

“Fracking with Nitrogen”



What is nitrogen gas fracking?

Nitrogen gas fracking involves switching out the working fluid in the fracturing process. Some or all of the fluid used in hydro-fracking is replaced by nitrogen gas which can fracture rock at high pressures, much like water.

Three main types of nitrogen gas fracking can be identified based on the percentage and the state of nitrogen used in the fluid.

Types of nitrogen fracking

Pure Nitrogen Fracking:

Pure nitrogen fracking uses almost pure nitrogen with only a very small percentage of water. This type of fracturing is best suited for shallow water sensitive formations because it does not cause clay swelling like other processes that use water based frac mixtures. The low viscosity of nitrogen also makes it ideal for fracking shallow/brittle shale formations that have neutral fractures and stay self propped once pumping is complete.

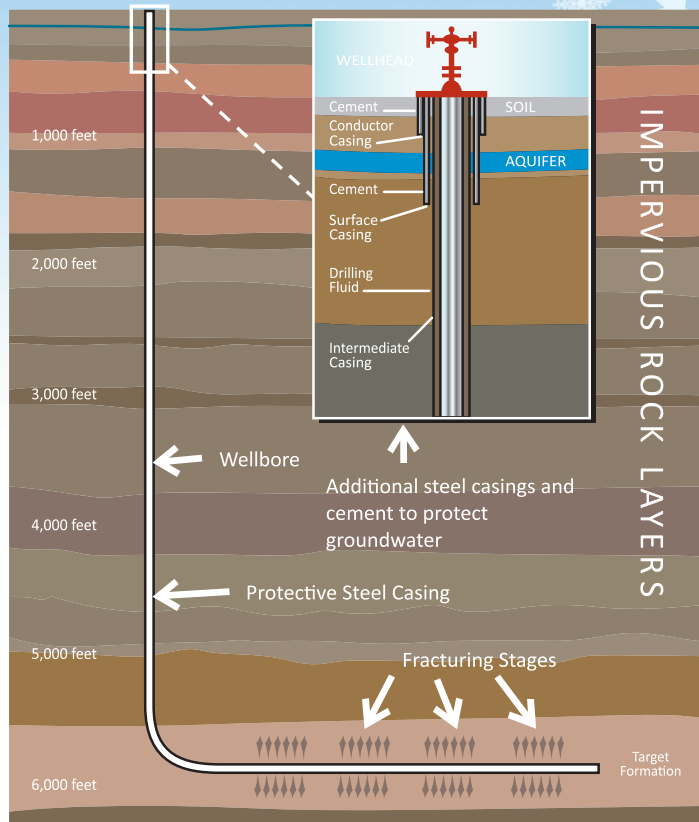
Nitrogen Foam Fracking:

This process uses nitrogen that is mixed with water and other additives that are then cooled to form denser foam-like liquid. The mixture consists of somewhere between 50% - 95% nitrogen gas depending on the proppant and formation characteristics. The higher density and viscosity also make this a better proppant carrier which is capable of fracturing at greater depths than pure nitrogen fracking.

Nitrogen Energized Fracking:

The amount of nitrogen in this process is made up of less than 53% nitrogen, with the remaining fluid being made up of water and small amounts of chemical additives. The nitrogen is used to energize the liquid phase fluid, increasing flow back (less water remains trapped in the ground during fracturing of low pressure formations). Nitrogen energized fracking is also capable of being used at greater depths than either pure nitrogen fracking and foam fracking (about 8,000 ft.).

As Regulatory agencies discourage on hydraulic fracturing and the capabilities of horizontal drilling continue to advance, the demand to use nitrogen to fracture wells with less water is increasing. Although the cost of water is relatively inexpensive, the cost of properly handling and disposing the recovered frack fluid is not. By replacing the fluid volume with Nitrogen, the total volume of water needed is reduced. With Nitrogen being a component of the atmosphere, it has the perfect characteristics to be used for fracturing.



Frac Formation

These benefits include: Nitrogen is inert, non-flammable, environmentally friendly, creates an energized fluid through volume expansion, and can also be used for clean out and purging of the well. Because of these benefits, Nitrogen is seen as a clean substitute for traditional fracking methods.

For additional information go to www.cryoquip.com.

Frac Spread

