

What is Hydraulic Fracturing?

Important Questions, Important Answers

Hydraulic fracturing, or “fracking,” is one of the most important and widely used methods of producing oil and natural gas around the world.

The following information provides a closer look at fracking and how it has been safely used by the oil and gas industry for more than 60 years.

Why is fracking so important to the oil and gas industry?

Fracking is the process of creating small cracks in underground geological formations located thousands of feet beneath the surface to allow oil or natural gas to flow into the well and up to the surface. This process is used in the majority of natural gas wells drilled worldwide today. Without horizontal drilling and fracking, the oil and natural gas found deep in shale rock formations such as those in the Eagle Ford would be uneconomical and unrecoverable.

How does fracking work?

Shale reservoirs consist of oil and gas trapped within poorly connected pores in the rock layers. During the fracking process, a liquid mixture, which is generally made up of 90% water, 9.5% sand and 0.5% chemicals (found in everyday products such as dish soap), is pumped into the shale formation under high pressure to create small fractures allowing the oil and natural gas to flow more easily into the well. The sand remains underground and prevents the fractures from closing, allowing the oil and natural gas to flow into the well.

Shale reservoirs in the Eagle Ford are generally between 6,000 and 15,000 feet below the earth’s surface, while underground water aquifers are typically less than 500 feet below the earth’s surface. The fluid from the fracture stimulation is contained at the depth of the reservoir by the same rock layers that contain the oil and natural gas and prevent it from leaking to the surface. In addition, wells are lined with steel casing and cement to prevent any leakage of oil and natural gas or other materials into shallow formations.

The water used in fracking is often far cleaner than what is found underground at the depth of the reservoir. The small percentage of additives used in fracturing, such as gels or surfactants, are typically similar to those found in household cleaners or other household chemicals.

But aren’t you drilling through the water table?

Yes, that’s true. The fundamental way to protect drinking water is through managing the well’s integrity. It is important to realize that the well is completely sealed off from the aquifer with two or more steel and cement casings or liners, which are monitored for integrity prior to and during the fracture stimulation. These casings are pressure tested before a fracking job to ensure they do not leak, and they are monitored for pressure buildup during the process. As a result of these extensive precautions, fracking has been proven to protect underground drinking water and any structures at the earth’s surface.

Marathon Oil has great respect for the environment and environmentally sensitive areas. The facts are that fracking is a safe procedure that has been used for more than 60 years on more than 1 million wells with great success.

What will a drill site look like?

A typical site would include a gravel-covered drilling pad on a cleared area of about 250,000 feet square with an access road and possibly some electrical lines. Pipelines would connect to two or three storage tanks with a dike surrounding them to contain the tank's contents in the unlikely event of a tank leak. The entire area is enclosed by fencing.

Is there any risk of explosion?

Safety is a fundamental priority at all times during operations. The risk of an explosion associated with a fracking operation is extremely low. Marathon Oil uses specialized equipment to prevent uncontrolled flow to the surface of the well, and workers are trained to prevent accidents and maintain well control.

How long will the well be there?

The tall drilling derrick is on the site for about four to five weeks. If we discover oil and natural gas and develop the reservoir, the production well and associated equipment can be there anywhere from 20 to 50 years.

Will it be noisy? What about traffic?

There is some noise involved in fracturing, which lasts two to three days, and drilling, which can last for several weeks. Marathon Oil uses equipment designed to minimize noise and erects noise barriers as appropriate. Once these operations are complete, noise levels are minimal.

Truck traffic in the area will be heaviest during the drilling and completion phases and then decrease through the production life of the well. Marathon Oil expects its drivers and those with the service companies we will use to drive safely, be courteous and follow all regulations.

What about lighting?

Lights are on at all times during drilling. This lessens considerably during the completion phase. Lights are largely for security purposes in the maintenance phase of the well.

How many people will there be on site and where will they come from?

During the drilling phase, the operation is 24 hours a day, seven days a week. Around 15 people would be on location on average, some living in trailers on site and others coming in from neighboring towns. In the completion phase, activity at the site is less continuous. Drilling typically takes four to six weeks, and completion of the well takes between two and three months.

People working on a well will likely include those from both inside and outside the community, depending on their skills. The additional people working in the area provide positive economic benefits for local businesses, many of whom experience increased sales of their products and services.

Who do I contact if I have problems or questions?

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