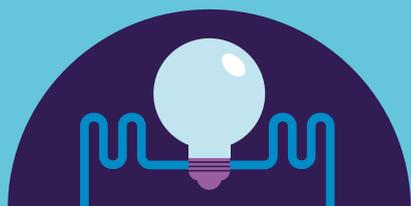


Find out more about...

Hydraulic fracturing (fracking)

Did you know?



Fracking is a proven and accepted technology used worldwide to make oil and gas wells more productive.



Hydraulic fracturing was first used in the Northern Territory in 1967.



Hydraulically fractured wells provided more than two-thirds of US natural gas production in 2015.¹



Fracking fluid contains 99 per cent water and sand and only small quantities of common chemicals².

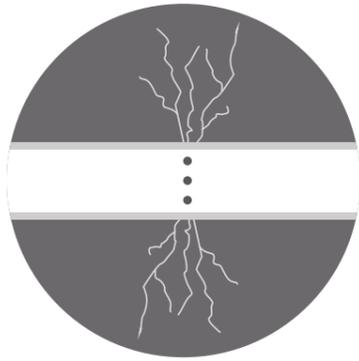


Both state and federal government in Australia strictly regulate fracking and fracking fluid.



Fracking has been used in Australia for over 50 years without incident.

+ Hydraulic fracturing is a proven technology used globally for over 60 years.



What is hydraulic fracturing?

Hydraulic fracturing, or fracking, is used to increase the flow of oil or natural gas from a well. It has been used safely around the world since 1949 in millions of wells around the world³.

Santos has used fracking to produce oil and gas in South Australia and Queensland for nearly 50 years. Hydraulic fracturing was first used in the NT in 1967 and the practice has been used consistently since the early 1980s to enhance oil and gas recovery.

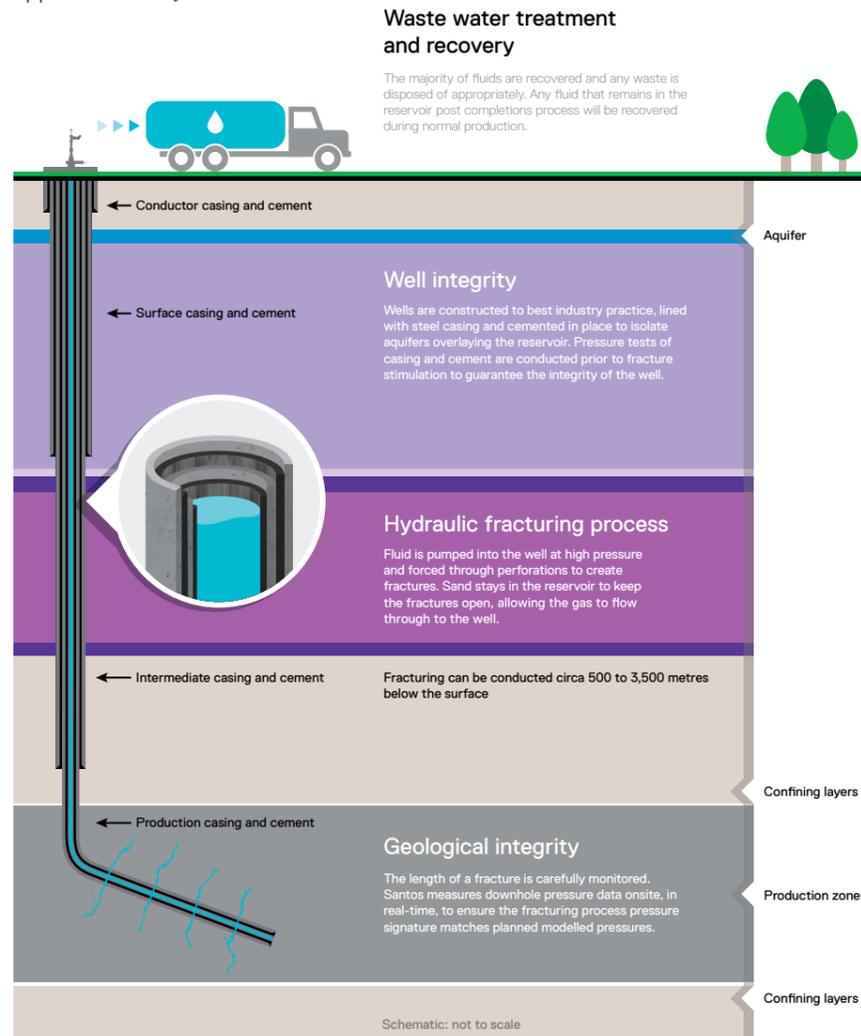
Without the recent and significant technological advances made in drilling and hydraulic fracturing, a portion of the natural gas found in coal seams would be uneconomic and unrecoverable⁴.

How does hydraulic fracturing work?

A well is drilled into an underground layer that contains oil or gas. The well is lined by steel and concrete to ensure that oil and gas bearing layers and any hydrocarbons are isolated from shallower strata, such as aquifers.

Fluid is pumped into the layer containing oil or gas at high pressure. The pressure of the fluid fractures the layer to produce tiny cracks. The fluid contains sand, to hold open the tiny cracks. This creates pathways for oil or gas to flow more easily, increasing the productivity of the well.

Some fluid is pumped back to the surface and stored in specially designed dams or tanks. The fluid is then reused in hydraulic fracturing, treated or disposed at an approved facility.



Why do you need to use fracking?

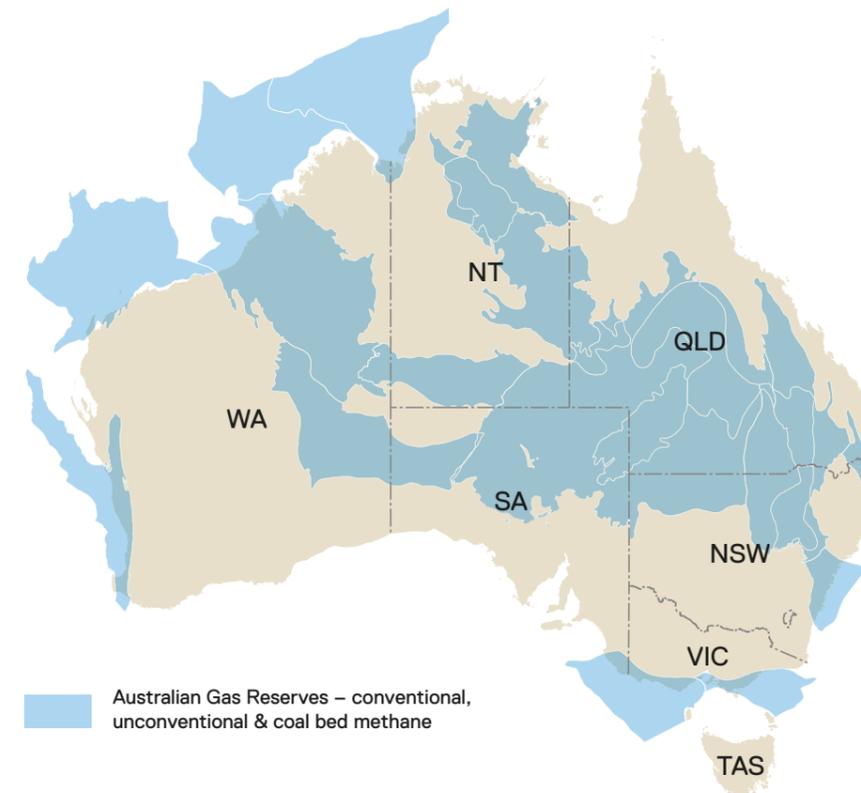
Fracking enables extraction of oil and gas trapped in tight underground layers that were not previously accessible. In this way, the increased use of fracking is providing more energy to meet growing global demand and keep prices reasonable for consumers.

Because fracking increases the flow from a well, it also means fewer wells need to be drilled to deliver the same amount of oil or natural gas. This is good news for landholders and for the environment.

How is underground water protected?

The gas bearing geological layers are over 1,000 metres below fresh water aquifers, with intervening impermeable rock layers providing a natural barrier. Layers of steel casing and cement provide a barrier between the well and any aquifers penetrated. This ensures no movement of fracturing fluid into aquifers.

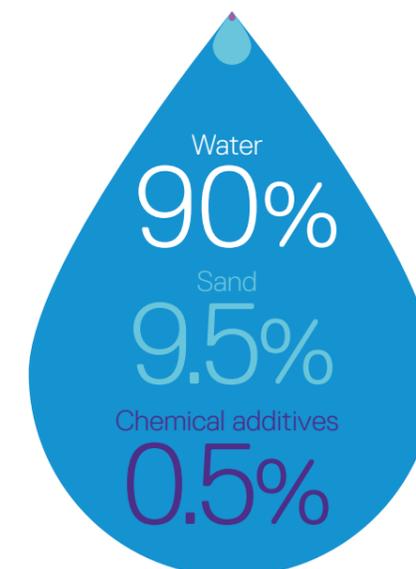
In the NT, resource companies actively exploring in the Beetaloo Basin are entering into an agreement with the CSIRO to establish a coordinated research approach into the methods and establishment of baseline values of groundwater. The work program is intended to understand and quantify the baseline levels of gas and water quality within the study area.



What's in fracking fluid?

Fracking fluid is 99 per cent water and sand. A small percentage of chemicals are also used to reduce friction, remove bacteria, dissolve some minerals and improve the transportation of sand.

The chemicals are not unique to the oil and gas industry and are found in many household products such as toothpaste, baked goods, ice cream, food additives, detergents and soap.



Santos and fracking

Santos has hydraulically fractured over 1,400 wells in South Australia, Queensland and the NT including 38 of the 44 conventional gas wells in the Amadeus Basin.

The impacts of hydraulic fracturing have been extensively measured in the Cooper Basin. Despite the repeated and false claims made by anti-natural gas activists, there has been no evidence of hydraulic fracturing activities impacting shallow aquifers. The distance between groundwater aquifers and the location of hydraulic fracturing activities is over 1,000 metres, making the potential risk of hydraulic fracturing activities reaching groundwater aquifers effectively zero.

✚ Industry references

1. US Energy Information Administration (EIA), 2016
2. What is hydraulic fracturing?, CSIRO, 2015
3. APPEA, 2015, Reference document: Hydraulic fracturing
4. CSIRO, 2015

Interested in learning more about natural gas?

Visit santos.com for more fact sheets on a wide range of gas-related topics.

Santos – An Australian Energy Pioneer

We have safely and sustainably discovered, developed and delivered natural gas to the people of Australia and Asia for more than 60 years.

As an Australian owned and operated business, we work in partnership with local communities, governments and our business partners to make natural gas an affordable and reliable energy solution for all Australians.



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