**ANTICIPATION GUIDE**

**Topic:** Fracking (Grade 10 Science)

Before After

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| --- | --- | --- | --- | --- |
| Agree | Disagree | Statement | Agree | Disagree |
|  |  | Hydraulic fracturing, or fracking, is a new technique that has been developed in the last 10 years. |  |  |
|  |  | Fracking is the process of injecting water, chemicals and sand into rock at high pressure to release natural gas. |  |  |
|  |  | Fracking can contaminate drinking water to the point where kitchen tap water bursts spontaneously into flames. |  |  |
|  |  | The natural gas extracted through fracking is a low-carbon fossil fuel. |  |  |

Goodine, C. (2011). Fracking controversy: Rethinking the low-carbon label for natural gas. Retrieved from <https://www.canadiangeographic.ca/article/fracking-controversy>

Additional Resources:

<https://thenarwhal.ca/8-major-gaps-in-b-c-s-knowledge-about-fracking/>

Indigenous perspective:

<http://www.fracturedland.com/trailer.html>

By [Claudia Goodine](https://www.canadiangeographic.ca/author/claudia-goodine)

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Photo: Fracking on the Haynesville Shale near Shreveport, La.  (Photo: Daniel Foster)

Beneath the boreal forest in northeastern British Columbia lies the Cordova Embayment, a recess in the coastline of an ancient ocean. The decomposed remains of prehistoric creatures 2,500 to 3,000 metres underground have become shale gas, a hydrocarbon that is driving the latest energy-industry gold rush. But before this unconventional gas is extracted from the ground, the Dene Tha’ First Nation is suing the B.C. government to force the province to learn more about the impacts of a process known as hydraulic fracturing.

“We are looking for an independent body to hear our concerns,” says Dene Tha’ Chief James Ahnassay, “and [to] compel the government and industry to provide meaningful consultation and scientific reasoning as to why the type of technology they are using is not going to adversely affect the environment, the water and the wildlife.”

Hydraulic fracturing, also known as “fracking,” entails blasting large volumes of water, sand and chemicals at high pressure down a well to crack the rock and free up natural gas. The process has been around for more than 60 years but has only been used extensively in the past decade, with horizontal drilling opening the door to difficult-to-reach gas deposits, such as those found in non-porous shale basins. An unconventional well can be fracked up to 14 times, using 10 million to 70 million litres of water, depending on the characteristics of its shale reservoir.

Fracking has been linked to contaminated water in Alberta and Pennsylvania and to hundreds of small earthquakes in Arkansas. Documentaries such as Academy Award nominated Gasland and CBC’s Burning Water show kitchen tap water bursting into flames. These dangers have led Quebec, Nova Scotia and France to impose moratoriums until further scientific study is completed. “We are committed to making sure that it is done properly,” said Quebec Environment Minister Pierre Arcand, “or it won’t be done at all.” The U.S. Environmental Protection Agency is also looking into the impact fracking can have on drinking water and groundwater. But in British Columbia, companies with mineral-rights leases are rushing to extract shale gas.

Of all the shale-gas basins in northeastern British Columbia, the 315,000- hectare Cordova Embayment is in the earliest stages of development. More than 11,000 wells have been drilled in the province since January 2000 but just 180 in the Cordova Embayment. That number will surely rise, amid questions about where the necessary water will come from and how development will affect communities and wildlife.

In Canada, natural gas is promoted as a low-carbon fossil fuel, even though 60 percent of the shale gas extracted is used to fuel other parts of the oil and gas industry, including Alberta’s oil sands. Moreover, companies don’t have to disclose the chemicals they use for fracking, some of which have been shown to contain carcinogens south of the border.

The Canadian Association of Petroleum Producers (CAPP) supports the disclosure of chemicals but says no links have been found between fracking and drinking water contamination. Wells are drilled so deep that chemicals would have to seep up through two or more kilometres of rock to cause problems. “Before you take a punitive measure such as banning [the process], ensure that you’ve got it based on good science,” says Kerry Guy, CAPP’s manager of natural-gas advocacy. “Canada has good regulations in place.”

But accidents do happen, Guy concedes. “There have been incidents where there’s been failure in the well construction,” he says. “There is no guarantee that there will never be accidents.”

This isn’t news to people who live in regions where fracking is commonplace. In 2009, after Encana Corp. failed to detect a gas leak in the Peace River area that allowed deadly hydrogen sulphide to leak into the air for eight hours, Lois Hill of Farmington, B.C., formed a citizens’ group with her neighbours and demanded that the province conduct an independent inquiry into health impacts of shale-gas development. Last March, the government agreed to do a study but has not yet elaborated on its scope.

“We know that the development is here to stay and that our province is depending on the revenue from it,” says Hill. “What we want is that it be done in a safe way.”

<https://www.canadiangeographic.ca/article/fracking-controversy>