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## Hydraulic Fracturing and the Impact to Drinking Water Supplies

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The drilling technique of Hydraulic Fracturing has allowed natural gas producers to extract natural gas economically from deep shale formations. This innovative drilling technique has made enormous quantities of natural gas available in wide areas of the United States from Texas, Louisiana, Pennsylvania, New York, Wyoming, North Carolina, and Colorado. The drilling technique of hydraulic fracturing accounts for roughly a quarter of total natural gas production in the United States as cited by the Energy Information Administration. With the increased emphasis on the use of natural gas in our federal energy policy, there will be new regulations, processes, and resources that will be required to mitigate the risks to human health and the environment from this new drilling technique.

Hydraulic fracturing or “fracking” is a practice associated with unconventional natural gas development involving the high-pressure injection of water, sand, and chemicals deep underground to break up rock and shale formations and release deposits of natural gas. Exploration companies operating in shale and rock formations can drill 3,000 feet down vertically, and then drill horizontally for over 5,000 feet. Upon completion of drilling operations, 3 to 5 million gallons of water and fracking fluid is injected into the well at high pressure. This mixture of water, sand, chemicals, and pressure breaks up the shale rock and opens fissures that convey natural gas to the surface. A recent study of the fracking fluid conducted by the Endocrine Disruption Exchange has so far identified 65 chemicals that are probable components of the fracking fluids used by rock and shale formation drillers. These chemicals included benzene, glycol-ethers, toluene, 2-(2-methoxyethoxy) ethanol, and nonylphenols. All of these chemicals are toxic.

The fracking process has been known to create environmental problems such as contaminating groundwater that supplies communities with their drinking water, vapor intrusion of natural gas and chemicals into homes, and air pollution. Sources of air pollution come from the release of natural gas associated with flow back and drill out processes. Congress exempted fracking operations from regulations under the Safe Water Drinking Act, except where drillers use diesel fuel in the fracking fluid. The use of diesel fuel as a component of the fracking fluid requires the issuance of permits. Recent developments on the State and local levels include efforts to ban drilling within their jurisdictions or to require disclosure of the chemical components of the mixture. There are recent allegations of drinking water supplies being polluted with radioactive elements such as Uranium from drilling waste water and it appears that at least some surface water systems in Western Pennsylvania may be impacted by hydraulic fracturing in the Marcellus Shale region.

We invite you to learn more about the subjects of safe drinking water, toxicology, and industrial hygiene by clicking on the links below. Robson Forensic is a leading firm of forensic experts who provide investigation, analysis, reports, and testimony where technical and scientific answers are needed to help resolve both civil and criminal litigation and insurance claims.

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