

WASTEWATER (FLOWBACK) FROM HYDRAULIC FRACTURING

Hydraulic fracturing (sometimes called fracing) has been used since the 1950s in Ohio as part of the oil and gas drilling process. About 80,000 wells have been drilled in Ohio using hydraulic fracturing.

After a well is drilled, a mixture of water, sand and chemical additives is injected under pressure to fracture the shale reservoir, which enhances the flow of oil and gas for collection.

Most of the water used in fracturing remains thousands of feet underground, however, about 15-20 percent returns to the surface through a steel-cased well bore and is temporarily stored in steel tanks or lined pits. The wastewater which returns to the surface after hydraulic fracturing is called flowback.

- It can take 4 million gallons or more of water to complete a multi-staged hydraulic fracturing stimulation for a horizontally drilled shale well, compared to 4-5 million gallons used weekly by an average golf course.
- Sand helps to keep the fractures open which enables the natural gas to migrate through the shale reservoir to the steel-cased well bore to reach the collection point.
- Chemical additives typically make up a small amount of the fluid used. Benefits provided by these chemicals include preventing corrosion and eliminating friction. Most additives have other common uses including water treatment and household cleansers.

In Ohio, oil and gas operators must either recycle their wastewater or inject it into Class II injection wells which lay thousands of feet underground below the water table. Permits for these types of wells are closely regulated by the Ohio Department of Natural Resources (ODNR), Division of Oil and Gas Resources Management.



An on-site impoundment is one option for temporary freshwater storage prior to hydraulic fracturing.



Shale drill sites use a series of stainless steel tanks to collect flowback from hydraulic fracturing.



Steel tanks used to contain liquids.



Additional Resources

Ohio EPA:
epa.ohio.gov

Penn State Marcellus Center:
marcellus.psu.edu

Frac Focus:
fracfocus.org

Ohio Department of
NATURAL RESOURCES
Division of Oil and Gas Resources Management
oilandgas.ohiodnr.gov