

Fracking and the Water Act – a presentation to the Environmental Advisory Council by Don't Frack PEI

The Premier, during the Provincial Party Leaders' Environmental Forum on Tuesday, April 21st, 2015, said, in response to a question about fracking, that “a moratorium may come, through the Water Act process”. Our neighbouring provinces have moratoriums on fracking, and have undertaken, or are undertaking, expert review panels to determine whether fracking should be allowed.

Gambling with the future of the groundwater on Prince Edward Island is the most worrying aspect of fracking. Fracking, if allowed, will contaminate the groundwater. But fracking also comes with all kinds of other negatives effects, so many that our presentation won't have the time to cover them all. But here are a few: fracking is as bad as coal when it comes to greenhouse gasses. Fracking is a Ponzi scheme, with our children paying the bill. Fracking would decimate the tourism industry. Fracking contaminates the air with carcinogenic gasses. But tonight, we're going to focus on its effect on water.

With respect, we question whether the Water Act is the right place in which to legislate a ban on fracking; perhaps it should have its own act. However, we believe that the policies and regulations that come from the Water Act process will make fracking impossible on Prince Edward Island.

A brief description of fracking

High Volume Hydraulic fracturing - more commonly known as fracking - is a process where sand, water and chemicals are blasted into rock formations such as dense shale or coal beds. This high pressure “injection” process creates cracks in the rock formation and allows the gas to flow up the well. With the use of a newer drilling technique invented in 2005 known as *horizontally deviated wells*, fracking has allowed energy corporations to exploit previously hard to reach “unconventional” supplies of gas. By some estimates, Prince Edward Island may contain a substantial amount of this gas deep underground.

Not many people know that 440,000 acres of PEI was leased to oil and gas companies, and that the last of these leases only expired in 2012. Four vertical wells were fracked during that time and an accident at the Green Gables well site caused radioactive, chemical laced fracking fluid to be spilled into the ground.

For our presentation, we have taken statements from the government's Water Act website and White Paper, and addressed these statements in relation to High Volume Hydraulic Fracturing, or Fracking.

Note: phrases shown in bold are taken from the Water Act White Paper and website.

“The protection of our land, air and water for future generations is a fundamental responsibility of government”.

Fracking will contaminate our land, air, and water. It's not a case of managing the risk, it is a fact that fracking will do this. For example, a 2014 Associated Press report (1) highlights 243 cases in Pennsylvania (2) in which fracking companies prospecting for oil or gas were found by state regulators to have contaminated private drinking water wells. The industry blamed the geology, and a lack of standards, for these incidents. The industry even stated that surface spills are responsible for many incidents of contamination, as if that somehow makes it OK.

According to some in the industry, there have been no proven cases of water well contamination by fracking. Here is how they can make this claim: it is either because the well water wasn't tested for those chemicals before the contamination occurred, or because an out-of-court settlement made the contamination disappear from the official record.

We have included, in the references at the end of this presentation, links to over 600 peer reviewed papers that highlight the serious side-effects of fracking (3). The evidence is overwhelming.

"... government's determination to manage our water resources in a sustainable manner"

The true meaning of a 'sustainable' activity is one that leaves the environment in a better (or at least as good) state. As fracking involves degrading the land, contaminating the water, and polluting the air – all to get our hands on a non-renewable resource – this is the total opposite of sustainable.

"Our Water is an Important Public Resource"

There is a lot of talk about 'our' water. Water is neither ours, nor is it a resource. We only use 2% of the recharge, and the other 98% of users all have their own agendas that don't even include us humans. Webster's Dictionary defines a resource as "something that a country has and can use to increase its wealth", "A supply of something (such as money) that someone has and can use when it is needed".

Water cannot and must not be treated as if it is something that we own, as a commodity that can be consumed by a destructive industry in order to make them money.

"... protect the quality and quantity of the Island's water"

On PEI, municipalities use about 10 million cubic metres per year of water. Industry uses about 4 million cubic metres per year. A typical fracking well uses 20 million litres of water. If fracking were to come to PEI, there might be 1,000 wells. This figure was extrapolated from the figures in the Wheeler Report (4) which estimated up to 20,000 fracking wells if fracking were allowed in central Nova Scotia. So fracking could use more water than our municipalities and industries use in a year.

"... ensure that our water supply is healthy and sustainable now and into the future."

Fracking uses a cocktail of hundreds of chemicals, many are known carcinogens and toxins. These chemicals are mixed with water and sand, and blasted into the wells to cause the shale to crack open. The chemicals are used for their lubrication, anti-freeze, anti-biotic, and other properties. 50% to 70% of this fluid is left in the well permanently. Chemicals used (5) include toluene, benzene, ethylene glycol, naphthalene, butoxyethanol. The chemicals that are left in the wells will eventually leak into the aquifer through existing or newly created fractures, or by well failures, a process that may only take decades (6).

"The best and least expensive way to have clean water is to prevent contamination in the first place."

The flow-back and produced water not only contains these chemicals, but also toxic and radioactive substances from deep underground. So what do we do with this toxic waste – pump it back underground? Pour it into rivers? Leave it in open ponds to vent off? Use it to water agricultural fields?

Pump it into salt marshes? Believe it or not, these methods have all been used by the industry. There is no safe disposal method for this waste. And once the fracking companies have capped an old well, they are no longer liable for monitoring, repairs, or leaks. That risk and cost will be borne by taxpayers forever, as the wells will be there forever.

The proposed Water Act would address the following key issues:

Ensuring good water quality for human consumption and the environment;

We all know that we can't live without drinkable water. A local teacher was overheard saying that if we poison the water supply, then we will be fine – we can just drink bottled water! We cannot treat water as a commodity that we can stress to the limit as long as we don't quite destroy the ecosystems that we and our non-human neighbours depend upon. The environment has to be our first consideration. Fracking flies in the face of this.

Where a particular risk is identified to the water resource, or the environment ... [we] could consider local factors, such as Hydrogeological and hydrological information; Public interest

Well, if you are to consider public interest, you have to know that fracking doesn't have social licence. Independent surveys in Nova Scotia and New Brunswick found only 30% support for fracking. As for hydrogeological information, here are some excerpts from a short paper by Geomorphologist Dr. Scott Rice-Snow (7):

“The high porosity and permeability of the sandstones (majority of island rocks) means that the rocks (and sandy soils/tills on top of them) will have high capacity to absorb and rapidly spread tainted fluids.”
“... sandy-silty zones will not consistently seal off between one rock sequence and the next one above or below. Also, it's going to be very difficult to predict the very local directions and rates of fluid/pollutant flow through the red-beds.”

“... the main threat of fracking to groundwater and surface water quality will come from failures of well containment closer to the surface, and spills/blowouts of fracking fluids onto the surface. Given the character of rocks I've described above, both spill infiltration from the surface and direct leakage to rocks from leaking drill holes are significant threats to groundwater quality.”

Protect streams, rivers and related aquatic environments.

Groundwater contamination will occur if fracking is allowed. There will be leaks, spills, truck accidents, well failures, underground seepage. This is happening in places where fracking is happening. Groundwater feeds streams throughout the year; so fracking will lead to contamination of streams and estuaries. Our sport and commercial fishery as well as our wild and cultured shellfish and aquaculture industries would be devastated when fracking chemicals get into the streams. Even if the levels of contamination are within the safe guidelines, public perception could decimate these industries.

More than half of Islanders are dependent on private wells and are responsible for managing their own water quality.

There are two ways to discover if fracking chemicals or escaping gas are getting into private wells. One way is expensive testing; the other is to look for symptoms in those who are drinking the water.

Appalling stories continue to emerge from the United States of respiratory illnesses, skin rashes, nosebleeds, and other frightening symptoms among people living near to fracking operations. Not many of us even test our private wells for nitrates, but testing for fracking chemicals is very expensive and often not possible because the industry does not release the names of the chemicals used - as the mix is a 'trade secret'.

Proper well construction, and septic system design, and maintenance, provide the greatest protection (for well owners)

Industry figures have shown that 6% of well casings fail during construction, and 80% will fail within 80 years (8). Well failure means that the well fails to contain the fracking fluid and/or the extracted gasses within the well casing. This is simply because it is very difficult to dig a gas well that is kilometres long, with a 90 degree bend, and successfully encase that well in concrete. Intact oil and gas well casings need to last forever to protect the drinking water supply. To quote Dr. Rice-Snow, "Accomplishing that's a bit of a stretch".

Conclusion:

So, what is Don't Frack PEI recommending? There is an overwhelming lack of scientific knowledge about fracking and its long-term consequences. Also, there are thousands of documented instances where things have gone wrong. In the past three years, we have only encountered one individual who thinks fracking is a good idea. So a ban on high volume hydraulic fracturing is what we are asking for.

References:

1. Pennsylvania Department of Environmental Protection – 243 cases where private water supply was impacted by oil and gas activities: <http://wivb.com/2014/08/28/243-cases-in-pa-where-fracking-contaminated-wells/> and <http://bit.ly/1yMfGG>
2. Earthjustice – Pennsylvania fracking accidents map: <http://earthjustice.org/features/pennsylvania-and-fracking>
3. Physicians Scientists & Engineers for Healthy Energy - 636 peer reviewed papers on Hydraulic Fracturing: https://www.zotero.org/groups/pse_study_citation_database/items/
4. Report of the Nova Scotia Independent Review Panel on Hydraulic Fracturing: <http://energy.novascotia.ca/sites/default/files/Report%20of%20the%20Nova%20Scotia%20Independent%20Panel%20on%20Hydraulic%20Fracturing.pdf>

5. Ground Water Protection Council and Interstate Oil and Gas Compact Commission - FracFocus Chemical Disclosure Registry: <https://fracfocus.org/chemical-use/what-chemicals-are-used>

6. National Ground Water Association Journal - Potential Contaminant Pathways from Hydraulically Fractured Shale to Aquifers, Tom Myers: <http://onlinelibrary.wiley.com/doi/10.1111/j.1745-6584.2012.00933.x/abstract>

7. Dr. Scott Rice-Snow, The Geology of Prince Edward Island and Hydraulic Fracturing: http://dontfrackpei.com/web/wp-content/uploads/2013/01/Geology_and_Fracking.pdf

8. Physicians Scientists & Engineers for Healthy Energy - Fluid Migration Mechanisms, Anthony Ingraffea: <http://psehealthyenergy.org/site/view/1057>

Additional information:

Concerned Health Professionals of New York: a compendium of 340 documents identifying problems with Hydraulic Fracturing: <http://dontfrackpei.com/web/wp-content/uploads/2014/07/CHPNY-Fracking-Compendium.pdf>

Don't Frack PEI: <http://www.dontfrackpei.com>

November 5th 2015

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