

Hydraulic Fracturing

What is Hydraulic Fracturing?

Hydraulic fracturing, commonly called “fracking,” is currently the only available technology allowing the economic and effective recovery of unconventional natural gas and associated hydrocarbons from low permeability rock formations.

To free the trapped unconventional gas, deep underground fractures are created and kept open by pumping a mixture of sand, water and a small percentage of chemical additives down the well bore at sufficient pressure to fracture the rock and drive the sand into the resulting fractures. When completed, gas and fluids flow through the created fracture network to the wellbore and then to the surface, leaving some sand in place to hold open the newly created fractures.

98% of wells that began production in 2017 were hydraulically fractured.

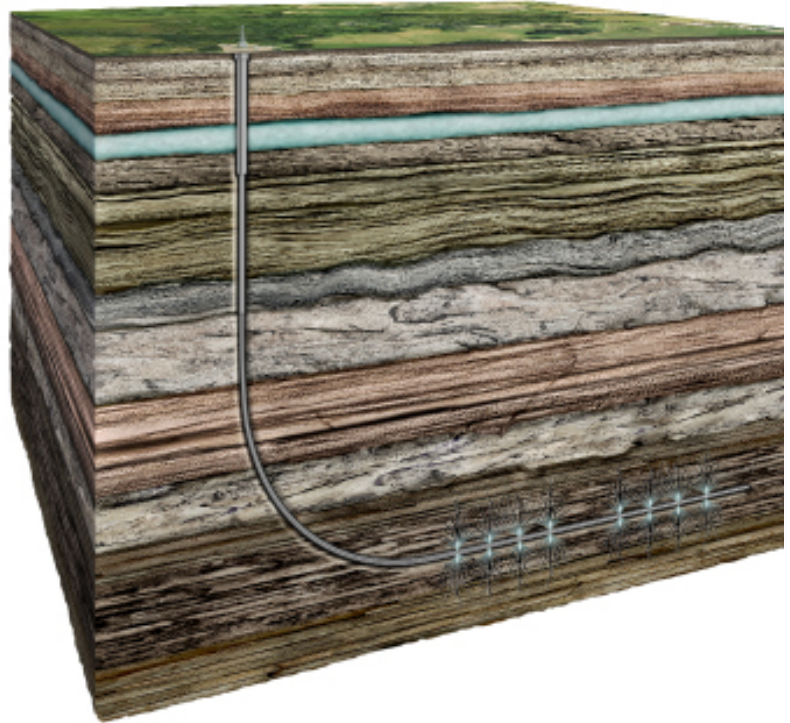


Image above shows a cross-section view of a typical well drilling path. More information on hydraulic fracturing is available at FracFocus.ca.

Why is Hydraulic Fracturing in B.C. Unique?

B.C.'s geology provides a natural advantage over other areas of the world where hydraulic fracturing takes place closer to the surface, as natural gas in B.C. is found deep underground, in some cases over four kilometres, and beneath impermeable layers of rock. The majority of these wells target the Montney geological formation, which covers approximately three million hectares northwest from the B.C.-Alberta border.

Protecting surface water and groundwater are two main priorities when it comes to regulating hydraulic fracturing. The Commission is proactively evaluating, analyzing and regulating oil and gas development.

For example, when wells are drilled in B.C., they are double-lined with cement and steel to a depth below any fresh water sources, and more protective layers are added farther underground if needed.

Natural gas producers in B.C. are required to report all fracturing fluid used. The web site www.FracFocus.ca provides Canadians with objective information on hydraulic fracturing, the legislation and regulations in place to protect the environment including groundwater, and transparency on the ingredients of hydraulic fracturing fluids. In addition, B.C. has strict laws in place for the storage and disposal of drilling and hydraulic fracture fluids with emphasis on protecting public safety and the environment.



For Further Information

Email ogc.communications@bcogc.ca or call 250-794-5200

24 Hour Incident Reporting for Industry 1-800-663-3456

This information is published by the BC Oil and Gas Commission and available online at www.bcogc.ca

How is Hydraulic Fracturing Regulated?

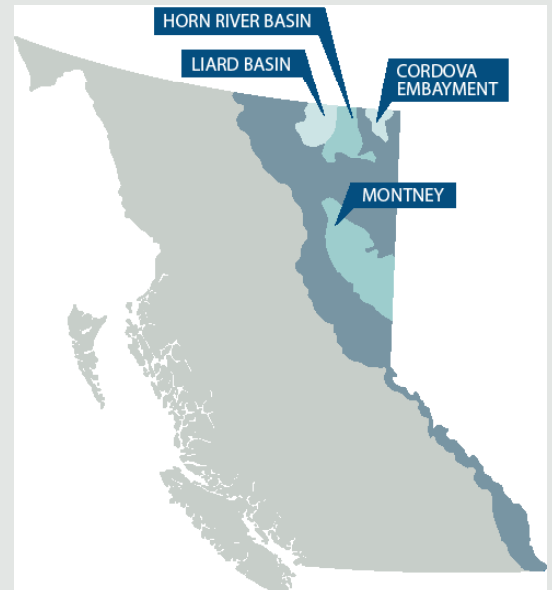
The Oil and Gas Activities Act is the province's main legislative framework, and associated regulations, such as the Drilling and Production Regulation and the Environmental Protection and Management Regulation, outline public safety and environmental protection for projects that utilize hydraulic fracturing.

The hydraulic fracturing process on a well typically lasts from one to three days. The entire process for both preparation and testing following the fracturing process can last several weeks. The Commission is involved in regulating the entire life cycle of a well, from permitting to drilling through to production and reclamation. A thorough application review, which may include engineering, environmental, First Nations, private land owner and/or archaeological considerations is undertaken. Careful reviews are also done for water permits and licences, ensuring there is more than enough water available for environmental and community needs.

What is New at the Commission?

- ✓ In 2015 the Commission's regulation of **hydraulic fracturing** was **audited** by Ernst and Young, which included a review of operational processes and a jurisdictional comparison. The report concluded: "overall, hydraulic fracturing is well regulated in B.C." and (the Commission) is "well positioned to capture (improvement opportunities) using its continuous improvement processes."
- ✓ The Commission is participating in **studies with post-secondary institutions**, such as the UBC and UNBC, to address key aspects of natural gas development including cementing and fracture propagation, assessments of groundwater sampling, impact on water quality and community readiness.
- ✓ The Commission has taken a leadership role in the detection and mitigation of **induced seismicity**. Commission studies led to enhancements such as increased seismic monitoring and ground motion monitoring. Mitigation measures for companies include new regulations and orders that shut down industry operations if seismic activity reaches a certain threshold. The Commission has on-going research and collaboration with industry, academia and other agencies in the field of induced seismicity.
- ✓ The **Water Sustainability Act** came into effect in 2016 resulting in changes to surface water and groundwater allocation processes.

Oil and Gas Activity in British Columbia



Production Facts

- The Montney gas play continues to be the most active natural gas play in British Columbia, accounting for 94.2 per cent of the 574 wells drilled in 2017. Other key statistics related to the Montney include:
 - In December 2017, accounted for 77 per cent of annual production.
 - 2,971 producing wells by the end of 2017.
 - Represents 73 per cent of remaining raw gas reserves.
 - Oil and condensate rich areas continue to be developed in the Montney.
 - Average gas production for the province in December 2017 was 162.7 e⁶m³/day.

More information on production and reserves is available in the Commission's Oil and Gas Reserve and Production Report.

