

Facts about fracking

Protecting water

Shale gas is the same as the gas we use in our homes for heating and cooking. The difference between shale gas and other sources of natural gas is that it is more difficult to extract because it is trapped in impermeable shale rock. Injecting a water mixture into the rock creates small fractures, about the size of a grain of sand, allowing the shale gas to flow into a well.

Sand is added to the injected water, to keep the fractures open. A small amount of chemical (about 0.5% of the total volume of liquid) is also added to the water to reduce friction. This mixture of water, sand and chemicals is known as fracking fluid.

Will fracking contaminate our water?

The Environment Agency will not permit any activity where there is a risk of contamination of our water supplies.

In England high pressure high volume fracking for shale gas is [banned at depths of less than 1000m](#). This depth is far below drinking water supplies which are typically found up to about 250 metres deep.

Shale gas deposits in this country are found at depths thousands of metres deeper than rivers, lakes and the aquifers which provide our drinking water. Above the shale rock there are many layers of impermeable rock, which will block gas or other pollutants from travelling upwards into groundwater.

The Environment Agency do not allow any oil and gas wells to be drilled in the [immediate area around a drinking water borehole](#), and will object to any proposals in the surrounding zones if there is a risk to groundwater.

Will fracking use too much water?

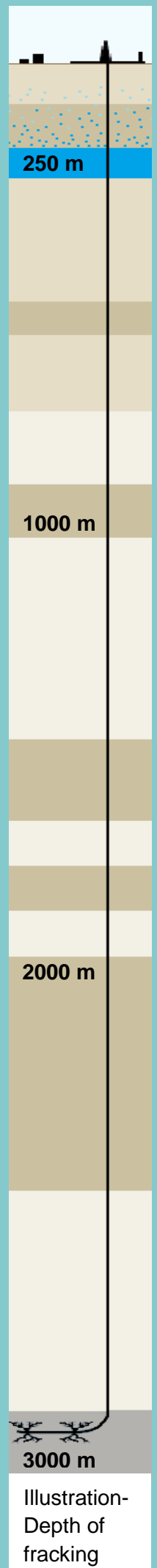
Companies will only be allowed to use water for fracking if there is enough locally without effecting drinking water supplies or the environment. During droughts, the government can stop or restrict industry from abstracting water or using mains water.



Water companies [plan](#) how they are going to meet water demand for the next twenty-five years. The Environment Agency review these plans regularly.

How much water will fracking use?

A fracking well can use 10,000 to 30,000 cubic metres of water, which is enough to fill twelve Olympic swimming pools. It is estimated by the [Institute of Directors](#) that if the industry develops the water use would be less than 1% of the total water used by households, farming and other industry.



Are companies required to monitor fractures?

Yes. Companies must ensure the fractures remain in the shale layer and do not intersect with natural faults or fissures. Companies must agree with the Environment Agency how they will monitor and report the depth of the well and the extent of fractures. This is required by the permit.

Are the wells designed to prevent leaks?

Yes. Wells must contain at least three layers of protection, made with concrete and steel, to prevent gas and chemicals leaking. Monitoring is carried out throughout the life of the well to check integrity.

What chemicals can be used in fracking fluid?

Only chemicals that are not hazardous to groundwater can be used. The names and quantities of the chemicals must be provided to and approved by the Environment Agency. Approval is determined using a [methodology](#) which is publicly consulted on and peer reviewed by the UK regulators.



Many of the approved chemicals used in frack fluids are already used by other industries, including farming, food and drinking water industry and the cosmetics industry.

What happens to the injected water?

Some of the injected fluid stays underground. The Environment Agency assess the likely impact of this during the permit application. The environmental permit contains conditions to control where the fluid is injected to ensure it stays in the shale rock.

Is there baseline data available in England?

Regulation in England requires baseline monitoring of a range of chemicals and methane in groundwater before any fracking takes place. This will mean that if there are any impacts, they can be assessed and operations could be stopped.

The British Geological Survey (BGS) is also conducting additional [baseline monitoring of groundwater](#).



Illustration- chemicals stored within a sealed area to contain any spills

What about spillages?

Well pads must be lined with an impermeable barrier. Chemicals and waste waters must be stored in sealed containers within impermeable, walled areas in case of any spillages. Operators have accident management plans setting out how any spillages will be cleaned up.

Independent scientists from the [Royal Society and Royal Academy of Engineering](#) looked at whether fracking could result in gases or chemicals escaping upwards into water sources. They concluded it was highly unlikely and that health, safety and environmental risks can all be managed in the UK.

Shale gas extraction in the UK: a review of hydraulic fracturing