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# Hydraulic Fracturing and the FRAC Act: Frequently Asked Questions

## What is hydraulic fracturing?

Hydraulic fracturing is an oil and natural gas production technique that involves the injection of millions of gallons of water, plus chemicals and sand, underground at very high pressure in order to create fractures in the underlying geology to allow natural gas to escape. The sand is used to keep the fractures open and allow oil or gas to flow more efficiently. Hydraulic fracturing is commonly used in many types of geologic formations such as coalbeds, shale plays, and previously-drilled wells to further stimulate production.

## Where does hydraulic fracturing take place?

Thirty-three states have oil and/or natural gas production and, according to the Interstate Oil and Gas Compact Commission, more than 90% of U.S. oil and natural gas wells use hydraulic fracturing.<sup>1</sup> Tens of thousands—if not hundreds of thousands—more wells are planned across the country over the next decade.

## What are the concerns about hydraulic fracturing?

Hydraulic fracturing fluids can contain a variety of toxic chemicals such as diesel fuel, acids, and acetone. Though industry proponents of the practice assert that only a small fraction of the fluid volume used in any fracturing operation consists of chemicals, because of the large volume of fluids needed for each “frack job”—sometimes millions of gallons—the chemical components of fracturing fluid can amount to tens of thousands of gallons. Hundreds of different types of chemicals are used in fracturing operations, many of which can cause serious health problems—some are also known carcinogens.<sup>2</sup> After hydraulic fracturing takes place, both the waste fluid that is brought back to the surface as “flowback” as well as the fluids that remain underground can contain toxic substances that may come from the fracturing fluids. In addition, hydraulic fracturing can release hazardous substances that are naturally occurring into the environment, such as arsenic, mercury, and naturally-occurring radioactive materials (NORMs).<sup>3</sup> All of these substances present risks to underground sources of drinking water and need to be regulated properly, especially because

each well may be hydraulically fractured as many as 15 times. Hydraulic fracturing has been suspected in cases of drinking water contamination around the country, and in some areas where there has been hydraulic fracturing, residents have reported illnesses.<sup>4</sup>

### **Does hydraulic fracturing really threaten drinking water?**

In many places, hydraulic fracturing takes place on private property, even in backyards where children play or where a drinking water well is located. Depending on local circumstances, property owners have little or no leverage in determining where hydraulic fracturing operations may take place. Hydraulic fracturing frequently necessitates drilling through drinking water aquifers, exposing such aquifers to the risk of contamination from the tens of thousands of gallons of chemicals typically employed in a single fracturing operation or from naturally-occurring hazardous substances.



Contaminated drinking water in Hickory, Pennsylvania  
*(Photo by Darrell Smitsky)*

### **Is hydraulic fracturing regulated?**

Hydraulic fracturing is one of only two underground injection processes exempted from the federal Safe Drinking Water Act. States where hydraulic fracturing occurs have varying regulatory requirements, some of which are weak. For example, in most states oil and gas companies are not required to publicly disclose the types and amounts of chemicals that are injected underground in the fracturing process. In other words, nearby residents or landowners have no way of knowing what kinds of chemicals are being injected underground that may have contaminated their drinking water.

### **What is the FRAC Act?**

The Fracturing Responsibility and Awareness of Chemicals Act (FRAC Act) was introduced in March 2011 in both the United States House (H.R. 1084) and Senate (S. 587). The bill has two purposes: to require companies to disclose the chemicals injected underground, and to eliminate the exemption of hydraulic fracturing operations from regulation under the federal the Safe Drinking Water Act (SDWA). The FRAC Act also ensures that medical professionals can access information about the chemicals in hydraulic fracturing fluids if an individual has been harmed and needs medical care – which is not now the case.

### **Does the FRAC Act require new bureaucratic red tape?**

No, the FRAC Act allows considerable flexibility. For example, the FRAC Act would allow states to administer the provisions of the Act. Importantly, states would be able to develop their own regulatory programs, tailoring them to their local conditions, with oversight from EPA. States with deficient regulations would need to strengthen them to meet EPA requirements.

### **What does the industry say about the bill?**

The oil and gas industry claims that the FRAC Act is unnecessary and overly burdensome. While the American Petroleum Institute claims that regulation will increase production costs by over \$100,000 per well,<sup>5</sup> its analysis was criticized by independent economic experts as ignoring important information, exaggerating costs, and being “untenable from an economic perspective.”<sup>6</sup> Under questioning from Representative Diana DeGette at a Congressional hearing, ExxonMobil CEO Rex Tillerson could not state how much it would cost his company to comply with more protective regulations.<sup>7</sup> The industry claims that state regulations are sufficient, but state regulations vary widely and some, as pointed out above, are weak and generally do not provide for public disclosure. According to IHS Cambridge Energy Research Associates, federal regulation of hydraulic fracturing is unlikely to halt shale gas development.<sup>8</sup>

### **Why does industry say that hydraulic fracturing does not contaminate drinking water?**

In some cases, no one denies that groundwater has been contaminated—but the industry claims that the hydraulic fracturing process is not the cause. This has become a game of semantics. Independent scientists and regulators have not had access to information about the chemicals used in the fluids and thus cannot adequately investigate cases of groundwater contamination, even where signs clearly point to hydraulic fracturing. Some cases where groundwater was contaminated during hydraulic fracturing operations have been attributed to faulty well structure and other oil and gas production causes instead of hydraulic fracturing *per se*, or have never been resolved. Much better oversight and investigation is needed to fully determine the role of hydraulic fracturing in drinking water contamination incidents; the FRAC Act will give the EPA the authority to oversee them.

### **Didn't EPA study this issue in 2004 and conclude there were no problems?**

A 2004 EPA study of hydraulic fracturing in coalbed methane wells concluded that hydraulic fracturing “poses little or no threat” to drinking water and that no further study was necessary.<sup>9</sup> There have been many criticisms of this study as being insufficient and scientifically unsound—in fact, an EPA whistleblower noted that the conclusions were “unsupportable” and that some members of the study's review panel had conflicts of interest.<sup>10</sup> It is also critical to note that

the study only considered coalbed methane wells, not shale gas plays or other locations where hydraulic fracturing takes place.

### **Should new regulation be put on hold while EPA completes the study urged by Congress?**

Although Congress has directed EPA to investigate the impacts of hydraulic fracturing, we have enough information now to move forward to pass the FRAC Act. Groundwater is being contaminated, the natural gas industry is moving to new areas with this technology, and many states have inadequate regulatory programs which do not even provide for public disclosure of the toxic chemicals used in this process.



Waste pit near hydraulic fracturing job  
(Photo by TXsharon)

### **Do supporters of this bill want to shut down oil or natural gas development?**

No—natural gas is an important part of our energy economy, but its extraction must be “done right.” This means that drinking water aquifers must be protected from contamination from the chemicals used in hydraulic fracturing operations, and that people living in communities where such operations take place have a right to know what chemical compounds are being used. The FRAC Act ensures that wider production of natural gas throughout the U.S. will not impair the safety of drinking water.

<sup>1</sup> House Energy and Commerce Committee, 109<sup>th</sup> Congress. Testimony of Victor Carrillo, Chairman, Texas Railroad Commission, Representing the Interstate Oil and Gas Compact Commission. February 10, 2005. <http://www.rrc.state.tx.us/commissioners/carrillo/press/energytestimony.php>

<sup>2</sup> U.S. Environmental Protection Agency. "Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs: Hydraulic Fracturing Fluids." June 2004. [http://www.epa.gov/OGWDW/uic/pdfs/cbmstudy\\_attach\\_uic\\_ch04\\_hyd\\_frac\\_fluids.pdf](http://www.epa.gov/OGWDW/uic/pdfs/cbmstudy_attach_uic_ch04_hyd_frac_fluids.pdf)

<sup>3</sup> Oil and Gas Accountability Project. "Shale Gas: Focus on the Marcellus Shale." May 2008. <http://www.earthworksaction.org/pubs/OGAPMarcellusShaleReport-6-12-08.pdf>

<sup>4</sup> Lustgarten, Abraham. "Officials in Three States Pin Water Woes on Gas Drilling." April 26, 2009. <http://www.propublica.org/feature/officials-in-three-states-pin-water-woes-on-gas-drilling-426> and Mall, Amy et al. "Drilling Down: Protecting Western Communities from the Health and Environmental Effects of Oil and Gas Production." October 2007. <http://www.nrdc.org/land/use/down/down.pdf>

<sup>5</sup> American Petroleum Institute. "Measuring the Economic and Energy Impacts of Proposals to Regulate Hydraulic Fracturing." June 2009. <http://www.api.org/policy/exploration/hydraulicfracturing/upload/IHS-GI-Hydraulic-Fracturing-Natl-impacts.pdf>

<sup>6</sup> EcoNorthwest for the Natural Resources Defense Council. "Potential Economic Impacts of Regulations to Rein-In the External Costs of the American Oil and Natural Gas Production Industry: A Critique of Recent Reports." August 2009. [http://docs.nrdc.org/energy/files/ene\\_09091001b.pdf](http://docs.nrdc.org/energy/files/ene_09091001b.pdf)

<sup>7</sup> United States House of Representatives, Committee on Energy and Commerce, Subcommittee on Energy and Environment. January 20, 2010. [http://energycommerce.house.gov/index.php?option=com\\_content&view=article&id=1873:the-exxonmobil-xto-merger-impacts-on-us-energy-markets&catid=130:subcommittee-on-energy-and-the-environment&Itemid=71](http://energycommerce.house.gov/index.php?option=com_content&view=article&id=1873:the-exxonmobil-xto-merger-impacts-on-us-energy-markets&catid=130:subcommittee-on-energy-and-the-environment&Itemid=71)

<sup>8</sup> Energy and Environment Daily. "U.S. fracking regulation won't halt 'shale gale' – report." March 10, 2010. <http://www.eenews.net/public/eenewspm/2010/03/10/1>

<sup>9</sup> U.S. Environmental Protection Agency. "Study to Evaluate the Impacts to USDWs by Hydraulic Fracturing of Coalbed Methane Reservoirs- Executive Summary." June 2004. [http://www.epa.gov/OGWDW/uic/pdfs/cbmstudy\\_attach\\_uic\\_exec\\_summ.pdf](http://www.epa.gov/OGWDW/uic/pdfs/cbmstudy_attach_uic_exec_summ.pdf)

<sup>10</sup> Wilson, Weston. "Dear Senators Allard and Campbell and Representative DeGette." October 8, 2004. <http://www.earthworksaction.org/pubs/Weston.pdf>