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New Study Shows No Evidence of Groundwater Contamination From Fracking, But Doesn't Quite Let Shale Gas Off the Hook

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Tower drilling into the Marcellus Shale in Lycoming County, PA (Source: Wikimedia Commons)

Despite claims of polluted drinking water because of fracking throughout the United States, a new study [1] shows little or no evidence of groundwater contamination as a result of the gas extraction method. The study, released Feb. 16 by the Energy Institute at The University of Texas at Austin, found that many concerns associated with hydraulic fracturing (such as groundwater contamination) are related to processes common to all oil and gas drilling operations.

The study examines evidence from reports of groundwater contamination in three prominent hydraulic fracturing sites—the Barnett Shale in North Texas, the Marcellus Shale in Pennsylvania, New York and portions of Appalachia, and the Haynesville Shale in western Louisiana and northeast Texas. Released at the annual meeting of the American Association

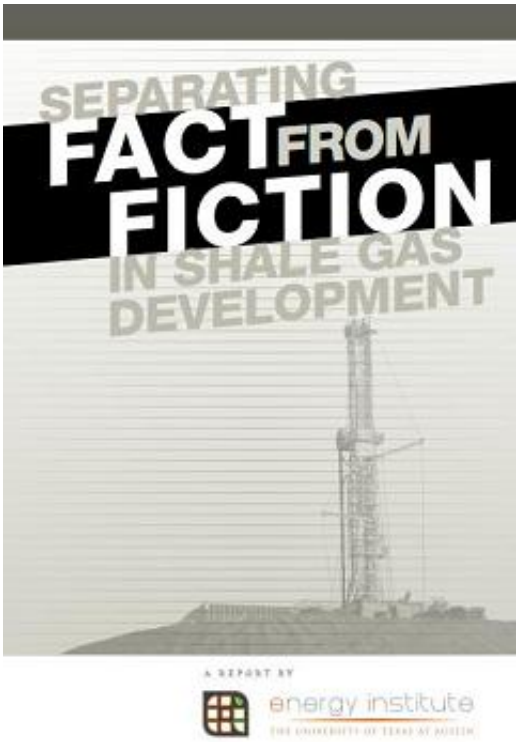
for the Advancement of Science in Vancouver, British Columbia, the study shows that many reports of contamination of groundwater aren't unique to fracking, but can be traced back to spills above-ground or mishandling or wastewater.

"I think we refuted the sense that hydrofracking liquid was going to leak up into the shallow groundwater that people drink," said Charles Groat, an Energy Institute associate director who led the project.

Hydrofracking, or hydraulic fracturing, is a controversial method of natural gas extraction in which a mixture of water, sand, and some 336 chemicals are pumped into the ground to fracture shale deposits 5,000-20,000 feet below the surface, releasing gas for collection. Many environmental groups believe the water, sand, and chemical mixture can contaminate groundwater—possibly threatening local water supplies.

Though the report disproved these claims, Groat stressed that shale gas development has the potential to contaminate water in other ways.

"If there was a spill on the surface, if there was a casing failure, if there was a leak in the wastewater pond…the potential there for those flows to get into water is more worrisome than the hydrofracking itself," he said.



The study "Fact-Based Regulation for Environmental Protection in Shale Gas Development" was published online Feb. 16. (Source: The Energy Institute)

The report's findings may or may not conflict with an Environmental Protection Agency investigation of the Pavillion, WY, groundwater. In the draft report of the investigation published in December, the EPA found that "samples taken from the Agency's deep monitoring wells in the aquifer indicates detection of synthetic chemicals, like glycols and alcohols consistent with gas production and hydraulic fracturing fluids, benzene concentrations well above Safe Drinking Water Act standards and high methane levels," according to an agency press release [2]. The new Energy Institute report suggests contamination like this could be caused by above-ground spills or other accidents of shale gas development instead of fracking.

Two days before the new study's release, Interior Secretary Ken Salazar announced that natural-gas drillers will be required by federal rules to inspect their wells after hydraulic fracturing on public land to ensure drinking water has not been contaminated, according to Bloomberg [3]. But because of the Energy Institute's findings, it's likely proposed federal laws will face further scruitiny from House Republicans.

Though his team's findings could be considered positive, Groat isn't concerned about gas companies using the report to promote the industry and stop regulations.

"I think that if they read the report and really look at the evidence, they'll see that we haven't said there's no problem with shale gas development. The problems shale gas development faces are much like the problems conventional gas companies face," Groat said.

In addition to assessing groundwater contamination concerns, the report identifies regulations

related to shale gas development and analyzes public perceptions of hydraulic fracturing using popular media, scientific literature, and an online survey of residents in the Barnett Shale area. The survey found that, of 1500 respondents, 40 percent believed fracking was negative for the environment.

The Energy Institute funded the study and the Environmental Defense Fund assisted in developing its scope and methodology.

In a blog post [4] published Feb. 16, Scott Anderson, Environmental Defense Fund's senior policy advisor, noted the lack of evidence of groundwater contamination from fracking, but added that that doesn't mean contamination is impossible.

“The report deserves widespread attention. But it is by no means the final word on these topics,” Anderson said.

Hugh MacMillan, a senior researcher at the environmental non-profit Food & Water Watch, was skeptical that the report definitively proved there was no link between groundwater contamination and the fracking process because it dismissed long-term risk to aquifers from migrations of fracturing fluids.

“The fracking wastewater that stays underground indefinitely is subject to geological forces and chemical processes that are beyond anyone's control,” MacMillan said in an email. “Decades from now, the risk may well be clearly defined by the clear contamination of aquifers, but then the damage will be irreversible. The uncertainty over fracking's potential to contaminate aquifers is precisely why the risk cannot be dismissed.”

In that vain, the Energy Institute will begin a detailed case study in April, focusing exclusively on claims of groundwater pollution in North Texas’ Barnett Shale. Another project currently under development would include an investigation the connection between water in the units above and below the shale unit being fractured as a result of the extraction method.

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