

QUESTIONS AND ANSWERS ABOUT HYDRAULIC FRACTURING IN MICHIGAN

What is hydraulic fracturing?

Hydraulic fracturing (or “fracking”) is the process of pumping a mixture of water, sand and a small amount of chemicals into an oil or gas formation deep underground. The fluid pressure fractures rock layers, releasing oil or gas reserves. The sand holds the fractures open to continue allowing the oil or gas to flow into the well. After fracturing, gas or oil flows back to the well head at the surface, bringing with it the fracturing fluid that was pumped along with natural brines that are present in the deeper layers. That “flowback” water is separated from the gas and oil at the surface, contained in steel tanks, and sent to deep injection wells for disposal.

Is hydraulic fracturing necessary?

Traditional gas and oil development involves drilling into rock formations that allow oil and gas to flow freely through the rock and into a well bore. Hydraulic fracturing technology allows for development of “tight” rock formations that contain oil or gas but do not allow it to flow into a well without this technology. Hydraulic fracturing has dramatically increased the production of oil and gas in the United States, lowered energy costs for consumers, and reduced the need for imported energy supplies.

Is hydraulic fracturing new?

No. Gas and oil developers have been using hydraulic fracturing around the country since the late 1940s. However, in recent years hydraulic fracturing has increasingly been used in conjunction with horizontal drilling, requiring larger volumes of fracturing fluid. Hydraulic fracturing has been used in Michigan since 1952. Approximately 12,000 wells have been fractured, about 40 of which were high-volume horizontal wells.

I’ve heard “horizontal” fracturing is different. Is it?

In past years, most hydraulically fractured wells in Michigan targeted natural gas reserves ranging up to 2,000 feet below the surface. Energy companies more recently have started to target deeper deposits using horizontal drilling. The process for fracturing the wells remains the same, but the size of the operations and volumes of fluid have increased significantly. However, one typical deep horizontal well can replace 10 to 20 vertical wells, reducing the footprint on the landscape.

Has hydraulic fracturing caused environmental damage in Michigan?

Oil and gas development, like all human activities, is not risk-free; however, hydraulic fracturing itself has never caused environmental damage in Michigan. A recently-released draft of a nationwide study by the U.S. Environmental Protection Agency found no evidence that hydraulic fracturing has led to widespread, systemic impacts on drinking water resources in the United States. The study did not identify any problems in Michigan.

How do Michigan regulations protect the environment?

Michigan has strict rules on water use for fracturing, well construction to protect groundwater, spill containment and cleanup, and containment and disposal of wastewater. These are the four top risks from gas and oil development. The DEQ has developed a regulatory structure that has effectively protected Michigan’s environment

and public health for many decades, and it is continually updated to address new technologies. Michigan's hydraulic fracturing regulations were most recently updated in March, 2015.

What kinds of chemicals are used?

About 99.5% of a typical hydraulic fracturing fluid mixture is water and sand. The remaining half percent consists of chemical additives to enhance the fracturing process, some of which can be harmful if allowed to escape into the environment. Michigan has strict requirements for containment and management of chemicals, and requires companies to post the additives on a nationwide public internet registry (see <http://fracfocus.org>).

Does hydraulic fracturing cause earthquakes?

Hydraulic fracturing itself is not associated with earthquakes except for a few rare instances of low-intensity events in other parts of the world. However, disposal of oil and gas waste fluids in deep injection wells *has* been identified as causing earthquakes under specific conditions in other states. Michigan is not prone to such earthquakes, but the DEQ continues to monitor the situation and evaluate prospective injection wells accordingly.

I saw a video where someone lit their tap water on fire. Is that from hydraulic fracturing?

No. There have been a few rare cases where gas from drilling operations has escaped into fresh water aquifers; however, that was caused by improper well construction, *not* hydraulic fracturing. Where gas occurs in water wells, it is almost always from natural pockets of methane gas. Over time, gas seeps into the water well and is transmitted into the home. It has been documented in Michigan public health advisories dating back to the 1960s. It has never been associated with hydraulic fracturing.

Has hydraulic fracturing in other states polluted rivers?

The actual process of hydraulic fracturing has not polluted rivers. However, in other states flowback water had been trucked to local wastewater plants for treatment and then discharged to surface waters. The wastewater plants were not equipped to remove naturally occurring salts from the water. Michigan regulations do not allow this; flowback water must be contained in steel tanks and sent to deep injection wells for disposal.

Does use of water for horizontal fracking interfere with water availability?

No. Oil and gas companies are subject to the same requirements as other users of large volumes of water—they must first evaluate the potential effects of the withdrawal using a computer program Michigan regulators designed to track and measure water use and protect local aquifers. If it appears that a proposed use may put dangerous stress on local water supplies, the withdrawal request is denied. Michigan's water withdrawal assessment tool is a nationally lauded environmental protection technique. Learn more about it at <http://www.miwwat.org/>

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