiled down to one of statutory interpretation under the *Chevron* deference doctrine.¹⁶⁴ The § 1425 procedure is available for a state UIC program that “relates to . . . any underground injection for the secondary or tertiary recovery of oil or natural gas.”¹⁶⁵ The Eleventh Circuit agreed with the EPA’s interpretation of § 1425 as not solely being limited to secondary or tertiary recovery oil and gas projects.¹⁶⁶ LEAF argued that hydraulic fracturing operations are used in the primary recovery phase of the CBM recovery process and thus were not subject to the § 1425 procedure.¹⁶⁷ While hydraulic fracturing was not identical to secondary or tertiary recovery operations, it did “relate to” such operations, which is the statutory language used to trigger the § 1425 approval process.¹⁶⁸ Because Congress has not spoken directly on the subject, the EPA’s interpretation of the statute was entitled to deference so long as it was a reasonable or permissible interpretation.¹⁶⁹ The court had no difficulty holding that the EPA met that standard.¹⁷⁰ Finally, the court upheld the EPA’s decision to use § 1425 to approve the Alabama UIC permit system.¹⁷¹ Because the EPA failed to review the Alabama UIC program to see whether or not it regulated hydraulic

157. *LEAF II*, 276 F.3d at 1256. The EPA approval of the Alabama UIC program is published at 65 Fed. Reg. 2889, 2891-92 (Jan. 19, 2000) (“EPA has not promulgated Federal regulations which specifically cover hydraulic fracturing.”).

158. *LEAF II*, 276 F.3d at 1254-55.

159. *See id.* at 1256.

160. *See id.*

161. *Id.*

162. *Id.*

163. *See id.* at 1257.

164. *See id.* at 1256-58; *LEAF I*, 118 F.3d 1467, 1473 (11th Cir. 1997).

165. *LEAF II*, 276 F.3d at 1258 (quoting 42 U.S.C. § 300h-4).

166. *See id.* at 1259.

167. *See id.* at 1258-59.

168. *See* § 300h-4(a); *LEAF II*, 276 F.3d at 1258-59.

169. *See LEAF II*, 276 F.3d at 1258-60.

170. *See id.* at 1260.

171. *See id.* at 1264-65.

fracturing under its Class II UIC regulatory program, that portion of the EPA approval decision was reversed and remanded for further consideration.¹⁷²

The *LEAF II* decision did not lead to the EPA's review of other states' UIC programs to see whether or not they covered hydraulic fracturing operations. The decision did, however, lead to a reevaluation of the EPA's role in regulating hydraulic fracturing.

V. THE EPA RESPONSE IN 2003–2004

The EPA began to study the issue of hydraulic fracturing at about the same time that the Eleventh Circuit decided *LEAF II*.¹⁷³ Because the *LEAF* cases involved hydraulic fracturing into CBM formations, which was the most prevalent use of fracturing at that time, “[t]he goal of [the EPA] study was to assess the potential for contamination of USDWs [underground sources of drinking water] due to the injection of hydraulic fracturing fluids into coalbed methane wells, and to determine, based on these findings, whether further study is warranted.”¹⁷⁴

During this study, the industry engaged in a lobbying effort to minimize federal involvement in the regulation of hydraulic fracturing.¹⁷⁵ Also during this study period, the EPA and several major players in the oilfield services industry that accounted for a substantial percentage of the hydraulic fracturing operations then taking place in the United States entered into a Memorandum of Agreement (MOA).¹⁷⁶ The MOA specifically noted in the Preamble that it was a voluntary agreement between the signatory parties.¹⁷⁷ The MOA is a short document containing about five pages of text.¹⁷⁸ There is hortatory language in the Preamble section by which the companies “agree to eliminate diesel fuel in hydraulic fracturing fluids injected into coalbed methane (CBM) production wells in underground sources of drinking water (USDWs) and, if

172. *See id.* at 1265.

173. *See* NAT'L ENERGY POLICY DEV. GRP., RELIABLE, AFFORDABLE, AND ENVIRONMENTALLY SOUND ENERGY FOR AMERICA'S FUTURE, at vii (May 2001), http://www.ne.doe.gov/pdf/nationalenergy_policy.pdf. President George W. Bush created the National Energy Policy Development Group (the Group), chaired by Vice President Cheney which, among other tasks, looked at the issue of CBM development, hydraulic fracturing, and groundwater pollution. *See id.* at xii-xv. Because the EPA study was ongoing, there was apparently some dispute between the EPA and the Group, which may have led to the Group's report essentially remaining silent on the subject. *See id.* at 5-6.

174. U.S. ENVTL. PROT. AGENCY, EVALUATION OF IMPACTS TO UNDERGROUND SOURCES OF DRINKING WATER BY HYDRAULIC FRACTURING OF COALBED METHANE RESERVOIRS, EPA 816-R-04-003, at 7-1 (June 2004), http://www.epa.gov/ogwdw/uic/pdfs/cbmstudy_attach_uic_ch07_conclusions.pdf [hereinafter 2004 EPA STUDY].

175. *See* Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 FORDHAM ENVTL. L. REV. 115, 144-45 & n.153 (2009).

176. A MEMORANDUM OF AGREEMENT BETWEEN THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND BJ SERVICES COMPANY, HALLIBURTON ENERGY SERVICES, INC., AND SCHLUMBERGER TECHNOLOGY CORPORATION 1 (Dec. 12, 2003), http://www.epa.gov/ogwdw/uic/pdfs/moa_uic_hyd-fract.pdf.

177. *Id.* at 2.

178. *Id.* at 1-9.

necessary, select replacements that will not cause hydraulic fracturing fluids to endanger USDWs.”¹⁷⁹ The operative language of the MOA states: “The Companies agree to eliminate diesel fuel in hydraulic fracturing fluids injected into CBM production wells in USDWs within 30 days of signing this agreement.”¹⁸⁰ It is important to note that there are two major limitations of the use of diesel fuel in fracing fluids: it only applies to CBM production wells and to CBM production wells in USDWs.¹⁸¹ Thus, on its face, the MOA did not apply to shale gas wells or any other non-CBM production well and did not apply to any well that was not in an underground source of drinking water.¹⁸²

One of the other operative provisions of the MOA required the EPA to publish its ongoing frac study (2004 Study).¹⁸³ That publication took place in June 2004.¹⁸⁴ The study is reasonably voluminous and contains several substantial technical appendices.¹⁸⁵ As noted above, the purpose of the 2004 Study was not to look at hydraulic fracturing in general, but to survey the extant literature on matters relating to the use of hydraulic fracturing in CBM production wells.¹⁸⁶ The 2004 Study noted that there were two potential mechanisms by which frac fluids might affect the quality of groundwater: direct injection of fluids into a USDW in which the coal is located or the creation of a hydraulic connection between the CBM formation and the USDW due to the fracing operation.¹⁸⁷ Likewise, the 2004 Study expressed some concern about the stranding of frac fluids in the formation because of the potential for communication between the CBM formation being fraced and a USDW.¹⁸⁸

Overall, the 2004 Study concluded that there was no confirmed evidence that in the thousands of wells being fractured on an annual basis there had been contamination of drinking water wells from the migration of frac fluids.¹⁸⁹ The 2004 Study also noted that various physical characteristics of groundwater or fluid migration such as dilution, dispersion, adsorption, and biodegradation will “minimize the possibility that chemicals included in the fracturing fluids would adversely affect USDWs.”¹⁹⁰ The 2004 Study did note that there was some

179. *Id.* at 2. The Preamble also notes the benefits of hydraulic fracturing while noting that the overall purpose of the MOA is to eliminate the use of diesel fuels as a part of the fracing fluids that are “injected into CBM production wells in USDWs.” *Id.*

180. *Id.* at 5.

181. *Id.*

182. *Id.* at 2-5.

183. *Id.* at 4.

184. *See* 2004 EPA STUDY, *supra* note 174, at 7-1.

185. *See id.* at 7-1 to 7-6.

186. *See id.*

187. *See id.* at 7-1.

188. *See id.* at 7-1 to 7-6.

189. *See id.* at Summary. The notion of a lack of evidence relating to contamination of groundwater or nearby water wells has been challenged in the December 2011 EPA Draft Report. *See* U.S. ENVTL. PROT. AGENCY, DRAFT: INVESTIGATION OF GROUND WATER CONTAMINATION NEAR PAVILLION, WYOMING, EPA 600/R-00/000, at 33 (Dec. 2011), http://www.epa.gov/region8/superfund/wy/pavillion/EPA_ReportOnPavillion_Dec-8-2011.pdf.

190. *See* 2004 EPA STUDY, *supra* note 174, at 7-3.

concern about the composition of frac fluids, including the use of diesel fuel.¹⁹¹ But the 2004 Study also noted the 2003 MOA was designed to eliminate the use of diesel fuel as a constituent part of the frac fluid for CBM wells in USDWs.¹⁹² Overall, the 2004 Study did not raise red flags or alarms, insofar as the EPA was concerned, regarding the continued widespread use of hydraulic fracturing.¹⁹³

VI. THE ENERGY POLICY ACT OF 2005

Legislation seeking to deal with the world of energy policy was winding its way through the halls of Congress when the 2004 Study was completed. One of the precursors to the Energy Policy Act of 2005 (EPACT) contained a provision that would exclude hydraulic fracturing from the SDWA's definition of "underground injection" and thus legislatively overturn the *LEAF I* and *II* decisions.¹⁹⁴ The Senate version, however, removed substantial portions of the omnibus bill, including the fracturing exemption.¹⁹⁵ During the conference between the House and the Senate, the fracturing exemption language reappeared in the legislation, accompanied by a specific reference to diesel fuel constituting an exception from the general fracturing exemption.¹⁹⁶ As finally enacted, § 1421 of the SDWA was amended to provide:

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.¹⁹⁷

There is little, if any, legislative history as to either the reason why the general exemption for hydraulic fracturing was reincorporated into the final bill or why the diesel fuels exception to the exemption was added because it was not in the original House Bill. The 2004 Study and the 2003 MOA had singled out diesel

191. *Id.* at 7-3, 7-5.

192. *See id.* at 7-3.

193. *See id.* at A9-5. The 2004 Study obviously had its detractors—some of whom are discussed by Hannah Wiseman, who likens the Study to the EPA's failed study relating to MTBE. *See Wiseman, supra* note 175, at 168-70. The Study's conclusion was also challenged by an EPA "whistleblower" who sent a lengthy letter to various Senators and Congressman asserting that the Study was fatally flawed. Letter from Weston Wilson, Colorado EPA, to Sen. Wayne Allard, Sen. Ben Nighthorse Campbell, and Rep. Diane DeGette (Oct. 8, 2004), <http://www.earthworksaction.org/files/publications/Weston.pdf?pubs/Weston.pdf>.

194. Energy Policy Act of 2005, H.R. 6, 109th Cong. § 327 (as introduced to the House, April 18, 2005).

195. H.R. 6 (Senate engrossed amendment June 28, 2005).

196. H.R. 6, § 322 (enrolled bill).

197. Energy Policy Act of 2005, § 322 (amending 42 U.S.C. § 300h(d)). EPACT does not define the term "diesel fuels."

fuels for special treatment in part because such fuels often contain benzene, toluene, ethyl benzene, and xylenes, which are known contaminants that are regulated under the SDWA and whose concentrations in diesel fuel probably would exceed the discharge levels authorized for such compounds.¹⁹⁸

There has been no judicial interpretation of the amended version of the SDWA. Likewise, there has been no judicial or administrative determination as to what is encompassed by the use of the term diesel fuels that was not defined in EPACT of 2005. The EPA is taking the position on its website, but not through a regulation, that it has broad authority to regulate the use of diesel fuel through the UIC program.¹⁹⁹ Likewise, the EPA asserts that injection wells using frac fluids that contain diesel fuels will be regulated under the UIC program as Class II wells.²⁰⁰ There is no commentary, rule, or regulation, however, that defines “diesel fuel” for purposes of gaining EPACT’s exception to the general exemption for hydraulic fracturing operations. One would think that with the ongoing studies being conducted relating to hydraulic fracturing that any rulemaking relating to the diesel fuel exception will await the publication of the study or studies.

VII. RELATED FEDERAL LEGISLATIVE AND REGULATORY PROGRAMS

In addition to the Safe Drinking Water Act, the federal government gets involved with hydraulic fracturing operations through the Occupational Safety and Health Administration (OSHA).²⁰¹ OSHA requires that workplaces identify any hazardous chemicals that may be present through the use of Material Safety Data Sheets (MSDS).²⁰² The MSDS system, however, does not require the disclosure of the specific constituents of any hazardous chemical nor the quantities that are present at the workplace.²⁰³ The Emergency Planning and Community Right-to-Know Act (EPCRA) also provides further federal regulation through the MSDS reporting system along with a hazardous chemical inventory reporting system that is specific to EPCRA.²⁰⁴ Both reporting systems provide substantial information designed to minimize health and safety threats to employees and other parties who may have access to the workplace.²⁰⁵

198. See 2004 EPA STUDY, *supra* note 174, at 4-11.

199. *Regulation of Hydraulic Fracturing Under the Safe Drinking Water Act*, ENVTL. PROT. AGENCY, http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_hydroreg.cfm (last visited Apr. 7, 2012).

200. *Id.*

201. See 29 C.F.R. § 1910.120 (2011).

202. See *id.*

203. *Id.*

204. See 42 U.S.C. §§ 11021, 11022 (Supp. 2010).

205. See 29 C.F.R. § 1910.120; 42 U.S.C. §§ 11021, 11022.

VIII. THE 2009 CONGRESSIONAL SESSION

On June 9, 2009, sponsors in the House and the Senate introduced the “Fracturing Responsibility and Awareness of Chemicals Act,” commonly referred to as the FRAC Act.²⁰⁶ Although these bills did not receive formal consideration during the 111th Congress, they contained three major programmatic changes to the existing regulatory scheme for hydraulic fracturing operations.²⁰⁷ The bills would have amended the SDWA so that hydraulic fracturing operations would fall under the UIC program.²⁰⁸ Secondly, the bills would have required the public disclosure of “the chemical constituents (but not the proprietary chemical formulas) used in the fracturing process.”²⁰⁹ Such information would have to be made available to the public through an appropriate Internet portal.²¹⁰ “Finally, [the] bills would require the disclosure of the complete formulas of [any additives] to [the] EPA, a state, or medical personnel in case of a ‘medical emergency.’”²¹¹ In the latest session of Congress, another version of the FRAC Act was introduced with the same provisions as the earlier bills.²¹²

IX. THE LATEST EPA STUDY

In response to a request from the House Appropriations Committee in 2009 for the EPA to revisit the relationship between underground sources of drinking water and hydraulic fracturing, the EPA announced in March 2010 that it would be embarking on a new study.²¹³ In February 2011, the EPA issued its Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources.²¹⁴ As part of the multi-year study, the EPA has chosen to closely analyze data from seven case studies, including two locations for which EPA monitoring will take place from the beginning of the drilling program.²¹⁵ Those two locations are in De Soto Parish, Louisiana, dealing with a prospective Haynesville Shale well, and in Washington County,

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

207. Daniel Steinway, J. Barton Seitz & Rebecca Moring, *Hydraulic Fracturing: How We Got Here and Where We Are Headed*, 61 INST. ON OIL & GAS L. & TAX’N 209, 233 (2011).

208. *See id.*

209. S. 1215, § 2(b).

210. *See* Steinway et al., *supra* note 207, at 233.

211. *Id.* There were other attempts to put one or more of these regulatory programs into other legislation in 2009 and 2010, including Senator Reid’s “Clean Energy Jobs and Oil Company Accountability Act of 2010.” *Id.* at 233-35. These measures, like the FRAC Act, were never passed. *Id.* at 234-35.

212. *See* H.R. 1084, 112th Cong. (2011).

213. Steinway et al., *supra* note 207, at 235.

214. U.S. ENVTL. PROT. AGENCY, DRAFT PLAN TO STUDY THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING ON DRINKING WATER RESOURCES (Feb. 2, 2011), <http://o.aolcdn.com/os/industry/energy/photos/EPA-Hydraulic-Fracturing-Draft-Plan.pdf> [hereinafter DRAFT PLAN].

215. U.S. ENVTL. PROT. AGENCY, PLAN TO STUDY THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING ON DRINKING WATER RESOURCES 58 (Nov. 2011), http://www.epa.gov/hfstudy/HF_Study_Plan_110211_FINAL_508.pdf.

Pennsylvania, with a prospective Marcellus Shale well.²¹⁶ There are also five case studies tied to anecdotal claims of groundwater pollution by existing wells that have been hydraulically fractured. These studies include wells located in the Bakken Shale, the Barnett Shale, the Marcellus Shale (multiple locations), and the Raton Basin.²¹⁷ The EPA chose these sites based on a set of criteria designed to cover much more ground than the 2004 Study.²¹⁸ These criteria included proximity to populated areas, proximity to drinking water supplies, evidence of impaired water quality, health and environmental concerns, and knowledge gaps that could be filled by the case study.²¹⁹ In addition, the Draft Plan organizes the research study into five areas of inquiry, using as its paradigm, the “water lifecycle” of hydraulic fracturing, starting with: (1) water acquisition, (2) chemical mixing, (3) well injection, (4) flowback and produced water, and (5) wastewater treatment and waste disposal.²²⁰ As part of its study process, the EPA has held a number of stakeholder meetings with various interest groups.²²¹

X. THE BLM RESPONSE

During the first decade of the twenty-first century, the Bureau of Land Management (BLM), in its role of federal land manager overseeing a substantial amount of oil and gas production on federal lands, remained quiescent while other administrative and legislative bodies were starting a new round of studies of the impact of hydraulic fracturing on the environment. That changed on April 1, 2011, when BLM announced that it was going to hold a series of regional meetings to discuss the use of hydraulic fracturing techniques to stimulate natural gas production on public lands.²²² As the April 2011 release stated: “Topics to be discussed will include best management practices, disclosure of the chemicals used in hydraulic fracturing fluids, well construction and integrity, production wastewater management and other techniques for protecting drinking water resources.”²²³

The three regional fora were held in Bismarck, North Dakota; Little Rock, Arkansas; and Denver, Colorado.²²⁴ In addition to BLM officials, representatives of the oil and gas industry, individuals, nongovernmental

216. *Id.* at 62.

217. *Id.* at 61-62.

218. *See id.* at 38.

219. *See id.* at 59.

220. *See id.* at 17-18.

221. U.S. ENVTL. PROT. AGENCY, PERMITTING GUIDANCE FOR OIL AND GAS HYDRAULIC FRACTURING ACTIVITIES USING DIESEL FUELS 5 (May 2011), <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/HF-With-Diesel-Guidance-Webinar-May-2011-revised-508.pdf>.

222. *See BLM to Hold Regional Forums on Hydraulic Fracturing in Natural Gas Production*, U.S. DEP’T OF THE INTERIOR BUREAU OF LAND MGMT. (Apr. 1, 2011), http://www.blm.gov/co/st/en/BLM_Information/newsroom/2011/blm_to_hold_regional.html.

223. *Id.*

224. *Id.*

organizations, and state oil and gas conservation agencies usually attended these public town hall meetings.²²⁵ Now that the public participation period has concluded, it is to be expected that proposed changes to the regulations may be in the offing.²²⁶ BLM has recently announced proposed regulations dealing with hydraulic fracturing operations on federal and Indian lands.²²⁷

XI. THE SECRETARY OF ENERGY ADVISORY BOARD (SEAB)

On March 30, 2011, President Obama announced the creation of the SEAB in order to facilitate the development of shale gas, ensure environmental protection, and meet public concerns.²²⁸ The Shale Gas Production Subcommittee was tasked with coming up with a report in ninety days.²²⁹ The Subcommittee included the following members: John Deutch, Stephen Holditch, Fred Krupp, Kathleen McGinty, Susan Tierney, Daniel Yergin, and Mark Zoback.²³⁰ The August 18, 2011 SEAB Subcommittee Report contained a summary of the scope and procedure used in developing the recommendations.²³¹ The report emphasized the need to manage the risk involved in large-scale shale gas production in the United States.²³² It also stressed the importance of developing and implementing best practices when it comes to the exploration and production processes necessary to exploit the resource.²³³ The Subcommittee did not balance the benefits of shale gas production against the environmental costs.²³⁴ This initial report identified some general objectives and then began to analyze potential recommendations to achieve those objectives.²³⁵

225. As an example, the following speakers made presentations at the Bismarck, North Dakota forum: John Paneitz, Whiting Petroleum Corp.; Mike Eberhard, Halliburton Energy Services; Fred Fox, MHA Nation/FBIR; Myron Hanson, Northwest Landowners Association; Lynn Helms, North Dakota Oil & Gas Commission; Dennis Fewless, North Dakota Department of Health; and Donald Nelson, Dakota Resource Council. Transcript of Public Forum, Hydraulic Fracturing on Public Lands Forum (Apr. 20, 2011), http://www.blm.gov/pgdata/etc/medialib/blm/mt/blm_programs/energy/oil_and_gas.Par.98124.File.tmp/forumtranscript.pdf.

226. *See id.*

227. Press Release, Oil and Gas; Well Simulation, Including Hydraulic Fracturing, on Federal and Indian Lands 1, <http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&pageid=293916>.

228. THE WHITE HOUSE, THE BLUEPRINT FOR A SECURE ENERGY FUTURE 13 (Mar. 30, 2011), http://www.whitehouse.gov/sites/default/files/blueprint_secure_energy_future.pdf.

229. *See id.*

230. U.S. DEP'T OF ENERGY, SEC'Y OF ENERGY ADVISORY BD., SHALE GAS PROD. SUBCOMM. 90-DAY REPORT 37-39 (Aug. 18, 2011), http://www.shalegas.energy.gov/resources/081811_90_day_report_final.pdf.

231. *See id.* at 9-12.

232. *See id.* at 15-26.

233. *See id.* at 26-30. Not only should there be the identification of best practices, but there should be an organized effort to continuously improve what constitutes best practices in shale gas development. *See id.* at 26-27.

234. *See id.* at 11.

235. *See id.* at 9-33.

The first major objective was to make shale gas information available to the public so that they make informed decisions.²³⁶ This objective may be achieved through the creation of a national database and more support for two existing organizations: the State Review of Oil and Natural Gas Environmental Regulation (STRONGER) and the Ground Water Protection Council.²³⁷ A second major objective was to reduce environmental and public safety risks inherent in shale gas operations.²³⁸ The report then listed three action-item recommendations to achieve this objective: (1) the enlistment of a cohort of producers in different basins to “implement measurement systems to collect comprehensive methane and other air emissions data”; (2) an “assessment of the greenhouse gas footprint for cradle-to-grave use of natural gas”; and (3) a cooperative venture between operators and regulators to immediately reduce air emissions using proven technological practices.²³⁹

The third general objective was the need to protect the water supply and water quality.²⁴⁰ The supply issue refers to the need for large quantities of water for the fracking operations while the quality issue relates to potential pollution of groundwater and drinking water supplies through the migration of methane or frac fluids.²⁴¹ The report also listed ancillary recommendations designed to achieve the water supply and water quality objectives including: background water quality measurements, disclosure of the composition of frac fluids, reducing the use of diesel fuel as a component part of the frac water, and “[m]anaging short-term and cumulative impacts on communities, land use, wildlife and ecologies.”²⁴²

This initial report was followed by a second ninety-day report issued on November 18, 2011.²⁴³ The focus of this second report was to take the twenty recommendations identified in the first report and prioritize them and further provide implementation tools so that the recommendations may be achieved.²⁴⁴ This report also recognizes the important role that state oil and gas conservation agencies must play if the recommendations are to be implemented.²⁴⁵ The report classifies the twenty recommendations into three categories: (1) those ready for implementation primarily by federal agencies, (2) those ready for

236. *See id.* at 13-14.

237. *See id.* at 14. The Subcommittee recommended that for the 2012 fiscal year, \$5 million be granted to each of the two organizations. *See id.* at 15.

238. *See id.* at 15-18.

239. *Id.* at 16-18.

240. *See id.* at 19-22.

241. *Id.* at 19-20.

242. *Id.* at 23-26. The report also set forth various federal agencies’ projected expenditures, which would support the technological developments needed to minimize the environmental impact of shale gas operations. *See id.* at 30-32.

243. U.S. DEPT. OF ENERGY, SEC’Y OF ENERGY ADVISORY BD., SHALE GAS PROD. SUBCOMM., SECOND NINETY DAY REPORT (Nov. 18, 2011), http://www.shalegas.energy.gov/resources/111011_90_day_report.pdf [hereinafter SECOND NINETY DAY REPORT].

244. *Id.* at 2.

245. *Id.*

implementation by state agencies, and (3) those in which new partnerships or mechanisms, or both, must be forged for the recommendations to be implemented.²⁴⁶

In the category of recommendations that can be implemented mostly by the federal government, the report identifies ten such recommendations including: improving public information, reducing the emissions of air pollutants (including methane), recruiting oil and gas operators to design a system for collecting air emissions data, requiring the disclosure of the contents of frac fluids, and eliminating the use of diesel fuel.²⁴⁷

Four of the recommendations require cooperation between regulators and the industry.²⁴⁸ Three of these recommendations deal with water supply and quality issues including: (1) the measurement and “composition of water stocks and flow throughout the fracturing and cleanup process”; (2) a manifest system regarding all transfers of water between different locations; and (3) the development of a background water quality monitoring system.²⁴⁹ The fourth recommendation is the adoption of best practices in well development and construction, especially as it relates to casing, cementing, and pressure management.²⁵⁰

The remaining recommendations fall into the category of a wish list of things that will require thinking outside the box, such as the use of a systems approach to protecting water quality and the modernization of rules and enforcement practices to ensure protection of the drinking and surface waters in areas impacted by shale gas development.²⁵¹

The study concludes by noting near-universal agreement among the commenters from the initial study:

- (1) If the country is to enjoy the economic and other benefits of shale gas production over the coming years disciplined attention must be devoted to reducing the environmental impact that accompanies this development, and
- (2) a prudent balance between development and environmental protection is best struck by establishing a strong foundation of regulation and enforcement, and adopting a policy and practice that measures, discloses, and continuously improves shale gas operations.²⁵²

246. *Id.*

247. *Id.* at 4, tbl.1. Table 1 not only lists the recommendations but also identifies the federal agency and official that has, or can, implement the recommendation. *Id.* For example, the report notes that the Secretary of the Interior has announced an intent to propose a disclosure rule for federal oil and gas leases. *Id.* at 5-6; *see supra* note 243 and accompanying text.

248. SECOND NINETY DAY REPORT, *supra* note 243, at 7, tbl.12.

249. *Id.* The report notes the ongoing EPA study discussed in Section IX of this Article. The study notes that getting access to private lands by oil and gas operators in order to drill monitoring wells and place devices thereon varies substantially from state to state. *See* DRAFT PLAN, *supra* note 214, at 27.

250. SECOND NINETY DAY REPORT, *supra* note 243, at 7, tbl.2.

251. *Id.* at 8, tbl.3.

252. *Id.* at 9-10.

XII. CONCLUSION

The role of the federal government in regulating hydraulic fracturing operations has yet to be defined. Ongoing EPA studies are not expected to be completed for several more years at the earliest. Draft reports, such as the one involving the alleged contamination of well water near Pavilion, Wyoming, will encourage those who believe that only the federal government has the will and the power to regulate hydraulic fracturing operations. The importance of the development of shale plays in the United States is unquestioned.²⁵³ The EPA's critical role in the immediate future appears to be focused on scientific investigations into the potential for hydraulic fracturing operations to create public health issues. In the meantime, state oil and gas conservation agencies appear to be moving from a position of benign neglect to active regulation of hydraulic fracturing operations. The future of an active federal regulatory role in dealing with hydraulic fracturing operations is problematic at best, but one should not simply ignore the potential for federal regulation.

253. Henry D. Jacoby, Francis M. O'Sullivan & Sergey Paltsev, *The Influence of Shale Gas on U.S. Energy and Environmental Policy*, 1 *ECON. OF ENERGY & ENVTL. POL'Y* 37, 39-44 (2012).