LEAF v. EPA
A Challenge to Hydraulic Fracturing
Of Coalbed Methane Wells
In Alabama

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In 1989 a family living near the River Gas coalbed methane development in Tuscaloosa County Alabama teamed with the Legal Environmental Assistance Foundation (LEAF) of Tallahassee, Florida to challenge coalbed methane operations. They charged that nearby coalbed methane hydraulic fracturing activity in 1989 had contaminated a water well located on family property. In addition to hydraulic fracturing, LEAF and the McMillian family also challenged NPDES discharge permits of produced water.

An investigation by the State Oil & Gas Board of Alabama, Alabama Department of Environmental Management and the U.S. Environmental Protection Agency failed to find any evidence that hydraulic fracturing had contaminated the McMillian well.

In April and May of 1989 letters were exchanged between David Ludder, attorney for LEAF, and Dr. Ernest Mancini, Oil & Gas Board Supervisor. Ludder wanted an opinion from Dr. Mancini about whether or not hydraulic fracturing of coalbed methane wells was covered under the Class II injection program administered by the State Oil & Gas Board of Alabama (OGB). Dr. Mancini responded several times that the OGB did not believe that hydraulic fracturing was covered by the Class II program and suggested that LEAF contact EPA. Similar letters were exchanged with Mr. Leigh Pegues, Director of the Alabama Department of Environmental Management (ADEM).

On December 22, 1989, LEAF sent a letter to River Gas putting them on notice that a Federal lawsuit would be filed because they alleged the company was violating the Safe Drinking Water Act (SDWA) by hydraulically fracturing wells without authorization. The letter included a list of 11 coalbed methane wells hydraulically fractured by River Gas which they allege contaminated a water well on McMillian property. The suit was never filed.

An industry/state/federal task force was established on March 23, 1990 to examine the potential for groundwater contamination from hydraulic fracturing of coalbed methane wells. The group came about as a result of a "G 11" report on potential groundwater problems written by EPA, which specifically mentioned coalbed methane activity. The task force met many times during 1990 and issued its report to the Governor's Groundwater Study Committee. The report acknowledged the possibility of contamination, but pointed out the information on fracturing properties made it unlikely. In addition, the task force recommended some guidelines that would enhance the protection of groundwater. These guidelines, while never formally established as part of the existing OGB rules on hydraulic fracturing, were used by operators and regulators alike in approving and planning hydraulic fracturing jobs.

On August 9, 1993, LEAF and the McMillian's filed a Petition for a Declaratory Ruling with the OGB and the ADEM. They wanted to find out from each agency, in a series of detailed questions, if the underground injection program applies to the hydraulic fracturing of coalbed methane wells. They included a detailed list of "facts" drawn from various publications and accounts of the water quality changes in the McMillian's water well. The OGB and the ADEM denied the Petitions.

On May 3, 1994, LEAF petitioned the EPA to withdraw Alabama's Primacy for the underground injection control program (UIC). In Alabama, the OGB has authority to administer Class II wells (granted in 1982) and the ADEM has authority to administer Class I, III, IV and V wells (granted 1983). A year later, on May 5, 1995, the EPA responded to and denied the LEAF petition. The EPA said that Congress never intended to regulate this activity and that the specific complaint of contamination had been investigated by the state of Alabama and EPA and no evidence was found to substantiate the claim.

> ***"EPA does not regulate – and does not believe it is legally required to regulate—the hydraulic fracturing of methane gas production wells under its UIC Program. There is no evidence that the hydraulic fracturing at issue has resulted in any contamination or endangerment of underground sources of drinking water (USDW). Hydraulic fracturing is closely regulated by the Alabama State Oil & Gas Board, which requires that operators obtain authorization prior to all fracturing activities."***

On October 11, 1995, LEAF filed a Petition for Review of an order of the U.S. EPA. They were challenging the denial of their petition for EPA to revoke Alabama's primacy for the UIC program. The EPA responded with a brief asking the court to deny the petition and set oral arguments. LEAF responded to the EPA brief on December 11, 1995.

On August 7, 1997, the 11th Circuit Court of Appeals issued an opinion and order in the case. The three judges decided that a plain language interpretation of the definition of underground injection did cover hydraulic fracturing. The EPA was ordered to reconsider the issue.

The EPA petitioned for a rehearing of the case on September 18, 1997. Several groups filed friend of the court briefs (Amicus Curiae) supporting the EPA request for the rehearing. The court denied that petition. EPA was encouraged by several parties, including some states, the Ground Water Protection Council (GWPC) and the Coalbed Methane Association of Alabama (CMAA) to appeal the case to the U.S. Supreme Court. Eventually the EPA and Justice Department decided to go no further with the issue in the courts.

Since the idea of an appeal was dropped, the EPA began working with the GWPC to gather data and understand in more detail the nature of the issue. The GWPC is a Tulsa, Oklahoma based trade association representing groundwater regulators on the state and federal level. Industry representatives also participate in the GWPC. The group conducts many technical meetings every year to discuss the issues related to underground injection control. The LEAF v. EPA issue became one of the prominent issues discussed by the GWPC.

A past President of the GWPC is Dave E. Bolin. Mr. Bolin is an Assistant Supervisor at the OGB for Production & Engineering. Mr. Richard Raymond, who serves as the Underground Injection Control Chief for the OGB is also involved with the GWPC. Mr. Raymond retired from the OGB in 2008.

The CMAA began working with the GWPC, OGB and ADEM on looking at additional regulations for hydraulic fracturing that would have a low resource impact on both operator and regulator and meet the expectation of the EPA and the Court. Many hours of discussion began to reveal the very complicated nature of the UIC program.

One of the major projects was to conduct a nationwide survey of oil and gas producing states for information on cases of groundwater contamination from hydraulic fracturing of coalbed methane wells. The data took several months to gather, compile and evaluate. In the meantime, the GWPC was suggesting that hydraulic fracturing was not a threat to groundwater and to force states to regulate it would be a waste of resources.

On July 1, 1998, the CMAA was invited to meet with senior staff of EPA at their Washington offices. Several Alabama operators, service companies, state regulators, EPA consultants and Department of Energy staff attended that meeting. The goal was to give the EPA staff a better understanding of what a coalbed methane well is and how it is drilled and produced. In addition, information was provided to show results of research into the properties of hydraulic fracturing at various depths.

In September of 1998, the Colorado Oil & Gas Association (COGA) circulated a draft of language that, if amended to the SDWA, would provide the specific language needed to keep hydraulic fracturing out of the UIC regulatory program. The CMAA, which had previously decided a legislative clarification was not politically practical, began working with COGA and other interested trade groups on the language. The 105th Congress was near an end and there was hope that the clarification language could be added to the EPA appropriation bill in the final days. The actual language changed several times as various interest groups wanted to broaden the scope and protect other drilling activity not specifically addressed in the Court order.

Eventually, the EPA evaluated the broad language being circulated in Washington. A letter to key members of the House and Senate was written by EPA Administrator Carol Browner strongly objecting to the “anti-environmental rider” that would have dealt with the underground injection issue. The language was removed from the omnibus appropriation bill prior to final approval. The EPA objection along with perceived problems by some members with any types of legislative riders were contributing factors to the failure of the effort.

On November 28, 1998, LEAF filed a Petition for a Writ of Mandamus with the 11th Circuit. LEAF charged the EPA with taking no action on the August 7, 1997 order. EPA responded with a detailed brief of action and activity undertaken by various groups to lay the groundwork for further action. On January 11, 1999, the 11th Circuit Court issued an order saying it would be inclined to grant the LEAF petition. The Court instructed the LEAF attorney to prepare a draft order to be considered. EPA was given five days to respond to the potential order.

EPA Region 4 UIC staff met with OGB staff on December 2, 1998, to discuss regulations on hydraulic fracturing. At that meeting the OGB agreed to provide the EPA region 4 staff with a written plan by January 15, 1999. The plan would then be discussed at a follow-up meeting on January 27, 1999 in Atlanta. The OGB staff felt like they were being asked to come up with a regulatory program to meet the requirements to keep primacy. The problem is that EPA does not have such a regulatory program to compare the Alabama plan to.

On December 15, 1998, the GWPC released the results of its survey. The study found that in the 13 states with coalbed methane activity there was **not one single confirmed case** of groundwater contamination as a result of hydraulically fracturing a coalbed methane well. The GWPC report recommends that no new regulatory program be established for this area. The EPA also asked the regional offices to report on any other incidents of damage from hydraulic fracturing. The EPA follow-up was expected to be complete at the end of February 1999.

The State Oil & Gas Board of Alabama filed an Amicus brief with the 11th Circuit Court on January 26, 1999. The OGB asked the court to consider including language in its proposed order giving EPA flexibility to begin a nationwide rulemaking program for hydraulic fracturing. The brief expressed the concern of the OGB that Alabama might be unfairly singled out for regulations when many other states also have hydraulic fracturing activity.

On February 18, 1999, the 11th Circuit issued an order granting the LEAF request for mandamus. The Court set out a time frame for EPA to begin the withdrawal process for UIC primacy in Alabama. The first deadline was in late March when the EPA would have to decide if Alabama's UIC program is adequate and point out the problems with the program. Following that, Alabama would have a chance to answer the charges of deficiencies in its program.

It soon became apparent that a regulatory fix for this issue would be extremely difficult, if not impossible, to achieve that doesn't also practically eliminate the use of hydraulic fracturing of coalbed methane wells. For example, requiring a full-blown Class II permit process with hearings and notice would simply make drilling new wells too costly. Other potential regulations could also add tremendous cost to the process of drilling and hydraulically fracturing a well.

The UIC program never contemplated hydraulic fracturing and therefore it has been difficult to find a place to fit such a program without running into more complications. Any additional regulations on hydraulic fracturing would only be applied in Alabama, unless EPA began a nationwide rulemaking program or issued some kind of guidance document following the establishment of regulations in Alabama. There are 12 other states with similar activity in coalbed methane and still other states with hydraulic fracturing activity in conjunction with conventional oil and gas exploration and production. Some water wells may eventually be affected if part of the completion of those water wells is to hydraulically fracture the source rock of the water.

The OGB of Alabama conducted a public hearing on March 5, 1999, on proposed new hydraulic fracturing regulations for coalbed methane. The CMAA endorsed the new regulations at the hearing. The LEAF organization sent comments objecting to not only the regulations themselves, but also to the procedures used by the OGB to consider and adopt them. However, Mr. David Ludder, the attorney for LEAF who wrote the comments, did not show up for the hearing. A local resident, who is a member of LEAF, showed up to hand in the comments at the hearing.

Representatives of the U.S. EPA Region 4 staff were present and gave written comments on the regulations to the OGB. The Chief General Counsel for the Alabama Department of Environmental Management was also present, but did not make any comments. The ADEM General Counsel says the agency fully supports the OGB in issuing the rules.

The OGB members voted to adopt the new regulations with some changes that reflected comments from both LEAF and the EPA. The regulations would have to be reviewed and approved as part of the Alabama Administrative Process. Final approval of the permanent rule could take several months. In addition to the permanent rules, the OGB approved the rules on an emergency basis for 120 days. The emergency rules went into effect on Thursday March 11, 1999.

The U.S. EPA informed the State Oil & Gas Board, by letter, on March 19, 1999, that the agency must regulate hydraulic fracturing. The main thrust of their letter was very simple.

> ***EPA is aware that the Court's decision runs contrary to our historic interpretation of the Safe Drinking Water Act, which is that hydraulic fracturing does not constitute "underground injection." However, in light of the LEAF decision, we now must require that Alabama regulate hydraulic fracturing of coalbed methane wells as underground injection in order to have an EPA approvable program.***

Dr. Oltz, Supervisor of the State Oil & Gas Board, and the staff at the OGB had until April 16, 1999, to respond to the letter from EPA. The response required them to demonstrate that they are regulating hydraulic fracturing as underground injection by permit or by rule. The OGB response was delivered to EPA Region 4 on Friday, April 16, 1999. The 32-page response contained a copy of the additional hydraulic fracturing regulations approved on March 5, 1999.

The basic position of the Alabama OGB in the response to EPA was that hydraulic fracturing has been regulated by the OGB since 1946, there have been no confirmed cases of groundwater contamination from the activity and that Alabama's regulation of hydraulic fracturing as a part of its Class II UIC Program is in compliance with the alternative state program guidelines set forth in Section 1425 of the SDWA (42 U.S.C. 300h-4).

The OGB response also raised several very serious and important questions. The questions concerned what Alabama was actually in violation of and why it is fair for only Alabama to have to adopt regulations.

> ***"Further, a review of the latest publication of 40 C.F.R. 145 by the Board did not reveal any requirement in Part 145 that Alabama no longer complies with. The Board cannot comply with non-existent federal standards. Likewise, the Board can find no changes in the Section 1425 alternative state program guidelines."***
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> ***"The court did not require EPA to impose a higher standard of compliance or a higher level of scrutiny on Alabama's UIC program. For EPA to isolate a single state's UIC program and subject the program to a higher standard of compliance and a higher level of scrutiny would be unfair, unreasonable, and violative of the U. S. Constitution."***

Many consider the better solution is to persuade Congress to pass a clarification to the SDWA that provides specific language addressing hydraulic fracturing. The uncertain status of this issue on the regulatory and legal front was already causing some planned new projects in Alabama to be re-evaluated.

On March 25, 1999, U.S. Senator James Inhofe (R-OK) and Senator Jeff Sessions (R-AL) introduced S.B. 724 to clarify the definition of underground injection. In their introduction comments, both Senators discussed the lack of evidence that hydraulic fracturing causes a problem with drinking water. They also pointed out that valuable state resources are being diverted to regulating hydraulic fracturing when the money could be better spent on protecting groundwater from real threats. The bill was assigned to the Senate Environment & Public Works Committee. Senate Bill 724 was drafted much narrower than the language from the previous fall. The CMAA endorsed this new clarification language.

In a March 23, 1999 letter to Senator John Chafee (R-RI) Chairman of the Senate Environment & Public Works Committee, EPA Assistant Administrator J. Charles Fox said the agency does not think the legislation is necessary or desirable.

> ***"While a preliminary survey of 25 State oil and gas agencies has been conducted, we believe that further investigation is warranted to evaluate the potential risk of hydraulic fracturing of coalbed methane wells to underground sources of drinking water. EPA intends to work with State and local drinking water agencies, industry, environmental groups, and the Department of Energy in order to collect additional data that we hope will provide us with information to more fully assess potential threats to ground water."***

However, EPA corresponded with U.S. Senator Jeff Session (R-AL) on March 4, 1999, informing him that EPA was not aware of any other cases alleging contamination from hydraulic fracturing in the Southeast. In addition, a letter to EPA Administrator Carol Browner on April 6, 1999, from the Director of the Nebraska Oil & Gas Conservation Commission hints that the EPA investigation has already confirmed earlier GWPC findings.

> ***"We believe that Senator Chafee should have been made aware of this positive environmental record. EPA staff has indicated that a survey of your own Regional offices also has turned up no substantiated evidence of ground water contamination from hydraulic fracturing of coalbed methane wells. We are proud of this record of environmental protection."***

The EPA was also concerned that keeping an amendment to the SDWA narrowly focused could be difficult. Industry advocates of the legislative clarification were aware of the concerns over the need to keep the effort focused.

On April 23, 1999, LEAF sent a letter condemning SB 724 to the Chairman of the Senate Environment & Public Works Committee, Senator John H. Chafee. In that letter, David Ludder accused the sponsors of the bill (Senators Inhofe and Sessions) of making statements in the Congressional Record containing misleading statements and half-truths about the issue. He accused oil and gas industry lobbyist of providing this information.

Ludder also made light of the GWPC survey that showed no confirmed cases of contamination. He even went as far as to say the EPA found the survey inconclusive. EPA has stated they want to do a follow-up study, but they have never labeled the study inconclusive. The EPA had reported (following the GWPC survey) that there were contamination complaints in two states.

The letter from LEAF to Senator Chafee prompted the GWPC to write one of its own. GWPC Executive Director Mike Paque took issue with several items in the LEAF letter.

> ***"In his letter Mr. Ludder makes a number of misleading statements that are light on facts and scientific evidence. He also makes statements that reflect poorly on state regulatory staff's competency, and suggest an underlying mistrust of the state regulatory agencies themselves."***

Mr. Paque also addresses the potential regulations that could be applied to hydraulic fracturing as a result of the LEAF case.

> ***"The states believe strongly that these proposed requirements could well result in the industry's inability to fracture these wells thereby making such operations uneconomical. All this would be done with no associated or offsetting environmental benefit to the public. Impacts on the industry notwithstanding, the additional regulatory costs to the state would constitute a crippling financial burden."***

Despite all the work done by the Oil & Gas Board of Alabama on additional regulations, the EPA seemed poised to withdraw the Class II UIC program from the OGB. EPA notified the OGB by letter on May 18, 1999, that their program was deficient.

> ***"Following Region 4's preliminary review of your April 15, 1999 response, the Agency determined that your State program is not yet in compliance with the requirements of the Safe Drinking Water Act (SDWA). The reason for this is because your EPA-approved program does not yet regulate hydraulic fracturing associated with methane gas production."***

Apparently, the EPA did not recognize the rules adopted on March 5, 1999 by the State Oil & Gas Board of Alabama to add to their existing regulations on hydraulic fracturing. The EPA took the position that since the new OGB rules are not final and the OGB has not "formally" applied for a revised program then the state did not have an approvable program. This was the first time the EPA had mentioned the fact that the state had to complete a program change process before EPA could make a determination on their program. The OGB gave final approval to the regulations adopted on March 5, 1999, at a meeting of the Board on July 1, 1999.

The EPA set a public hearing on the fate of the Class II program in Alabama for Wednesday, July 28, 1999, in Tuscaloosa, Alabama. This began a process with the potential of making Alabama the first state in the history of the UIC program to have primacy withdrawn.

On June 17, 1999, EPA Region 4 staff, EPA Headquarters staff and OGB staff met all day in Tuscaloosa to discuss further revisions to Alabama's program. This was done in an effort to address other EPA concerns (programmatic) about the regulations adopted by the OGB on March 5, 1999. The EPA wanted to regulate hydraulic fracturing as an "underground injection activity" and was trying to craft regulations with elements of various UIC programs.

The major focus of the new regulations appeared to be the protection of the formation water in the coal seam from which the methane is to be produced. This is in addition to existing

regulations designed to protect much shallower sources of water that may or may not actually be the source for a water well.

The quality of formation water in many coal seams produced in Alabama is at or below 10,000 parts per million total dissolved solids (TDS) and technically qualifies as a "potential" source of drinking water (USDW). However, as a practical matter this water is too deep and of such poor quality and limited quantity that it is not used as a source of drinking water. This is proven out by the fact that of 12 public water systems in Tuscaloosa County only one uses groundwater as its water source.

Anyone attempting to draw water from a coal seam producing methane would also be extracting some amount of the gas. If the water well operator does not own the mineral rights to the methane gas they could face legal action by the actual mineral owner as well as come under regulation of the state Oil & Gas Board for operating an un-permitted coalbed methane well.

The formation water in the coal seam that would be protected from "endangerment" by additional regulations is removed in order for the methane to be produced. The EPA wants protection of water that will not be present after dewatering of the coal seam is complete. In the case of coal seams fractured in advance of underground mining, neither the water nor the coal would exist after mining.

In order to prevent "endangerment" the EPA planned to force Alabama regulators to limit fracturing fluid contents to those substances that would not violate the maximum concentration limits (MCL) under the primary drinking water standard (40 CFR §141 subpart B & G). This restricts the types of fluids that can be used in Alabama coalbed methane wells.

In compliance with the 11th Circuit Court's mandamus order of February 18, 1999, the EPA conducted a public hearing on July 28, 1999, in Tuscaloosa, Alabama to take comments on whether or not the EPA should withdraw primacy. The hearing was conducted in a meeting room at the Tuscaloosa library and was filled to overflowing. Only fourteen speakers were able to make comments before the Tuscaloosa Fire Marshall announced that the large number of people in the room had caused a fire code violation. The EPA immediately scheduled another hearing for Thursday, September 9, 1999, in a 1,100-seat auditorium.

The EPA asked the 11th Circuit Court for an extension of the timeline proscribed in the February 18, 1999 mandamus because the July 28, 1999, hearing was not completed. The EPA argued successfully that the next deadline of August 27, 1999, could not be met because the new hearing was not scheduled until more than a week later. The court granted an extension of the August 27, 1999, deadline to inform Alabama of the specific deficiencies in their program to September 23, 1999.

A meeting was held in Washington, D.C. on August 3, 1999, between representatives of industry and the EPA to discuss the hydraulic fracturing issue. The Assistant EPA Administrator for Water, Chuck Fox, participated in the meeting that included discussion of the technical nature of hydraulic fracturing, the specific situation in Alabama and legislative efforts to clarify the SWDA.

The EPA, through Fox, expressed reluctance to support a legislative clarification because the agency did not know whether or not hydraulic fracturing posed a real environmental problem in

the U.S. This is despite the fact that a GWPC survey earlier in the year of all the states with coalbed methane activity found no confirmed cases of contamination. Cynthia Dougherty, head of the EPA's Office of Ground Water and Drinking Water, acknowledged that the announced EPA follow-up of the GWPC study had not made much progress in the last eight months. At least one of the EPA's region offices (Region 4) has reported that it could find no confirmed cases in the southeast U.S. However, no official report from this region or any other has ever been released.

Assistant Administrator Chuck Fox told the industry representatives at the meeting that the EPA does not intend to impose the strict regulations anticipated for Alabama on any other state. He repeated this statement at a national meeting of the Ground Water Protection Council in September.

In order for Alabama to have an approvable program, the OGB adopted yet another set of regulations to add to the ones given final approval on July 1, 1999. At The August 20, 1999, OGB meeting members of the Board took comments on the EPA suggested regulations that place unprecedented restrictions on fracturing fluids. The regulations were adopted on an emergency basis. Alabama Administrative Procedures require a minimum of 70 days before any new OGB regulations would be final, however, the new regulations could be in force on an emergency basis for up to 120 days.

The EPA conducted the rescheduled hearing on September 9, 1999, with no further interruptions from the fire Marshall. Almost 300 people attended the hearing, the vast majority of them supporting the Oil & Gas Board and the industry. Several of those who condemned the industry, EPA and Oil & Gas Board were friends, family and supporters of Reuben McMillan, who brought the original complaint 10 years ago.

The EPA met the new deadline of September 23, 1999, and informed the OGB, in writing, of the specific deficiencies in their program.

> ***"EPA has evaluated the record following the close of both public hearings held in Tuscaloosa, Alabama and the close of the public comment period. EPA has determined that the State is still not in compliance because Alabama's EPA-approved program does not yet regulate hydraulic fracturing associated with methane gas production. Within 90 days of receipt of this notification, the State of Alabama must correct specific deficiencies or the Class II UIC Program will be withdrawn."***

While the EPA letter did not contain any specific deficiencies, it did request a program ***"sufficient to prevent underground injection which endangers underground sources of drinking water."***

The State Oil & Gas Board planned to submit their official request for a program modification in early October. That submission would include a new program description, the new regulations (as adopted by emergency order on August 20, 1999) and other forms and legal documents required by the process.

The EPA informed the OGB on September 24, 1999, that their submission would have to include a funding source for the additional program elements. Without this funding EPA says it cannot approve Alabama's program. The OGB appropriation from the State Legislature contained no new money for this program. Any additional money to fund the hydraulic fracturing part of the Class II program would have to come from the EPA itself. Eventually, the issue of funding was the only critical question left when it came time to approve the Alabama program.

The State Oil & Gas Board formally submitted their proposed new program to the EPA on October 6, 1999. On October 22, 1999, EPA published a notice in the Federal Register proposing to approve Alabama's revised program and set a third public hearing for Monday, November 22, 1999, in Tuscaloosa.

It became apparent that the lack of funding for the Alabama program might be the issue that would result in EPA withdrawing primacy. Alabama Governor Don Siegelman came to the support of the Oil & Gas Board and the coalbed methane industry. In a letter to the White House, Governor Siegelman cited the issues of funding and fairness.

> ***"For the EPA to withdraw primacy because it is not willing to pay for regulations it mandates is unfair. What is even more unfair is the publicly stated position of the EPA that is has no intention of imposing these very same regulations in any of the other states with coalbed methane development."***

At the November 22, 1999, public hearing LEAF attorney David Ludder strongly objected to the state's planned program. This was the same position he took at the September 9, 1999, public hearing. According to Ludder, the state program to regulate hydraulic fracturing must come under the 1422 program and not the 1425 program currently run by the state. The consequences of regulation under 1422 are grave for the future of the coalbed methane industry in Alabama.

At the November 22, 1999, hearing Ludder also admonished the state and EPA for being concerned about only protecting water wells and not protecting all potential underground sources of drinking water. What Ludder and LEAF want is an interpretation of the regulations that includes an absolute prohibition against injection into any formation (coal or otherwise) that contains water with 10,000 milligrams per liter of total dissolved solids or less. This prohibition would apparently include formations that would never be used as drinking water supplies because they contained hydrocarbons and are too deep to be economically viable.

In addition, Ludder proposed at the November 22, 1999, hearing that the regulations provide that contamination would occur by the movement of the formation water within the formation itself. This would suggest that anyone with a water well would be prohibited from producing from that well because the act of removing the water from the well would cause the formation water itself to move. If this is the case, the question becomes why worry about contamination from injection if the formation water itself cannot be removed from the formation.

On December 22, 1999, the US EPA informed the State Oil & Gas Board of Alabama that their program, as submitted on October 6, 1999, was approved. Ironically, this came exactly 10 years, to the day, from the date LEAF put River Gas on notice of a Federal lawsuit accusing them of violating the Safe Drinking Water Act. According to the writ of mandamus issued by the

Federal Appeals Court in February of 1999, once EPA has made a decision that the Alabama program meets the requirements of the SDWA then the withdrawal proceedings are over.

Had EPA withdrawn primacy from Alabama all drilling and hydraulic fracturing of coalbed methane wells could have come to a halt. The SDWA has an absolute prohibition against underground injection unless authorized by permit or rule. The EPA had no regulations to allow this. Until the EPA implemented regulations, Alabama coalbed methane operators would not be drilling any new wells. The process to develop EPA regulations could take months, or years, depending upon the other legal actions taken by either LEAF or Alabama coalbed methane operators.

Coalbed methane operators in Alabama were already feeling the effects of the unprecedented regulations the state was forced to impose. The requirement for certification of fracturing fluids reduced new drilling activity significantly. Operators were expending tremendous resources to make sure they could comply with the regulations. The industry would be forced to spend several million dollars over the next few years to meet the most stringent UIC regulations anywhere in the country. This will happen with little, if no, environmental benefit.

Alabama operators would go on to invest an additional $1.1 Billion on more than 3,000 new wells. This investment preserved jobs, extend the life of existing coalbed methane developments and add to the millions of dollars paid each year in local, state and federal taxes. By 2009 Coalbed methane operators had invested more than $3 Billion to develop the resource in Alabama. Current coalbed methane production amounts to about 43 percent of all natural gas produced in the State.

Given the opinion of the 11th Circuit Court on August 7, 1997, anyone who engages in down hole activity involving fluids or gas (EPA defines a gas as a fluid for purposes of the SDWA!) is subject to regulation under the SDWA as underground injection. Ironically, this may include the U.S. EPA itself. Since 1991, the EPA has approved and used hydraulic fracturing (using sand and guar gel) as a method to aid in the clean up of pollution from superfund sites.

Furthermore, the EPA has spent millions over the decade promoting the worldwide use of coalbed methane in advance of underground coal mining. The Coalbed Methane Outreach Program has done an outstanding job in collecting highly technical information and getting it into the hands of coal mine operators in many countries. The EPA even produces guides on how to finance these projects. The reason the EPA has this program is that methane extraction in advance of coal mining prevents the venting of a significant pollutant to the atmosphere. In other words, there is an environmental benefit derived from the coalbed methane industry!

The December 22, 1999, approval of Alabama's program was not the end of this issue. Rather, it was the beginning of the next stage that would be played out on the national level. On January 19, 2000, the EPA published a final rule, in the Federal Register, giving notice that Alabama's unprecedented regulation of hydraulic fracturing under the UIC Class II program was approved.

LEAF has made good on its threat to sue EPA over the new program now approved for Alabama. On January 26, 2000 LEAF filed a petition for a judicial review of the EPA rule approving Alabama's program (LEAF II). This is the same process LEAF began back in 1995 that resulted in the August 7, 1997 ruling from the 11th Circuit Court and the withdrawal

proceedings that concluded with Alabama having the only UIC based hydraulic fracturing regulatory program in the nation. If LEAF had been successful again, the coalbed methane industry in Alabama would have been faced with even more unreasonable, unprecedented, and unproven regulations that would most likely be impossible to comply with.

In addition, many other environmental groups could take the precedent established by EPA, in approving a strict regulatory program for Alabama, into other states. Petitions could be filed with state regulators demanding adoption of the plan already approved for Alabama by EPA. The January 19, 2000, Federal Register notice recognizes this fact.

> ***"This determination does not preclude another State from regulating hydraulic fracturing of coal beds in an alternate UIC regulatory scheme."***

EPA also directly implements the Class II UIC program in some states with coalbed methane (Pennsylvania, Virginia and Kentucky to name a few). It would not take much for groups in those states to take action to force EPA to impose the "Alabama style" regulations there.

Alabama coalbed methane operators moved ahead to comply with the new regulations. The regulations have cost, and will continue to cost, each operator a great deal of time and a significant amount of money. Both of these conditions hurt Alabama's competitive position for attracting investment dollars.

In formulating a plan to keep drilling and fracturing, the coalbed methane industry discovered an interesting situation. Fracturing fluid is about 97 percent fresh water. None of the substances added to fresh water in Alabama to make fracturing fluid were found to be on the EPA list as contaminants under the primary drinking water standard. The factor in whether or not fracturing fluid, in Alabama, meets the new MCL standard is the quality of the fresh water used to make the fracturing fluid.

Operators found that MCL compliant fresh water was not readily available from streams, rivers or lakes. Instead, operators have had to buy and then transport water from public water systems to make sure they have water clean enough to make fracturing fluid. In order to avoid violating the regulations, operators have to be very particular to make sure the water systems they purchase from meet the standards. This verification has sometimes proven to be difficult.

On February 25, 2000, the Coalbed Methane Association of Alabama filed a motion with the 11th Circuit Court to intervene in the LEAF II petition. Others, including the State Oil & Gas Board of Alabama, the American Petroleum Institute, Interstate Oil & Gas Compact Commission, River Gas and Halliburton also requested to intervene. LEAF opposed intervention by all parties except the State Oil & Gas Board. The Court allowed the OGB to join as an intervener and denied all the other requests.

The Court did allow the other parties to file "Friend of the Court" briefs, but combined the CMAA, API, River Gas and Halliburton into one amicus curiae brief and allowed the IOGCC to file a brief of its own. Later, the IPAA joined the industry brief and the GWPC joined the IOGCC brief.

The Court also denied a request by the IOGCC and the industry group to be allowed more words in their amicus curiae briefs to more adequately make their legal arguments. LEAF was

batting 1000 in getting the 11th Circuit Court of Appeals to give them what they want in this proceeding.

On July 25, 2000 the EPA announced, in the Federal Register, that a public meeting would be conducted on August 24, 2000 on a proposed study of hydraulic fracturing. The EPA also released the actual study design that was to be the subject of the public meeting. The public meeting became a workshop and public comment was more restricted than expected. The EPA also instructed those making comments not to discuss several issues including whether or not hydraulic fracturing should be regulated under the SDWA.

There was almost universal condemnation of the proposed study design. Sound science and peer review were just a few of the major deficiencies identified. The EPA predicted the study would take about 18 months to complete. EPA officials said they could not support any legislative clarification, especially with a study mandated by Congress in progress.

LEAF succeeded in temporarily knocking the OGB out of the case. On September 22, 2000, the 11th Circuit panel assigned to this case granted all of the LEAF motions from earlier in the summer and denied the OGB motion to be able to re-write its brief again. What LEAF got from the judges was elimination of the entire OGB brief from the proceedings and a ban on the OGB participating in oral arguments. Other than being a named intervener, the OGB had no other role left in the case. The OGB filed a motion with the court on October 6, 2000, asking that a special "merits panel" review the most recent LEAF motion that had been granted. The EPA filed a motion in support of that effort.

The Board of Directors of the Ground Water Protection Council approved a resolution on September 27, 2000, calling for a legislative clarification to the SDWA to nullify the 1997 LEAF decision. The GWPC joined the IOGCC in calling for the legislation.

The 11th Circuit Court originally scheduled oral arguments for the LEAF II case for the week of February 26, 2001. This schedule was changed and the oral arguments were conducted on March 12, 2001 in Atlanta. A few weeks prior to the oral arguments the State Oil & Gas Board was notified that it would be able to participate in the briefs and oral arguments. A decision from the court might not come until the fall of 2001. The attorney for LEAF had already expressed intent to take the matter to the U. S. Supreme Court if they don't get the ruling they want.

If the Court had agreed with LEAF again, Alabama would be forced into yet another withdrawal proceeding with EPA. If the OGB decides not to keep primacy, then EPA would have to regulate hydraulic fracturing in Alabama. In either case the EPA would have to come up with yet another set of regulations for hydraulic fracturing.

EPA representatives told an industry group on September 25, 2000, that they could write rules only for Alabama and not have to go to any kind of nationwide rule. Any Alabama regulations, or EPA rule, that does not put coalbed methane operators out of the new well business in Alabama would most likely be challenged by LEAF again!

In the meantime, the State Oil & Gas Board of Alabama continued to struggle running a one-of-a-kind hydraulic fracturing program without adequate funding from the EPA. The OGB received a small grant to help defray some of the cost associated with the EPA mandated rules, but would receive no money in future years.

As a result of this funding issue, the OGB imposed additional fees on operators who wish to hydraulically fracture under the rules. The fees, imposed in the fall of 2001, could be as much as $1,000 per well. Alabama coalbed methane operators were now paying the expenses for the regulated as well as the regulator. These fees resulted in further complications for operators who were working to bring new sources of natural gas to a market desperate for it.

It is worth noting that as this case has proceeded, since the 11th Circuit ruling in 1997, coalbed methane operators in Alabama are the only companies being required to comply with the strict rules and pay the additional costs. No other coalbed methane operators or conventional operators have been forced to comply with the unreasonable standards in place in Alabama. In addition to creating an impediment to oil and gas development, the rules and fees place Alabama coalbed methane operators at a competitive disadvantage.

All of these additional regulations, burdens, legal questions, costs and impediments to coalbed methane production provide no additional environmental benefit!

On December 21, 2001, the 11th Circuit Court denied the LEAF challenge of EPA's approval of the Alabama Oil & Gas Board's revised UIC regulatory program to include hydraulic fracturing of coal seams. LEAF petitioned the U. S. Supreme Court to hear the case, but this request was denied.

The Alabama program to regulated hydraulic fracturing continued with individual permits required for each fracture zone. The process was expensive and time consuming. During periods of drought producers grew concerned about the potential for fresh water supplies to be curtailed.

Following the termination of the LEAF II challenge the industry and regulators continued to work on language to clarify the Safe Drinking Water Act. Several, very complex, solutions were discussed for several years.

On August 8, 2005, President George Bush signed the Energy Policy Act into law. This legislation contained what has come to be known as the "plain language" fix.

> ***"(1) Underground injection.-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.".***

Following the enactment of the Energy Policy Act, Alabama coalbed methane operators and the OGB began discussions about modifying Alabama's hydraulic fracturing permit program to lessen the burden on regulators and operators. The industry and OGB agreed on a new program. The new rules went into effect on October 16, 2007.

Although the current hydraulic fracturing regulatory program is not as complex as it was under the mandate of the LEAF decision, it is still costly to both the industry and the regulators. In addition, the program is substantially more complex than any other state requires. No cases of water well contamination from hydraulic fracturing have been confirmed in Alabama.