

# Reaching Natural Domestic Energy

**Hydraulic Fracturing is a part of the process used for extracting energy sources from underground, such as natural gas, oil, and geothermal energy from the earth's crust.**

## Drilling for Energy

After deposits have been identified through a series of exploratory processes, the drilling process begins. Figure 1 shows the relative depth of a natural oil/gas well compared to a municipal or domestic well. The natural oil/gas well extends well beyond the aquifers used for drinking water.

The well is drilled and set using a variety of layers of steel casing and cement to ensure no leaks and groundwater contamination occur within the well. See Below.

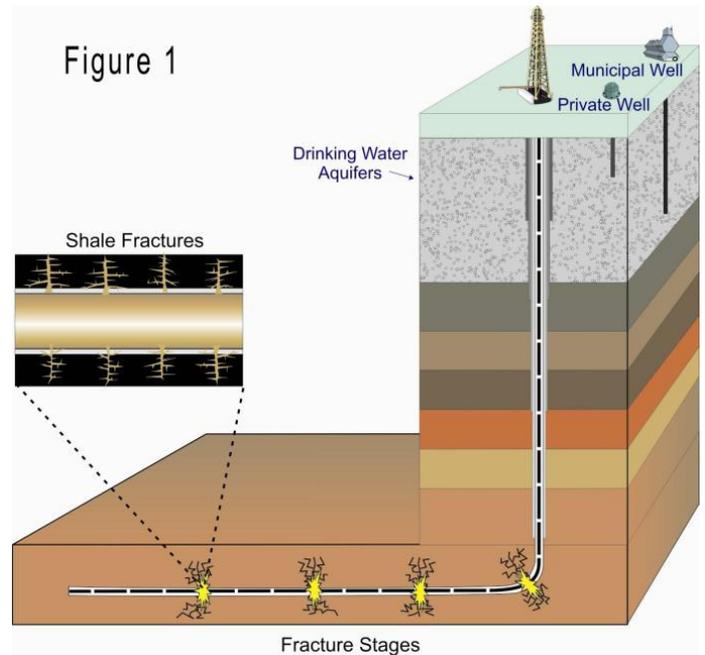


Illustration from Environmental Protection Agency's Hydraulic Fracturing Research Study Fact Sheet—June 2010

## Hydraulic Fracturing

A mixture of 98% water and sand and 2% additives is pumped down the well at high pressures. This creates fracturing of the rock within the deposit. This process is monitored to ensure that pressures remain safe for the well casings. The monitoring process also allows for maximum fracturing of the rock.

Once fracturing is complete, the fluids for the fracturing process are brought back to the surface for disposal, treatment, or re-use. The sand is left in place holding the fractures open for flow of natural oil/gas.

Hydraulic fracturing processes reduce the number of wells needed to access deposits of natural oil/gas, lessening environmental impact of additional wells, pipelines, and roads.

Information from John Menghini, Deputy State Director, Fluid Minerals, Bureau of Land Management Nevada State Office—February 2013

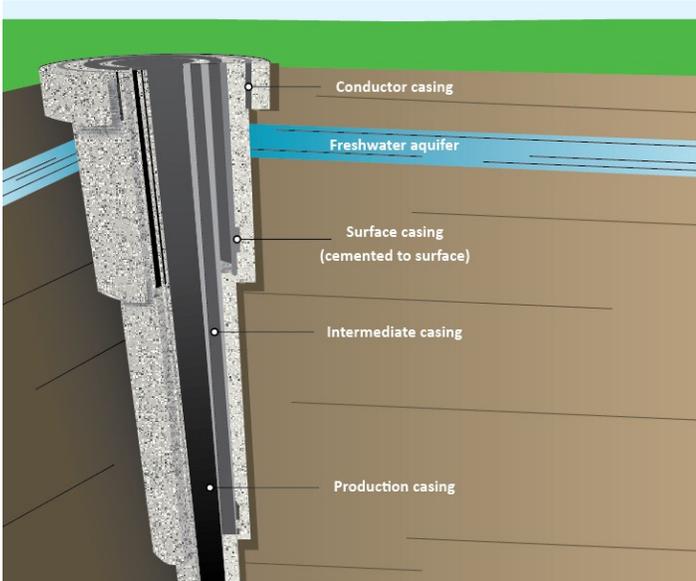


Illustration by Northern Territory Government Australia: Department of Mines and Energy: What is Hydraulic Fracturing webpage [http://www.nt.gov.au/d/Minerals\\_Energy/index.cfm?header=What%20is%20Hydraulic%20Fracturing?](http://www.nt.gov.au/d/Minerals_Energy/index.cfm?header=What%20is%20Hydraulic%20Fracturing?)—March 2012

Once the vertical portion of the well is drilled, the horizontal section is drilled and perforated steel casing is placed to allow the hydraulic fracturing process to take place and to allow flow of natural oil/gas to the surface. The length of the horizontal wellbore can be completed in stages.