Press Releases

Fracking fluid consists almost entirely of water, sand

New JLF report targets chemical content of hydraulic fracturing

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Click here to view and here to listen to Jon Sanders discussing this policy report.

RALEIGH -- Roughly 99 percent of the fluid used in the hydraulic fracturing process consists of water and sand. Most of the rest of the chemicals used in fracking are found in common household products. A new John Locke Foundation Spotlight report highlights these and other facts about fracking's chemical composition.

"While almost all of the fluid used in the hydraulic fracturing process is either water or sand, some people have raised questions about the blend of chemical additives that make up the rest of the fluid," said report author Jon Sanders, JLF Director of Regulatory Studies. "What are the chemicals? How dangerous are they? How risky is it to inject them into the ground?"

Sanders is issuing his research as the N.C. Mining and Energy Commission continues to gather public comment about proposed state fracking rules. A fourth public hearing on the rules is scheduled Sept. 12 in Cullowhee. Sanders' new report is based on a more extensive Policy Report examining the most common questions and myths surrounding fracking.

Fracking is a time-tested process, Sanders reports. "Hydraulic fracturing has been used since the 1940s, and more than 1 million wells have used the technique safely," Sanders said. "Numerous academic, federal, and state studies have found no link between hydraulic fracturing and groundwater contamination."

The report cites as evidence a 2004 U.S. Environmental Protection Agency study involving coalbed methane wells, a 2009 report tied to the Interstate Oil and Gas Compact Commission, sworn 2011 testimony from the Obama administration's EPA administrator, and a 2013 finding from the U.S. Department of Energy.

"The DOE study, still ongoing, is the first to use tracers in the fracturing fluids to see if they migrate back up, "Sanders said. "Fluids were injected 8,000 feet underground, and monitoring zones were established at 3,000 feet -- about a half-mile beneath drinking water aquifers. In a year, the fracking fluids had not been detected at the monitoring zones. If fluids are not migrating back up, they are certainly not threatening to get into streams, lakes, or drinking water."

Sanders addresses concerns about so-called "flowback" of material pumped into hydraulic fracturing wells, and he discusses the importance of proper well construction.

"The process of hydraulic fracturing is not intrinsically dangerous," he said. "A growing consensus among energy companies, state regulators, academics, and environmentalists is that the safety issue rests in well construction. That is good news. It means safe drilling is achievable through proper regulation and companies' due diligence."

The chemicals added to water and sand serve a particular purpose in fracking, Sanders said. "The hydraulic fracturing process includes a blend of chemical additives used to condition the water, prevent well-casing corrosion, control the fluid pH levels, kill bacteria, and more."

Most of these chemicals are also found in typical household products, including soaps, makeup, and hair-care products, Sanders added. "That means they are chemicals people already willingly encounter daily and safely," he said. "They include chemicals used in consumer products for homes, pets, and yards."

An energy company might have a proprietary or patent-pending blend of chemicals it regards as a trade secret not to be shared with competitors, Sanders said. That does not mean the chemical composition linked to fracking operations will remain completely hidden.

"State law requires companies to disclose chemicals used in their fracking operations to several state officials and agencies, including the Mining and Energy Commission, the Department of Environment and Natural Resources, the state geologist, state health director, and the Division of Emergency Management," he said. "The law also requires immediate disclosure to first responders and medical personnel in the event of an emergency."

Draft state fracking rules now under consideration would require further disclosure, Sanders said. "Under the draft rules, chemicals would be disclosed to the Chemical Disclosure Registry at FracFocus, a website managed by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. FracFocus give the public factual information about groundwater protection and hydraulic fracturing chemicals. It also gives reports on chemicals used in individual wells. Ten states already use FracFocus for official state disclosure."

Exploration for and recovery of natural gas in North Carolina holds the promise of job creation, wealth creation, revenue generation, and a new domestic industry in the state, Sanders said. "Because North Carolina is a latecomer to hydraulic fracturing, the state is well-positioned to learn from other states' experiences, use state-of-the-art technologies, and adopt the best legal and regulatory practices."

Jon Sanders' Spotlight report, "The Chemicals in Fracking Fluids: Earth and water, you'll find plenty of both down there," is available at the JLF website. For more information, please contact Sanders at (919) 828-3876 or jsanders@johnlocke.org. To arrange an interview, contact Mitch Kokai at (919) 306-8736 or mkokai@johnlocke.org.