

Honourable Terry Lake  
Minister of the Environment  
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Victoria BC  
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March 14, 2011

Dear Minister Lake:

The Pembina Institute and ForestEthics have welcomed the B.C. government's effort to modernize the Water Act. It is a real opportunity to strengthen the way in which we protect and manage our water resources in British Columbia.

As organizations that have been examining the impact of energy developments on water resources in the province, we know that the processes for extracting natural gas are becoming increasingly reliant on water resources in B.C. This is leading to increasing threats to the quality and availability of B.C.'s water. In this light, we prepared a [submission](#) to the Water Act Modernization process setting out our concerns and recommending solutions to address the issues.

We have reviewed the proposed Water Sustainability Act Policy Proposal, and are dismayed that the current proposal leaves virtually all of our concerns unaddressed.

Our overarching concern is that the water impacts posed by natural gas development in British Columbia are substantial, increasing, and inadequately monitored and regulated. Water use by the natural gas industry, particularly for hydraulic fracturing to extract unconventional gas, and most prominently shale gas, is on the rise. The impact of such practices on surface and subsurface water is of equal concern. There is broad public concern about the practice of hydraulic fracturing, evidenced most recently by the government of Quebec halting any new hydraulic fracturing pending the completion of health and environmental impact studies.

The B.C. government currently permits hydraulic fracturing, despite concerns about the unique challenges presented by the gas industry in terms of water use, water contamination and water disposal. While our concerns are outlined comprehensively in our submission in May 2010, we would summarize them briefly as:

- 1. Substantial water withdrawals.** Water impacts by the natural gas industry, particularly for shale gas development, come in the form of significant water withdrawals for hydraulic fracturing. According to a report from [B.C.'s Oil and Gas Commission](#), the oil and gas sector was permitted to use (and contaminate) 86 billion litres of surface water in 2009 alone, and would thus not be regulated under the new ground water regulation. Annual groundwater use was not reported, but is a

small fraction of the 86 billion litres based lifetime groundwater well production for natural gas (6.6 billion litres).

Some of these withdrawals are licensed, but much of the activity takes place through temporary short term approvals authorized by the Oil and Gas Commission, not by the Ministry of the Environment. Last year, we found that while there were only nine active water licences by industry, there were over 1,100 short-term water approvals. In our view, this approach to water use amounts to a loophole around the licencing process, and authorizes levels of water use that could compromise ecosystems and/or other uses.

This combines with the fact that there are many other untracked means by which the industry accesses water for fracturing. Some examples include private arrangements with landowners, either drawing from their licences or from water found on private property; digging borrow pits into the land which are then left to infill with water which is then pumped out for fracturing. In one case we are aware of, a borrow pit that is 500 metres by 200 metres by 13 metres deep has been permitted under the *Land Act* (not under the *Water Act*). These are just two examples of other water sources used by industry that would not be captured or tracked either under the current *Water Act* or the proposed *Water Sustainability Act*.

These issues are further complicated by the fact northeast B.C. has frequently experienced drought conditions in recent years, including a severe drought in 2010. If such conditions persist in the future, demands from the natural gas sector will increasingly be at odds with ecosystem needs and the demands from other users.

**2. Potential for water contamination.** Hydraulic fracturing involves mixing sand, chemicals and additives with large quantities of water and injecting it into the ground in order to stimulate, or break open, the rock formations that trap natural gas. The use of this technique to extract unconventional gas poses threats to water resources during fracturing, and during the temporary storage, transportation, and disposal of produced, or contaminated, water. While fracturing and disposal may occur sufficiently far below freshwater aquifers to not present a problem, the B.C. Auditor General made clear in a [December 2010 report](#) that B.C. has a very poor understanding of groundwater resources, meaning that when chemicals and contaminated water are injected underground, our understanding of where they will travel is limited.

Fears about water contamination are heightened because there are currently no requirements to disclose the chemicals used in hydraulic fracturing in British Columbia. In the United States, governments in gas producing states such as Wyoming and Colorado are now requiring companies to report this information.

**3. Questions about government oversight exist.** There are questions about the level and adequacy of oversight of the Oil and Gas Commission with regard to gas development in B.C. Again, a [February 2010 Auditor General Report](#) found serious shortcomings with the Oil and Gas Commission's oversight of contaminated sites that are the responsibility of oil and gas companies. This combined with chronic concerns about compliance and enforcement, leaves little confidence that there is adequate regulation and oversight of the large quantities of water that are used in hydraulic fracturing.

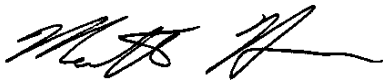
While we laud many of the components of the Policy Proposal, we echo the concerns of our colleagues who have indicated that the Proposal must go farther to protect water resources. Specifically, we are asking you to design the Water Sustainability Act to directly address the concerns we have outlined above. All three are significant based on current levels of activity, and they will be exacerbated by the substantial increases in shale gas development that are anticipated this decade.

The current approach of leaving oversight for water withdrawals for natural gas industry use to the Oil and Gas Commission is unsatisfactory – the role of the Ministry of Environment in water stewardship must be restored and strengthened. Indeed, in our review of the Policy Proposal, we only found one reference to natural gas industry uses – in Part 2 regarding how provincial water objectives will align statutory decision makers under different statutes, including the *Oil and Gas Activities Act*. The Water Sustainability Act must do more to address all of the issues associated with natural gas development, not merely align with different decision making authorities.

We are hopeful that the Policy Proposal is still in early enough stages that important changes can be made to ensure that the B.C. government's approach to regulating water use by the natural gas industry is appropriately rigorous.

We welcome the opportunity to meet with you to further discuss these issues.

Sincerely,



Matt Horne  
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Pembina Institute



Karen Tam Wu  
Senior Conservation Campaigner  
ForestEthics

cc:  
Lynn Kriwoken