

Water Used in Natural Gas Activities



Why is Water Used?

Water is a necessary element in the development of natural gas resources. The largest use of water for oil and gas activities is for hydraulic fracturing, which involves injecting water underground at high pressure to create fractures in a target rock formation, allowing natural gas to flow to the wellbore. Water is also used for drilling, washing machinery, dust control, hydrostatic testing and freezing ice roads.



How Much Water is Used?

The BC Energy Regulator (BCER) requires industry to submit quarterly water use data.

Overall, cumulative freshwater use by industry accounts for approximately 0.004 per cent of total volume of mean annual runoff in northeast B.C. (NEBC), the heart of oil and gas production in the province.

Companies are continually seeking ways to reduce freshwater use by including sources such as recycled hydraulic fracturing flowback water and the use of unpotable water from deep wells.



How is Water Managed?

The BCER is responsible for regulating water used for oil and gas activities in the province. The overall goal is to ensure the water needs of the environment and other users are addressed before allocating water for industry use.

Water use from surface water and groundwater is permitted to operators through short-term water use approvals and water licences (longer term) of both surface water and groundwater resources.

The BCER considers a number of key points when reviewing water use applications, such as streamflow in rivers, groundwater aquifer productivity, other water users and ecological values. Conditions may be attached to the licence or approval and we can and do suspend industry water use in times of drought.

How much water was used by the oil and gas Industry in B.C. in 2022?

120,568,508,464
cubic metres
of runoff
replenishes
annually
in NEBC.

From that,
33,348,905 m³
was permitted for
use via licences ...


and **14,150,202 m³**
was permitted via
short-term approvals.

At year end, **5,179,526 m³**,
or **11%** of permitted volumes,
was actually withdrawn.

Equivalent to
0.004%
of annual runoff.

What is New at the BCER?

In an effort to increase transparency for statutory decision-makers, public and industry and to manage the cumulative effects of water use, the BCER, in collaboration with government partners, has developed regional map-based water tracking tools (e.g., the NorthEast Water Tool) that are housed collectively at bcwatertool.ca. The tools provide guidance on water availability across northern B.C., support the decision-making process for water use approvals and licences and otherwise provide public access to a wide range of water-related information in B.C.



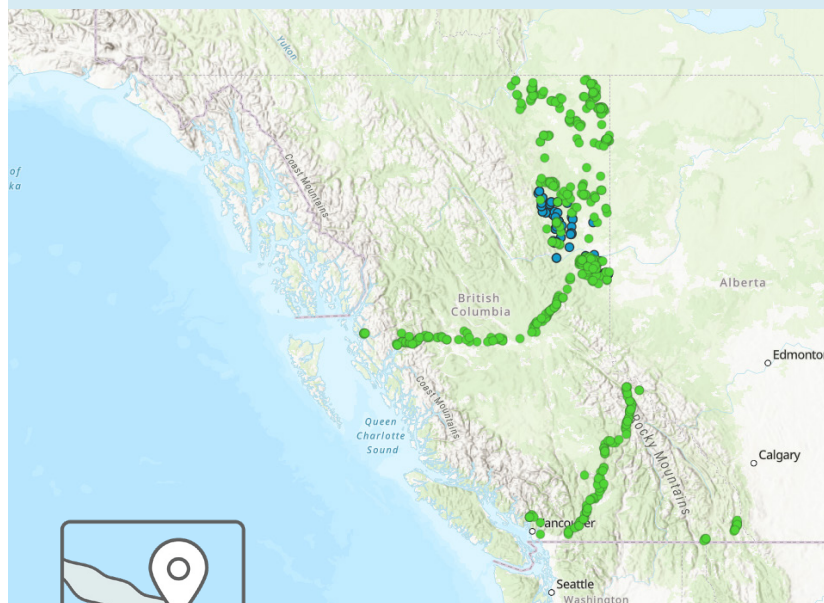
Find additional water management information at bc-er.ca/how-we-regulate/safeguard-the-environment/water-management/.

To ensure better understanding of streamflows in small watersheds in northeast B.C., we initiated the small watershed hydrometric monitoring program in 2019, establishing three hydrometric stations in partnership with Treaty 8 First Nations and the BC Oil and Gas Research and Innovation Society. At the end of 2022, the monitoring program had grown to eight hydrometric stations with six of the Treaty Nations and additional funding through Geoscience BC.

How Do We Proactively Regulate?

The BCER has the legislative authority to make decisions on proposed oil and gas activities. While we do not set policy, the diverse expertise and experience of BCER staff provides critical insight at every level of oil and gas development. This knowledge base provides perspective through scientific evidence, guidance, best practices, reports, tools and analysis.

Companies looking to explore, develop, produce, and market oil and gas resources in B.C. must apply to the BCER. We then review, assess and make decisions on these applications. This consolidated single-window authority provides not only a one-stop place for all oil and gas and associated activity requirements, but a consistent application, decision, regulatory and compliance authority. Stakeholders work with one agency; therefore, the BCER serves the public interest by having an all encompassing review process for oil and gas activities.



Withdrawal Locations

As a point in time example, at the beginning of 2023, there were 590 active short-term water use approval sites (green dots) and 112 (longer term) water licence sites (blue dots).