

ENERGY LITIGATION

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History and Current Status of Federal Fracing Regulation

By Bruce M. Kramer

The federal government has been involved in various legislative and administrative matters relating to hydraulic fracturing (fracing) operations for over a decade. Litigation relating to fracing for coalbed methane (CBM) gas, which was not regulated under the Safe Drinking Water Act, led to two appellate court decisions that seemingly required the Environmental Protection Agency (EPA) to regulate such operations. *Legal Environmental Assistance Foundation, Inc. v. United States Environmental Protection Agency*, 118 F.3d 1467 (11th Cir. 1997) [*LEAF I*]; *Legal Environmental Assistance Foundation, Inc. v. United States Environmental Protection Agency*, 276 F.3d 1253 (11th Cir. 2001), reh'g en banc denied, 34 Fed. Appx. 392 (11th Cir. 2002), cert. denied, 537 U.S. 989, 123 S.Ct. 475, 154 L.Ed.2d 358 (2002) [*LEAF II*]. In part, the *LEAF* decisions initiated a governmental reaction that has led to numerous studies, legislative fixes, and administrative regulations over the past 10 years.

EPA Response in 2003–04

The EPA began to study the issue of fracing at about the same time that *LEAF II* was being decided. Because the *LEAF* cases involved hydraulic fracturing into CBM formations, which was the most prevalent use of fracing at that time, the 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.” EPA, [Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs](#), EPA 816-R-04-003 at 1-1 (June 2004).

While this study was ongoing, industry was engaged in a lobbying effort to minimize federal involvement in the regulation of fracing. 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). Also during this study period, the EPA and several major players in the oilfield-services industry that accounted for a substantial percentage of U.S. fracing operations entered into a memorandum of agreement. Memorandum of Agreement Between the U.S. Environmental Protection Agency and BJ Services Co., Halliburton Energy Services, Inc. and Schlumberger Technology Corp. (Dec. 12, 2003). The memorandum specifically notes in the preamble that it is a voluntary agreement between the signatory parties. It is a short document containing about five pages of text. 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 necessary, select replacements that will not cause hydraulic fracturing fluids to endanger USDWs.” The operative language of the memorandum states that “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.” It is important to note that there are two major limitations of the use of diesel in fracturing fluids. It only applies to CBM production wells and to CBM production wells in USDWs. Thus, on its

face, the memorandum does not apply to shale gas wells, or any other non-CBM production well and does not apply to any well that is not in an underground source of drinking water.

One of the other operative provisions of the memorandum required the EPA to publish its ongoing fracing study. That publication took place in June 2004. The study is reasonably voluminous and contains several substantial technical appendices. As noted above, the purpose of the 2004 study was not to look at hydraulic fracing in general but to survey the extant literature on matters relating to the use of fracing in CBM production wells. The 2004 study noted that there were two potential mechanisms by which fracturing fluids might affect the quality of a USDW: 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. Likewise, the 2004 study expressed some concern about the stranding of fracturing fluids in the formation because of the potential for communication between the CBM formation being fraced and a USDW.

Overall, the 2004 study concluded that there was no confirmed evidence that in the thousands of wells being fractured on an annual basis, that there had been contamination of drinking-water wells from the migration of fracturing fluids. The 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 fracturing fluids would adversely affect USDW.” The study did note that there was some concern about the composition of fracturing fluids, including the use of diesel fuel. But the study also noted the 2003 memorandum was designed to eliminate the use of diesel fuel as a constituent part of the fracturing fluid for CBM wells in USDWs. Overall, the 2004 study did not raise red flags or alarms, insofar as the EPA was concerned regarding the continued widespread use of fracing.

The Energy Policy Act of 2005

Legislation seeking to deal with the world of energy policy was wending its way through the halls of Congress when the 2004 study was completed. One of the precursors to the Energy Policy Act (EPACT) of 2005 contained a provision that would exclude fracing from the Safe Drinking Water Act’s definition of “underground injection” and thus legislatively overturn the *LEAF I* and *II* decisions. H.R. 6, 109th Cong. § 327 (as introduced to the House, April 18, 2005). The Senate version, however, removed substantial portions of the omnibus bill, including the fracing exemption. H.R. 6, 109th Cong. (Senate engrossed amendment, June 28, 2005). During the conference between the House and the Senate, the fracing-exemption language reappeared in the legislation, accompanied by a specific reference to diesel fuel constituting an exception from the general fracing exemption. H.R. 6, 109th Cong. § 322 (enrolled bill). As finally enacted, section 1421 of the Safe Drinking Water Act 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.

There is little, if any, legislative history as to either the reason why the general exemption for fracing 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 memorandum had singled out diesel fuels for special treatment in part because such fuels often contain benzene, toluene, ethylbenzene, and xylenes, which are known contaminants that are regulated under the Safe Drinking Water Act and whose concentrations in diesel fuel probably would exceed the discharge levels authorized for such compounds. 2004 Study at 4-11.

There has been no judicial interpretation of the amended version of the Safe Drinking Water Act. Likewise, there has been no judicial or administrative determination as to what is encompassed by the use of the term “diesel fuels,” which is not defined in EPCRA 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 Underground Injection Control (UIC) program. EPA, [Regulation of Hydraulic Fracturing by the Office of Water](#). Likewise, the EPA asserts that injection wells using fracturing fluids that contain diesel fuels will be regulated under the UIC program as Class II wells. There is no commentary, rule, or regulation, however, that defines “diesel fuel” for purposes of gaining EPCRA’s exception to the general exemption for hydraulic fracturing operations. One would think that with the ongoing studies being conducted relating to fracing, that any rulemaking relating to the diesel-fuel exception will await the publication of the study or studies.

Related Federal Legislative and Regulatory Programs

In addition to the Safe Drinking Water Act, the federal government gets involved with fracing operations through the Occupational Health and Safety Administration (OSHA). OSHA requires that workplaces identify any hazardous chemicals that may be present through the use of material safety data sheets (MSDSs). See 29 C.F.R. § 1910.1200. The MSDS system, however, does not require the disclosure of the specific constituents of any hazardous chemical nor of the quantities that are present at the workplace. 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. See 42 U.S.C. §§ 11021, 11022. 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.

The 2009 Congressional Session

On June 9, 2009, sponsors in the House and the Senate introduced the Fracturing Responsibility and Awareness Act of Chemicals Act, commonly referred to as the Frac Act. S. 1215, H.R. 2766, 111th Cong. (2009). Although these bills did not receive formal consideration during the 111th Congress, they contained three major programmatic changes to the existing regulatory scheme for fracing operations. 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, 232 (2011). The bills would have amended the Safe Drinking Water Act so that fracing operations would fall under the UIC program. S. 1215, 111th Cong. § 2(a) (2009); H.R. 2766, 111th Cong. § 2(a). Secondly, the bills would have required the public disclosure of “the chemical constituents (but not the proprietary chemical formulas) used in the fracturing process. Such information would have to be made available to the public through an appropriate Internet portal. Steinway, et al., at 233. 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.” In the latest session of Congress, another version of the Frac Act was introduced with the same provisions as the earlier bills. H.R. 1084, 112th Cong. (2011).

The Latest EPA Study

In response to a “request” from the House Appropriation 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. In February 2011, the EPA issued its Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources. As part of the multi-year study, the EPA has chosen to closely analyze data from seven “case studies,” including two locations for which the EPA monitoring will take place from the beginning of the drilling program. Those two locations are in De Soto Parish, Louisiana, dealing with a prospective Haynesville Shale well and in Washington County, Pennsylvania, with a prospective Marcellus Shale well. 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. The EPA chose these sites based on a set of criteria designed to cover much more ground than the 2004 study. 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. 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. As part of its study process, the EPA has held a number of stakeholder meetings with various interest groups. EPA, [Underground Injection Control Guidance for Permitting Oil and Natural Gas Hydraulic Fracturing Activities Using Diesel Fuels.](#)

In December 2012, the EPA published a *Progress Report on its Hydraulic Fracturing Study*, EPA/601/R-12/011. This 275-page report emphasizes that its study will not look solely at the

injection phase of a hydraulic fracturing operation but looks to the five phases of the “water lifecycle.” The progress report also notes that it is collecting data from nearly 25,000 wells that were hydraulically fractured between September 2009 and October 2010. Furthermore, the EPA is engaging in laboratory studies, scenario evaluations including river basin modeling, toxicity assessments, and the case studies that were part of the original study program. As one would expect from an interim progress report, there are few, if any, conclusions regarding the analysis. The progress report does provide a map showing the geographic disbursement of the 25,000 wells for which it is gathering data. The map shows that hydraulic fracturing operations are being conducted throughout the United States in both CBM and shale plays.

In March 2013, the EPA's independent Science Advisory Board announced the formation of a Hydraulic Fracturing Research Advisory (HFRA) Panel. The principal purpose for the newly created panel is to peer review the expected 2014 release of the *EPA Hydraulic Fracturing Study*. The HFRA Panel will have public meetings and will regularly meet to review the ongoing progress of the EPA's interim progress report. The HFRA Panel is made up of 31 individuals from industry, government, and academia.

In addition to this ongoing study, the EPA has been engaged in a multi-year study of alleged groundwater contamination near Pavillion, Wyoming. Starting in November 2011, the EPA has been releasing a number of reports showing data from its monitoring wells relating to the alleged contamination. In December 2011, the EPA issued a draft report entitled *Investigation of Ground Water Contamination Near Pavillion, Wyoming*, EPA 600/R-00/000 (Dec. 2011). While hedging its conclusions, the draft report suggests a correlation between domestic well contamination and hydraulic fracturing operations. In January 2013, the EPA issued a notice extending the public comment period on the draft report to September 30, 2013. 78 Fed. Reg. 2396 (Jan. 11, 2013). Thus a final report cannot be expected until 2014 at the earliest.

The Secretary of Energy Advisory Board

On March 30, 2011, President Obama announced the creation of the Secretary of Energy Advisory Board (SEAB) to facilitate the development of shale gas, ensure environmental protection, and meet public concerns. A shale gas subcommittee was tasked with coming up with a report in 90 days. The membership of the subcommittee included John Deutch, Stephen Holditch, Fred Krupp, Kathleen McGinty, Susan Tierney, Daniel Yergin, and Mark Zoback. U.S. Dep't of Energy, Secretary of Energy Advisory Board, *Shale Gas Production Subcommittee 90-Day Report*, Annex B (Aug. 18, 2011). The report contains a summary of the scope and procedure used in developing the recommendations. It emphasizes the need to manage the risk involved in large-scale shale gas production in the United States. It also stresses the importance of developing and implementing best practices when it comes to the exploration and production processes necessary to exploit the resource. The subcommittee did not balance the benefits of shale gas production against the environmental costs. What this initial report did was identify some general objectives and then begin to analyze potential recommendations to achieve those objectives.

The first major objective is to make shale gas information available to the public so that informed decisions may be made. This may be achieved through the creation of a national database and more support for two existing organizations: State Review of Oil and Natural Gas Environmental Regulation (STRONGER) and the Ground Water Protection Council.

A second major objective is to reduce environmental and public-safety risks inherent in shale gas operations. It then lists three action item recommendations to achieve this objective including the enlisting of a cohort of producers in different basins to implement measurement systems to collect comprehensive methane and other air-emissions data, an assessment of the greenhouse-gas footprint for cradle-to-grave use of natural gas, and a cooperative venture between operators and regulators to immediately reduce air emissions using proven technological practices.

The third general objective is the need to protect the water supply and water quality. The supply issue refers to the need for large quantities of water for the fracturing operation while the quality issue relates to potential pollution of groundwater drinking water supplies through the migration of methane or fracturing fluids. There are also ancillary recommendations designed to achieve the water-supply and water-quality objectives, including background water-quality measurements, disclosure of the composition of fracturing fluids, reducing the use of diesel fuel as a component part of the fracturing water, and managing short-term and cumulative impacts on communities, land use, wildlife, and ecologies.

This initial report was followed by a second 90-day report issued on November 18, 2011. Secretary of Energy Advisory Board, Shale Gas Production Subcommittee, *Second Ninety Day Report* (Nov. 18, 2011). The focus of this second report is to take the 20 recommendations identified in the first report and prioritize them and further provide implementation tools so that the recommendations may be achieved. This report also recognizes the important role that state oil and gas conservation agencies must play if the recommendations are to be implemented. *Id.* at 2. The report classifies the 20 recommendations into three categories: (1) those ready for implementation by primarily federal agencies, (2) those ready for implementation by state agencies, and (3) those where new partnerships and/or mechanisms must be forged for the recommendations to be implemented.

In the category of recommendations that can be implemented mostly by the federal government, the report identifies 10 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 fracturing fluids, and eliminating the use of diesel fuel.

There are four recommendations requiring cooperation between regulators and the industry. Three of these recommendations deal with water-supply and water-quality issues including the measurement and composition of water stocks and flow through the fracturing and cleanup process along with a manifest system regarding all transfers of water between different locations and the development of a background water-quality monitoring system. The fourth

recommendation is the adoption of best practices in well development and construction, especially as it relates to casing, cementing, and pressure management.

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.

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

(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.

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