

CAPE Position Statement on Fracking **June 2014**

Hydraulic fracturing (also known as “fracking”) is a method used to extract natural gas or oil from rock. This process consists of drilling a hole as deep as three kilometres into rock and then drilling horizontally. This creates small fractures in the rock often less than one millimeter wide. A mix of chemicals is injected under high pressure (for reducing friction between the drill and well lining as well as to facilitate release of the gas) along with water and sand (to hold open the tiny fractures) to force out the gas which is then extracted from the mixture that flows back.

This large volume of flowback water, called “produced water”, is contaminated with chemicals from the injection process as well as from the underground fractured rock, and is waste. It is placed in “ponds” much like tailings ponds from mining.

Natural gas has been heralded as a “transition” fuel that will carry us from an oil/coal-intensive economy to cleaner renewable energy because natural gas consumption produces less greenhouse gases (GHG) than oil or coal. However it is now becoming evident that there are many environmental and health issues that arise from the dramatic increase in fracking that is occurring in Canada and other parts of the world. As much as 60% of the natural gas extracted in Canada is used to fuel the oil and gas industries including the Alberta oil sands (1). The number of fracking events in the United States has increased exponentially in the past few years and in Canada fracking wells are found in most provinces, some extremely close to large population centres.

There are a number of environmental and health concerns regarding the process of fracking:

- the use of large volumes of fresh water during the process
- the dilemma of disposal of large volumes of contaminated waste water at the end of the process, which is stored in ponds which can leak into local ground water and can contaminate local drinking water sources
- explosions from "fugitive methane" that makes its way into the ground water and into citizens' homes who live near the fracking sites
- high levels of air pollution and GHG emissions from the large number of trucks required to transport the water to the fracturing site
- significant contributions to GHG because of escaped methane (which is 70 times more potent than CO₂ as a GHG) as well as CO₂ which is abundant in the rock fissures and escapes during the fracking process
- documented health problems in animals and humans living near fracking sites
- earthquakes
- lack of transparency regarding chemicals used in fracking (presently there is no requirement to disclose in U.S. and Canada)

Water Issues

Fracking requires extremely large volumes of fresh water, averaging five million gallons per fracking event. With the threat of climate change causing droughts, and clean drinking water sources being threatened, it is questionable that this is a wise choice of use for limited amounts of fresh water that are and will be available. There are documented instances of dramatic reductions in water level in local lakes, which is not surprising considering the large volumes of water required for fracking events (2) which put a severe strain on local water resources.

Large volumes of “produced” water (the contaminated waste water) must be stored which is becoming increasingly difficult due to the large volumes of contaminated water that are accumulating near drilling sites. Many citizens living in proximity to fracking wells have complained of this contaminated waste water making its way into the drinking water supplies (3).

Fracking companies are not obliged to divulge the exact chemicals added to the water. Chemicals known to contaminate fresh water used for fracking include benzene, toluene, ethylbenzene, xylene, formaldehyde, hydrogen sulfide, methane (ozone precursors), heavy metals (cadmium, lead, arsenic, aluminum, strontium, uranium), glycol ethers, carbon disulfides and various salts. This list contains known carcinogens and chemicals which have deleterious effects on many body systems. There are numerous examples of explosions in homes close to fracking wells due to the methane that escapes and enters domestic wells.

Air Issues

The millions of litres of fresh water required for every fracking event must be transported to the site, averaging 1600 truckloads per fracking event, not including the sand and chemicals. One study reports that air pollution from fracking events in the Dallas-Fort Worth area are estimated to be more than the combined emissions of all motor vehicles and airports. In addition, greenhouse gas emissions due to oil and gas extraction in this region are comparable to emissions from two 750 MW coal-fired power plants (4). Thus the fracking that is occurring in thousands of wells that exist in high extractive areas contributes significantly to local air pollution and overall increased greenhouse gas emissions.

Health Effects

Fracking releases many potentially harmful carcinogenic substances into the environment, and there are concerns about the effects on health of people living near fracking wells. One literature search showed that over 75% of the chemicals used in fracking could result in damage to sensory organs, gastrointestinal tract and respiratory systems. Over 40% could affect the nervous system, immune system, cardiovascular system and kidneys, and 25% could cause cancer and mutations (5). Though there are few studies on the health of people living near fracking facilities, one study did indicate an association between certain birth defects (congenital heart defects and neural tube defects) and proximity to fracking wells (6). There is anecdotal evidence of illness and death of animals near fracking sites (7).

Conclusion

Due to significant air and water quality issues, contribution to climate change through greenhouse gas emissions, and documented and anecdotal evidence of health effects to humans and animals living near fracking wells, the Canadian Association of Physicians for the Environment recommends an immediate moratorium on fracking in Canada and the continued and increased development and promotion of renewable energy to meet Canada's energy requirements instead of continuation and expansion of use of natural gas, as well as more research on the health effects of fracking and its effects on the environment.

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References

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