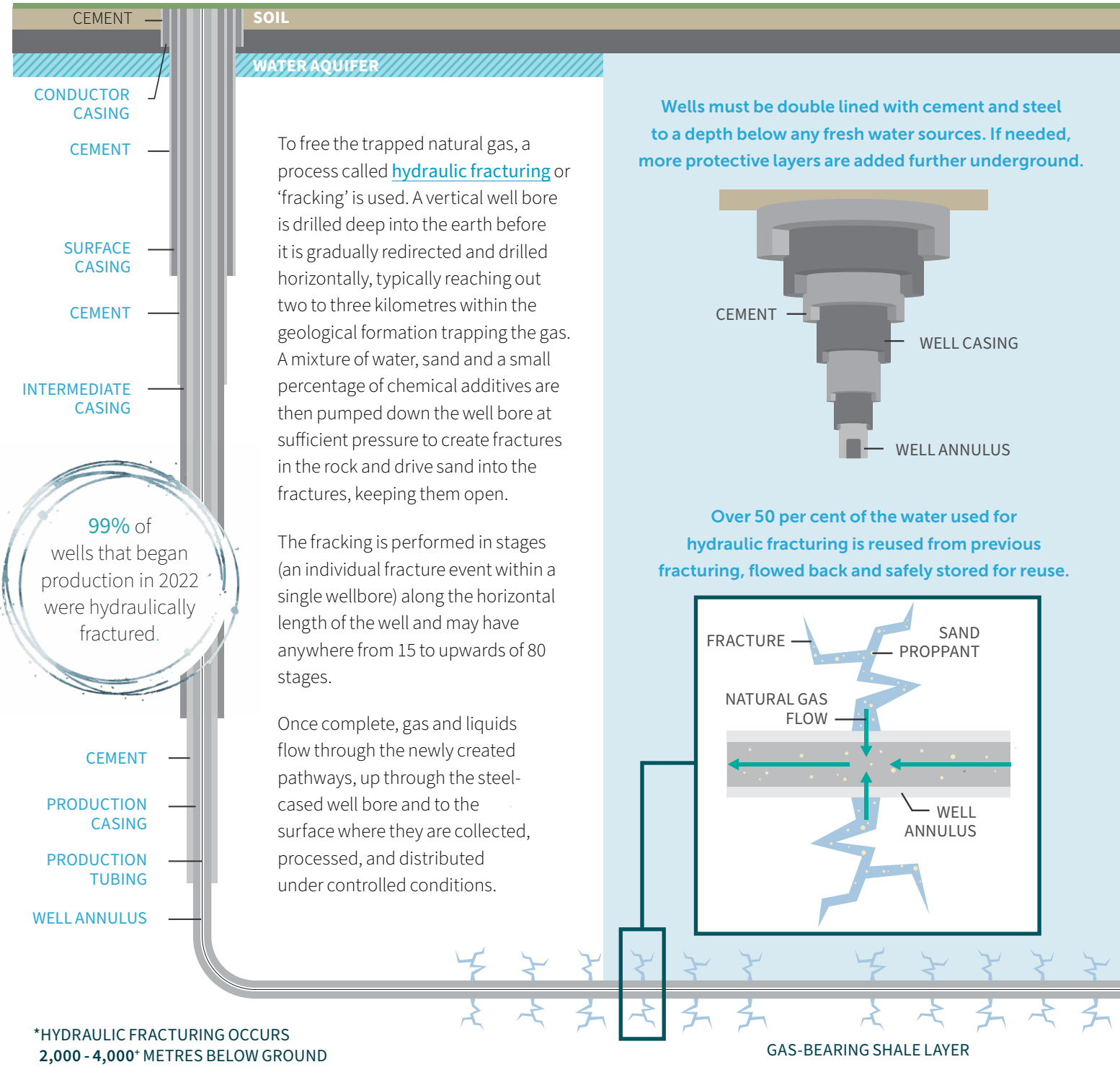
Hydraulic Fracturing

In B.C., natural gas is found deep underground in geological formations, in some cases as deep as four kilometres, and beneath several impermeable layers of rock.



99% of wells that began production in 2022 were hydraulically fractured.

To free the trapped natural gas, a process called hydraulic fracturing or 'fracking' is used. A vertical well bore is drilled deep into the earth before it is gradually redirected and drilled horizontally, typically reaching out two to three kilometres within the geological formation trapping the gas. A mixture of water, sand and a small percentage of chemical additives are then pumped down the well bore at sufficient pressure to create fractures in the rock and drive sand into the fractures, keeping them open.

The fracking is performed in stages (an individual fracture event within a single wellbore) along the horizontal length of the well and may have anywhere from 15 to upwards of 80 stages.

Once complete, gas and liquids flow through the newly created pathways, up through the steel-cased well bore and to the surface where they are collected, processed, and distributed under controlled conditions.

Wells must be double lined with cement and steel to a depth below any fresh water sources. If needed, more protective layers are added further underground.

Over 50 per cent of the water used for hydraulic fracturing is reused from previous fracturing, flowed back and safely stored for reuse.

BRITISH COLUMBIA ENERGY REGULATOR

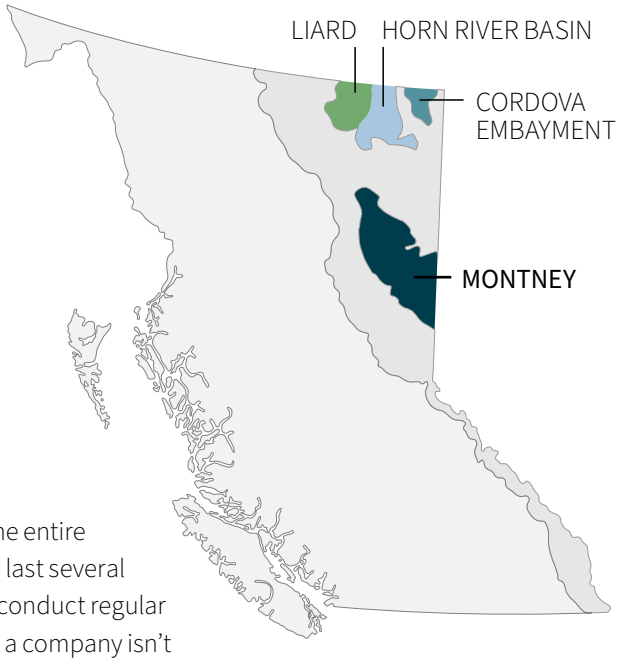
Public Concerns and Complaints
1-250-794-5200 (24-hour public number)
1-877-500-BCER (2237) (24-hour toll free)
Report concerns such as odours, spills or noise.

Incident Reporting for Industry
1-800-663-3456 (24-hour emergency number)
Report oil and gas related incidents.

August 2023

Where does hydraulic fracturing happen in B.C.?

The most active unconventional gas play in the province continues to be the Montney located in northeast B.C., covering approximately three million hectares northwest from the B.C. – Alberta border.



Why is hydraulic fracturing used?

Currently, hydraulic fracturing is the only available technology allowing the economic recovery of natural gas from low permeability geological formations deep underground. The majority of wells drilled in B.C. produce natural gas and associated hydrocarbons and are fracked.

How long does it take to 'frack' a well?

Typically, the hydraulic fracturing process on a well lasts one to three days. The entire process for both preparation and testing following the fracturing process can last several weeks. Throughout the process, BCER compliance and enforcement officers conduct regular inspections to make sure companies are following all requirements. If we find a company isn't complying, we carry out appropriate actions and share the results on our Compliance & Enforcement page.

As hydraulic fracturing technology advances, the regulations overseeing it are reviewed to ensure appropriate oversight and data collection to foster improvements.

How do we protect the environment?

BCER is committed to protecting and conserving our province's air quality and natural resources. We undertake detailed well application reviews that include thorough environmental, Indigenous Nations, and public safety considerations. We enforce strict requirements for testing and monitoring methane emissions during all phases of operations and production to regulate and limit air discharges to the environment from oil and gas activities.

Before approving water use for hydraulic fracturing, we ensure there is more than enough water supply for community needs and environmental flows for fish and other aquatic animals. Through mandatory water use reporting by operators, and by utilizing the public-facing water monitoring tools at bc-er.ca, our hydrology experts track water use and availability and act quickly to suspend water withdrawals in times of drought, prioritizing environmental and community needs.

Our post-secondary partnerships, such as with UBC and UNBC, allow us to address key aspects of natural gas development including cementing and fracture propagation, assessments of groundwater sampling, impact on water quality and community readiness.

We are a leader in the detection and mitigation of induced seismicity. New regulations and orders have resulted from BCER-led studies, which include shutting down operations if seismic activity reaches a certain threshold. We continue to work with industry, academia, and other agencies on ongoing research in this field.

Fracturing Fluid Storage, Reuse and Disposal

It is against the law in B.C. to release hydraulic fracturing fluid to the surface environment. Strict laws are in place for the storage and disposal of fracturing fluids; they are only authorized for disposal by deep well injection at wells we have reviewed and approved for disposal. More information on storage and disposal is available at bc-er.ca.

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