HOW IT WORKS

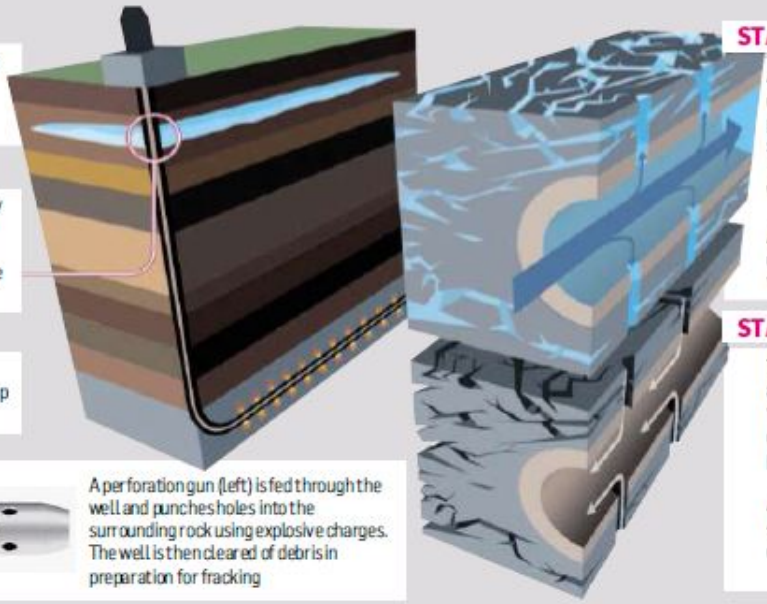
STAGE 1

It takes around a month to drill down to the gas-rich shalebeds that lie between one and two and a half kilometres beneath the surface

Freshwater aquifers, which typically lie no deeper than 100 metres underground, are protected from possible pollution from the wellbore by triple-layered steel casings

The well is turned and drilled horizontally into the shale layer for up to three kilometres

A perforation gun (left) is fed through the well and punches holes into the surrounding rock using explosive charges. The well is then cleared of debris in preparation for fracking



STAGE 2

A mixture of water, sand and chemicals is pumped into the well to a pressure of around 1,500 lbs per square inch. This forces the rock apart, releasing the gases stored within its pores

An average well will use up 20,000 cubic metres of water, around 500 tankers' worth

STAGE 3

The liquid is pumped out of the well and the remaining sand keeps the fractures open, allowing gas to seep out of the broken shale layer to be piped to the surface

A well can remain productive for 20 to 40 years, pumping out thousands of cubic metres of gas every day

Source: Graphic News, Environment Agency