

FRACKING – FACTS AND FEARS

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WHAT IS FRACKING?

Hydraulic fracturing (“fracking”) is a process by which natural gas is extracted from “unconventional plays” found in subterranean geologic formations of coal or shale. Shale gas plays are considered unconventional because the mineral formations have low permeability. The shale's low permeability means that the “rock ... does not allow gas or fluid to pass through it easily.” Stimulation is necessary to increase the permeability of the shale in order to allow gas to flow through it more readily.

The natural gas trapped in the shale formation is located in the “pore space” of the shale, vertical fractures contained in the formation, and adsorbed on matter within the shale. These vertical fractures within shale formations contain trapped natural gas. The vertical fractures do not lend themselves to efficient extraction of gas by conventional vertical wellbores because both the fracture and the wellbore are on the same axis. As a result, the use of horizontal wellbores in shale plays is increasingly common because this method can reach up to 100 times the surface area of gas-producing shale by running laterally along the shale formation.

Although horizontal drilling presents a significantly higher capital investment than conventional vertical wellbore drilling, the return on investment is much greater than traditional vertical wellbores, with upwards of seven times the production of gas. Operators utilize the process of fracking to stimulate the shale, thus increasing its permeability and, ultimately, the efficiency and efficacy of the gas extraction.

The injection of the fluid increases pressure on the shale formation and physically fractures the “fissile shale.” Proppants, such as sand or engineered ceramic beads within the fluid, prop open the microfractures created in the shale after the fluid is pumped out of the wellbore, allowing the gas to escape into the well for capture.

This process is not entirely novel; hydraulic fracturing has been used for nearly half a century. However, development in horizontal wellbore drilling and fluid technology has greatly expanded the scope of fracking in recent years.

– Sean H. Joyner, Note, *Superfund to the Rescue? Seeking Potential CERCLA Response Authority and Cost Recovery Liability for Releases of Hazardous Substances Resulting from Hydraulic Fracturing*, 28 *Journal of Contemporary Health Law and Policy* 111 (2011).

INTRODUCTION

This document was first prepared for a program, sponsored by the Dayton League of Women Voters, that explored the “facts and fears” regarding fracking. The document discusses legal issues relating to fracking, and summarizes litigation regarding this form of oil and gas exploration. The document was prepared in February 2012, and will be updated on a regular basis.

Author background. – Prior to joining the University of Dayton faculty in 1992, I worked as an appellate attorney in the Environment and Natural Resources Division of the United States Department of Justice. As a government attorney, I briefed and argued cases concerning the regulation, protection, and utilization of land, water, and mineral resources. My currently research and teaching interests include Administrative Law, Coal Law, Environmental Law, Indian Law, Oil and Gas Law, Property Law, and Water Law.

In this document I will be citing, summarizing, quoting, and editing cases, articles, newspaper accounts, and websites that provide information on the topic of fracking. A list of sources can be found at the end of the document and should be consulted for exact quotes.

The Oil & Gas Accountability Project has produced an extensive document, entitled *Oil and Gas at Your Door? – A Landowner’s Guide to Oil and Gas Development* (2nd ed.), that is available at <http://www.earthworksaction.org/files/publications/LOGuide2005book.pdf?pubs/LOGuide2005book.pdf> This document goes over such issues as

- (1) the stages of oil and gas development;
- (2) the development of nonconventional gas and oil;
- (3) impacts associated with oil and gas operations;
- (4) surface owner protections;
- (5) what to do when the landman comes calling;
- (6) surface use agreements;
- (7) leasing; and
- (8) potential legal options

It also contains several “landowner stories” of actual disputes between surface owners and oil and gas companies.

MARCELLUS SHALE AND UTICA SHALE

MARCELLUS SHALE – Of the seven largest shale plays in the country, the Marcellus Shale covers the largest area, estimated to be about 95,000 square miles, with more technically recoverable resources than any other shale play. Drilling and completion of Marcellus gas wells differs from conventional gas wells because it includes both vertical and horizontal wells, at a depth of 5,000 to 8,000 feet below surface. [Garber and Mosites].

The Marcellus Shale sprawls beneath parts of West Virginia, Ohio, New York, Maryland, and contains 262 trillion cubic feet of high quality natural gas. Of that amount, 50 trillion cubic feet is capable of being siphoned to the earth's surface, which is enough gas to satisfy the natural gas needs of the entire country for two years. [Perkins]

The Marcellus Shale underlies large portions of New York, Pennsylvania, West Virginia, Ohio and western Maryland with an estimated depth ranging from 4,000 to 8,500 feet under the Earth's surface. The Marcellus Shale is said to have “favorable mineralogy” in that it is a highly porous, low-density rock and it contains a significant amount of recoverable natural gas. A recent survey by the U.S. Department of Energy estimates a range from 260 to 490 trillion cubic feet of recoverable gas in the Marcellus Shale. To put that in perspective, consider that one trillion cubic feet of natural gas can heat fifteen million households for an entire year. [Stemplewicz]

While natural gas fields are scattered all over the country, some of the fields ripest for fracking are the Marcellus Shale field, which covers parts of Ohio, Pennsylvania, West Virginia and New York; the Antrim Shale field in Michigan; and the Barnett Shale field in the Fort Worth region of Texas. [Popular Mechanics, Hard Facts]

UTICA SHALE – The current focus in Ohio is on a formation known as the Utica Shale. Geologists believe that the Utica, which ranges from 6,000-9,000 feet in depth, may have served as the source of much of Ohio's historical production. Operators are looking at the Utica because of the possibility that it may contain not only natural gas but also crude oil and natural gas liquids (NGLs). The added value of crude oil and NGLs improves the overall economic value of the operations. These additional revenue streams are significant in today's environment of relatively low natural gas prices and the substantial costs involved in drilling a horizontal well—ranging from \$2-\$10 million a well. [Gartland]

SEE ALSO: *The Marcellus and Utica Shale Plays in Ohio*, by Larry Wickstrom, Chris Perry, Matthew Erenpreiss, and Ron Riley, Ohio Department of Natural Resources, Division of Geological Survey (forty-five page PDF slideshow, with maps and illustrations, originally presented at the Ohio Oil & Gas Association Meeting on March 11, 2011), available at http://www.dnr.state.oh.us/portals/10/energy/Marcellus_Utica_presentation_OOGAL.pdf

OHIO SENATE BILL 315

On March 22, 2012, Governor John Kasich released an energy bill, Senate Bill 315. The bill, if enacted, would amend Ohio's oil and gas statutes. The law firm of Bricker & Eckler has authored an article entitled "*Ohio Senate Bill 315: A Summary of Governor Kasich's Energy Bill*" (03-28-12). The following are excerpts from the article:

... One of the overarching changes made to R.C. Chapter 1509 is to subject horizontal well drilling operations subject to the existing permitting and regulatory schemes. ... [SB 315 addresses such issues as road use maintenance agreements, liability insurance coverage for horizontal wells, production reporting requirements, and ODNR's rulemaking authority relating to horizontal wells and their production facilities. Permit applications to ODNR for oil and gas drilling operations must identify the source of water that will be used and state whether the water will be withdrawn from the Lake Erie or Ohio River watersheds.] ...

When submitting a well application, an applicant now must submit pre-drilling water sampling/testing results if: (i) the well is being drilled in an urbanized area; or (ii) the permit is to drill a new horizontal well. For wells drilled in an urbanized area, water sampling must be completed for all water wells within 300 feet of the proposed horizontal well. ... For new horizontal wells, water sampling must be completed for all water wells within 1,500 feet of the proposed horizontal well, but ODNR retains the authority to revise the distance if "necessary to protect a water supply" or "conditions at the proposed well site warrant such a revision." R.C. 1509.06(A)(15). ...

[SB 315 would require that well completion reports include] information about the types and volumes of fluids (other than cement) used to drill and/or stimulate (e.g., hydraulically fracture) the well. If the disclosure of such fluids involves proprietary components, the report must state the "chemical class to which the component belongs and provide the proportion of the component to the amount of the fluid in which it was used." R.C. 1509.10(A)(9) and (10). In addition, well owners must annually submit a list of "each chemical compound and its corresponding amount . . . that was used during the preceding year in the servicing, operating, and plugging of the well." R.C. 1509.10(F). The list must be provided to ODNR by June 30 each year, and well owners with more than 100 wells must submit the report electronically. R.C. 1509.10(F).

SB 315 adds new requirements to R.C. 1509.22 regarding applications for the injection of brine or other waste substances (e.g., disposal in Class II injection wells). ... A new provision in R.C. 1509.22(I) also requires the owner of an injection well to obtain from the transporter of the fluids a list of each chemical compound originally used in the drilling operations, unless the owner of the well complied with the new fluid disclosure requirements in R.C. 1509.10. Perhaps most importantly, ODNR can require a person already in receipt of an injection well permit to retroactively comply with the new regulations. [SB 315 also sets fees for disposing fluids into injection wells, based on whether the fluids were produced in Ohio or elsewhere.] Full article at <http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2407>

“FRACKING” NEWS ARTICLES, WITH A FOCUS ON OHIO

For more recent articles, go to http://www.udayton.edu/directory/law/watson_blake.php

Shale-Drilling Boom Continues Across State, Dayton Daily News, 02/19/2012 = The state has approved 127 drilling permits for natural gas and oil in the Utica and Marcellus shales. Four wells already are producing oil and gas, and 16 are in various stages of completion. More than 3,800 natural-gas wells have been drilled in Pennsylvania’s Marcellus shale since 2005.

Chesapeake gets OK for 3 New Fracking Wells in Northeast Ohio, Business First, 02/17/2012 = Chesapeake Energy Corp. has gotten permits for three new wells to explore for natural gas in Ohio’s Utica shale field, the Youngstown Vindicator reports. The Oklahoma City-based company’s Chesapeake Exploration LLC affiliate said the Ohio Department of Natural Resources granted the wells in Columbiana County, the paper reported, where it plans to look for resources using fracking. Columbiana County now has 14 wells approved for fracking, the paper said.

http://www.bizjournals.com/columbus/morning_call/2012/02/chesapeake-gets-ok-for-3-new-fracking.html?s=print

Fracking Chemical Debate Continues, Dayton Daily News, 02/13/2012 = One vertical-horizontal well in Carroll County (southeast of Canton) used 969,024 pounds of chemical additives and required 10.5 million gallons of water and 5,066 tons of sand. The article mentions the following website: www.fracfocus.org. The industry says what goes into the natural gas wells is 99.5 percent water and sand and that the additives do not pose a major toxic threat. Opponents disagree. The U.S. EPA agreed in November 2011 to examine the threat, if any, posed by fracking chemicals.

Drilling Agency at Odds with AG, Dayton Daily News, 02/11/2012 = Attorney General Mike DeWine wants to see civil penalties for environmental, safety, and other violations raised from the current \$20,000 maximum per incident to as much as \$10,000 a day. He supports full disclosure of the chemicals and their concentrations used in hydraulic fracturing ... and recommends giving his office or another state agency the ability to intervene in homeowner complaints over drilling lease agreements.

Pennsylvania Set to Allow Local Taxes on Shale Gas, NY Times, 02/07/2012 = The Pennsylvania Senate passed legislation authorizing a tax on the shale gas industry and setting uniform standards for development, changes that critics said would leave many municipalities with little control over the use of their land. Approval in the House was expected on Wednesday. The bill has pitted municipalities against a powerful industry and state legislators eager to increase jobs and revenue. Critics, among them some municipalities and environmental groups, said the bill was a capitulation to the energy industry and would all but eliminate their ability to decide where gas development could happen. The measure would limit it in densely populated urban areas but not in suburban spaces, critics said. Critics also said the environmental and safety standards, like the requirement that wells be at least 500 feet from any house, are weak. Zoning laws in 100 to 200 municipalities may be in question. State Senator Joe Scarnati, who supported the bill, said it would bring in more than \$1 billion over the next five years.

Fracking News Articles (continued)

Landowner Bill of Rights Sought, Dayton Daily News, 02/03/2012 = Innovation Ohio spokesman Dale Butland says Ohioans need safeguards against oil and gas drillers, and that the state should raise its extraction (severance) tax. Governor Kasich says he wants to impose an impact fee on drillers to ensure roads damaged by heavy equipment can be repaired.

Fracking Moratorium Bill, 01/19/2012 = HB418, fracking moratorium until 01-01-2015 (Hagan, R), introduced. Referred to the Agriculture and Natural Resources Committee on 01/24/2012. See http://www.legislature.state.oh.us/bills.cfm?ID=129_HB_418

Ohio to Benefit from Gas Scale-Back, Dayton Daily News, 01/24/2012 = Because of Ohio's liquids-rich natural gas deposits, Chesapeake Energy Corp. will not slow down drilling in Ohio even as the company announced it will scale back drilling for natural gas in Pennsylvania. [The market price for natural gas has fallen, but Ohio has deposits of "wet gas" or natural gas accompanied by ethane, butane, methane, and propane. Natural gas liquids, or NGLs, have a variety of different uses.] A pipeline is being built through Butler, Warren, Clinton, and Greene counties to transport ethane to petro-chemical plants on the Gulf Coast. Ohio is also in the running as a location for a Shell Oil Co. "cracker" plant that processes hydrocarbons into ethylene and other synthetics. Chesapeake Energy Corp. plans to have 20 operating drilling rigs in Ohio by year's end. Currently there are eight. Drilling activities in Ohio are concentrated in Carroll, Harrison, and Jefferson counties in the eastern part of the state.

Oil, Gas Tax Would Cover Drill Damage, Dayton Daily News, 01/18/2012 = Governor Kasich will soon propose that Ohio's oil and gas industry should pay an impact fee for deep-shale wells to cover the cost of infrastructure damage. The Ohio Oil and Gas Association projects that state and local governments will see a \$1 billion increase in annual tax income from the industry by 2015.

Fracking Brings Jobs, Concerns, Dayton Daily News, 01/17/2012 = Ohio is home to 177 disposal injection wells, including near Youngstown where 11 earthquakes have been recorded since March. Predictions for new job growth exploiting the shale deposits range from 20,000 to 200,000 by 2015.

Official Helpless to Stop Dangerous Flow of Brine, Dayton Daily News, 01/14/2012 = State records show that 60% of "brine" injected in Ohio disposal wells comes from Pennsylvania and West Virginia. Brine has been linked to a series of earthquakes in Youngstown. The brine is a result of the fracking process.

Fracking News Articles (continued)

County Plans Fund to Fight Injection Wells, Dayton Daily News, 01/08/2012 = Richland County officials are asking local governments to contribute money to a fund that would be used to fight two planned wells that would be used to inject wastewater from gas drilling operations. The Ohio Department of Natural Resources has approved permits for a Texas company to operate two 5,000 foot injection wells near Mansfield. Officials are concerned about the effects of the wells and the process of bringing wastewaters from Pennsylvania and other states by rail or truck. There is also concern about earthquakes. The Youngstown area recently experienced minor quakes.

State Hopes Fluid Flows Into Tanks at Site of Earthquakes, Dayton Daily News, 01/06/2012 = State officials will let waste fluids, that were injected down a Youngstown well, bubble back to the surface in order to relieve underground pressure that might have caused a series of earthquakes. The brine will flow back into storage tanks.

Radiation in Drilling Waste New Worry, Dayton Daily News, 12/30/2011 = Environmental groups have requested the Ohio Department of Natural Resources to change rules in order to keep low-level radioactive drilling wastes out of Ohio's landfills. The radioactive waste is from so-called drill cuttings. Four Ohio landfills accept such wastes, including one in Perry County. Officials say the threat of radiation from drill cuttings is minimal.



Fracking News Articles (continued)

Ohio Hoping For Next “Gold Rush”, Dayton Daily News, 12/18/2011 = Chesapeake Energy told its shareholders the Utica Shale could eventually pump up to \$20 billion in commodities out of the landscape where it’s leased 1.5 million acres. In Carrollton, Ohio, a 30-minute drive from Canton, there are streams of semis loaded with drilling equipment, new blacktopped roads to handle the heavy loads, and lots of new people in town. Newer lessees are reporting initial payments in excess of \$5,000 per acre, some netting checks into the hundreds of thousands of dollars for a typical five-year right to drill. The shale contains wet gas, a rich mix of natural gas accompanied by butane, ethane, propane and methane. Ethane is especially valuable as it can be processed as a feedstock for chemical and material manufacturing, potentially spawning new Ohio industry and perhaps for chemistry and engineering graduates from Wright State University and the University of Dayton as well as other local schools. In Youngstown, V&M Star has announced a \$650 million investment to provide for the Marcellus and Utica Shale industry. Steubenville reports 300 new jobs from investments in shale gas with a projection that 10,000 more could come in three years. In Lorain, Republic Steel said it will spend \$85.2 million and create 450 jobs to supply the gas and oil as well as the resurgent auto industry. In Boardman, Dearing Compressor & Pump Co., an industrial pump and compressor maker, invested \$3 million in a new assembly plant to expand production. A proposed pipeline will likely transport key industrial liquid ethane through Butler, Warren, Clinton and Greene counties on its way to Gulf Coast plants. An Ohio Oil & Gas Energy Education Program study projected royalty payments to landowners, schools, businesses and communities could rise to \$1.6 billion by 2015. Federal land managers of the Wayne National Forest, located in southeastern Ohio, have imposed a fracking moratorium there. Moratoriums stand in New York, New Jersey and Maryland. Pennsylvania in May levied a record \$1 million fine on Chesapeake after finding water supplies in one county were contaminated by improper well construction that let gas seep from shallow non-shale formations — unlike the mile-deep rock being tapped in Ohio. A draft U.S. EPA report released earlier this month for the first time linked fracking to groundwater pollution in Pavillion, Wyoming.

EPA: Fracking May Cause Groundwater Pollution, USA Today, 12/08/2011

<http://www.usatoday.com/money/industries/energy/environment/story/2011-12-08/epa-fracking-pollution/51745004/1>

– The U.S. EPA announced Thursday for the first time that fracking may be to blame for causing groundwater pollution. EPA found that compounds likely associated with fracking chemicals had been detected in the groundwater beneath Pavillion, a small community in central Wyoming where residents say their well water reeks of chemicals. EPA emphasized that the findings are specific to the Pavillion area. The fracking occurred below the level of the drinking water aquifer and close to water wells. Sen. James Inhofe said the study was "not based on sound science but rather on political science.

[**Update:** In April 2012, EPA agreed to retest the water after its methods were questioned. “EPA Backpedals on Fracking Contamination, Wall Street Journal (04-01-12), at

http://online.wsj.com/article/SB10001424052702303404704577313741463447670.html?mod=googlenews_wsj]

Fracking News Articles (continued)

Learning Too Late of the Perils in Gas Well Leases, NY Times, 12/01/2011 = [Lengthy article about situations where problems arose connected with fracking operations]. A review of more than 111,000 leases and related documents suggests that (1) fewer than half the leases require companies to compensate landowners for water contamination after drilling begins; (2) only about half the documents have language that lawyers suggest should be included to require payment for damages to livestock or crops; (3) most leases grant gas companies broad rights to decide where they can cut down trees, store chemicals, build roads and drill; (4) companies are permitted to operate generators and spotlights through the night near homes during drilling; (5) drilling companies rarely describe to landowners the potential environmental and other risks that federal laws require them to disclose in filings to investors; (6) most leases are for three or five years, but at least two-thirds of those reviewed allow extensions without additional approval from landowners. Some landowners have had to buy bottled water or maintain large water tanks for drinking water because their leases did not require gas companies to pay for replacement drinking water if their wells were contaminated. Thousands of landowners in Virginia, Pennsylvania and Texas have joined class action lawsuits claiming that they were paid less than they expected because gas companies deducted costs like hauling chemicals to the well site or transporting the gas to market. Last year, natural gas companies paid more than \$1.6 billion in lease and bonus payments to Pennsylvania landowners. Chesapeake Energy paid more than \$183.8 million in royalties in Texas this year. At least eight states require companies to compensate landowners for damage to their properties or to negotiate with them about where wells will be drilled, even if the lease does not provide those protections.

See <http://www.nytimes.com/2011/12/02/us/drilling-down-fighting-over-oil-and-gas-well-leases.html?pagewanted=print>

EPA to Draft Rules on Fracking Wastewater, Dayton Daily News, 10/21/2011 = EPA announced it will draft standards for fracking wastewater that drillers would have to meet before sending the wastewater to treatment plants. Drillers inject some wastewaters into the ground, but send other wastewaters to treatment plants.

Gas Boom Could Create Ohio Jobs, Dayton Daily News, 09/10/2011 = Ohio appears on the cusp of a 21st-century oil and gas boom that could net tens of thousands of new jobs. Recently, the Hess Corp. said it made lease purchases covering 85,000 acres in Ohio worth \$750 million. State Sen. Michael J. Skindell, D-Lakewood, has introduced legislation calling for a moratorium on hydraulic fracturing until federal review of environmental impacts. The Chesapeake Energy Corporation has spent \$1 billion to lease 1.25 million acres to get at the deep Ohio Utica Shale formation. It intends to increase drilling rigs in the Utica to 20 by the end of 2012 and 40 by 2014. The U.S. Geological Survey in August updated its estimates for the Marcellus Shale region underlying New York, Pennsylvania and Ohio, saying it contains 84 trillion cubic feet of undiscovered, recoverable natural gas, vastly more than thought nearly a decade ago in large part because of new drilling and extraction technology. Critics say hydraulic fracturing threatens ground water. New Jersey Governor Chris Christie last month vetoed a permanent ban on fracking, but imposed a one-year fracking moratorium. New York also has a moratorium in place, and outright fracking bans have been imposed in Pittsburgh, Buffalo, and Detroit.

Fracking News Articles (continued)

Ohio EPA Wants Air-Pollution Limits on Drilling Companies, Dayton Daily News, 08/28/2011 = Ohio EPA is proposing that drilling companies obtain permits containing air-pollution limits. Drilling uses diesel engines and other devices that can leak or emit hazardous compounds.

Natural Gas, Oil Drilling Rush Appears Near in Ohio, Dayton Daily News, 08/22/2011 = Chesapeake Energy has leased in excess of 1.2 million acres in Ohio and expects to add another 300,000 acres. Its Ohio acreage could produce as much as \$20 billion according to its quarterly report. The industry standard is 12 percent on royalties, but some Ohioans report 20 percent royalties and some lease bonuses have topped \$3,600 an acre.

Oil, Gas Deposits Valued at \$15 Billion to #20 Billion, Dayton Daily News, 07/31/2011 = Chesapeake Energy, Devon Energy, Anadarko Petroleum Corp., and Chevron Corp. are making plans in Ohio. The Marcellus formation has yielded returns in Ohio, Pennsylvania, and nearby states. The Utica shale, which is several thousand feet below the Marcellus layer, stretches across the eastern half of the state and is an untapped and largely unknown resource. Earlier this summer, Chesapeake was the first company to complete a well in Ohio that reached the Utica.

Oil, Gas to Boost Economy, Dayton Daily News, 07/30/2011 = Governor Kasich says oil and gas reserves could lead Ohio to an economic revolution. Chesapeake Energy has discovered significant deposits of oil and gas in eastern Ohio's Utica Shale. Chesapeake was involved in an incident in April when a Pennsylvania well blew out and thousands of gallons of fracking fluid spilled into a waterway.



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HYDRAULIC FRACTURING AND HORIZONTAL DRILLING

The first hydraulic fracturing job was completed in 1947 in western Kansas. [Willie]. Hydraulic fracturing is the process by which “fracking fluid” is pumped thousands of feet beneath the surface to release the gas from the shale. [Perkins].

Large scale hydraulic fracturing ... has been used in shale plays across the United States. While fracking has been used in Pennsylvania since the 1950s, a key element enabling shale gas production in recent years has been the development of cost-effective horizontal drilling and fracking technologies. Since the 1980s, nearly all wells drilled in Pennsylvania have been fractured. Fracking ... involves forcing a combination of water, sand, and chemical additives into a rock layer at high pressure, with water and sand making up from 98% to 99.5% of the HF [hydraulic fracturing] Fluid, or slickwater. Fracking occurs in phases over the course of several days and the process requires one to five million gallons of HF Fluid per well. [Garber and Mosites]

Two major innovations played a significant role in making the development of the Marcellus Shale possible: horizontal drilling and hydraulic fracturing. In many shale formations, including the Marcellus Shale, the pore spaces are not large enough to let the molecules of natural gas flow through them. Therefore, in order to commercially produce natural gas from these formations, drillers need to fracture the formation to increase the formation's permeability. A well is first drilled down vertically until it reaches a few hundred feet above the depth of the shale formation. The driller then deviates the wellbore and directs it in an arch shape until it reaches a horizontal orientation across the formation, now parallel with the surface. Drillers use this technique for extracting gas from shale for several different reasons. The primary reason being that the wellbore is exposed to a far greater surface area of the formation, thus generating a much larger return of natural gas than from simple vertical wells. [Stemplewicz]

Fracking involves injecting a large amount of fluid into the wellbore at high pressure in order to increase its productivity. The fluids that are injected contain a cocktail of water, sand (propants), chemicals, and other friction-reducing substances. The high pressure with which these fluids are pumped into the well create new cracks in the rock, in addition to the natural fissures, and then prop these cracks open with sand, exposing the wellbore to a greater surface area and thus, more natural gas. The fracking fluids developed in the last decade maximize the length of the fracture to distances that previous iterations could not achieve. By creating a more porous and permeable target area with these extended artificial fractures, the use of these fluids allows significantly more natural gas to be exposed to the wellbore and recovered. [Stemplewicz]

Fracking and Horizontal Drilling (Continued)

Recovering natural gas from the Marcellus Shale requires horizontal drilling and hydraulic fracturing (“fracking”) technologies, which implicate significant water management and logistics issues throughout many phases of Marcellus drilling operations. First, operators must locate reliable sources of water and purchase or withdraw sufficient water in accordance with various regulatory regimes. Second, water sources are often some distance from the well sites, requiring transportation by trucks and/or pipelines. Third, once the water arrives on site, operators provide for storage in various impoundments and tanks, which may be on a particular pad or centralized for multiple well pads. Fourth, before water is used for fracking, it is blended with sand and chemical additives to facilitate the release of gas from the shale. Approximately 10-30% of this slickwater used for fracking comes back up to the surface as flowback, which must be recovered, handled and stored before it is treated for recycling and reuse or disposal and discharge. [Garber and Mosites]

Operators need not rely entirely on fresh water for fracking, but also blend fresh water with recycled flowback, treated water from acid mine drainage, or publicly owned treatment work effluent. [Garber and Mosites]

Anywhere from 10-30% of HF Fluid used in fracking Marcellus wells is brought back to the surface after fracking. Flowback ... is managed in four different ways: (1) reuse to fracture additional wells; (2) treatment and discharge to surface waters; (3) injection into underground disposal wells; or (4) transportation to out-of-state facilities. Typical flowback contains 4-25% salts, including constituents from underground formations. Flowback and produced waters present treatment and discharge challenges because of high total dissolved solids (“TDS”), as well as high chlorides. Other constituents of concern include barium, strontium, and naturally occurring radioactive material. With TDS levels exceeding 100,000 mg/l, flowback and produced water treatment and transportation present significant costs that are driving operators to investigate all available options for on-site treatment, as well as recycling and reuse. Large operators are currently reusing 95-100% of flowback in response to operational costs, sourcing, and disposal challenges. [Garber and Mosites]

The natural gas trapped in the Marcellus Shale is contained in relatively small natural fractures that are interspersed throughout the formation. These fractures are extremely thin, unlike the large gas folds in conventional sources. Additionally, most of the fractures within the Marcellus Shale are aligned vertically, which means that drilling a vertical well is not likely to penetrate a sizeable pocket of gas at one time. Horizontal drilling is a technique that allows drillers to cross a series of fractures in which the gas is trapped, making a single well much more productive. Horizontal wells are initially drilled vertically for several thousand feet before the drill bore is turned ninety degrees to drill horizontally for a few thousand more feet. When complete, the drill bore will have crossed many more fractures than a vertical well and will have penetrated several thousand more feet of the gas reservoir. Once drilling is finished, a gas company cements a steel casing atop the well to stabilize the surface and to protect groundwater. [Dillon]

Fracking and Horizontal Drilling (Continued)

Hydraulic fracturing, commonly referred to as “fracking,” is the process whereby a fluid (usually water or kerosene) is mixed with a granular material like sand and then pumped at an extremely high pressure into a rock until it cracks, creating fissures throughout the rock. Fracking stimulates well production by increasing the rock formation's surface area. In creating fractures, it makes the rock more permeable; also, the granular proppant agent (typically sand, silicon, or ceramic beads) works to maintain permeability by holding open the newly created fractures. The development of the Barnett Shale in Texas during the 1990s demonstrated that fracking could be done economically in shale formations. [Dillon]

The fracking technique first utilized in the Barnett Shale, and now used in the Marcellus Shale, is called “slick-water” fracking. This technique requires the use of proppants like sand or ceramics and uses “very large volumes of freshwater that has been treated with a friction reducer such as a gel.” The “gel” material necessary to carry out a slick-water frac is typically a petroleum distillate mixed with other chemicals. The gel-like material reduces friction while the sand props open the “paper-thin” fractures. Fracking in the Marcellus Shale requires huge volumes of water because the natural gas contained within the rock is deeper and under higher pressure than gas in shallow wells. [Dillon]

The technology used to enhance the recovery of gas from shales involves pumping fluids (water, sand, or other particles and additive chemicals) into wells drilled through the shale formation. In the Marcellus Shale, located through much of the Appalachian Basin in the Eastern United States, and the Barnett Shale, located primarily in Texas, the wells are usually horizontal. A single drilling pad may have several horizontal wells drilled in various directions from a central location. The horizontal portion of the well will be thousands of feet below the surface but may extend several thousand feet away from the well head. [Swartz]

The pressurized fluid pumped through the well under pressure creates fractures in the shale, which release the trapped gas. “Propping” agents (predominately sand) are used to keep the fractures open, but the natural formation pressure will return most of the fluids to the surface, where they will be either recycled or treated and disposed. The “flowback” water is generally held at the drilling pads in large lagoons or ponds, or “frack tanks.” Until recently, the contents of the hydraulic fracturing fluids (additives to the water) generally were held to be “proprietary” by their producers; the “proprietary” nature of the additives prompted numerous groups to raise concerns about the potential impact of fracking fluids on drinking water aquifers or surface waters. While the chemicals used in the fluids are now more widely disclosed, concerns still exist about the potential impact of these fluids on nearby water resources. [Swartz]

One of the unique aspects of fracking operations is the transportation, storage, and use of significant quantities of water. [Swartz]

Fracking and Horizontal Drilling (Continued)

The frack water is typically stored in purpose-built ponds or “frack tanks” at the drilling location. A percentage of the frack water is returned from the formation after it is pumped into the well, resulting in large quantities of flowback water, which must be handled at the drilling site. This means that the pond or frack tank is potentially storing water containing the fracking additives. These ponds can represent both short- and long-term risks of environmental damage. [Swartz]

Operators may also construct pits, which are used to store drill cuttings, drilling muds (the material used to weight the formation and minimize blowouts), and even cement. These pits also should be lined to minimize the potential for chemicals to impact shallow soils and groundwater. Oftentimes, these pits are closed in place, with some operators evaluating the potential for excavation and disposal of the materials to a third-party location, such as a landfill. [Swartz]

Another area of risk is the potential for releases from the vertical casings of these wells to impact shallow aquifers with either fracking fluid or recovered methane. Typical well construction includes the use of numerous casings, starting with the largest “conductor casing” used to stabilize the shallow soils while drilling the well. The next casing is the “surface casing,” used to establish a seal between the borehole and the shallow formations (which may include shallow, freshwater aquifers). Most jurisdictions require that the surface casing be cemented all the way to the surface. Cementing is the process of injecting a cement slurry between the borehole and the casing. The next casing is either the production casing or an intermediate casing (depending on the depth of drilling). An intermediate casing is typically cemented to the bottom of the surface casing. Some operators will cement the intermediate casing to the surface as well. The production casing is typically cemented through the production area, but due to difficulties in cementing and potential damage to the casings, it may not be cemented to the bottom of the surface or intermediate casing. The purpose of multiple casings is to seal off shallow zones (including aquifers) from the borehole and/or to stabilize the borehole. A well-cased borehole reduces the risk that formation liquids or production fluids will impact the shallow aquifers. [Swartz]

Once the well is constructed, the formation (either vertical or horizontal) is perforated in stages. With horizontal wells, the well is perforated and fractured progressively from the point farthest away toward the vertical riser in steps. Perforations in the well are created by “shooting” the well, which is essentially the use of small downhole charges. This methodology is common to all oil and gas wells and has been successfully used for many years. The risk to shallow aquifers during the completion of these wells is that the fracking process will open up new fractures that will communicate with existing fractures in the overburden, which in turn allows for communication between the deep gas-bearing zone and the shallow drinking-water aquifers. [Swartz]

ENVIRONMENTAL RISKS ASSOCIATED WITH FRACKING

Natural gas development ... requires, land clearing and well pad development, well drilling, and the consumption, treatment, and storage of water and wastewater, and the construction of roads, pipelines and other infrastructure. [Warren and Baron]

Water tanker trucks place a great deal of infrastructural strain on country roads. [Dillon]

Problems include groundwater contamination, wastewater handling, handling of hazardous materials, and the conventional land use issues posed by industrial activity in rural areas. [Mandelbaum]

Many of the environmental effects of hydraulic fracturing appear to be overblown. [Willie]

With only a few exceptions, “many thousands of feet of rock separate most major gas-bearing shale formations in the United States from the base of aquifers that contain drinkable water.” [Willie]

Special interest groups insist that fracking's impact on the environment is disastrous, but decades of study have revealed only minor concerns. [Willie]

Some of the chemicals contained in fracking fluid are toxic, and once the fluid returns to the surface there are problems associated with its storage and ultimate disposal. [Perkins]

If it is not recycled or reused, flowback is residual waste under Pennsylvania law. In addition, any residuals from wastewater treatments, including salts, must be managed under Pennsylvania solid waste rules. PaDEP rules require natural gas extraction operators to send all wastes to appropriate permitted facilities. [Garber and Mosites]

Existing treatment facilities that discharge to surface waters of the Commonwealth have limited capacity and capability to handle the volumes, constituents or concentrations of wastewater generated by drilling operations. Large quantities of sodium and chloride may be detrimental to digesters and can result in high TDS concentrations in the effluent. Developing treatment technologies include evaporation, crystallization, ion exchange, reverse osmosis membrane desalination, nanofiltration, carbon adsorption, pressure filtration, and dissolved air flotation. [Garber and Mosites]

Due to costs and restrictions related to transportation, treatment, and discharge of high TDS wastewater, interest in reuse of flowback is high. Reuse of flowback requires treatment and/or dilution to address a series of technical issues, including the lowering of TDS that could interfere with fracking and other uses. Operators can dilute flowback water with fresh or treated water to attain the necessary TDS/chlorides values for reuse, but researchers and private entities are also developing mobile treatments to treat flowback at the well site to enable efficient reuse possibilities. [Garber and Mosites]

Fracking risks (continued)

There is widespread belief that slick-water fracking has the potential to cause serious environmental harm. One of the main concerns is that fracking may lead to contamination of ground and surface water supplies. [Dillon]

The disposal of toxic wastewater resulting from the fracking process presents another water-related fracking hazard. In the weeks after a well is fracked, thirty to forty percent of the injected water returns to the surface. The water that reemerges is extremely saline from having come in contact with minerals below the surface; at nine percent salt, it is more saline than ocean water. Frack-water, as it is known, may also contain radioactive metals, detergents, fracking chemicals, and other highly toxic pollutants. [Dillon]

Hydraulic fracturing requires a substantial amount of water. Much of that water returns to the well site during the process and has to be removed from the well site somehow. That flowback water (or the later-arriving “produced water”) will contain high concentrations of salts, typically measured as total dissolved solids (TDS), and hydrocarbons. [Mandelbaum]

It can take as much as 5 million gallons of water to fully fracture shale. In February 2012, the city of Steubenville signed a contract with Chesapeake Energy that allows the company to draw as much as 700,000 gallons a day from a reservoir filled with water the city pumps from the Ohio River. Chesapeake pays \$5 for every 1,000 gallons of water it draws. Officials with the Muskingum Watershed Conservancy District said 12 oil and gas companies have asked to draw water from six reservoirs it controls across a broad swath of eastern Ohio. Senate Bill 315, introduced in March 2012, would require companies seeking permission from the Ohio Department of Natural Resources to conduct oil and gas drilling operations to identify the source of groundwater and/or surface water that will be used and state whether the water will be withdrawn from the Lake Erie or Ohio River watersheds. See “Fracking’ Is Thirsty Work,” by Spencer Hunt, Columbus Dispatch (03-25-12), at <http://www.dispatch.com/content/stories/local/2012/03/25/fracking-is-thirsty-work.html>, and <http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2407> (03-28-2012).

Discharge of flowback or produced water from a gas well to a surface water requires a National Pollution Discharge Elimination System (NPDES) permit under section 402 of the federal Clean Water Act, 33 U.S.C. § 1342. [Mandelbaum]

Environmental groups in Arkansas, Colorado, New Mexico, New York, Ohio, Pennsylvania, Texas, Virginia, West Virginia, and Wyoming have reported contaminated drinking water where hydraulic fracturing is the suspected cause. In Ohio, there was in 2007 an explosion of a water well and contamination of at least 22 other drinking water wells in **Bainbridge Township** after hydraulic fracturing of a nearby natural gas well owned by Ohio Valley Energy Systems. According to the State investigation, one of the contributing factors to this incident is that: “the frac communicated directly with the well bore and was not confined within the “Clinton” reservoir.” [NRDC]

Fracking risks (continued)

There is the ever-present risk that the cement casing, which secures the fluids as they travel down the wellbore, could suffer a breakdown and crack, thus releasing fluids into the surrounding strata at a depth in which aquifers and water wells are located. This is exactly the contention that has been made in *Fiorentino v. Cabot Oil and Gas Corp.*, where plaintiffs [in **Susquehanna County, Pennsylvania**] contend their water wells were contaminated with natural gas due to a failure of the well casing constructed by Cabot. [2010 WL 4595524 (M.D. Pa. Nov. 15, 2010)] [Stemplewicz]

In 2009, households in **Dimock, Pennsylvania** had their well water contaminated after a natural-gas-extraction accident in the Marcellus Shale. [Dillon] [Update: In April 2012, EPA said its well testing results "did not show levels of contamination that could present a health concern." Environmental groups argue that other tests have found unsafe levels of gas and arsenic. "*EPA Backpedals on Fracking Contamination*," Wall Street Journal (04-01-12), at http://online.wsj.com/article/SB10001424052702303404704577313741463447670.html?mod=googlenews_wsj]

EPA in a draft report released in December 2011 concluded that natural gas wells in the area, most developed using hydraulic fracturing, might have harmed groundwater near **Pavillion Wyoming**. EPA's own data indicates the agency's conclusions are partially based on improperly analyzed samples from six private drinking-water wells and two EPA-drilled deep monitoring wells in Pavillion. EPA officials stand by the report's overall conclusions, which suggest hydraulic fracturing might be responsible for Pavillion's tainted water. The data and report included flaws and omissions that could torpedo the EPA's conclusions, said Flawed analysis contributed to half of the EPA's testing of its deep monitoring wells. [Fugleberg]

In **Texas** the EPA has claimed that hydraulic fracturing and related operations have caused contamination of the aquifer overlying the Barnett Shale. The EPA issued an emergency order against the companies alleged to have caused the contamination. That order has been the subject of a petition for review in the court of appeals that awaits disposition at this writing. *Range Resources Corp. v. EPA*, No. 11-60040 (5th Cir.). [Mandelbaum] [Note: in April 2012, EPA withdrew its order. http://online.wsj.com/article/SB10001424052702303404704577313741463447670.html?mod=googlenews_wsj]

An EPA report published in 1984 concluded that hydraulic fracturing fluids or gel contaminated a well roughly 600 feet away on the property of James Parsons in **Jackson County, West Virginia**. The report does not discuss the specific pathway that the fracking fluid or gel took to get to Mr. Parsons' water well or how those fluids moved from a depth of roughly 4,200 feet, where the natural gas well was fracked, to the water well, which was about 400 feet underground. State records show the existence of four abandoned wells nearby that were deeper than the fracked gas well. State inspectors and drilling experts suggest that the contamination in Mr. Parsons' well might have been caused when fracking pushed chemicals from the gas well into nearby abandoned wells where the fracking pressure might have helped them migrate up toward the water well. The well was fracked using gas and water, and with far less pressure and water than is commonly used today. [Urbina]

Fracking risks (continued)

The industry has acknowledged that fracking liquids can end up in aquifers because of failures in the casing of wells, spills that occur above ground or through other factors. However, the drilling industry emphasizes that no such cases exist in which the fracking process itself caused drilling liquids to contaminate drinking water. [Urbina]

Methane contamination of water wells can occur when the cement and steel casing on natural gas wells fails, as it did last year on a Chesapeake Energy well in **Bradford County, Pennsylvania**. Sixteen domestic water wells were contaminated in that incident, leading to a \$1 million fine levied on Chesapeake by Pennsylvania regulators. [Kenworthy]

Claim No. 4: "[THERE'S] NEVER BEEN ONE CASE—DOCUMENTED CASE—OF GROUNDWATER CONTAMINATION IN THE HISTORY OF THE THOUSANDS AND THOUSANDS OF HYDRAULIC FRACTURING [WELLS]" – SEN. JAMES INHOFE, R-OKLA., APRIL 2011 == The senator is incorrect. In the past two years alone, a series of surface spills, including two blowouts at wells operated by Chesapeake Energy and EOG Resources and a spill of 8000 gallons of fracking fluid at a site in **Dimock, Pa.**, have contaminated groundwater in the Marcellus Shale region. But the idea stressed by fracking critics that deep-injected fluids will migrate into groundwater is mostly false. ...A fracture caused by the drilling process would have to extend through the several thousand feet of rock that separate deep shale gas deposits from freshwater aquifers. ...What's more, the fracking fluid itself, thickened with additives, is too dense to ascend upward through such a channel. EPA officials are closely watching one place for evidence otherwise: tiny **Pavillion, Wyo.**, a remote town of 160 where high levels of chemicals linked to fracking have been found in groundwater supplies. Pavillion's aquifer sits several hundred feet above the gas cache, far closer than aquifers atop other gas fields. If the investigation documents the first case of fracking fluid seeping into groundwater directly from gas wells, drillers may be forced to abandon shallow deposits—which wouldn't affect Marcellus wells. [Popular Mechanics, 10 Controversial Claims]

Claim No. 7: "DO NOT DRINK THIS WATER" – HANDWRITTEN SIGN IN THE DOCUMENTARY GASLAND, 2010 = It's an iconic image, captured in the 2010 Academy Award—nominated documentary GasLand. A Colorado man holds a flame to his kitchen faucet and turns on the water. The pipes rattle and hiss, and suddenly a ball of fire erupts. ... But Colorado officials determined the gas wells weren't to blame; instead, the homeowner's own water well had been drilled into a naturally occurring pocket of methane. Nonetheless, up to 50 layers of natural gas can occur between the surface and deep shale formations, and methane from these shallow deposits has intruded on groundwater near fracking sites. In May, Pennsylvania officials fined Chesapeake Energy \$1 million for contaminating the water supplies of 16 families in **Bradford County (PA)**. Because the company had not properly cemented its boreholes, gas migrated up along the outside of the well, between the rock and steel casing, into aquifers. The problem can be corrected by using stronger cement and processing casings to create a better bond, ensuring an impermeable seal. [Popular Mechanics, 10 Controversial Claims]

Fracking risks (continued)

Claim No. 8: "AS NEW YORK GEARS UP FOR A MASSIVE EXPANSION OF GAS DRILLING IN THE MARCELLUS SHALE, STATE OFFICIALS HAVE MADE A POTENTIALLY TROUBLING DISCOVERY ABOUT THE WASTEWATER CREATED BY THE PROCESS: IT'S RADIOACTIVE." – PROPUBLICA, NOVEMBER 2009
== Shale has a radioactive signature—from uranium isotopes such as radium-226 and radium-228—that geologists and drillers often measure to chart the vast underground formations. The higher the radiation levels, the greater the likelihood those deposits will yield significant amounts of gas. But that does not necessarily mean the radioactivity poses a public health hazard; after all, some homes in Pennsylvania and New York have been built directly on Marcellus shale. Tests conducted earlier this year in Pennsylvania waterways that had received treated water—both produced water (the fracking fluid that returns to the surface) and brine (naturally occurring water that contains radioactive elements, as well as other toxins and heavy metals from the shale)—found no evidence of elevated radiation levels. Conrad Dan Volz, former scientific director of the Center for Healthy Environments and Communities at the University of Pittsburgh, is a vocal critic of the speed with which the Marcellus is being developed—but even he says that radioactivity is probably one of the least pressing issues. "If I were to bet on this, I'd bet that it's not going to be a problem," he says. [Popular Mechanics, 10 Controversial Claims]

The Center for Rural Pennsylvania issued a report entitled *The Impact of Marcellus Gas Drilling on Rural Drinking Water Supplies* in October 2011. The report found "a lack of statistically-significant increases in pollutants that are most prominent in drilling waste fluids, such as total dissolved solids, chloride, sodium, sulfate, barium, and strontium." The results showed a lack of widespread impacts from brines, fracking fluids or methane migration, increases in bromide levels at numerous Phase 1 sites in response to drilling and/or fracking may suggest more subtle impacts to groundwater that need more research. The Center issued an "error notice" in November 2011, stating that "the bromide concentration data were incorrect due to a lab error from the subcontracted, state-accredited, water testing laboratory." Updated results "show that the occurrence of bromide in water wells after gas drilling or drilling and fracking is not as prevalent as first reported (in 7 wells), but did occur in a single case (1 well). In this case, the increase in bromide was accompanied by increases in chloride, hardness, and other indicators after drilling and fracking had occurred, as documented in the report." [Center for Rural Pennsylvania]

In April 2009 sixteen cattle died in **Louisiana** after ingesting fracking fluid that had overflowed next to a drilling rig owned by Chesapeake Energy. Abraham Lustgarten, 16 Cattle Drop Dead Near Mysterious Fluid at Gas Drilling Site, PROPUBLICA, April 30, 2009, <http://www.propublica.org/article/16-cattle-drop-dead-near-mysterious-fluid-at-gas-drilling-site-430>. [Stemplewicz]

Fracking risks (continued)

EPA: Fracking may cause groundwater pollution, USA Today, 12/08/2011

<http://www.usatoday.com/money/industries/energy/environment/story/2011-12-08/epa-fracking-pollution/51745004/1>

– The U.S. EPA announced Thursday for the first time that fracking may be to blame for causing groundwater pollution. EPA found that compounds likely associated with fracking chemicals had been detected in the groundwater beneath **Pavillion**, a small community in central **Wyoming** where residents say their well water reeks of chemicals. EPA emphasized that the findings are specific to the Pavillion area. The fracking occurred below the level of the drinking water aquifer and close to water wells. Sen. James Inhofe said the study was "not based on sound science but rather on political science. Its findings are premature, given that the Agency has not gone through the necessary peer-review process, and there are still serious outstanding questions regarding EPA's data and methodology." Wyoming last year became one of the first states to require oil and gas companies to publicly disclose the chemicals used in fracking. Colorado regulators are considering doing the same. New York regulators haven't issued permits for gas drilling with high-volume hydraulic fracturing in the Marcellus Shale since they began an extensive environmental review in 2008. [Update: In April 2012, EPA agreed to retest the water after its methods were questioned. "EPA Backpedals on Fracking Contamination, Wall Street Journal (04-01-12), at

http://online.wsj.com/article/SB10001424052702303404704577313741463447670.html?mod=googlenews_wsj]

In February 2012 it was reported that Chesapeake Energy Corporation – the largest owner of leases in Pennsylvania's Marcellus Shale – has been fined \$565,000 by the state authorities. The amount includes charges for three separate cases of environmental violations. In the first case, the **Pennsylvania** Department of Environment Protection found Chesapeake guilty of permitting residues from a drilling site in **Potter County** to enter a stream during a heavy rainstorm. The company has been charged \$215,000 for this environmental damage. The second incident took place in April 2011. Chesapeake lost control of a gas well in **Bradford County**, allowing chemicals above ground to enter a waterway in proximity. This cost the company \$190,000. In the third case, faulty designing of a drilling pad by Chesapeake in **Bradford County** resulted in erosion and unauthorized filling of one third acreage of wetlands. This led to a fine of \$160,000. [Zacks Equity Research]

One significant risk of any oil and gas operation is the potential for a "blowout" or loss of well during the drilling phases. In the case of shale gas drilling, this can also include the loss of "flowback" water from the production site, which is treated with the fracking chemicals. The primary risk associated with this is the impact to surrounding sensitive receptors, including farmland, homesteads, and waterways. Blowouts can be of particular concern if the drilling pad is located in a relatively urban area where the damage from a blowout can impact many individuals and commercial/public entities. As with any oil and gas drilling operation, these risks are managed through sound drilling techniques, but as has already been seen in several of these formations, blowouts can occur. [Swartz]

Finally, there are also risks associated with the handling and storage of fracking additives at the drill pad location. [Swartz]

Fracking risks (continued)

People living within a half-mile of hydraulic fracturing oil- and gas-well operations were exposed to air pollutants five times above a federal hazard standard, according to a study by the University of Colorado Denver School of Public Health that will be published in an upcoming edition of the journal *Science of the Total Environment*. See “Study Links ‘Fracking,’ Rise in Air Pollution, by Mark Jaffe, *Denver Post* (03-20-12), at

http://www.dispatch.com/content/stories/national_world/2012/03/20/study-links-fracking-rise-in-air-pollution.html

Is it true that fracking can cause earthquakes? -- Because fluid injection changes seismic dynamics underground, fracking has the potential to set off minor quakes. A study in the journal *Earthquake Science* pinpointed the location of more than 150 microearthquakes caused by hydraulic fracturing, and the **Dallas–Fort Worth** region of Texas—a fracking hub—experienced 11 mini quakes in less than a month between November and December 2008. Granted, such mini man-made earthquakes are harmless, but some critics are concerned that there may be a small risk of more hazardous quakes—such as a 5.5-magnitude quake outside of **Denver, Colo.**, in 1967, that resulted after chemical waste was injected deep into the ground for several years as a disposal method. (An SMU study suggests the quakes may have been triggered by the underground wastewater fluid disposal that accompanied the hydraulic fracturing.) [Popular Mechanics, Hard Facts]

Ohio is home to 177 disposal injection wells, including near Youngstown where 11 earthquakes have been recorded since March. [Fracking Brings Jobs, Concerns, *Dayton Daily News*, 01/17/2012]

GOVERNMENT STUDIES

In 2004, the [George W. Bush] Environmental Protection Agency performed a study of the impact to U.S. drinking water supplies from the use of fracking in coalbed methane enhanced recovery. At the time, EPA concluded that coalbed methane enhanced recovery did not have a significant impact on U.S. drinking water supplies, but it reserved the right to expand the study at a later date. [Swartz]

On March 18, 2010, the [Obama] EPA announced a “comprehensive” research study to investigate the environmental impacts of hydraulic fracturing. In February 2011, EPA published its proposed study plan to the Science Advisory Board. EPA anticipates completion of the study by 2012. In the meantime, numerous claims have arisen in Pennsylvania (Marcellus Formation) and Texas (Barnett Formation) alleging that fracking operations have impacted drinking water aquifers causing bodily injury and property damage. These claims include contamination of the groundwater by both fracking fluid and methane. Insurance coverage for these claims will be largely dependent on the alleged damage and what the alleged proximate cause of the loss is, as discussed below. But, if the allegation relates to gradual releases, many operators may be uninsured for these losses. [Swartz]

This increased scrutiny could eventually lead to a tighter regulatory framework, more permitting requirements (if, for example, EPA were to require a new permitting regime under the Underground Injection Control program rules). [Swartz]

The [EPA] study will review issues related to water acquisition, flowback treatment and disposal, and all of the steps in between. As for wastewater treatment, EPA has posed the research question as “What are the possible impacts of inadequate treatment of hydraulic fracturing wastewaters on drinking water resources?” While some reports from the study are due in 2012, reports from prospective case studies related to wastewater treatment and disposal are expected in 2014. [Garber and Mosites]

EPA recently initiated a multi-year study on the impact of fracking fluids on the environment, particularly focusing on potential drinking water contamination, public health, and other environmental impacts. See Hydraulic Fracturing, EPA (2010), available at <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfm>. [Stemplewicz]

At the federal level, the Environmental Protection Agency has commenced a two-year study of hydraulic fracturing. See EPA ORD, Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources, EPA/600/D-11/001 (Feb. 7, 2011), available at http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/HFStudyPlanDraft_SAB_020711.pdf. [Mandelbaum]

EPA’s Office of Ground Water and Drinking Water, in conjunction with its planned regulation of the use of diesel fuel in hydraulic fracturing, is studying well construction and integrity issues. [Armstrong]

Government Studies (continued)

The Department of Interior Secretary Ken Salazar has indicated his Agency may adopt a chemical disclosure requirement for all fracking fluids used on public lands. [Willie]

Department of Interior officials have been holding a series of public sessions on shale gas development on public lands. The goal, said Bureau of Land Management Director Bob Abbey, is to “study the potential impacts and to identify commonsense, best management practices that should be used in fracturing operations on public lands to ensure that this development is carried out in the right way and in the right places. [Kenworthy]

The Department of the Interior is studying hydraulic fracturing to determine whether any additional steps, such as disclosure of hydraulic fracturing fluids or adoption of best management practices, should be required in permitting oil and gas development on federal lands. [Armstrong]

In March 2011, President Obama delivered a national energy policy—the “Blueprint for a Secure Energy Future.” The president acknowledged the importance of shale gas production to the nation’s economy, energy security, and environment. The President declared the administration would address safety concerns relating to hydraulic fracturing practices. This task was assigned to the Secretary of Energy Advisory Board (SEAB) which was directed to form a subcommittee on shale gas development and identify near-term actions and recommendations to federal agencies on improving the safety and environmental performance of hydraulic fracturing. [Hutt and Zelermyer]

Early this month [May 5, 2011], Energy Secretary Steven Chu appointed a new subcommittee to his department’s energy advisory board. The panel will examine a wide range of issues associated with shale gas drilling with the goal of producing “recommendations as to actions that can be taken to improve the safety and environmental performance of shale gas extraction processes.” [Kenworthy]

The Department of Energy study overlaps to some extent a study underway by the Environmental Protection Agency into the potential impacts of fracking on drinking water supplies. The preliminary results of that inquiry are due to be ready by the end of next year, with the full study scheduled to be completed in 2014. [Kenworthy]

On May 5, 2011, the Secretary of Energy Advisory Board (SEAB) established a subcommittee – supported by DOE, EPA, and Declaration of Independence – to identify within six months best management practices and other steps that state and federal agencies should adopt in regulating hydraulic fracturing. [Armstrong]

Government Studies (continued)

On November 10, 2011, the SEAB Shale Gas Production Subcommittee released its final 90-day report recommending twenty actions that the subcommittee believes “would assure that the nation’s considerable shale gas resources are being developed responsibly, in a way that protects human health and the environment and is most beneficial to the nation.” These recommendations—directed to federal agencies, states, and stakeholders—will now be transmitted to Secretary of Energy Stephen Chu who will then discuss them with the administrator of the U.S. Environmental Protection Agency (EPA) and with the Secretary of the U.S. Department of the Interior (DOI). The U.S. Department of Energy (DOE), however, acknowledges that it has no regulatory authority over shale gas and thus no means of enforcing or acting upon these recommendations. [Hutt and Zelermyer]

The importance of the SEAB Shale Gas Production Subcommittee report may lie mainly in shaping public perception. The final report states unequivocally that the subcommittee “shares the prevailing view that the risk of fracturing fluid leakage into drinking water sources through fractures made in deep shale reservoirs is remote.” [Hutt and Zelermyer]

With respect to the role of federal and state regulations, the final report recommends actions in both forums. With respect to EPA, the subcommittee “commends” the agency’s proposed emission standards for the oil and gas sector and suggests that the rule does not go far enough by failing to control methane emissions directly. The subcommittee also “urges the EPA to take action as appropriate” during the pendency of its study on the impact of hydraulic fracturing and drinking water. Finally, the subcommittee “welcomes” DOI’s announcement of new regulations requiring the disclosure of chemicals used in hydraulic fracturing on federal lands. [Hutt and Zelermyer]

Despite these nods to current federal regulatory actions, the subcommittee does, at least implicitly, recognize and support the idea of continued state regulation of shale development. One example of this support is the subcommittee’s recommendation for increased federal funding of the State Review of Oil and Natural Gas Environmental Regulations (STRONGER) and the Ground Water Protection Council (GWPC)—two non-profit organizations that assist states in evaluating their regulations. [Hutt and Zelermyer]

Perhaps the most important contribution of the subcommittee is the return of DOE to a national energy policy discussion that has mostly been dominated by EPA and the climate change office of the White House for the past three years. [Hutt and Zelermyer]

An independent nonprofit organization called State Review of Oil & Natural Gas Regulations (STRONGER) has reviewed natural gas regulations. See www.strongerinc.org. [Mandelbaum]

EXEMPTIONS FROM THE SAFE DRINKING WATER ACT AND OTHER FEDERAL LAWS

The oil and gas industry enjoys numerous exemptions to federal environmental laws. These exemptions are discussed in the two following documents.

**Bringing Fracking to the Surface:
More Scrutiny Needed on Natural Gas Development**
By Tom Kenworthy, Senior Fellow at the Center for American Progress,
<http://www.americanprogress.org/issues/2011/06/fracking.html> (June 3, 2011)

The oil and gas industry enjoys numerous exemptions to those statutes that, collectively, raise important questions about how well we are being safeguarded. Major U.S. environmental laws that include exemptions for the oil and gas industry include: (1) the Safe Drinking Water Act (hydraulic fracturing are exempt from regulation); (2) the Clean Water Act (oil-and-gas operations are exempt from stormwater runoff regulation); (3) the Clean Air Act (oil-and-gas exploration and production are exempt from regulation of aggregated small sources of air pollutants); (4) the Emergency Planning and Community Right to Know Act (oil-and-gas exploration and development are exempt from reporting toxic emissions in the Toxic Release Inventory); (5) the Resource Conservation and Recovery Act (oil-and-gas field wastes are exempted from control); (6) the Comprehensive Environmental Response, Compensation, and Liability Act (oil and gas are not defined as hazardous substances); and (7) the National Environmental Policy Act (oil-and-gas development enjoys broad categorical exclusions from comprehensive environmental impact statements).

Safe Drinking Water Act – Enacted by Congress in 1974, the Safe Drinking Water Act, or SDWA, was designed to protect the quality of drinking water supplies, both surface and underground. As part of that effort, the Environmental Protection Agency is directed to regulate the underground injections of liquids, solids, and gases to prevent contamination of subsurface drinking water supplies. But hydraulic fracturing was exempted from SDWA regulation, as part of the Energy Policy Act of 2005, unless the fracturing fluids included diesel fuels. The industry defends that exemption on the grounds that hydraulic fracturing occurs deep underground, far beneath shallow drinking water aquifers. Migration of fracturing fluids through thousands of feet of intervening rock is next to impossible, the industry argues. But failures of the concrete casing around well bores can lead to the escape of both methane — as happened in the Chesapeake Energy well in Pennsylvania — and fracking fluids. But determining whether hydraulic fracturing is responsible for contamination of drinking water supplies is difficult, in part because with few exceptions drilling companies are not required to disclose the chemicals they use in fracking fluids. Legislation has been introduced in both the House and Senate to end the SDWA exemption and require disclosure of fracking chemicals.

Exemptions from Federal Laws (continued)

Clean Water Act – Dating to 1972 the Clean Water Act regulates the discharge of pollutants into U.S. surface waters and sets water quality standards for rivers, streams, and lakes, and wastewater discharge standards for industry. The act makes it illegal to discharge point source pollutants (from a pipe or other conveyance) into navigable waters unless permitted under the National Pollutant Discharge Elimination System. Almost all states—including all the shale-gas-producing states—have EPA approval to enforce the NPDES system. The CWA is important for shale gas development because hydraulic fracturing, used in an estimated 90 percent of shale gas wells, uses huge quantities of water that are pumped underground in combination with sand and chemicals to fracture rock formations. A majority of the several million gallons of water used in a typical frack job comes back to the surface. That flow-back water is laced with fracking chemicals (which the industry does not have to disclose), as well as underground contaminants including naturally occurring radioactive materials that are brought to the surface—as much as 15,000 gallons in a 3 million gallon frack job, according to the U.S. Geological Survey. Those flow-back waters—if re-injection underground is not feasible—have to be treated if allowing them to return untreated to surface waters would violate water quality standards. After treatment in either an industrial treatment facility or a public wastewater treatment facility those waters must meet outgoing limits in the facility’s CWA discharge permit. Oil and gas companies are subject to the above regulations. But they are exempted from other parts of the CWA that regulate how to handle water that flows off drilling sites during rain or storms. That loophole can have serious consequences if contaminated flow-back liquids stored in ponds onsite overflow and run into streams and rivers. Some states, including New York and Pennsylvania, have imposed their own rules requiring permitting for erosion and sediment control.

Clean Air Act – The Clean Air Act controls hazardous air pollution from both major sources and smaller sources that are under common control and in close proximity. In the case of those smaller sources, if their emissions in aggregate meet the threshold for control that major sources do, then they must comply with national emission standards for hazardous pollutants. So if an industrial operator makes several changes to a facility and each results in increased air emissions, those must be considered in aggregate rather than individually. But oil and gas exploration and production is specifically exempted from the aggregation requirement.

Emergency Planning and Community Right-to-Know Act – This 1986 law requires many industries to report their toxic emissions. But the oil and gas industry is exempt from reporting its toxic emissions in the Toxic Release Inventory even though many toxic chemicals are used in hydraulic fracturing.

Exemptions from Federal Laws (continued)

National Environmental Policy Act – NEPA requires environmental reviews of federal actions—either an environmental assessment or a more comprehensive environmental impact statement. Actions that have been previously determined to have no significant environmental impact can be categorically excluded from those types of analyses. The Energy Policy Act of 2005 authorized broad categories of categorical exclusion for oil and gas activities on federal lands. But the Government Accountability Office found in 2009 that the Bureau of Land Management’s widespread use of the exclusions did not comply with either NEPA or the agency’s own guidelines. The Department of Interior, in onshore drilling reforms announced in 2010, said it would only grant categorical exclusions after “an extraordinary circumstances” review had been conducted. Also in 2010 the Interior Department announced it would sharply limit categorical exclusions pending a thorough review of its NEPA processes.

Resource Conservation and Recovery Act – Passed by Congress in 1976, the Resource Conservation and Recovery Act, or RCRA, requires cradle-to-grave management of wastes that are hazardous to human health or the environment. In separate legislation passed by Congress in 1980, oil and gas field wastes were specifically exempted from control under RCRA. The exemption covers the disposal of wastes—including fracking fluids and other flow back liquids—coming from the well as well as wastes that come in contact with the oil and gas production stream even if they are hazardous to human health and the environment.

Comprehensive Environmental Response, Compensation, and Liability Act – Enacted by Congress in 1980, CERCLA regulates the cleanup of hazardous waste dumps and holds responsible parties financially responsible for the cleanup. But it excludes oil and natural gas from the definition of hazardous substances even though they contain substances such as benzene that on their own are defined as hazardous substances.

SUGGESTIONS:

The EPA should be given authority to oversee hydraulic fracturing under the Safe Drinking Water Act. Policymakers should give careful consideration to ending the oil and gas industry’s many other exemptions from environmental laws.

The Obama administration should publicly and repeatedly call for the oil and gas industry to voluntarily disclose the chemicals it uses in hydraulic fracturing until full mandatory disclosure is required.

The National Academy of Sciences should conduct a thorough study of the lifecycle greenhouse gas pollution of natural gas relative to coal.

Drillers should be required to track and disclose the disposition of wastewater from the time it is withdrawn from wells to its final disposal.

Exemptions from Federal Laws (continued)

Adequate testing should be required for radioactive elements and other contaminants in wastewater and in drinking water supplies near drill sites before, during, and after drilling to track contaminants.

Based on best management practices, the EPA should develop air and water emission limits for drilling operations, with enforcement by the states.

For wells above a certain size, EPA's voluntary Natural Gas Star program for capturing and recycling of methane emissions should be made mandatory.

Earthworks - Oil and Gas Accountability Project: The Oil and Gas Industry's Exclusions and Exemptions to Major Environmental Statutes (2007)

<http://www.earthworksaction.org/files/publications/PetroleumExemptions1c.pdf?pubs/PetroleumExemptions1c.pdf>

Executive Summary – The oil and gas industry enjoys sweeping exemptions from provisions in the major federal environmental statutes intended to protect human health and the environment. These statutes include the: Comprehensive Environmental Response, Compensation, and Liability Act; Resource Conservation and Recovery Act; Safe Drinking Water Act; Clean Water Act; Clean Air Act; National Environmental Policy Act; and the Toxic Release Inventory under the Emergency Planning and Community Right-to-Know Act. We offer the following recommendations:

1. Crude oil and petroleum must be covered under the Comprehensive Environmental Response, Compensation, and Liability Act in order to protect human health and the environment from spills and leaks of hazardous and carcinogenic materials on well sites. This is the only way to currently assist overburdened federal and state programs in light of the exponential growth of oil and gas development in the United States.
2. To protect human health and the environment, oil field wastes must be regulated under the Resource Conservation and Recovery Act in order to ensure the proper handling and disposal of hazardous and carcinogenic wastes generated by oil and gas development.
3. Hydraulic fracturing must be regulated by the Environmental Protection Agency under the Safe Drinking Water Act in order to adequately protect the United State's drinking water supply from the harmful chemicals used during this process.
4. Stormwater discharges from all oil and gas development must be regulated under the Clean Water Act by the federal government in order to provide the states with a proper foundation from which to build adequate stormwater programs that will protect human health and the environment from expanding oil and gas development.

Exemptions from Federal Laws (continued)

5. Emissions from all oil and gas facilities must be aggregated under the Clean Air Act in order to ascertain the true hazardous effect on air quality. Also, hydrogen sulfide must be re-established as a hazardous air emission under the Clean Air Act in light of the current available data regarding its negative impacts on human health and the environment.

6. Because of the disruptive nature of oil and gas activities on human health and the environment, none of these activities ought to qualify for the categorical exclusion under the National Environmental Policy Act. All oil and gas activities must be assessed for impacts on the environment under the more comprehensive environmental assessment and environment impact statement in order to properly fulfill the intentions of the statute.

7. The petroleum industry must be made to disclose the chemicals used during the development stages under the Toxic Release Inventory within the Emergency Planning and Community Right-to-Know Act, in order to ensure that human health and the environment can be protected from these often hazardous and carcinogenic substances.

CERCLA – Section 101(14) of CERCLA lists the hazardous substances that are covered under the statute. Included in the list are benzene, toluene, xylene, and ethylbenzene, each of which is an element of petroleum; inexplicably, however, the last clause of this section excludes crude oil and petroleum.

RCRA – In 1978, the [Carter] EPA ... was poised to consider oil field wastes as “special wastes” under Subtitle C. However, Congress responded to these proposed regulations with the Solid Waste Disposal Act (SWDA) in 1980, which exempted oil field wastes from Subtitle C entirely until the EPA could prove these wastes were a danger to human health and the environment. In 1988, the [Reagan] EPA's Regulatory Determination ultimately agreed with Congress' decision to exempt oil field wastes due to the “adequate” state and federal regulations already in place Oil field wastes typically fall into the following categories: (1) Produced waters-mineralized waters produced with and then separated from oil and gas; (2) Drilling fluids-mixtures of water, clay, barite, and other additives used in drilling wells; and (3) Associated wastes-other wastes uniquely associated with drilling and production operations, such as crude oil tank bottoms (e.g., oil, sediment, and water).

SAFE DRINKING WATER ACT - The [George W. Bush] EPA released a study in 2004 entitled, Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs, that found that “the injection of hydraulic fracturing into CBM wells poses little or no threat to Underground Sources of Drinking Water.” The SDWA was amended through the comprehensive Energy Policy Act in 2005. The 2005 amendment managed to effectively dilute the protections provided to the public by the SDWA in three ways. First, hydraulic fracturing (fracking) operations were completely exempted from regulation under the SDWA. Second, the Energy Policy Act asked for the voluntary discontinuance of diesel fuel use in fracking operations in lieu of seizing the opportunity to ban diesel fuel use altogether.

Exemptions from Federal Laws (continued)

Lastly, underground injection in oil and gas operations was defined so as to alleviate the EPA from regulating threats to drinking water from fracking fluids unless diesel fuel additives are used; this remains a discretionary regulation of diesel fuel additives on the part of the EPA. The last prong of the exemption simply provides more legislative support for EPA's decision to not regulate fracking operations even if diesel fuels are being injected into underground drinking water sources.

CLEAN WATER ACT – From 1987 until 2005, the oil, gas, and mining operations exemption provided that no CWA permit was required for stormwater runoff at oil and gas exploration, production, processing and treatment operations, and transmission facilities where the runoff consisted entirely of flows from conveyances such as pipes and ditches for rainwater collection, provided that the runoff was not contaminated by contact with raw materials or wastes. However, the [Clinton] EPA decided in two prior phases of stormwater permitting, 1990 and 1999, to assert its authority to regulate certain stormwater discharges from oil and gas construction sites based on the belief that sediment from the construction site constitutes a pollutant. The 2005 Energy Policy Act amended the CWA to provide that sediment is no longer considered a pollutant. The broadened exemption provided in the 2005 Energy Policy Act applies to all oil and gas field construction activities and operations, including those necessary to prepare a site for drilling and for the movement and placement of drilling equipment. The EPA has confirmed this interpretation by stating, “all covered oil and gas-related construction activities are eligible for the NPDES permitting exemption for their uncontaminated stormwater discharges without regard to the amount of acreage disturbed.” [The CWA requires other industries to obtain a stormwater permit on the basis that its sediment is considered a pollutant.]

CLEAN AIR ACT – The CAA provides that oil and gas wells, and in some instances pipeline compressors and pump stations, shall not be aggregated together to determine if they are subject to the provisions that establish NEHAPS and thus require MACT. This exemption to the aggregation requirement allows the oil and gas industry to pollute the air while being largely unregulated under the CAA. Hydrogen sulfide leaks are another serious air quality concern resulting from oil and gas development. In 1997, Carol Browner, former Administrator of the EPA admitted in no uncertain terms that hydrogen sulfide was eliminated from the Clean Air Act list of extremely hazardous substances by powerful oil and gas lobbying. [Source: Carol Browner's comments were stated during her presentation at the November 1997 National Public Health Convention in Indianapolis, Indiana, and aired nationally during the documentary “Town Under Siege,” narrated by Ed Bradley, December 23, 1997.]

NATIONAL ENVIRONMENTAL POLICY ACT – NEPA's basic policy is to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment. NEPA requires that federal agencies first conduct an environmental assessment (EA) to determine if there will be significant impacts on the environment from the proposed action.

Exemptions from Federal Laws (continued)

If the agency finds there will be a significant impact, it is then required to conduct the more stringent environmental impact statement (EIS) in order to meet the proper consideration and opportunity for public comment requirements. Each of these documents, in different levels of detail, lay out the specifics of the proposed action, the alternatives, and the associated impacts on the environment. The Energy Policy Act of 2005 created a “rebuttable presumption” that several oil and gas related activities ought to be analyzed and processed by the Interior and Agricultural Departments under a less stringent process known as a “categorical exclusion” (CE). The CE is considerably less comprehensive than the traditional environmental assessment (EA) or the environmental impact statement (EIS) and does not allow for any public comment. The activities eligible for the CE include: (1) Individual surface disturbances of less than five acres so long as the total surface disturbance on the lease is not greater than 150 acres and site-specific analysis in a document prepared pursuant to NEPA has been previously completed; (2) Drilling an oil or gas well at a location where drilling occurred previously within five years prior to the date of spudding the well; (3) Drilling a well within a developed field for which an approved land use plan or any environmental document prepared pursuant to NEPA analyzed such drilling as a reasonably foreseeable activity, so long as such plan or document was approved within five years prior to the date of spudding the well; (4) Placement of a pipeline in an approved right-of-way corridor, so long as the corridor was approved within five years prior to the date of placement of the pipeline; and (5) Maintenance of a minor activity, other than any construction or major renovation or a building or facility.

THE TOXIC RELEASE INVENTORY OF EPCRA – The Toxic Release Inventory (TRI) was created by section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) in 1986. EPA has exempted the oil and gas industry from reporting its emissions.

MORE ON THE EXEMPTION FROM THE SAFE DRINKING WATER ACT

A portion of the Energy Policy Act of 2005, dubbed the “Halliburton loophole,” exempts hydraulic fracturing from the Safe Drinking Water Act, thereby excusing gas companies that are engaged in hydraulic fracturing from the obligation to disclose the chemicals used in their operations. Energy Policy Act of 2005, Pub. L. No. 109-58, § 322, 119 Stat. 594, 694 (2005). [Stemplewicz]

The 2005 Energy Policy Act exempts fracking from the definition of “underground injection.” According to EPA, however, the UIC program does apply to hydraulic fracturing operations using diesel fuel as an additive, an interpretation being challenged by the Independent Petroleum Association of America and the U.S. Oil and Gas Association have challenged this new interpretation. See *Independent Petroleum Assoc. of America v. U.S. EPA*, No. 10-1233, (D.C. Cir. Sept. 9, 2010).

Exemptions from Federal Laws (continued)

In 1997, the Eleventh Circuit issued an opinion in a suit brought by the Legal Environmental Assistance Foundation (LEAF), which argued that fracking should be regulated by the Environmental Protection Agency under the Safe Drinking Water Act. *Legal Envtl. Assistance Found., Inc. v. U.S. EPA*, 118 F.3d 1467 (11th Cir. 1997). LEAF petitioned the EPA to withdraw its approval of an Alabama underground injection control (UIC) program that did not regulate the injection of fracking fluids, but the EPA refused, determining that the definition of “underground injection” encompassed “only those wells whose ‘principal function’ is the underground placement of fluids.” The Eleventh Circuit disagreed, holding that the wells “injected” fluids underground and so should be regulated under the statute. LEAF won the suit, but the victory was short-lived. In 2005, Congress “conclusively withdrew frac[k]ing from the realm of federal regulation” by passing the Energy Policy Act, which “exempted all frac[k]ing with the exception of diesel fuel from the definition of underground injection in Section 1421 of the Safe Drinking Water Act.” Since Congress passed the Act, fracking has remained almost entirely state-regulated. [Willie]



LEGISLATIVE AND REGULATORY REFORMS

These following discussion of legislative and regulatory reforms is taken from the Oil and Gas Accountability Project document entitled *Oil and Gas at Your Door? – A Landowner’s Guide to Oil and Gas Development* (2nd ed.). The extensive document available on the internet at <http://www.earthworksaction.org/files/publications/LOguide2005book.pdf?pubs/LOguide2005book.pdf>

ALABAMA – In 1989, a family in Alabama experienced contamination of their water well due to the hydraulic fracturing occurring at nearby coalbed methane operations. The Legal Environmental Assistance Foundation (LEAF) sued EPA to make it take back control of Alabama’s underground injection control (UIC) program. Eventually, the 11th Circuit Court decided that – in order for Alabama to retain authority to regulate the UIC program, the state must regulate hydraulic fracturing. In 1999, Alabama adopted hydraulic fracturing regulations. Some positive aspects of the regulations include that: (1) fracturing fluids cannot exceed applicable primary drinking water regulations or otherwise adversely affect the health of persons; (2) fracturing is prohibited from ground surface to 299 feet below ground surface (bgs); and (3) for fracturing performed between 300 feet and 749 feet bgs, the company must monitor fresh-water wells within ¼ mile of the well to be fractured, submit a fracturing program to the state, and perform a cement bond log analysis.

MICHIGAN – Citizens were able to get five new oil- and gas-related bills passed in 1999. The positive changes included: protections for state-owned lands; increased funding for state oil and gas oversight; allowing some private landowners to buy back mineral rights from the state; and making health and safety a priority when considering new well permits. Also, a township in Manistee County adopted a landmark health protection ordinance to ensure the safety of residents living and working near oil and gas facilities that are associated with poisonous hydrogen sulfide (H₂S).

COLORADO – In eastern Colorado, the drilling of more than 3,000 new wells in the early 1990s caused a protest among farmers so fierce that the Colorado Oil and Gas Conservation Commission established new policies for notifying landowners about drilling before it occurs. Also, in response to citizen concerns related to their groundwater wells are being affected by the drilling of nearby gas wells, the County Commissioners in La Plata County, Colorado, attached a water-well testing condition to a controversial gas well permit in a county subdivision.

KENTUCKY -- In early 2003, the oil and gas industry drafted a bill to remove virtually all ability for Kentucky counties to adopt any ordinances related to oil and gas development. In February, 2003, the Kentucky Legislature passed the bill, despite citizens’ attempts to stop it. Continued citizen action helped to force some amendments to the bill, and in March, 2003, the Senate passed an amended bill that allows local communities to adopt ordinances that regulate oil and gas exploration, production, development, gathering and transmission, if they do so through community planning and zoning processes. See <http://www.kyrc.org/webnewspro/104631420024693.shtml> and <http://www.kyrc.org/webnewspro/105859953235667.shtml>

PROTECTIVE LEASE PROVISIONS

These materials are from Rachel L. Allen and Scotland M. Duncan, *The Standard Oil and Gas Lease - and Why it Is Not*, 13 Duquesne Business Law Journal 155 (2011).

Notice of discharges or spills – Many lessors may want to include a clause that requires a lessee to immediately notify lessor of any accidental discharge or release from drilling and other activities while on the premises. Moreover, in the event of an unexpected spill or discharge the lessor may wish to protect itself by noting that the lessee will be solely liable for any costs or expenses associated with any clean-up and/or remediation. For example: “Lessee will manage all hazardous and non-hazardous waste generated from drilling and other activities in an environmentally safe manner so as to prevent any contamination. Lessor will not be the generator or owner of, nor will it possess, take title to or assume liability for, any hazardous materials from the Lessee's drilling and other activities. Lessee will only engage properly permitted and licensed treatment and disposal service providers and facilities to manage the waste Lessee generates.”

Notice of drilling – In addition, a lessor may want notice in advance of any proposed drilling or major infrastructure related to exploration and production: “At least 30 days in advance of drilling any well on the leased premises, Lessee will notify Lessor of the location of proposed drill sites, access roads, tank batteries, gathering and transmission pipelines, including any other surface or subsurface facilities of Lessee.”

Limits of type of operations – Lessors may benefit from clauses that expressly limit conduct of operation on the leased premises. Consider the following: “Lessee will conduct its operations at all times so as to minimize nuisance to the land surrounding the leased premises and the occupants thereof, including compliance with local ordinances related to noise abatement.”

Limits on location of drilling – Other lessor protective clauses include provisions limiting drilling operations to avoid interference with lessor's existing facilities and operation or mandating landscaping around a well head. For example: “In no event will any well be drilled within 200 feet of any building on the leased premises nor within 100 feet of any pipeline or other facilities of Lessor, including any easements or rights-of-way held by third parties. Lessee may not obstruct the creek or water ways and will not conduct any drilling operations within 50 feet of any wetlands. Lessee will, if requested by Lessor in writing, provide a visual shield in the form of mounds or shrubs of Lessee's choice in order to minimize the view of the production unit equipment from Lessor. Lessee will install fencing around any tank battery and wellhead and will maintain the wellhead and tank battery equipment in a neat and orderly condition.”

Damage to roads – Landowners may want to protect their facility's infrastructure by including a provision that “any damage to roads caused by Lessee's operations will be repaired by Lessee at its sole cost and expense.”

Protective lease provisions (continued)

Restoration obligations – A lessor may require that a lessee restore the leased premises to the same or equivalent condition that existed at the time the lease agreement was entered into. Specific descriptions of the method(s) involved in restoration, in particular, place both parties on notice as to expectations. For example: “Promptly after expiration of this Lease, Lessee will remove all property and fixtures placed by Lessee on the leased premises. Lessee will bury all pipelines a minimum of 36 inches below the surface. Promptly after expiration of the Lease or any portion thereof, Lessee will, at its sole cost and expense, restore the leased premises to the same or equivalent condition as of the date hereof and to the satisfaction of Lessor. Such restoration will include, without limitation: (a) compliance with all laws and regulations relating to plugging and abandonment of wells, (b) leveling the surface of the land where operations were conducted to its original contour, (c) filling all abandoned sump holes and excavations made by Lessee, including mud pits, and (d) the removal of all derricks, tanks, tank supports, and all equipment and/or other wellhead facilities.”



AN OVERVIEW OF OIL AND GAS LAW AND “TRADITIONAL” LEGAL ISSUES

Hydraulic fracturing is a particular type of oil and gas exploration. Consequently, fracking operations raise most, if not all, of the legal issues that have long been part of oil and gas law.

Oil and Gas Law in the United States. – Oil and gas law pertains to the acquisition and ownership rights in oil and gas both under the soil before discovery and after its capture, and adjudication regarding those rights. Oil and gas law is generally regulated by the individual states through statutes and common law. Oil and gas is commonly owned privately in America; however, offshore oil and gas is owned by either the state or federal government and often leased to oil exploration corporations. Oil and gas law practitioners usually fall into three categories. First, oil and gas companies usually have in-house attorneys that inform the company of its rights and the legal issues surrounding properties in question. These attorneys are assisted by landmen, who examine property titles and oil and gas rights and acquire property for the company. These landmen may also be lawyers. Second, practitioners may represent private parties. When an oil company attempts to obtain land from a private party, a party may retain counsel to be better informed of his or her rights and to potentially receive a more favorable bargain from the oil company. Third, oil and gas attorneys work for federal and state governments in departments that oversee energy, environmental policy, and land acquisitions. [Source: Oil and Gas Law in the United States, Wikipedia]

Oil and gas exploration often impacts the rights of three different parties: (1) the exploration company; (2) the owner of the mineral estate; and (3) the owner of the surface estate. – Although the landowner who signs a lease with the oil company may be the owner of both the surface and the underlying minerals, this is not always the case. In many instances, the land at issue is a “split estate” – meaning that the owners of the mineral estate are not the same persons who own the overlying surface. This situation raises additional legal issues concerning access to the minerals, adverse surface impacts, and contamination of ground, air, and water.

Legal issues that have long been part of oil and gas exploration. – The following are just a few of the legal disputes that arise when oil and gas is extracted pursuant to oil and gas leases.

- Disputes between the mineral owner and the oil company – Disputes arise over the meaning of the oil and gas lease (such as whether the failure to drill in a timely fashion terminated the oil company’s lease rights; whether co-owners of the mineral estate who did not sign the lease have a right to be compensated; whether “delay rentals” must be paid, and whether the royalties payable to the mineral owners were properly calculated and distributed).

For example, in *Wiser v. Enervest Operating, LLC*, 803 F.Supp.2d 109 (N.D. N.Y. 03-22-11) the court held that New York’s “fracking” moratorium did not excuse gas company’s failure to make delay rental payments, which resulted in automatic termination of the leases (thus enabling the mineral owners to re-negotiate more favorable leases).

“Traditional” legal issues (continued)

The NY Times cites another example where mineral owners sued because a gas exploration company, which had not drilled a lease, avoided re-negotiation of the lease by claiming that its actions in starting to survey an access road constituted “preparation to drill” and thus enabled the company to extend the duration of his lease.

Disputes over royalties are also common. The NY Times has reported that thousands of landowners in Virginia, Pennsylvania and Texas have joined class action lawsuits claiming that they were paid less than they expected because gas companies deducted costs like hauling chemicals to the well site or transporting the gas to market.

<http://www.nytimes.com/2011/12/02/us/drilling-down-fighting-over-oil-and-gas-well-leases.html?pagewanted=print>

- Disputes between the oil company and the surface owner – The surface owner (who may or may not be the mineral owner) often seeks to hold the oil company liable for surface damages and contamination of water wells. The oil company has surface access to drilling operations, and often drills in proximity to buildings. The NY Times has reported that landowners have had to buy bottled water or maintain large water tanks for drinking water because their leases did not require gas companies to pay for replacement drinking water if their wells were contaminated. The Times also reports that at least eight states require companies to compensate landowners for damage to their properties or to negotiate with them about where wells will be drilled, even if the lease does not provide those protections.
<http://www.nytimes.com/2011/12/02/us/drilling-down-fighting-over-oil-and-gas-well-leases.html?pagewanted=print>
- Disputes between the oil company and government agencies – Oil and gas exploration and drilling operations, as well as the transportation of oil and gas resources, are heavily regulated activities. Issues involving local, state, and federal laws often arise, such compliance with permit requirements, zoning laws, production rates, well-spacing requirements, unitization and pooling rules, impact fees, and severance tax obligations.
- Disputes between the holders of rights in oil and gas located underneath lands owned by multiple parties – Are adjacent mineral owners entitled to a proportionate “fair” share of the common resource, or is the resource subject to “capture” (and “drainage”)?

“Traditional” legal issues (continued)

In *There Will Be Blood*, a 2007 film based on the Upton Sinclair novel *Oil!* (1927), Daniel Plainview (Daniel Day-Lewis) leases all of the land surrounding a tract owned by a man named William Bandy, a member of the church where Eli Sunday (Paul Dano) is the preacher. When Eli asks Daniel to sign a lease and drill for oil on the Bandy Ranch for the benefit of the church, Daniel explains to Eli that he has no need to lease the tract because Daniel’s existing oil derricks have already “captured” the oil that once was under Bandy’s property. In Daniel’s words, the “oil” is analogized to “water” and a “milkshake”:

DANIEL: Those areas have been drilled.

ELI: No they haven't.

DANIEL: It's called drainage. I own everything around it. So I get everything underneath it.

ELI: But there are no derricks there. This is the Bandy tract. Do you understand?

DANIEL: Do you? I drink your water, Eli. I drink it up. Everyday. ... [Shouting] DRAINAGE! DRAINAGE, ELI! Drained dry, you boy. If you have a milkshake and I have a milkshake and I have a straw and my straw reaches across the room [and] starts to drink your milkshake -- I DRINK YOUR MILKSHAKE! I drink it up.

SUBSURFACE TRESPASS

With the proliferation of hydraulic fracturing drilling techniques and technology, questions have arisen concerning the liability of natural gas operators for extending fractures, treatment fluids, or causing stray natural gas to migrate into the subsurfaces of neighboring properties.

Aaron Stemplewicz, in his article, *The Known “Unknowns” of Hydraulic Fracturing: A Case for a Traditional Subsurface Trespass Regime in Pennsylvania*, 13 Duquesne Business Law Journal 219 (2011), argues that courts should recognize trespass from hydraulic fracturing activities as an actionable claim without the need to demonstrate harm. Alternatively, he argues that trespass from hydraulic fracturing activities should at least constitute an actionable trespass claim if the plaintiff can demonstrate actual damage or harm. The remaining discussion is from his law review article.

The Texas Supreme Court addressed the trespass issue in *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1 (Tex. 2008), and held that trespass resulting from hydraulic fracturing activities was not actionable where drainage was the only alleged damage. [Stemplewicz argues that the Texas case should not be followed.]

A potential trespass from hydraulic fracturing activities can arguably arise in a number of different ways: (1) a horizontally drilled wellbore strikes underneath another's property; (2) an artificially created fracture extends from underneath one property into another; or (3) where hydraulic fracturing operations cause the subsurface migration of fracking fluids or natural gas into another's property.

In *Coastal Oil & Gas Corp. v. Garza Energy Trust*, the Texas Supreme Court majority declined to decide the issue of whether hydraulic fracturing could constitute a trespass; and instead held that the rule of capture precludes trespass claims where the only injury asserted is the drainage of hydrocarbons. 268 S.W.3d at 14.

The court dismissed Salinas' claim that hydraulic fracturing activities were analogous to a deviated well by noting that the gas produced through a deviated well does not migrate to the wellbore from another's property; it is already on another's property.

The dissent compared a hydraulically fracked well to a deviated well: “Both simply provide the means for gas to flow to an area of lower pressure and from there to the drilling operator's property where it is captured.” 268 S.W.3d at 44. See also Terry D. Ragsdale, *Hydraulic Fracturing: The Stealthy Subsurface Trespass*, 28 TULSA L.J. 311, 319 (1993) (from both a functional and physical perspective, a hydraulic fracture is largely analogous to a directionally drilled well).

Subsurface trespass (continued)

All jurisdictions that have contemplated this issue agree that no one has a right, by ownership of surface rights above a gas or oil producing formation, to extend a wellbore beyond the boundaries of their own property, so as to trespass upon the premises of adjoining owners. The rule of capture does not apply in this situation because the hydrocarbons do not migrate, but rather remain in place. If horizontal wells deviate into another's property, it is reasonable that any court would find such a horizontal well to be trespassing. A similar, but weaker, analogy can be made comparing a deviated well and hydraulic fractures or fluid that may migrate onto another's property. The Texas Supreme Court in *Garza* argued that these were distinguishable activities. However, an argument can be made that functionally, deviated wells perform similar to that of a hydraulically fractured well.

Courts from Oklahoma, Texas, and Ohio have all considered the issue of whether water disposal activities can give rise to a claim of trespass and a right to damages. In *Chance v. BP Chemicals, Inc.*, 670 N.E.2d 985 (Ohio 1996), the plaintiff claimed that BP Chemicals had injected waste underneath BP property for storage, which “laterally migrated to be below the surface of plaintiffs' properties and that the migration violated their rights as property owners.” Assuming that the fluid did migrate underneath the appellants' properties, the court stated that appellants still need to show that the migration actually interfered with the appellants' reasonable and foreseeable use of the subsurface. 670 N.E.2d at 993.

Under any interpretation of the law a court would find that a horizontally drilled wellbore that strikes into the property of another would constitute a trespass. However, the questions of whether or not fractures extending beyond the bounds of a property or the migration of fluids or natural gas onto another's property constitute a trespass are more difficult ones to answer.



NUISANCE

Andrew Reinbach, in his article entitled *Stop Gas Drilling -- Sue Your Neighbor*, argues the nuisance cause of action may be a useful means to stop drilling operations by asserting “anticipatory” damage to property values. The article, which is excerpted below, can be found at

http://www.huffingtonpost.com/andrew-reinbach/stop-gas-drilling-sue-you_b_787881.html?view=screen&ref=fb&src=sp&comm_ref=false

Two recent Pennsylvania lawsuits ... claim that their gas drilling has contaminated local water supplies and harmed the related property values. That first claim is the hot button issue for anti-drilling activists. But the property issue may be the stronger claim since the statistical case that gas drilling depresses property values is practically bullet-proof.

Anticipatory nuisance is basically the notion that you can stop your neighbor from doing something if waiting to sue until you're harmed is ludicrous. Applying this gas drilling is no stretch.

These are really two different sorts of [nuisance] lawsuits: one compensates you if drilling has already taken place, and the other would stop it before it happened.



A SUMMARY OF LITIGATION CONCERNING FRACKING

Fracking litigation tends to fall into three general areas: (1) tort-based claims related to fracking practices; (2) contractual disputes regarding lease and assignment rights; and (3) fracking litigation concerning bans by local governments to stop fracking. [Bricker & Eckler]. Disputes may arise over such matters as the composition, use, and effects of fracking fluids; contamination of underground water supplies (and surface areas) by fracking fluids; disposal of fracking fluids that have been used and returned to the surface; the large amounts of water needed to conduct fracking operations; and possible seismic activity (earthquakes) resulting from fracking operations

CONTAMINATION SUITS

***Harris v. Devon Energy Production Company, L.P.*,
2011 WL 2729242 (No. 4:10-CV-708, E.D. Tex., 06-14-11)**

SUMMARY: Plaintiffs Doug and Diana Harris sued Devon Energy Production Co. in December 2010 for **negligence, strict liability, nuisance, and trespass**. Devon Energy had drilled bore holes under and near the plaintiffs' property, allegedly resulting in groundwater contamination. Plaintiffs claim that after Devon Energy commenced hydraulic fracturing operations near their property, their groundwater turned gray and became contaminated. According to the complaint, testing results showed high levels of metals. Damages sought include the cost of testing, loss of use of land, loss of market value of land, loss of intrinsic value of well water, emotional harm and mental anguish, nominal damages, exemplary damages, injunctive relief, medical monitoring, and cost of remediation. [Nicholson and Blanson]

On June 14, 2011, the U.S. Magistrate recommended that Devon's Motion for Partial Dismissal for Failure to State a Claim be granted [as to fraud]. **MAGISTRATE:** Doug Harris and Diana Harris accuse Devon Energy Production of trespassing by exceeding the rights granted for drilling on adjacent land, negligently allowing drilling activities to contaminate Plaintiffs' groundwater, fraudulently concealing the dangers of the drilling process, and being a nuisance. With respect to **trespass**, Plaintiffs allege Defendant physically, intentionally, and voluntarily caused petroleum by products to cross Plaintiffs' property boundaries and enter into Plaintiffs' land and contaminate Plaintiffs' ground water. With regard to **negligence**, plaintiffs allege Defendant failed to use the ordinary care of a reasonable person to protect the land, and especially the water, near its drilling and hydro-fracking activities that caused the contamination of ground water. With respect to **fraud**, plaintiffs argue that, by concealing and failing to disclose the material fact that the gray substance in the well water contained chemicals and substances typically found in drilling mud, Defendant intended to induce Plaintiffs to drill a new well rather than take responsibility. **HELD:** Plaintiffs have not alleged sufficient facts to support an action for fraud because the alleged representations came after the alleged contamination and did not cause any of the alleged damages. The only action taken by Plaintiffs in reliance upon the representation was the drilling of a second water well, and Plaintiffs did not ask for damages related to the costs of constructing and maintaining the well.

***Ginardi v. Frontier Gas Services, LLC*, No 4-11-cv-0420 BRW (E.D. Ark. May 17, 2011); and *Tucker v. Southwestern Energy Co.*, 2011 WL 1980530 (E.D. Ark. May 17, 2011) (No. 1:11cv44 DPM); and *Berry v. Southwestern Energy Co.*, No. 1:11-cv-0045-BRW (E.D. Ark. May 17, 2011)**

SUMMARY: On May 17, 2011, three class actions were filed alleging that defendants' hydraulic fracturing operations from the Fayetteville Shale pollute the atmosphere, groundwater, and soil with allegedly harmful gases, chemicals, and compounds. The plaintiffs' causes of action include **strict liability, nuisance, trespass, and negligence**. The plaintiffs seek compensatory and punitive damages for loss of use and enjoyment of property, contamination of soil, contamination of groundwater, contamination of air and atmosphere, loss of property value, and severe mental distress. In addition to punitive and compensatory damages, plaintiffs further request establishment of a fund for monitoring future air, soil, and groundwater contamination, costs and attorney's fees, and prejudgment interest. [Nicholson and Blanson]

***Andre v. EXCO Res., Inc.*, No. 5:11-cv-00610-TS-MLH (W.D. La. Apr. 15, 2011); and *Beckman v. EXCO Res., Inc.*, 5:11-cv-00617-TSMLH (W.D. La. Apr. 18, 2011)**

SUMMARY: Plaintiff David Andre brought suit on April 15, 2011 on behalf of consumers of water in the immediate vicinity of DeBroeck Landing, Caddo Parish, Louisiana. Three days later, Daniel Beckman and seven other plaintiffs filed a similar suit. Both lawsuits were filed as a result of the same alleged incident and seek the same relief. According to both complaints, on April 18, 2010, a natural gas well operated by EXCO near DeBroeck Landing experienced problems resulting in the contamination of the Caddo Parish aquifer and the plaintiffs' property. While the complaints do not allege that EXCO engaged in hydraulic fracturing, they both seek to compel disclosure of the formulation of the "drilling muds and solutions" allegedly used by EXCO in the natural gas well in order for the "appropriate tests and monitoring of the aquifer [to] take place." Both complaints allege causes of action for **negligence, strict liability, nuisance, trespass, unjust enrichment, and impairment of use of property**. The plaintiffs in both actions seek a variety of damages, including groundwater remediation costs, diminution of property value, and losses from property market value "stigma." They also seek a declaratory judgment, "general and equitable relief," economic damages, and mental anguish and emotional distress damages. Additionally, the plaintiffs in both actions seek an order requiring remediation by EXCO of the groundwater and development of a "longterm monitoring pro-gram" near the site of the alleged well failure and the allegedly contaminated aquifer. [Nicholson and Blanson]

Strudley v. Antero Resources Corp., 2011 WL 1156763
(Colo. Dist. Ct. March 24, 2011) (No. 2011-2218)

SUMMARY: On March 23, 2011, the Strudley family sued Antero Resources Corporation and two drilling and service companies in Colorado state court. Defendants operate natural gas wells within one mile of the Strudley residence and their water well. The Strudleys allege contamination from the drilling activities, causing health injuries, loss value of the property, loss of quality of life, emotional distress, and other damages. The Strudleys allege **negligence per se, common-law negligence, nuisance, strict liability, trespass, and medical monitoring trust funds, and violation of the Colorado Hazardous Waste Act and the Oil and Gas Conservation Act.** Damages sought include cost of remediation, cost of future health monitoring, compensatory damages, loss of use and enjoyment of property, loss of quality of life, emotional distress, personal injury, diminution of property value, and litigation costs and fees. [Nicholson and Blanson]

Baker v. Anschutz Exploration Corp., No. 2011-1168 (N.Y. Sup. Ct., Feb. 11, 2011)

SUMMARY: In February 2011, fifteen landowners filed suit in Chemung County, New York, against Anschutz Exploration Corporation, Conrad Geoscience Corporation, and another company. The plaintiffs claim that Anschutz's improper drilling, well capping, and/or cement casing caused toxic chemicals to be discharged into the plaintiffs' groundwater. The plaintiffs also claim that when hired by Anschutz to investigate possible contamination, Conrad Geoscience failed to conduct a reasonable and prudent investigation that conformed with industry standards. The plaintiffs allege **negligence per se, common-law negligence, nuisance, strict liability, trespass, premises liability, fear of developing cancer, future medical monitoring, and deceptive business acts and practices.** [Nicholson and Blanson]

Berish v. Southwestern Energy Production Co., 762 F.Supp.2d 702 (M.D. PA. 02-03-11)

SUMMARY: A group of thirteen families filed suit in September 2010 in Susquehanna County, Pennsylvania, against Southwestern Energy Production Company and its parent organization. The case was removed to the federal district court. The complaint case alleges that, beginning in 2008, hydraulic fracturing and horizontal drilling in close range (700 to 1,700 feet) of the plaintiffs' water wells caused the ground wells to become contaminated. The plaintiffs claim that Southwest Energy's natural gas well was improperly cased, allowing contaminants such as diesel fuel, barium, manganese, and strontium to migrate to the plaintiffs' water wells. According to the allegations in the complaint, at least one plaintiff is exhibiting neurological symptoms consistent with exposure to heavy metals. The plaintiffs allege negligence per se, common-law negligence, nuisance, strict liability, medical monitoring trust fund, violation of the Pennsylvania Hazardous Sites Cleanup Act, and trespass. The plaintiffs seek damages for lost property value, the cost of purchasing an alternative source of water, medical damages, medical monitoring costs, and compensatory and punitive damages. [Nicholson and Blanson; Mandelbaum]

COURT: Residents brought state-court action for compensatory and punitive damages, costs of future health monitoring, and preliminary and permanent injunctions against company that conducted oil and gas drilling and extraction activities at well located near residents' properties, asserting claims for alleged violation of Hazardous Sites Cleanup Act, negligence, private nuisance, strict liability, trespass, and establishment of medical monitoring trust fund.

HELD: (1) residents stated claim for strict liability under Pennsylvania law, and (2) residents failed to state claims for damages for emotional distress except as to one plaintiff. Plaintiffs' **Strict Liability** Claim will not be dismissed. Pennsylvania cases with facts analogous to the suit have determined that the activities involved there were not abnormally dangerous, but since the determination of whether an activity is abnormally dangerous is fact-intensive, the courts will wait until discovery before making its determination.

In Pennsylvania claims for **emotional distress** require that the plaintiff suffer an attendant physical injury. Because Plaintiffs only pled physical ailments as to Plaintiff C.S., the emotional distress claims will be dismissed except as to Plaintiff C.S. Plaintiff will be allowed to amend their Complaint to seek damages for **inconvenience and discomfort**. Pennsylvania recognizes a cause of action for inconvenience and discomfort caused by interference with another's peaceful possession of his or her real estate.

Scoggin v. Cudd Pumping Services, Inc., 2011 WL 4217619
(E.D. Ark. September 12, 2011) (No. 4:11 cv 678 JMM-BD)

ALLEGATIONS: This lawsuit is filed on behalf of minor Plaintiffs against the Defendants for personal injury resulting from exposure to noxious and poisonous carcinogenic matter and compounds as a direct and proximate result of the fracking operations. This action seeks injunctive relief in the form of medical monitoring. The Plaintiffs are minor children who reside in White County, Arkansas. In August 2011, Defendants hydraulically fractured three natural gas wells approximately two hundred and fifty feet from the Scoggin home. Chemicals were released into the air in and around the fracking site and large amounts of Benzene, Xylene and Methylene Chloride contaminated Plaintiffs' residence. Dense clouds of a toxic mixture of atomized chemicals wafted from the fracking site onto the land and premises where the minor plaintiffs resided.

CLAIMS: (1) Defendants engaged in abnormally dangerous and ultra hazardous activities and are **strictly liable** for all damages and injuries to the Plaintiffs proximately caused by their fracking operations. (2) Defendants' fracking operations unreasonably interfered, and continues to interfere, with the safe use and enjoyment of adjoining and nearby lands and constitute a **nuisance**. (3) Defendants fracking operations **trespassed** on Plaintiffs' land through migration and accumulation of chemicals and compounds, and the trespasses have resulted in physical damages and injury. (4) Some or all of the acts and/or omissions of the Defendants were grossly, recklessly and wantonly **negligent**, and were done with utter disregard for the consequences to the Plaintiffs, and therefore the Plaintiffs are entitled to an award of punitive damages.

RELIEF SOUGHT: Twenty million in compensatory damages for the injuries enumerated; fifty million in punitive damages; the establishment of a monitoring fund to pay for monitoring of the plaintiffs; an award of costs and attorney fees; and an award of pre-judgment interest.

Parr v. Aruba Petroleum, Inc., No. 11-01650 (Dallas County Ct., Mar. 8, 2011)

SUMMARY: The plaintiffs claim that defendants' natural gas drilling operations in Wise County, Texas, including releases, spills, emissions, and discharges of hazardous gases, have caused the plaintiffs and their property to be exposed to hazardous gases, chemicals, and industrial wastes. Plaintiffs allege **negligence per se, common-law negligence, nuisance, strict liability, trespass, assault, and intentional infliction of emotional distress**. Damages sought include actual damages for medical expenses, loss of earning capacity, loss of consortium, property damage, market value damages, replacement value damages, loss of use, exemplary damages, medical monitoring, cost of remediation, attorneys' fees, and nominal damages. [Nicholson and Blanson]

United States v. Range Production Co., et al., No. 3:11-cv-00116 (N.D. Tex., Jan. 18, 2011); and Range Resources Corp. v. EPA, No. 11-60040 (5th Cir.)

SUMMARY: The United States sued Range Production Company and Range Resources Corporation on January 18, 2011, in the U.S. District Court for the Northern District of Texas. Range owns and operates two gas extraction wells in the Newark East (Barnett Shale) Field in the Fort Worth, Texas, area. On December 7, 2010, EPA issued an Emergency Administrative Order pursuant to the Safe Drinking Water Act, because contaminants “may present an imminent and substantial endangerment to the health of persons” insofar as two water wells were affected by Range's drilling activities. The lawsuit seeks permanent injunctive relief to require Range to comply with the provisions of the Emergency Order, as well as civil penalties. On January 20, 2011, Range filed a petition for review of the Emergency Order with the Fifth Circuit Court of Appeals, arguing that the Emergency Order violated its due process rights. The U.S. District Court for the Northern District of Texas entered an order on June 20, 2011, staying the suit until the Fifth Circuit rules on Range's petition. Oral argument was held on October 3, 2011. [Nicholson and Blanson; Mandelbaum]. See <http://www.ca5.uscourts.gov/clerk/calendar/1110/09.htm>.

[Update: in April 2012, EPA withdrew its order and announced it will drop the lawsuit against Range. See http://online.wsj.com/article/SB10001424052702303404704577313741463447670.html?mod=googlenews_wsj]

Brockway Borough Municipal Authority, v. Flatirons Development, LLC,
2010 WL 5769162 (Pa. Com. Pl. December 15, 2010) (No. 1141-2010)

ALLEGATIONS: Brockway Borough Municipal Authority entered into a surface use and damage agreement with Flatirons Development, involving one parcel of land in Snyder Township, Jefferson County, Pennsylvania, and one well site, the Brandon Day #2 well. The Authority claims that Flatirons' use of the Authority's property is unreasonable and a **public nuisance**. The Authority requests (1) an injunction be issued prohibiting the construction of any impoundments, wells, pads, electric or pipelines until Flatirons demonstrates that the Brockway water supply will be protected; (2) that Flatirons be required to conduct a groundwater study to assure that the Authority's water supply will not be polluted; (3) that Flatirons be required to implement a site specific Sedimentation & Erosion Control Plan, and Stormwater Management Plan, so as to assure that there will be no pollution to the Authority's water supplies; (3) that Flatirons be prohibited from engaging in any construction activities within 2,500 linear feet of any Authority well or surface impoundment; (4) that Flatirons conducts water quality monitoring to assure there is no contamination to the Authority's water supplies... and (5) that the court reform the agreement between the Authority and Flatirons to the extent that it was obtained through Flatirons' failure to make material disclosures and the Authority has been prejudiced.

Mitchell v. Encana Oil & Gas (USA), 2010 WL 5384210
(N.D. Tex. December 15, 2010) (No. 3:10CV02555)

SUMMARY: In December 2010 Grace Mitchell filed suit against Encana Oil & Gas (USA) Inc. and two other companies, alleging that the defendants' hydraulic fracturing and horizontal drilling activities and associated storage of drilling wastes have contaminated the plaintiff's water well. The plaintiff claims that after defendants commenced hydraulic fracturing operations near her property, her well water became slick to the touch and gave off a gasoline-like odor. According to the complaint, testing results revealed that groundwater was contaminated with various chemicals, including C12-C28 hydrocarbons, similar to diesel fuel. The causes of action alleged in the Mitchell complaint are **nuisance, negligence, fraud (for failing to warn or concealing the danger that the plaintiff's water well would become contaminated with diesel fuel), and trespass (for exceeding defendants' rights granted for drilling access, contaminating the plaintiff's groundwater, and allowing petroleum by-products to cross into the plaintiff's land)**. The complaint requests damages for cost of testing, loss of use of the land and groundwater, loss of market value of land, loss of intrinsic value of well water, emotional harm and mental anguish, physical injuries sustained from exposure to the contaminated groundwater, the cost of an alternative water source, nominal damages, exemplary damages, injunctive relief, cost of remediation, and medical monitoring. [Nicholson and Blanson]

Hagy v. Equitable Prod. Co., No. 10-c-163 (Jackson County Cir. Ct., Oct. 26, 2010);
and Hagy v. Equitable Prod. Co., No. 2:10-cv-01372 (S.D. W.Va., Dec. 10, 2010)

SUMMARY: The Hagy family filed suit in state court in October 2010 against Equitable Production Co. and three drilling contractors and service companies. The complaint alleges contamination of the family's property and water well, which is located approximately 1,000 feet from the defendants' natural gas wells. Plaintiffs claim to suffer neurological symptoms from exposure to heavy metals, including manganese. The alleged causes of action include **negligence, nuisance, strict liability, trespass, and medical monitoring trust funds**. The plaintiffs are seeking monetary damages and an injunction against further drilling. The case was removed to the U.S. District Court for the Southern District of West Virginia. [Nicholson and Blanson]

Armstrong v. Chesapeake Appalachia, LLC, No. 3:10-cv-02453 (M.D. Pa., Dec. 6, 2010)

SUMMARY: In October 2010, Judy Armstrong and two other landowners filed suit in Bradford County, Pennsylvania, against Chesapeake Appalachia LLC and two other companies. Plaintiffs own property and water wells located three miles from oil and gas wells operated by the defendants. The complaint alleges that the defective cement casing of the defendants' well caused methane, ethane, barium, and other harmful substances to be discharged into the plaintiffs' groundwater wells. An amended complaint naming additional plaintiffs alleges that at least one family has been forced to evacuate their property. The plaintiffs' complaint alleges **negligence, negligence per se for violations of various state statutes, nuisance, strict liability, and trespass**. The complaint also alleges a violation of the Pennsylvania Oil & Gas Act, which sets forth casing requirements for groundwater protection. The defendants removed the case to the U.S. District Court for the Middle District of Pennsylvania in December 2010. [Nicholson and Blanson]

Fiorentino v. Cabot Oil and Gas Corp., 705 F.Supp.2d 506 (M.D. Pa. Nov. 15, 2010)

In November 2009 approximately nineteen families in Susquehanna County, Pennsylvania, sued Cabot Oil & Gas Corporation for state law violations and common-law claims. Cabot allegedly released combustible gas into the headspaces of the plaintiffs' water wells, caused elevated levels of dissolved methane to be present in their water wells, and discharged natural gas into their groundwater. The plaintiffs allege that (1) Cabot allowed excessive pressure to build up within gas wells near their homes and water wells, resulting in an explosion; (2) spilled diesel fuel onto the ground near their homes and water wells; (3) discharged drilling mud into diversion ditches; and (4) caused three significant spills within a ten-day period. [*Pennsylvania, Cabot Reach Settlement over Methane Contamination*, Greenwire, Dec. 16, 2010; Nicholson and Blanson; Mandelbaum]

Court: Plaintiffs are 63 individuals in Dimock and Montrose, Pennsylvania. Plaintiffs allege Defendants conducted hydrofracturing and other natural gas production activities that allowed the release of methane, natural gas, and other toxins onto Plaintiffs' land and into their groundwater.

Plaintiffs maintain that they have experienced property damage and physical illness, that they live in constant fear of future illness, and that they suffer severe emotional distress. Plaintiffs request an injunction prohibiting future natural gas operations, and seek compensatory and punitive damages, the cost of future health monitoring, attorneys' fees and costs, and any other appropriate relief. Plaintiffs assert (1) a claim pursuant to the Hazardous Sites Cleanup Act; (2) negligence; (3) private nuisance; (4) strict liability; (5) breach of contract; (6) fraudulent misrepresentation; (7) medical monitoring trust funds; and (8) gross negligence. The federal district court, on November 15, 2010, **HELD:** (1) property owners alleged a claim under response cost provisions of Pennsylvania's Hazardous Sites Cleanup Act; (2) owners stated common-law claim for medical monitoring; and (3) owners stated claim for punitive damages.

With respect to the **Pennsylvania Hazardous Sites Cleanup Act**, the court held that Plaintiffs stated a "plausible claim for relief" under Section 702, which provides that a defendant who is responsible for releasing hazardous substances is strictly liable for response costs, including the cost of a health assessment or health effects study. As for **strict liability**, the court noted that Pennsylvania courts have concluded that storage and transmission of gas and petroleum products are not abnormally dangerous activities, but have not decided whether gas-well drilling and operation are the same. The court denied the Defendants' Motion to Dismiss but said the Defendants may reassert their argument with respect to strict liability in a motion for summary judgment. In Pennsylvania, to prevail on a claim for **medical monitoring**, a plaintiff must prove (1) exposure greater than normal background levels; (2) to a proven hazardous substance; (3) caused by defendant's negligence; (4) as a proximate result of the exposure, plaintiff has a significantly increased risk of contracting a serious latent disease; (5) a monitoring procedure exists that makes the early detection of the disease possible; (6) the prescribed monitoring regime is different from that normally recommended in the absence of the exposure; and (7) the prescribed monitoring regime is reasonably necessary according to contemporary scientific principles. Plaintiffs alleged plausible facts necessary to support a claim for medical monitoring. The cause of action for **gross negligence** was dismissed since it is not recognized under Pennsylvania law. Although Pennsylvania law does not allow recovery for **fear of future illness and emotional distress** without some manifestation of actual physical injury, plaintiffs did allege such physical injury. Because the Complaint alleges Defendants were grossly negligent in the operation and drilling, the court declined to strike Plaintiffs' allegations regarding **punitive damages**. Finally, Plaintiffs' allegations of **negligence per se** are well-pleaded and, if proven, entirely relevant to Plaintiffs' negligence claim. Discovery has been referred to a special master, and the case remains pending as of November 2011.

<http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2303>

RELATED NOTE: In addition to plaintiffs' suit, the Pennsylvania Department of Environmental Protection sued Cabot. In December 2010, PDEP and Cabot announced a settlement. The families collectively received \$4.1 million in compensation and other concessions and Cabot paid a \$500,000 penalty to the PDEP. The settlement also allowed Cabot to resume its hydraulic fracturing activities and the families to maintain their suit against the company. [See *Pennsylvania, Cabot Reach Settlement over Methane Contamination*, Greenwire, Dec. 16, 2010.]

Heinkel-Wolfe v. Williams Prod. Co., LLC,
No. 2010-40355-362 (362nd Tex. Dist. Court, Nov. 3, 2010)

SUMMARY: In November 2010, Margaret Heinkel-Wolfe and her daughter filed suit in Denton County, Texas, against Williams Production Company, LLC and five other companies, claiming injuries due to the installation of a drill water collection site and gas compressor station just 990 feet from their home, and a gas pipeline just 700 feet away and eight gas drills within a three-quarter mile radius. Plaintiffs allege these operations have lowered their property value with constant racket and toxic formaldehyde, sulfur dioxide, benzene, toluene, and xylene emissions. Plaintiffs claim to suffer from headaches, respiratory ailments, and troubled breathing as a result of the defendants' drilling and compressing operations, which are polluting the air and water surrounding the plaintiffs' home. In their amended complaint, plaintiffs dropped their negligence claims and allegations of water contamination, but retained causes of action for **nuisance and trespass**. [Nicholson and Blanson]

Sizelove v. Williams Prod. Co., LLC, No. 2010-50355-367
(367th Tex. Dist. Court, Nov. 3, 2010)

SUMMARY: The Sizelove family sued Williams Production Company and five other companies in Denton County, Texas, alleging that the plaintiffs suffer severe headaches and respiratory problems because gas drilling and compressing operations are polluting the air and water surrounding their home. Defendants allegedly installed a drill water collection site and gas compressor station 250 feet from the home, a gas pipeline just 400 feet from the home, and eight gas drills within a three-quarter mile radius. The complaint contends that the defendants cut down trees on the property and allowed workers to use the land as a toilet. These operations allegedly lowered the property value with constant noise and toxic formaldehyde, sulfur dioxide, benzene, toluene, and xylene emissions. Plaintiffs allege claims for **nuisance and trespass**, and seek property damages, damages for mental anguish, and exemplary damages. [Nicholson and Blanson]

Zimmerman, v. Atlas America, LLC, 2010 WL 4680900
(Pa. Com.Pl. August 23, 2010) (No. 2009-07564)

SUMMARY: Plaintiffs George and Lisa Zimmermann, who own only surface rights to their property in Pennsylvania, claim that Atlas America, LLC used toxic chemicals during the fracturing process that polluted the freshwater aquifers and destroyed a pristine heirloom tomato farmland. The suit alleges **trespass, nuisance, negligence, negligence per se, res ipsa loquitur, fraud and misrepresentation, breach of the settlement agreement, and violation of the casing requirements of the Pennsylvania Oil & Gas Act**. The Zimmermanns seek damages for lost profits and benefits associated with their property, including compensatory damages for the permanent destruction of property, permanent destruction of water aquifers, loss of water well use, and a reduction in property value as well as punitive damages. [Nicholson and Blanson]

***Scoma v. Chesapeake Energy Corporation,*
2010 WL 3706170 (N.D.Tex. August 11, 2010)**

SUMMARY: Jim and Linda Scoma, who own property in Johnson County, Texas, near oil and gas wells being developed by Chesapeake Energy Corporation, allege that Chesapeake stored drilling waste at sites and disposal wells near the plaintiffs' property and disposed of fracturing waste in injection wells near their property. According to the complaint, the plaintiffs' water well became contaminated as a result of Chesapeake's activities. The plaintiffs' claim that test results show an increase in benzene, toluene, ethylbenzene, xylene, barium, and iron. The plaintiffs claim **negligence, nuisance, and trespass** and seek the cost of testing, loss of use of land, loss of market value of land, loss of intrinsic value of well water, emotional harm and mental anguish, nominal damages, exemplary damages, and injunctive relief. [Nicholson and Blanson]

Otis v. Chesapeake Appalachia, LLC, Case No. 3:11-CV-00115 (M.D. Pa.)

SUMMARY: Plaintiffs allege that insufficient casing caused one of the defendant's wells to discharge pollutants and fracking fluid into the ground, thereby contaminating the water supply. The case is currently stayed pending binding arbitration. See *With Fracking Comes Litigation: What Ohio Courts Can Expect As Horizontal Drilling and Hydraulic Fracturing Begin* (11- 21-11) at <http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2303>

***Armstrong v. Chesapeake Appalachia, LLC, Case No. 10CV000681*
**(remanded from Middle District of Pennsylvania
to Bradford County Ct. of Common Pleas)****

SUMMARY: another groundwater contamination lawsuit. [*With Fracking Comes Litigation: What Ohio Courts Can Expect As Horizontal Drilling and Hydraulic Fracturing Begin* (Nov. 21, 2011) at <http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2303>

ZONING SUITS (PREEMPTION)

Range Resources-Appalachia, LLC v. Salem Twp., 964 A.2d 869 (Pa. 2009)

SUMMARY: The court held that the township's subdivision and land development ordinance regulated the same "features" of gas drilling and wells that were regulated by the Pennsylvania Oil & Gas Act, and hence was preempted by the Act). [Stemplewicz]

Board of County Commissioners of La Plata County v. Colorado Oil and Gas Conservation Commission, Colorado Court of Appeals, September 25, 2003 (No. 02CA1879)

SUMMARY: In 2002, the Colorado Oil and Gas Conservation Commission amended a rule saying that state drilling permits would take precedence over any county permit or land-use approval process. This amendment was challenged in court by La Plata, Archuleta, Las Animas, Routt and San Miguel counties. In September, 2003, the Colorado Court of Appeals ruled 2-1 that the amendment was invalid. The court judges held that counties “have a legally protected interest in enacting and enforcing their land use regulations governing the surface effects of oil and gas operations.” [Earthworks, Landowner’s Guide]

<http://www.cobar.org/opinions/opinion.cfm?OpinionID=3885>

COLORADO – Colorado courts have ruled that local governments, as well as the state government, have the ability to regulate oil and gas companies. The Colorado Appeals Court decided in 2002 to uphold a trial court ruling in a case between the town of Frederick and the oil and gas operator North American Resources Co. (NARCO). The town had passed an ordinance requiring gas and oil companies to obtain a special use permit to drill in town, and pay an application fee of \$1,000; as well as requiring certain setbacks, and noise and visual impact mitigation, among other things. NARCO went ahead and drilled a well without getting a permit from the town. The town initiated a court action, and the trial court stopped the operation of the well and ordered the company to either remove the well or get the required permit from the town. The case went to the Colorado Appeals Court. The Appeals Court ruled that Colorado communities, including counties, can regulate oil and gas wells, as long as the regulations do not conflict with state laws. The court acknowledged that town’s ordinances may delay drilling, but upheld the regulatory scheme as a whole because the ordinances did not allow the town to prevent drilling entirely or to impose arbitrary conditions that would materially impede or destroy the state’s interest in oil and gas development. [Earthworks, Landowner’s Guide]. Also, in 2002, in Delta County, Colorado, county commissioners rejected applications to drill exploratory coalbed methane gas wells due to the threat to water supplies. The Colorado Oil and Gas Conservation Commission had previously approved the exploratory drilling, and in 2003 a Denver District court held that the county did not have jurisdiction to deny the permits on the basis of water quality or quantity concerns. [Earthworks, Landowner’s Guide]

***Northeast Natural Energy v. City of Morgantown, Monogalia Co.,
Circuit Court Case No. 11-411 (West Va. C.C. 2011)***

After Morgantown, West Virginia, implemented a ban on fracking, Northeast Natural Energy filed a lawsuit concerning the city’s ban. On August 15, 2011, the court held that the ban was preempted by the state’s regulatory scheme. [Bricker and Eckler, *With Fracking Comes Litigation: What Ohio Courts Can Expect As Horizontal Drilling and Hydraulic Fracturing Begin* (Nov. 21, 2011) at <http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2303>]

Anschutz Exploration Corporation v. the Town of Dryden and the Town of Dryden Town Board, Tompkins County Supreme Court (02-02-12)

ARTICLE: New York Supreme Court Justice Phillip Rumsey ruled today in favor of the right of the Town of Dryden to adopt zoning that prohibits natural gas drilling within its borders in Tompkins County. The judge concluded that the town zoning ordinances is not preempted by the state Oil, Gas and Solution Mining Law. This is the first ruling in New York on the issue as to whether towns can outlaw gas drilling, including hydraulic fracturing. There are more than a dozen communities that have adopted similar drilling bans throughout the state. The Court found that even a ‘total ban’ on extraction is permissible, because there is no express legislative intent to preempt local laws or ordinances in the Oil and Gas Law. [*NYSC Justice Rules NY Town Can Ban Fracking! (2-2-12)* at <http://ecowatch.org/2012/breaking-court-ruling-town-of-dryden-can-ban-gas-drilling/>]

ARE LOCAL AUTHORITIES IN OHIO PRECLUDED FROM REGULATING OIL AND GAS ACTIVITIES?

Ohio Revised Code Chapter 1509 govern oil and gas activities in Ohio. According to §1509.02, the regulation of oil and gas activities “is a matter of general statewide interest that requires uniform statewide regulation, and this chapter and the rules adopted under it constitute a comprehensive plan with respect to all aspects of the locating, drilling, and operating of oil and gas wells within this state” The statute establishes a comprehensive statewide structure to govern the oil and gas industry in Ohio, [and as such,] local ordinances, laws and regulations of certain aspects of oil and gas activities—such as zoning laws—are pre-empted by the structure of R.C. 1509. [Gartland]

A number of local governments in Ohio have implemented or plan to implement fracking bans. Athens is currently considering a ban. Plain Township has actually implemented a ban. In addition to the local bans, a number of Democrats in the Ohio House have called for a moratorium on fracking until a federal study on the potential impacts is completed. As more local governments attempt to implement conditions and bans on drilling rights, it is likely that those affected will commence litigation to prevent the bans from being put into practice. The tension between local home rule as granted to municipalities by the Ohio Constitution and the necessity of general, consistent laws across the state as enacted by the Ohio General Assembly very likely may ultimately have to be determined by the Ohio court system. [*With Fracking Comes Litigation: What Ohio Courts Can Expect As Horizontal Drilling and Hydraulic Fracturing Begin* (Nov. 21, 2011) at <http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2303>]

ARE LOCAL AUTHORITIES IN OHIO PRECLUDED FROM REGULATING OIL AND GAS ACTIVITIES? – RECENT DEVELOPMENTS (MARCH/APRIL 2012)

Assistant Law Director Eric Fink advised the Kent City Council that, despite the fact that some municipalities have acted to ban fracking, the power to enact such laws is reserved to the state. “*Anti-Fracking Group Asks City for Law Banning Controversial Drilling Practice*” (03-29-12), at <http://kent.patch.com/articles/anti-fracking-group-asks-city-for-law-banning-practice>, and “*Fracking Discussion at Kent Council a Question of State Versus Local Law*” (04-05-12), at <http://kent.patch.com/articles/fracking>.

Burton Village has apparently written a moratorium on fracking. “*Fracking Opponents Push for Protection*” (03-30-12), at <http://www.chagrinvalleytimes.com/NC/0/4099.html>.

In addition, on March 2012, Mansfield City Law Director John Spon urged the City Council to regulate material disposed of in injection wells within city limits. “*Bill of Rights Targets Injection Wells*” (03-29-12), at <http://www.mansfieldnewsjournal.com/article/20120329/NEWS01/203290303/Bill-rights-targets-injection-wells?odyssey=tab|topnews|text|Frontpage>.

The Athens City Council has considered banning horizontal hydraulic fracturing within city limits. In March 2012, Law Director Pat Lang advised the body that they had no authority to do so because state law delegates sole drilling regulatory authority to the Ohio Department of Natural Resources. “*Law Director Still Doubts City’s Ability to Regulate Fracking*” (03-21-12), at <http://www.athensnews.com/ohio/article-36456-law-director-still-doubts-cityrss-ability-to-regulate-fracking.html>. Nevertheless, in April 2012, the City Council introduced an ordinance that bans oil and gas drilling within its wellhead protection zone. One council member suggested that it would take time and money to challenge the ordinance, and oil companies may decide simply to drill elsewhere. “*Council: State Law Be Damned; Ban Fracking in Wellhead Area*” (04-04-12), at <http://www.athensnews.com/ohio/print-article-36555-print.html>.

SUITS AGAINST THE FEDERAL GOVERNMENT

Center for Biological Diversity v. Bureau of Land Management,
2011 WL 6955615 (N.D. Cal. December 30, 2011) (No. CV-11-06174)

ALLEGATIONS: Plaintiffs Center for Biological Diversity and the Sierra Club bring this civil action for declaratory and injunctive relief against the United States Bureau of Land Management and Ken Salazar, Secretary of the Interior regarding BLM's decision to lease sensitive lands in California for oil and gas development without analyzing the full environmental effects of doing so. This action alleges violation of the National Environmental Policy Act; the Mineral Leasing Act of 1920; and the statutes' implementing regulations.

On September 14, 2011, BLM held an oil and gas lease sale of approximately 2,700 acres of land in Monterey and Fresno counties. BLM ignored or downplayed the impacts the lease sale and subsequent development on endangered and sensitive species in the area, and failed to address the impacts to water quality and other resources that result from hydraulic fracturing, or “**fracking**,” a likely method of oil and gas extraction that could be applied to the leased areas. By failing to require lessees to capture methane, BLM violated the MLA.

BLM violated **NEPA and the APA** in issuing its EA and FONSI for the lease sale; and also by failing to prepare an EIS before holding the lease sale.

BLM violated the **MLA and the APA** by failing to ensure that the lessee will prevent waste by allowing lessees to flare or emit large amounts of methane gas.

Delaware Riverkeeper Network v. United States Army Corps of Engineers,
2011 WL 3440247 (E.D. N.Y. August 04, 2011) (No. CV11-3780)

SUMMARY: Plaintiffs allege the Delaware River Basin Commission and Army Corps of Engineers have violated **National Environmental Policy Act** by drafting regulations to authorize development of natural gas within the Delaware River Basin. Plaintiffs assert that promulgation of the Regulations in final form would result in the development of tens of thousands of natural gas wells in the 5000 square miles of the Marcellus Shale that lies within the Delaware River Basin in Pennsylvania and New York. Plaintiffs note that the consumptive use of water will permanently deplete the Delaware River Basin waters and its ecosystems, including the clean drinking water for more than fifteen million citizens of New York, New Jersey, Pennsylvania and Delaware. In addition, defects in the cementing and casing in the upper portions of the well closest to the surface may result in flowback fluids and/or gases such as methane intersecting with and contaminating freshwater aquifers that lie near the surface. Defendants are in violation of NEPA's statutory and regulatory requirements by failing to prepare a draft EIS for development of the Draft Regulations authorizing natural gas development within the Basin under the Compact.

***New York v. United States Army Corps of Engineers,*
2011 WL 2138441 (E.D. N.Y. May 31, 2011) (No. CV11-2599)**

SUMMARY: New York sues the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. National Park Service, U.S. Department of the Interior, and U.S. EPA to compel these Agencies to comply with the **National Environmental Policy Act** by preparing and making available for public comment a draft environmental impact statement before proceeding to adopt proposed Delaware River Basin Commission regulations that would authorize natural gas development within the Delaware River Basin. The regulations would governing hydraulic fracturing in the Delaware River Basin.

FOLLOW-UP: *Delaware River Basin Fracking Decision Delayed* (11/23/2011) – The Delaware River Basin Commission, consisting of the governors of Pennsylvania, New Jersey, New York, Delaware and a representative from the Army Corp of Engineers, cancelled the vote on regulations for natural gas drilling in regions near the Delaware River. The announcement came after Delaware withdrew its support, threatening the regulations' chances of receiving a majority vote. Last week, Delaware Governor Jack Markell sent a letter to the commission's other members, announcing that he would not vote for the currently-proposed fracking regulations, joining New York in opposition. http://www.huffingtonpost.com/2011/11/23/delaware-river-basin-fracking-decision_n_1108141.html

***United States v. Range Production Co., et al., No. 3:11-cv-00116 (N.D. Tex.,
Jan. 18, 2011); and Range Resources Corp. v. EPA, No. 11-60040 (5th Cir.)***

SUMMARY: After the United States sued Range Production Company and Range Resources Corporation to comply with an Emergency Order issued pursuant to the Safe Drinking Water Act, Range filed a petition for review of the Order with the Fifth Circuit Court of Appeals, arguing that the Order violated its due process rights. The District Court suit is stayed until the Fifth Circuit rules on Range's petition. Oral argument was held on October 3, 2011. [Nicholson and Blanson; Mandelbaum]. See <http://www.ca5.uscourts.gov/clerk/calendar/1110/09.htm>. [Update: in April 2012, EPA withdrew its order and announced it will drop the lawsuit against Range. See http://online.wsj.com/article/SB10001424052702303404704577313741463447670.html?mod=googlenews_wsj]

Legal Envntl. Assistance Foundation, Inc. v. U.S. EPA, 118 F.3d 1467 (11th Cir. 1997)

SUMMARY: The Legal Environmental Assistance Foundation argued that fracking should be regulated by EPA under the Safe Drinking Water Act. The Eleventh Circuit held that the wells “injected” fluids underground and should be regulated. However, the 2005 Energy Policy Act exempted all fracking with the exception of diesel fuel from the definition of underground injection in Section 1421 of the Safe Drinking Water Act. Since Congress passed the Act, fracking has remained almost entirely state-regulated. [Willie; Earthworks, Landowner’s Guide]

MISCELLANEOUS SUITS

Ohio Buckeye Energy, LLC v. Beck Energy Co., Columbiana Co. Case No. 2011CV742

Ohio Buckeye Energy, LLC alleges that Beck Energy Corporation breached a contractual obligation to sell and assign oil and gas rights. Beck is the lessee under certain oil and gas leases. Ohio Energy alleges that in February 2011, Beck agreed to sell its “deep rights” under the leases, which include the mineral rights lying below the area that is currently being drilled by Beck. The original purchase price was set at \$2,000 per net mineral acre. The lawsuit alleges that in September 2011, Beck “stonewalled the transaction” and refused to honor the agreement unless Ohio Energy paid it \$4,500 per net mineral acre. [*With Fracking Comes Litigation: What Ohio Courts Can Expect As Horizontal Drilling and Hydraulic Fracturing Begin* (Nov. 21, 2011) at <http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2303>]

Summitcrest, Inc. v. Eric Petroleum Co., Columbiana Co. Case No. 2011 CV 00745 (C.P. 2011)

The plaintiff landowner is seeking a declaratory judgment to prevent Defendant Chesapeake Exploration, LLC from entering upon its property to drill a well. Chesapeake alleges that it has a right to dig a well as an assignee to a lease dated April 24, 2004. The plaintiffs disagree alleging that the lease contains language that terminates the lessee’s drilling rights in the event it allows a period in excess of one year to elapse between the completion/abandonment of a well and the commencement of actual drilling operations of a well. None of the defendants have yet responded to the lawsuit, which was filed on October 20, 2011. [*With Fracking Comes Litigation: What Ohio Courts Can Expect As Horizontal Drilling and Hydraulic Fracturing Begin* (Nov. 21, 2011) at <http://www.bricker.com/publications-and-resources/publications-and-resources-details.aspx?Publicationid=2303>]

***Wiser v. Enervest Operating, LLC*, 803 F.Supp.2d 109
(N.D. N.Y. 03-22-11) Civil Action No. 3:10-CV-794 (TJM/DEP)**

SUMMARY: Property owners filed action against gas company seeking declaratory judgment that oil and gas leases were null and void and no longer in effect.

HELD: (1) state's moratorium on horizontal high-volume hydro-fracking for recovery of natural gas, even assuming that it qualified as *force majeure*, would have only extended the primary term of gas leases and would not effectuate transition into the secondary term of the leases; and (2) the lessee's failure to make the required delay rental payments resulted in automatic termination of the leases. Defendants argue that the force majeure advanced the leases into their secondary terms, but the only way to enter the secondary term of the leases would be to produce oil, gas or other substances ... in paying quantities. This defendants also failed to do. The leases automatically terminated upon defendants' failure to make delay rental payments.

***Bombardiere, Sr. v. Schlumberger Technology Corporation*,
2011 WL 2443691, Civil Action No. 1:11-CV-50 (N.D. W. VA. 06-14-11)**

SUMMARY: This action arises from the alleged exposure of the plaintiff to harmful chemicals while performing hydraulic fracturing for Schlumberger Technology Corporation and Consol at a Marcellus Shale formation in Waynesburg, Pennsylvania. During the course of his employment, the plaintiff was exposed to fracking chemicals without adequate training and protective gear. Plaintiff handled open buckets, lifted buckets over his head, handled spray hoses for directing fracking chemicals, all without appropriate training or adequate protective gear. As a consequence of his exposure, plaintiff developed burns, blood dyscrasias, testicular deformity, testicular edema, respiratory compromise, increased risk of cancer and other medical disorders, psychological trauma, and post-traumatic stress disorder. On February 11, 2011, the plaintiff filed suit in the Circuit Court of Harrison County, West Virginia. The Complaint contains eight counts: negligence; deliberate intent pursuant to W.Va.Code § 23-4-2(c); alter ego; agency; strict liability; preparation and use of proprietary chemical fracking fluids; wrongful interference with employment/wrongful interference with protected property interest; and punitive damages. The defendants removed the action to the United States District Court for the Northern District of West Virginia. On May 19, 2011, Consol filed the instant Motion to Transfer Venue, asking this Court to transfer venue to the United States District Court for the Western District of Pennsylvania.

HELD: The motion to move suit to United States District Court for the Western District of Pennsylvania is denied. At the heart of the Complaint is the plaintiff's allegation that he was injured as a result of his exposure to caustic chemicals while performing hydraulic fracturing work in Waynesburg, Pennsylvania. By the plaintiff's own allegations, therefore, the place of his alleged physical injuries is Pennsylvania. As such, Pennsylvania tort law will apply to the plaintiff's claims which seek redress for those injuries.

Payne et al. v. Ohio Valley Energy Systems Corp., et al.,
(Geauga County Court of Common Pleas) (complaint filed 01-30-2009)

In December 2007 gas seeped into nearby water wells and caused an explosion at a home in Bainbridge, Ohio. See <http://www.tddl.com/news.html>.

A lawsuit was filed in Geauga County by forty-three households, claiming trespass, negligence, private nuisance, nuisance per se, engaging in ultra hazardous activity, fraudulent concealment, failure to warn, and negligent infliction of emotional distress. See <http://www.tddl.com/documents/Complaint.pdf>.

The lawsuit was settled for an undisclosed amount, and Bainbridge Township received \$50,000 for replacement of a water well and other expenses at its police station. In 2008, the Ohio Department of Natural Resources issued a lengthy report on the incident. See <http://www.dnr.state.oh.us/Portals/11/bainbridge/report.pdf>.

Jewett Sportsmen & Farmers Club, Inc. v. Chesapeake Exploration, LLC, et al.,
CVH-2011-0113 (Court of Common Pleas, Harrison County, 01-17-2012)
http://media.cleveland.com/business_impact/other/Judgement%20Entry%201-17-12.pdf

In this case, the surface owner, Jewett Sportsman & Farmers Club, successfully argued that the holder of the mineral rights (Chesapeake) did not have the right to use the surface to extract natural gas and other minerals from adjacent properties. The 1957 deed in question reserved all mineral rights under the property in question, as well as the right to go “through and under” the property to access minerals on adjacent lands.

Chesapeake Energy built a 12-acre drilling pad on the surface with the intent of conducting horizontal drilling to reach natural gas underneath adjacent properties. Chesapeake had rights to the adjacent minerals as well as the minerals underneath the Club’s land, but the court held it did not have the right to use the plaintiff’s surface to recover natural gas (or other minerals) beneath the adjacent tracts of land. The “through and under” language was held to only have granted Chesapeake limited rights. For example, if Chesapeake owned the coal, gas, and oil rights on lands to the east and west of the plaintiff’s land, it could remove coal, oil, and gas from the western parcel by taking it “through and under” the plaintiff’s parcel and then to the surface of the eastern parcel, but it could not take the coal, oil, and gas from the western parcel to the surface of the plaintiff’s parcel.

See “*Recent Court Decisions ...*,” McDermott Will & Emery (03-30-2012), at <http://www.jdsupra.com/post/documentViewer.aspx?fid=7155d9b0-118c-4324-8375-2070e3391b4c>.

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