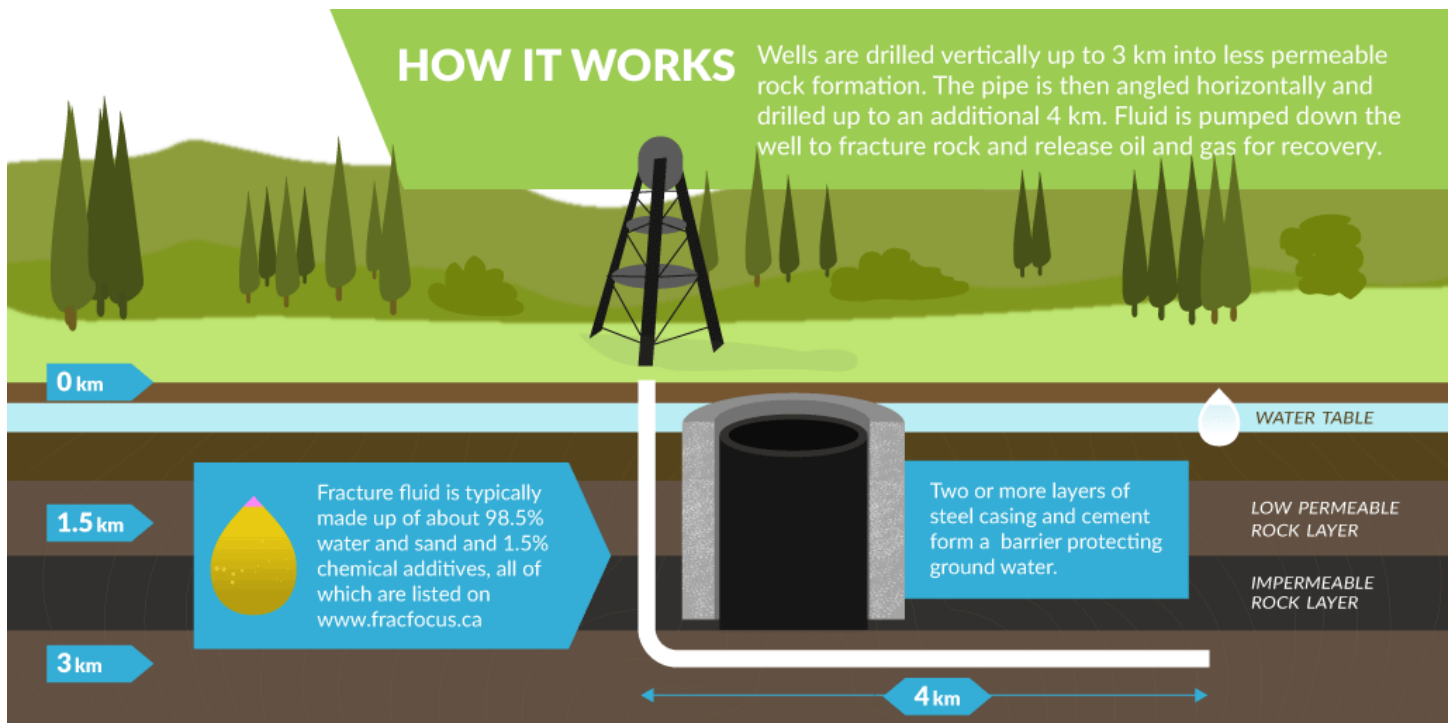


# Hydraulic Fracturing in Alberta Facts and Stats

## How it works

- Hydraulic fracturing is the process of pumping fluid down a well, into a rock formation to create enough pressure to crack, or fracture the targeted rock layer. Sand is often used to prop open these cracks so that oil and gas can flow to the drilled well bore.
- Horizontal drilling entails the use of a steerable drill-bit to drill a well along a horizontal path. Horizontal drilling can result in increased resource recovery, while reducing surface impacts, compared to vertical wells.
- Since 2013, over 80 per cent of all producing oil and gas wells in Alberta used horizontal drilling techniques.
- Multistage hydraulic fracturing combines horizontal drilling with hydraulic fracturing at multiple intervals along the horizontal portion of the well.
- The use of hydraulic fracturing is highly regulated in Alberta. Operators must adhere to strict requirements related to water usage, storage, and disposal. Operators are required to publicly disclose information on fluids used in hydraulic fracturing on the website [www.fracfocus.ca](http://www.fracfocus.ca).



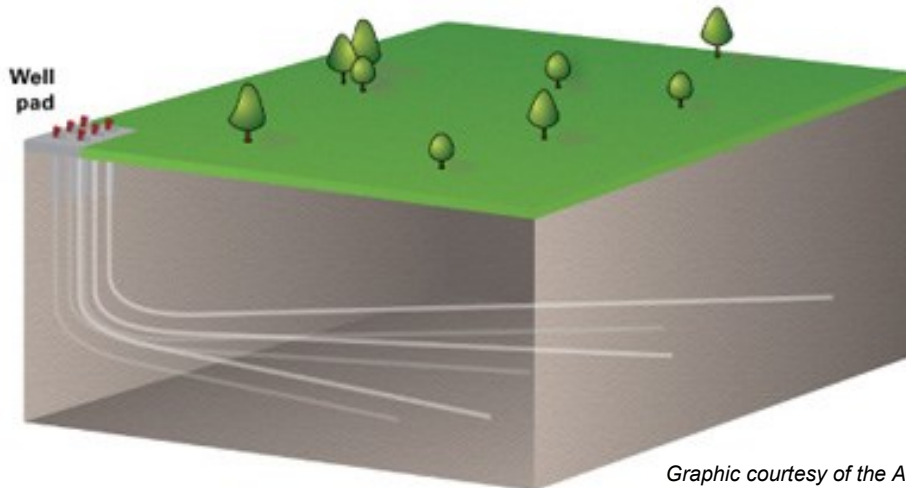
Find additional information on hydraulic fracturing in Alberta at: [www.youtube.com/watch?v=A74PLdXDIWM](http://www.youtube.com/watch?v=A74PLdXDIWM)

## History

- Hydraulic fracturing has been safely used in Alberta on more than 180,000 wells since the technology was introduced in the 1950s.
- More recently, the combination of horizontal drilling and multistage hydraulic fracturing has allowed the development of Alberta's oil and gas resources from areas that were not feasible in the past.
- Since 2014, more than half of Alberta's oil and/or natural gas wells use multistage hydraulic fracturing completion techniques.

## Benefits and safeguards

- Horizontal drilling techniques can increase resource recovery while reducing surface impacts because one horizontal well can access resources that would require several vertical wells.
- Multiple wells from one well pad further help reduce surface impacts with fewer roads and pipelines required.
- Steel casing and cementing requirements to depths below the protected groundwater zone combined with stringent operating practices help protect groundwater.
- Strict rules govern the use, storage, transportation, and disposal of fluids from hydraulic fracturing operations.
- Strict rules also limit proximity to water wells and prohibit the use of harmful fracture fluids for wells near protected groundwater zones.



*Graphic courtesy of the Alberta Energy Regulator*

## Investment

- Total investment in the oil and gas extraction sub-sector in Alberta in 2014 was approximately \$55.2 billion, of which \$21.8 billion was invested in extraction outside the oil sands.

## Employment

- Many Albertans rely directly or indirectly on the mining and oil and gas extraction industry for employment. In 2015, more than 6 per cent of Albertans were employed directly in the industry.
- Between 240 to 300 workers are required to drill and complete a typical oil and gas extraction well.