AADE-03-NTCE-15

Hydraulic Fracturing: Recent Legal Developments in Coalbed Methane Applications

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Abstract

On October 21, 2002, the United States Supreme Court declined to review an appeal filed by the Legal Environmental Assistance Foundation (LEAF) in the ongoing battle over Alabama's underground injection-control program. This decision ended an eight-year court battle, but did not end the ongoing controversy surrounding coalbed methane gas development. This paper will provide an overview of the legal developments as they relate to hydraulic fracturing in coalbed methane, including a discussion of the recently ended litigation, regulatory developments, and legislative efforts in the 107th and 108th Congresses.

Hydraulic Fracturing

Hydraulic fracturing, first commercialized in the 1940s, is a technique used to enable hydrocarbons to move more freely to a wellbore from the rock pores where they are trapped. This technology uses high-pressure pumping to deliver fluids that fracture the target formation. The delivery fluid is recovered by pumping, which draws the fluid back to the wellbore and out of the well. A proppant such as silica sand is also left in place, which helps keep the fractures open to increase the permeability of the formation and production from the well. According to the Interstate Oil and Gas Compact Commission,[1] nearly one million wells have been hydraulically fractured in the United States since the technology was introduced, and an estimated 50 percent of natural gas wells and 30 percent of oil wells are subject to hydraulic fracturing treatments to improve their recovery.

Hydraulic fracturing is particularly important with regard to coalbed methane (CBM) gas-production wells because of the extremely low permeability of the formations where those wells are drilled. Methane is a "greenhouse gas" charged with damaging the environment by contributing to global warming. In addition, methane gas trapped in coal-bearing formations is a significant threat to the safety of coal miners. However, since the 1980s, CBM has been considered a good additional source of natural gas. CBM production is also known to effectively reduce greenhouse gas emissions and promote coalmine safety. The Domestic Petroleum Council has estimated that over the next ten years, 60 to 80 percent of all gas wells will need to be hydraulically fractured to be productive; a higher percentage of CBM wells will likely need to be hydraulically fractured to be economically viable producers.[2]

Historically, hydraulic fracturing has been regulated at the state level rather than the federal level to address the variable nature of oil and gas production in different geologies. At the federal level, the *Safe Drinking Water Act* (*SDWA*) is designed to ensure that public drinking water is safe for human consumption. To help maintain this objective, Congress enacted the Underground Injection Control (UIC) program to help protect drinking water aquifers from contamination from the subsurface injection of wastes or other materials. Before 1997, hydraulic fracturing was not considered to be a form of underground injection subject to the jurisdiction of the U.S. Environmental Protection Agency (EPA) under the *SDWA*.

The Courts

In 1997, the U.S. Court of Appeals for the Eleventh Circuit ruled in *Legal Environmental Assistance Foundation, Inc. v. United States Environmental Protection Agency (LEAF)*[3] that hydraulic fracturing constitutes underground injection under the plain meaning of the *SDWA*, and thus should be regulated as such. It is important to note that the court did not attempt to determine whether hydraulic fracturing poses any risk of harm to human health or the environment, but rather focused exclusively on the statutory definition of "underground injection." Because the case challenged the EPA's original approval of Alabama's UIC program for Class II wells, the EPA was required to reevaluate Alabama's program in light of the court's ruling. Ultimately, Alabama's Oil and Gas Board, working with the EPA under a court-imposed deadline, was required to amend its program to include regulations specifically addressing hydraulic-fracturing activities involving CBM. Following the EPA's approval of Alabama's revised program, LEAF went to court again, contending that the EPA applied the wrong standards when approving Alabama's hydraulic-fracturing regulations under the

SDWA. Section 1422 of the act provides that the states, to obtain approval to administer a UIC program, normally must demonstrate that the state program complies with the detailed requirements set out in the EPA's regulations for various classes of underground injection wells. However, Section 1425 of the *SDWA* provides that in the case of certain types of underground injection related to oil and gas development, the EPA may approve a state program if the state demonstrates that the program complies with general statutory criteria. LEAF argued that the more flexible standards of Section 1425 did not apply to hydraulic fracturing and that the EPA was required to review Alabama's program under the more stringent standards of Section 1422. LEAF argued further that, even if Section 1425 applied, the Alabama program did not meet these more general standards.

On December 21, 2001, the Eleventh Circuit issued its long-awaited decision in *LEAF v. EPA4* (LEAF II). The court upheld the EPA's approval of Alabama's revisions to its Class II underground injection-control program related to hydraulic fracturing under Section 1425 of the *SDWA*. The three-judge panel, however, asked the EPA to clarify its definition of hydraulically-fractured coalbed methane wells under the *SDWA*, questioning the EPA's classification of hydraulic fracturing as "a Class II-like underground injection activity" under the act. The court remanded that part of the EPA's decision for further proceedings consistent with its opinion. LEAF subsequently petitioned for a rehearing, arguing that Alabama's amended program failed to require operators to demonstrate that public health will not be affected by hydraulic fracturing and claiming that the EPA should not have approved it. The Eleventh Circuit denied the petition for a rehearing.

Following this decision, LEAF petitioned the U.S. Supreme Court to hear the case. In October 2002, the Supreme Court denied LEAF's petition, thus letting stand the Eleventh Circuit's decision and leaving Alabama's revised program intact. To date, no further court activity has emerged regarding Alabama's regulation of hydraulic fracturing or hydraulic fracturing of CBM wells in general. However, controversy continues to surround CBM development, particularly in western states where coalbed methane is an abundant, but as yet, mostly untapped resource.

Alabama Class II UIC Program: Post-LEAF

Alabama currently has detailed regulations addressing the hydraulic fracturing of CBM wells. The regulations prohibit the hydraulic fracturing of CBM wells within 300 feet of the surface, where drinking-water wells are most likely to be found. Hydraulic fracturing is allowed at greater depths, subject to restrictions that vary according to the depth of the fracturing, with fracturing at shallower depths subject to greater restrictions. All hydraulic-fracturing activities proposed by the operator must be approved by the Alabama Oil and Gas Board. Moreover, well operators must certify that the fluids used to fracture the coalbed formation meet the standards for drinking water set forth in the EPA's regulations. In addition, the regulations provide that coalbeds may not be hydraulically fractured if the fracturing would result in the migration of fracturing fluids into an underground source of drinking water that would adversely affect human health.

In light of the Eleventh Circuit's decision in LEAF II, the EPA must now review Alabama's program again to determine whether or not the program meets the appropriate regulatory standards under the *SDWA*. Specifically, the court questioned the EPA's characterization of hydraulic fracturing as a "Class II-like activity" and appeared to indicate that wells being hydraulically fractured must be assigned to one of the five existing classes of injection wells set forth in the EPA's regulations. Regardless of how it decides to classify such wells, the EPA may determine that classification of the wells is irrelevant to its approval of Alabama's program because that approval was made pursuant to Section 1425 of the *SDWA*. This section does not require a state program to be consistent with the EPA's regulations, only that it comply with the more general statutory standards. The court did not establish a timetable for the EPA's response to the court's decision, and the agency has not set deadlines for itself. Nevertheless, the EPA is expected to take action in response to the court's remand within the next few months.

Actions by the U.S. Environmental Protection Agency

As the legal challenge was making its way through the courts, the EPA was conducting what it now considers the most comprehensive study ever undertaken of the potential effects of hydraulic fracturing of CBM wells on underground sources of drinking water. On August 28, 2002, the EPA issued its draft report entitled "Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs."[5] The fundamental conclusion of the report was that the potential threat to underground sources of drinking water from hydraulic fracturing of CBM wells appears to be low and does not justify additional study. The report stated that thousands of CBM wells are fractured annually, but no persuasive evidence exists to demonstrate that any drinking water wells have been contaminated by hydraulic fracturing of CBM wells. The report further stated that coal seams that are currently candidates to be hydraulically fractured are not in fact used as sources of drinking water.

One issue that the report raised related to the use of diesel in certain fracturing-fluid systems. The EPA recommended that the industry seek appropriate alternatives to diesel as a fracturing-fluid component. However, the EPA did not believe that diesel usage changed the overall conclusion: hydraulic fracturing poses little risk to drinking water sources.

When the Federal Register announced the availability of the draft report of the EPA study, it called for public comment on the draft until October 28, 2002.[6] A review of the EPA's website indicates that over 100 comments were received, including comments from the U.S. Department of Energy, the Ground Water Protection Council, the Interstate Oil and Gas Compact Commission, oil and gas industry trade associations and companies, public interest groups, and private citizens. Comments varied and were both supportive and critical of different aspects of the study. Currently, no timetable exists for further actions by the EPA in response to comments or to finalize the report.

Activity In The 107th Congress

The Senate version of H.R.4, the comprehensive energy bill, contained a provision on hydraulic fracturing in response to the Eleventh Circuit's 1997 decision. In a 78-21 vote on March 7, 2002, the Senate approved a hydraulic-fracturing amendment that became Section 610 of the Senate version of the energy bill. The amendment, co-sponsored by Senators Jeff Bingaman (D-NM), chair of the Senate Energy Committee, and James Inhofe (R-OK), called for the EPA to study the effects of hydraulic fracturing on groundwater. Then, after peer review of hydraulic fracturing by the National Academy of Sciences, the EPA would determine whether regulation of hydraulic fracturing under the *SDWA* is needed to prevent groundwater contamination. Until final determination by the EPA, the amendment placed a moratorium on the EPA regulation of hydraulic fracturing under the *SDWA*, whether at the state or federal level.

Interest in the amendment stemmed from the regulatory uncertainty left by the Eleventh Circuit court's ruling and the desire of the industry and the states to avoid the risk of further lawsuits like the LEAF litigation in Alabama. The House had no hydraulic-fracturing language in its version of H.R. 4, which it passed in August 2001. While some hoped that an acceptable hydraulic-fracturing provision would survive a House-Senate Conference, the comprehensive energy legislation died in conference during the post-election "lame duck" session.

The 108th Congress

With the results of the mid-term elections in, and significant changes having occurred with respect to the balance of power in the U.S. Senate, prospects for an energy bill moving during the next session of Congress are considered strong. The Senate Energy and Natural Resources Committee will be chaired by Senator Pete Domenici (R-NM), and Senator Bingaman will become the ranking minority member. The Environment and Public Works Committee will be chaired by Senator Inhofe. New Mexico in particular has a strong interest in CBM development. The type of hydraulic-fracturing provisions that will be proposed during the new congressional session is unclear at this time, in light of the EPA's completed study, changes in the makeup of the Senate, and ongoing controversy in the west regarding CBM development in general.

Conclusions

While the LEAF litigation has ended, activity in various arenas with respect to hydraulic fracturing of CBM wells may continue in 2003 and perhaps beyond. With increasing CBM activity in the western United States, issues regarding its alleged impact on human health and the environment will continue to receive attention. The results of the EPA's recent study should remove hydraulic fracturing from those debates and allow the spotlight to focus on areas of greater concern.

References

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3. 118 F.3d 1467 (11th Cir. 1997).
4. 276 F.3d 1253 (11th Cir. 2001).
5. http://www.wpa.gov/safewater/uic/cbmstudy/docs.html.
6. 67 Fed. Reg. 55249 (2002).