

Submission for B.C.'s Water Act Modernization

Prepared by the Pembina Institute and Forest Ethics

May 3, 2010

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1. Introduction

The Pembina Institute and Forest Ethics are pleased that the Ministry of Environment is modernizing the *Water Act* and engaging British Columbians in that process. We offer the following comments on how the process can best produce a reformed *Water Act* that protects and manages B.C.'s water resources given the challenges we're facing today and those that we're likely to face in the future. We would be happy to work the B.C. government to ensure that the Water Act Modernization produces a *Water Act* that meets these objectives.

While the *Water Act* needs to be responsive to the full range of current and potential challenges facing B.C.'s water resources, our primary focus in preparing this submission was unconventional gas resources in B.C., such as shale gas, tight gas and coalbed methane. Specifically, we have looked at the ways in which the *Water Act* can:

- Better protect B.C.'s water and aquatic ecosystems, and the species that rely on their health, from the impacts of unconventional gas developments.
- Ensure that unconventional gas developments have fair access to water resources and use those resources efficiently.

Our submission is structured as follows:

- Section 2: Background on Why a Stronger *Water Act* is Important
- Section 3: Characteristics of an Effective Regulatory Framework for Protecting and Managing Water
- Section 4: Rationale for the Decision to Focus on Unconventional Gas Resources
- Section 5: Detailed Recommendations on How the Water Act Modernization can Produce a *Water Act* that Meets Those Characteristics
- Appendix 1: Summary of Recommendations Cross-referenced with Questions Posed in the Water Act Modernization Discussion Paper

We have structured our submission in a different manner than the themes outlined in the Water Act Modernization discussion paper because some of our concerns are broader than those posed in the paper and we want to ensure they are addressed. Appendix 1 links the recommendations in our submission with the questions posed in the discussion paper.

2. Why a Stronger Water Act is Important

British Columbia is a particularly water-rich province. Whether it is for industrial uses, basic domestic needs, agriculture or aquatic ecosystems, having reliable access to clean water is something we've come to expect, but can no longer take for granted.

Recent headlines demonstrate that changing supplies, competing demands and heightened concerns around protecting ecosystems are overtaxing B.C.'s water resources:

- In 2006, Tofino was forced to close businesses due to dwindling water supplies, which impacted the local economy.
- In 2008, local concerns about the environmental impacts of a proposed run-of-river power project in the upper Pitt River led to the rejection of the project by B.C.'s Minister of Environment.
- In 2009, for the first time in the province's history, legally binding fish protection measures came into force, which led to an order for the curtailment of water use on the upper Nicola River due to concerns about low flows and impacts on fish.

The importance of modernizing the *Water Act* is amplified by new challenges that will layer on top of stresses that are already putting some of B.C.'s water systems at risk. Of particular note are climate change and new industrial pressures on B.C.'s water resources.

Climate change-induced challenges

The impacts of climate change on B.C. water resources are already apparent. Examples include reduced snow packs by 15 to 50% in a majority of basins, a doubling in the rate of glacier depletion in coastal mountains and an increase in the timing and rate of peak flows in the spring and exacerbated low flows in late summer. Models point to these impacts increasing over time, which will place new challenges on B.C.'s water systems. It will be critical to have a *Water Act* that can respond effectively to those challenges.

New industrial pressures on B.C.'s water resources

While traditional B.C. industries such as forestry and mining continue to be a significant factor in water management decisions in the province, new pressures are also emerging. Many of these are energy-related, with some of the key examples including:

- Unconventional natural gas extraction projects such as coalbed methane, shale gas and tight gas. These types of projects typically require large amounts of water and produce contaminated water, which is a challenge to dispose of without significant environmental impact.
- Petroleum pipelines such as Enbridge's proposed Northern Gateway pipeline that would link the oil sands with the B.C. coast. Installing a pipeline across 1,000 rivers and streams presents risks to aquatic ecosystems during construction and in the event of a petroleum spill.
- Run-of-river projects that have been a key part of the province's strategy to provide new sources of electricity. These projects reduce stream flows between water intakes and the electricity generating stations.

Water Act Modernization will be an important determinant in B.C.'s ability to successfully manage existing and new pressures on our water resources.

3. Characteristics of an Effective Water Regulatory System

To provide context for our recommendations, we recommend the following characteristics of an effective regulatory system to protect and manage water resources in B.C.

A regulatory system that offers adequate protection to B.C.'s water resources and the species that rely on their health, and provides an effective system to manage those resources, will have the following characteristics:

- Governance arrangements that address historic shortcomings, including decision-making and planning processes that are:
 - Accountable, transparent and inclusive of the public. and communities that live within a watershed
 - Adequately resourced (with time, people and money) to support government's commitments.
 - Set within the proper context of provincial and local objectives for managing water.
- The ability to effectively designate priority areas where additional management/regulation will be required.
- Within those priority areas, the ability to plan for and prioritize between different uses of water, and collect the data needed to make good decisions.
- The ability to ensure that uses of, and discharges to, surface and ground water are licensed. This needs to be the case whether they are individual events or notable on a cumulative basis over time.
- The ability to impose licensing conditions that ensure:
 - Water use and discharges are limited to align with overall watershed priorities.
 - Water use and discharge limits can be changed to respond to changing conditions.
 - Water use and discharges are monitored in a transparent manner.
 - Water is used efficiently.
- The ability to effectively deter purposeful violations of licensing conditions through an effective and adequately resourced compliance and enforcement system.

While the Water Act Modernization is focused on changes to the *Water Act*, we understand there will be consideration of how it interacts with other pieces of legislation and, where necessary, amendments to other laws may occur. Some of the above characteristics will best be achieved if other complementary legislation comes into force or is amended, such as bringing into force the remaining provisions of the *Fish Protection Act* (see Section 5.5) and strengthening the *Environmental Management Act* (e.g. waste discharges).

4. Focusing on Unconventional Gas Extraction

Though the demands on our water resources are diverse and complicated, the recommendations in this submission are derived from concerns about the extraction of unconventional natural gas resources in B.C. We have selected this focus for two reasons:

- The water use and impacts from conventional gas are significant and it will be important for B.C. to deal with them effectively (section 4.1).
- There are fundamental flaws in the way these impacts are currently being treated in B.C.'s regulatory framework for water issues. Some of these are relevant to other users of water, while some are specific to gas extraction (section 4.2).

4.1 Water Issues for Unconventional Gas are Significant

Shale gas, tight gas and coalbed methane extraction projects are all heavily dependent upon access to large volumes of freshwater and result in large volumes of wastewater that need to be disposed of. These challenges are already manifesting themselves in B.C. and other jurisdictions and they will likely grow, based on the B.C. government's interest in expanding natural gas production in the province. This concern is particularly notable given that these projects are being proposed in places where there are already significant pressures on the water system.

The full extent of future drilling and associated water use for unconventional gas development is still speculative. It is known, however, that conventional oil and gas projects already place significant demands on the water systems in which they operate. The industry has largely depended on short-term water use permits that are administered by the Oil and Gas Commission, and more than 1,100 authorizations have been granted in the last four years (principally concentrated in the northeast).

Shale and Tight Gas

Large reserves of shale and tight gas are located in northeastern B.C. and have recently become economic to produce because of technological advances and market demand. Shale and tight gas differ from conventional natural gas fields in that they require hydraulic fracturing, or fracing, to release the gas deposits from rock formations. Fracing is a process whereby large quantities of water, chemicals and additives are combined under high pressure to forcibly break open (or fracture) the rock formations. Most of this water – as much as 90% – will be lost into the well and the surrounding aquifer, meaning that additional quantities of water and chemicals are required to complete each stage of fracing. Industry estimates expect that many of the shale and tight gas wells to be drilled in northeastern B.C. will require at least 90,000 cubic metres of water for fracing purposes.¹

The total amount of water needed for fracing could be significant because of the province's aggressive plans to increase shale and tight gas extraction. For example, during the next few decades, Apache Corporation plans to drill 3,000 wells in the

¹ Ken Campbell, P. Geo Senior Hydrologist. Schlumberger Presentation on: "Shale Gas Development and Water Issues In Northeastern British Columbia." Slide 9. Canadian Institute Sixth Annual Shale Gas Conference. Calgary, Alberta. January 26 – 27, 2010.

northeast of B.C., near Fort Nelson.² The combined potential water required to frac those wells could total approximately 270 million cubic metres, which would then require disposal. Assuming this development happened over 20 years, the 150 new wells drilled by a single company per year would be 13.6 million cubic meters.³

In States such as Wyoming, where hydraulic fracturing is common, dozens of cases of polluted drinking water from fracing have been reported with a significant portion of drinking wells now containing dangerous levels of known carcinogens.⁴ In one instance, benzene was discovered throughout a 45-kilometre-long aquifer.⁵

Coalbed Methane

During the past several years, coalbed methane development has been proposed throughout B.C. – on Vancouver Island, in the Elk Valley near the Flathead River, near Princeton, at the headwaters of the Skeena, Nass and Stikine Rivers in the northwest, and near Hudson’s Hope in the northeast. While exploration activities have occurred in these places, the only place where commercial production has occurred is in Hudson’s Hope.

Coalbed methane production is also highly water intensive. The methane gas is often held within the coal seam by water pressure, so a company must first dewater the coal seam by pumping out groundwater to free the gas. Though the amount of water will vary from basin to basin, in some parts of Alberta and the western United States, dewatering has depleted domestic potable drinking water aquifers and lowered in-stream flows where groundwater and stream flows interact.⁶

The “produced” water from coalbed methane operations needs to be disposed of, and while in a few cases it may be suitable for irrigation, it is more often high in saline and contaminants. The B.C. government originally permitted surface disposal of coalbed methane produced water, but in response to public concern, it has now stated that it will require coalbed methane-produced water be reinjected back into the ground. However, the full impacts of all options for disposing of coalbed methane produced water are not fully understood.

4.2 Current Regulations do not Adequately Manage Unconventional Gas Extraction

The following shortcomings summarize how the current and proposed regulatory framework falls short of the characteristics described in Section 3 and are not sufficient to

² Oil & Gas Inquirer. “Big Stuff - British Columbia's shale and tight gas plays are already world-class, and there may be more to come.” December 2009. Available at:

<http://www.oilandgasinquirer.com/printer.asp?article=profiler%2F091201%2FPRO2009%5FD10000%2Ehtml>

³ Ken Campbell, P. Geo Senior Hydrologist. Schlumberger Presentation on: “Shale Gas Development and Water Issues In Northeastern British Columbia.” Slide 9. Canadian Institute Sixth Annual Shale Gas Conference. Calgary, Alberta. January 26 – 27, 2010.

⁴ A. Lustgarten. “In New Gas Wells, More Drilling Chemicals Remain Underground.” ProPublica. Dec 27, 2009. Available at: <http://www.propublica.org/feature/new-gas-wells-leave-more-chemicals-in-ground-hydraulic-fracturing>

⁵ A. Lustgarten. “Underused Drilling Practices Could Avoid Pollution”. ProPublica. Dec 14, 2009. Available at: <http://www.propublica.org/feature/underused-drilling-practices-could-avoid-pollution-1214>

⁶ Karen Campbell & Susan Rutherford. “Coalbed Methane A BC Local Government Guide.” May 2006. Pages 5 & 9.

adequately manage water issues as they relate to unconventional gas extraction. These shortcomings, and recommended solutions, are described in more detail in Section 5.

- The current emphasis of priority-setting appears more reactive than proactive (section 5.1).
- The use of Water Management Plans has been limited (section 5.1).
- The current “First-in-time, first-in-right” approach for issuing and transferring water rights could be maintained (section 5.1).
- Oil and gas companies are using less rigorous short-term permits for water use as opposed to water licences that many other users are required to have (section 5.2).
- Licences for groundwater withdrawals are not currently required (section 5.2).
- The *Oil and Gas Activities Act* will not provide adequate protection for groundwater (section 5.2).
- Licence conditions have not been given enough consideration (section 5.3).
- The effectiveness of the Oil and Gas Commission’s conditions for water use permits in protecting water supplies and aquatic ecosystems is largely unknown (section 5.3).
- The Oil and Gas Commission’s conditions for water use permits appear to lack provisions that allow for adjustments for seasonally changing water needs of lakes and streams (section 5.3).
- Water resources are not being adequately valued with current rental fees and permit prices (section 5.3).
- Compliance with regulations and licence conditions are not adequately monitored or enforced, and penalties are too small (section 5.4).

Many of the concerns above relate to the Oil and Gas Commission’s oversight of the oil and gas sector, which was found to be inadequate from an environment perspective by the B.C. Auditor General. In *Oil and Gas Site Contamination: Improved Oversight Needed* (February 2010), the Auditor General found the following systemic shortcomings of the Commission:

- Their oversight of the environmental and financial risks associated with oil and gas site contamination needs improving;
- Improvements in the regulatory information collected and oversight procedures are needed to better protect the Province from these risks;
- They rely mainly on desk reviews of consultant restoration reports, submitted by operators, to provide oversight of the certificate process. This is despite the recognition that good management practices suggest that the audit role should be independent of the Commission;
- Public information provided by the Commission on its oversight activities is not sufficient to allow the legislative assembly and public to understand how effectively oil and gas site contamination risks are being managed.

5 Recommendations

The following recommendations would enable the *Water Act* to meet the characteristics outlined in Section 3. For each set of recommendations, we explain where the current system has shortcomings, why those shortcomings are important and how the Water Act Modernization can be used to address them.

5.1 – Defining and managing priority areas

As defined in Section 4, the characteristics of an effective regulatory system will include:

- Governance arrangements that address historic shortcomings, including decision-making and planning processes that are:
 - Accountable, transparent and inclusive of the public and communities that live within a watershed
 - Adequately resourced (with time, people and money) to support government’s commitments.
 - Set within the proper context of provincial and local objectives for managing water.
- The ability to effectively designate priority areas where additional management/regulation will be required.
- Within those priority areas, the ability to plan for and prioritize between different uses of water, and collect the data needed to make good decisions.

We are concerned about the way that the Water Act Modernization could potentially be using priority-setting to inappropriately focus its resources and attention. Though priority-setting can help achieve regulatory efficiency, such an approach can fall short in a number of ways.

- The current emphasis of priority-setting appears more reactive than proactive. Given the potential for 40-year water licences (as evidenced by recent run-of-river licences), modernization of the *Water Act* needs to ensure that today’s decisions consider how future development scenarios and climate change will impact water systems. Credible information is available today that can be used to identify areas vulnerable to climate change impacts.
- Though helpful for resolving conflicts, the use of Water Management Plans within the *Water Act* has been limited even in the face of multiple conflicts across the province. Our hope is that Water Act Modernization will address these historic shortcomings.
- A third concern relates to possibilities for the Water Act Modernization to maintain the current approach for issuing and transferring water rights for surface and groundwater supplies. As has been documented by others, the “First-in-time, first-in-right” system is problematic because it can lead to inefficient uses of water, a failure to protect ecosystem flow needs, allocations of water to those with the greatest ability to pay, and an inability to adapt to modern challenges, such as climate change.

We have four key recommendations that relate to defining and managing priority areas, detailed on the following pages.

Recommendation 1: Existing and future industrial threats on water supplies be considered among the criteria for identifying priority areas where more stringent management of surface and groundwater supplies would occur.

Given the scale of industrialization, sustained period of development and expected impacts on water withdrawals and water quality, the surface and groundwater in the following regions are under significant threat due to existing and proposed gas extraction: the northwest, including the Sacred Headwaters, the northeast and southeast Kootenay regions of the province. These areas also possess important fish populations, whose habitats are vulnerable to water withdrawals and contamination. These regions support spawning and rearing habitats for Chinook, coho, pink and sockeye salmon, as well as year-round habitat for sensitive resident fish such as bull trout, steelhead, arctic grayling, mountain whitefish, westslope cutthroat trout and kokanee. The Fish Protection Act already acknowledges the Skeena, Nass and Stikine Rivers as inherent priority areas by protecting them from new hydropower development.

Since an intended aim of the Water Act Modernization process is to equip the provincial decision-makers with the tools to effectively manage and navigate an uncertain future, we recommend explicitly considering future development scenarios when assessing priority areas. This should include industries such as natural gas production.

Recommendation 2: Make water management planning mandatory and legally binding.

Water Act Modernization presents water management planning as a process for dealing with long-term water scarcity, which we support. Importantly, best practices for water management planning include the need for:

- Conjunctive planning for surface water and groundwater;
- Integrated planning for land and water uses;
- Planning at multiple scales where broad-scale planning reflects societal interests and finer scale planning provides the knowledge and ability to respond to local ecosystem conditions and social needs;
- Use of credible science, a recognition of uncertainty and the flexibility to adapt to change (e.g., due to climate change and development pathways); and
- Adequate resources for an effective strategy of implementation and monitoring.

Our concern with the current planning option proposal in the discussion paper is that it may be voluntary and may only be applied in a reactive manner after conflicts emerge. Given that water allocation decisions today will influence the level of future conflict over water, we believe a proactive approach is smarter in areas where available information indicates the potential for severe conflicts. Because of the intensity of oil and gas development in certain areas of the province and the corresponding pressures on water resources, these should be priority areas where water management planning should occur.

An improvement on the status quo is possible as evidenced across B.C. and elsewhere. Attempts to resolve water use conflicts through better planning in the Cowichan, Nicola, and Okanagan should be expanded to other parts of the province, especially in areas with substantial current or anticipated pressures on water. Other jurisdictions, such as the state of Oregon, require basin-planning across the majority of its river basins where

environmental flows are a priority and water uses are managed with these constraints in mind.

Recommendation 3: Assign water uses based on a priority of use with basic human and ecosystem needs having the highest priority across the province.

Providing for basic human needs would include allowances for domestic and municipal supplies, while providing for ecosystem needs would require protection of environmental flows to support aquatic ecosystems. In areas where basic human and ecosystem needs are not being met, this might mean that new allocations would not be allowed or that existing users might need to cut back. Other uses would be assigned based on priorities of use as decided through effective governance structures. Accompanying this priority of use would be a need to establish clear rules outlining the transfer of water rights among water users to ensure continued protection of basic human and ecosystem needs.

One example of poorly set priorities is that in 2008, 340,000 cubic metres – or 16% – of the Dawson Creek drinking water supply was used by the oil and gas industry in its operations. Bulk water sales by Dawson Creek to the oil and gas industry have doubled every year since 2004, so this trend has been steadily increasing. This drinking water usage is on top of the short-term uses allocated to the oil and gas industry from streams and lakes in the region as well as the Kiskatinaw River.⁷

The concern with the current approach is that basic human and ecosystem needs are not being protected today. Without changes in the status quo this situation will not improve in the future. In the northeast, there is anecdotal evidence that the oil and gas sector is purchasing water from farms with domestic and irrigation wells. In the Okanagan there is evidence that existing water uses are constraining ecosystem needs, implying decision makers perceive it as a lower priority.

A prioritization of use for human and ecosystem needs is consistent with modern water management practices and approaches being applied in other jurisdictions. If fully enforced, B.C.'s Fish Protection Act would imply that aquatic environments are a priority above some human needs. In Alberta, households have the highest priority of access to groundwater supplies. South Africa has entrenched protection of water for basic human and ecosystem needs above all others (including agriculture) in its constitution. In Australia's Murray-Darling basin, the government is investing billions to buy back water entitlements for the protection of environmental flows.

Recommendation 4: Implement shared or delegated decision-making approaches to governance that will enable greater community and regional participation in water management decisions.

Whether it is in priority or non-priority areas, good management decisions rely on good governance. There is currently a patchwork of shared governance approaches across B.C. Some regions have detailed management approaches established in legislation, such as the Okanagan Basin Water Board or the Columbia River Trust, and some areas of the province, have much less formal structure, such as the Skeena Watershed and Sacred

⁷ Personal communications, Cheryl Shuman, Councilor, City of Dawson Creek, 2010.

Headwaters Region. Given that the presence of government in regions across the province has diminished during the past number of years, we believe people in communities need to be given a stronger role in managing and planning for watershed uses and activities. A shared or delegated approach to governance, which provides a greater role – either in terms of decision-making or meaningful review of decision making – will help ensure that water and watersheds are better protected.

5.2 – Licensing Requirements for Surface and Ground Water for Unconventional Gas

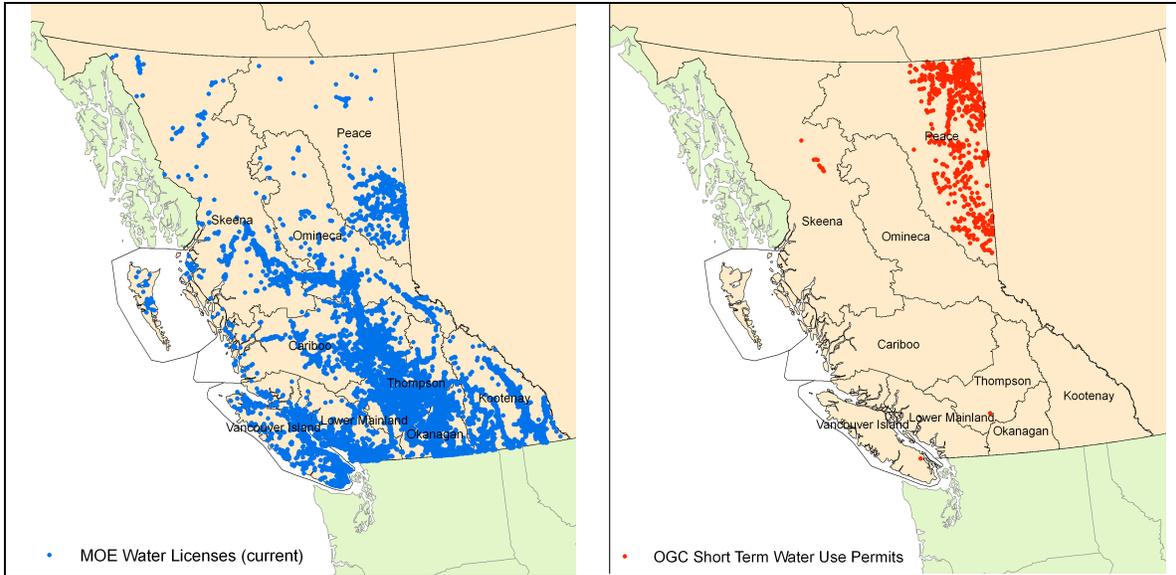
As defined in Section 4, the characteristics of an effective regulatory system will include:

- The ability to ensure that uses of, and discharges to, surface and ground water are licensed. This needs to be the case whether they are significant individual events or notable on a cumulative basis over time.

Oil and gas project proponents can uniquely apply for short-term (one-year) diversion/use of water through a streamlined permitting process administered by the Oil and Gas Commission. This is completely separate from the more rigorous process that proponents in most other sectors must undergo to receive approval for longer term water licences from the Ministry of the Environment. Oil and gas companies have only nine active water licences, whereas they have utilized 1,115 streamlined water rentals in recent years.⁸

The maps on the following page show the disparity in tools being used for regulating water use across the province and sectors. The map on the left illustrates the distribution and extent of water licensing for all users while the map on the right illustrates the distribution and extent of temporary water rentals in the oil and gas sector in recent years. Though the temporary licenses are limited to a single year of use, the prevalence of short-term permits makes it impossible to understand the full extent of water use based on current water license information. For instance, across recent years total temporary permits outnumber water licenses in the Peace by about 25%.

⁸ Water license information obtained from the province's Land and Resource Data Warehouse (LRDW) <http://www.lrdw.ca/>. Short term water use permit info from the OGC's GIS data page <http://www.ogc.gov.bc.ca/publiczone/gis.aspx>.



The Oil and Gas Commission (OGC) does require within their permit authorizations that certain standard conditions must be followed to protect shoreline habitat, ensure that water bodies are not overtaxed, and avoid water withdrawals from streams deemed too small. All permits issued by the OGC would also have some additional site-specific conditions attached, however the degree to which these would relate to additional protections for water uptake or discharge is unclear.

While the OGC permit process is intended to minimize the impacts of oil- and gas-related water withdrawals, the process may be overly simplistic and not sufficiently rigorous to fully ensure consistent protection of fish or other aquatic values. As such, the issuance of short-term water use permits by the OGC may represent a regulatory loophole for oil and gas project proponents to avoid the more thorough assessment of water use impacts that would likely be required under the Ministry of Environment’s water licensing process.

As noted in the Water Act Modernization discussion paper, the current scope of the *Water Act* does not regulate groundwater withdrawals. Groundwater well observation records dating back to the 1970s indicate that summer groundwater levels appear to have lowered across many regions of the province despite general increases in winter precipitation and recharge during the same time period.

While groundwater has some protection from pollution by the *Environmental Management Act* and the *Ground Water Protection Regulation of 2004*, oil and gas wells are excluded because they are regulated under the *Petroleum and Natural Gas Act*, and will soon be governed by the *Oil and Gas Activities Act* when it comes into force.

Based on the current structure and scope of the *Oil and Gas Activities Act* and subsequent regulations, specifically the *Environmental Protection and Management Regulations*, a lack of specific attention to the importance of groundwater is apparent. Though section 6.3 of the regulation requires that an activity not cause a material adverse effect on an

aquifer, the results-based regulation standard and OGC oversight will be accomplished through desk reviews – a process criticized by the B.C. Auditor General.

Recommendation 5: All surface and groundwater withdrawals for oil and gas activities should be licensed.

Licensing would require setting water allocations in the context of other priorities of use and water planning processes as described above, as well as adhering to licence conditions such as those described below. Licensing would also move away from the current short-term rental approach. Based upon recent non-compliance reports, it is clear the oil and gas industry is in violation of the Water Act more than other statutes, raising concern about other potential violations that are either not observed or not documented. Underlying a shift from temporary permitting to licensing would be a need to ensure applications receive a greater level of scientific scrutiny so allocations are set within sustainable limits of supply and demand, and a need to increase the stringency of conditions associated with water takings.

The Water Act Modernization proposes a threshold for licensing groundwater withdrawals. Our concern with the proposed threshold approach is that it is too simple given the dynamic interactions among surface water, groundwater and aquatic ecosystems. In particular, this approach to threshold setting does not sufficiently consider the recharge rates of an aquifer, connections to surface water supplies, the role of groundwater in supporting fish habitats, and the cumulative withdrawals from an aquifer and watershed. With the current proposal, the concern is that water users (including users in the oil and gas sectors) would be able to adjust their withdrawals to duck under a relatively arbitrary threshold to avoid being regulated. Moreover, monitoring of groundwater wells and aquifers is limited in parts of the province (especially the northeast) these thresholds aren't sufficiently justified for all regions.

This more stringent water licensing system for the oil and gas sector is reasonable and would be more consistent with how other commercial uses of water are regulated in B.C. (e.g., run-of-river power projects, mining).

Recommendation 6: All discharges to surface and ground water for oil and gas activities should require permits.

A key objective of the *Water Act* should be the management of waste water discharges. As water exists within the hydrologic cycle whereby it is neither created, nor destroyed, the impact of waste water on existing and potentially future water users is a critical area for science-based management.

With the oil and gas industry being a large user of water with an equally substantial waste water management problem, the provincial government – as the owner and protector of the public's water resources – has a fiduciary duty to equally ensure that potentially toxic waste water is managed with the same level of rigour and commitment towards protecting the public's interest and integrity of the environment.

5.3 – Effective licence conditions

As defined in Section 4, the characteristics of an effective regulatory system will include:

- The ability to impose licensing conditions that ensure:
 - Water use and discharges are limited so as to align with overall watershed priorities.
 - Water use and discharge limits can be changed to respond to changing conditions.
 - Water use and discharges are monitored in a transparent manner.
 - Water is used efficiently.

A concern with the current proposal in the Water Act Modernization discussion paper is that water licensing conditions are largely excluded from the discussion of proposed legislative and regulatory changes. This omission is important given the current conditions for regulating water takings in the oil and gas sector. Existing conditions associated with temporary water takings attempt to minimize environmental impacts by specifying general conditions for water extraction (e.g. minimum stream size or changes in lake levels, appropriate location of pipes). The effectiveness of these conditions in protecting water supplies and aquatic ecosystems, however, is largely unknown. While it is critically important to evaluate whether OGC permit conditions for water use are providing sufficient protection to fish and other aquatic values Ministry of Environment staff do not have sufficient evidence to understand their effectiveness.⁹

Oil and gas activities in B.C.'s northeast may be developing to a scale beyond the current ability of regional Ministry of Environment staff to reliably monitor and evaluate. Compounding this is the general lack of supporting infrastructures to support evaluations of changing water quantity or water quality, as the province's stream flow observation and groundwater well observation networks are particularly limited in the northern regions of the province.

Moreover, these conditions appear to lack provisions that allow for adjustments for seasonally changing water needs of lakes and streams (e.g., fish species life-stage specific flow requirements, ecological flows, etc.). Flexibility in this regard is required to ensure that sufficient flows and water supply are consistently maintained for the long-term protection of key aquatic values. Such adjustments are expected within water use licensed by the Ministry of Environment to other sectors, but does not seem to be the case for the short term permits administered by the OGC.

Water licences authorized in B.C. and associated water rentals have a price for the user that varies by sector. A water licence acquired within the petroleum sector costs \$500, with associated water rental costs for the petroleum sector being at the highest scale for the province (\$1.10 per 1,000 cubic meters). However, this cost is generally avoided by oil and gas producers through their alternative acquisition of the OGC's short-term water use permits which have neither a permit fee or any rental costs for associated water use. Through this process the petroleum sector currently has access to inequitable water rates relative to other sectors in the province and avoids processes that might be designed to

⁹ Personal communications, Nick Baccante, Ministry of Environment, 2010.

ensure some true costing for provincial water use.

Recommendation 7: Licensed allocations and discharge permits should be set within limits that do not compromise other priorities (e.g., basic human and ecosystem needs). In priority areas this may mean working within water management planning processes to ensure that allocations and discharge permits are set within watershed priorities for water use. In non-priority areas this may mean using simple, though science-based, rules of thumb to establish ecosystem needs and allow for additional allocations where surplus supplies are available. Across both priority and non-priority areas, this condition will need to enable cutting back across water uses if water availability changes over time (e.g. drought). Where the transfer of water allocations is a possibility, this recommendation would also need to be set within the context of clear rules to ensure continued protection of priority human and ecosystem needs.

Recommendation 8: Require monitoring/metering and public reporting of actual water withdrawals and discharges from and to surface and groundwater supplies in the oil and gas sector.

Currently, companies are required to keep records of actual water withdrawals as part of their conditions for temporary water use, but these data are generally not available to the broader public. This lack of transparency makes it difficult to examine vulnerabilities of surface and ground water supplies to existing and future threats for water planners and decision makers. This condition is also an important requirement to enable greater water use efficiency and more appropriate pricing as described below. These requirements should also cover the quantities and types of chemicals injected during hydraulic fracturing.

Recommendation 9: Utilize appropriate pricing and related regulation of surface water and groundwater to promote efficiency of use.

Water prices across sectors should be reflective of a shared need to promote environmental protection. If a proposed water withdrawal lowers groundwater levels or increases costs and risks to downstream users (due to reduced quality of return flows or due to greater likelihood of inadequate stream flows), then prices should reflect these impacts. Similarly, if a proposed water withdrawal is related to a use of water characterized by high consumption levels, then this should be reflected in higher withdrawal fees. It is important to charge water consumers a realistic price that reflects possible environmental costs since pricing acts as an incentive to encourage more efficient use. B.C.'s electricity sector offers some ready-made examples, where inclining block rates have been used to provide a stronger conservation incentive without significant short-term changes to net electricity bills.

5.4 – Compliance and Enforcement

As defined in Section 4, the characteristics of an effective regulatory system will include:

- The ability to effectively deter purposeful violations of licensing conditions through an effective and adequately resourced compliance and enforcement system.

We are concerned that the Water Act Modernization discussion paper does not address

the issue of compliance and enforcement, and we share the concerns of West Coast Environmental Law in this regard. Over the past number of years there have been steady reductions to provincial resources for environmental monitoring and enforcement, and we are concerned that this act has been under-enforced over time.

The February 2010 Auditor General Report on Oil and Gas Contamination has made clear that concerns exist about inadequate information being made available by the OGC with regard to environmental and financial risks associated with inactive wells, and has recommended that regulatory oversight be established. This report has also made recommendations to strengthen provisions with respect to environmental risks related to orphaned and abandoned wells. Finally, the report also found deficiencies in the Oil and Gas Commission's approach to compliance reporting and has recommended that improvements in reporting to the Legislature and the public regarding environmental contamination risks.

The record of concern with respect to compliance and enforcement for the oil and gas industry is not new, and was the subject of public scrutiny several years ago.¹⁰ A recent review of provincial compliance reports has confirmed that the oil and gas industry responses to non-compliance are limited. From 2006 to 2009, 31 fines were issued to the oil and gas industry: 22 at \$230 each; six at \$575 each. The dollar amounts on these administrative fines has not increased in the past five years, are hardly a deterrent and amount to the cost of doing business for companies. Only three fines amounted to more than administrative tickets, ranging from \$48,000 to \$65,000.

From a *Water Act* perspective it is notable that 25 of the 31 reported violations related to the *Water Act*, and the three significant penalties all related to changes in and about a stream without lawful authority.

Recommendation 10: Prioritize the need for adequate resources for monitoring and enforcement of Water Act provisions, particularly with respect to oil and gas activity.

Recommendation 11: Restore responsibility and resourcing for Water Act enforcement and compliance to the Ministry of Environment, not the Oil and Gas Commission.

Ongoing concern exists about the independence of the OGC as a regulator, and the perception that bias may exist in its practices. Restoring the role of the Ministry of the Environment, which is clearly independent of the OGC, would help build faith in environmental management oversight for the oil and gas industry. In addition, the Ministry of Environment has traditionally had more expertise with respect to environment and water related issues.

Recommendation 12: Establish a clear hierarchy of administrative penalties for licence violations or harm to water resources in the Water Act offence provisions, incorporating meaningful dollar amounts that will act as a real deterrent.

¹⁰ See for example *Who Protects the Land? Compliance Issue for Oil and Gas in British Columbia*, The Pembina Institute, 2007; *This Land is Their Land*, Ecojustice; *Oil and Gas in British Columbia: Ten Steps to Responsible Development*, West Coast Environmental Law et al, April 2004.

Dollar amounts of \$230 or \$575 are unlikely to act as meaningful deterrents for poor corporate performance as they amount to hardly more than a speeding ticket. In recent years, there has been a trend toward self-reporting, results-based regulation and desk reviews. Coupling these approaches with extremely limited enforcement and prosecution is likely resulting in limited oversight of compliance or non-compliance. If we are to prioritize the protection of water, as is envisioned in the Water Act Modernization, then we must be prepared to both strengthen the oversight of water resource protection and be prepared to prosecute offenders, in order to repair damages and deter other poor actors.

Recommendation 13. Establish a clear capacity for spot audits as an additional means to secure meaningful enforcement.

To support efforts to deter poor actors, another effective mechanism is to incorporate review and spot audit provisions that would act as a deterrent to poor conduct, particularly in the oil and gas sector.

5.5 – Other Recommendations

Recommendation 14: Bring into force complementary legislation such as the remaining provisions of the Fish Protection Act and the Environmental Management Act.

In our view, protecting water resources, water quality and the overall aquatic environment are complementary, and there is legislation in existence that can help achieve these goals. In the case of the *Fish Protection Act*, the relationship between the two laws has already been contemplated. For example, section 12.1 of the existing *Water Act* states that the quick licensing provisions would not apply to streams designated under the *Fish Protection Act* as sensitive streams, thus providing additional protections to certain waterways in B.C. Similarly, the *Environmental Management Act* has provisions that are not yet operational with regard to waste discharges that would also better protect aquatic environments.

6 Appendix – Summary of Recommendations

Recommendation	Linkage with WAM Discussion Paper
Existing and future industrial threats on water supplies be considered among the criteria for identifying priority areas where more stringent management of surface and groundwater supplies would occur.	Goal One: Protect stream health and aquatic environments. Goal Two: Improve water governance arrangements. Goal Four: Regulate groundwater extraction and use.
Make water management planning mandatory and legally binding.	Goal Two: Improve water governance arrangements. Goal Three: Introduce more flexibility and efficiency in the water allocation system.
Assign water uses based on a priority of use with basic human and ecosystem needs having the highest priority across the province.	Goal Two: Improve water governance arrangements. Goal Three: Introduce more flexibility and efficiency in the water allocation system.
Implement shared or delegated decision-making approaches to governance that will enable greater community and regional participation in water management decisions.	Goal Two: Improve water governance arrangements.
All surface and groundwater withdrawals for oil and gas activities should be licensed.	Goal One: Protect stream health and aquatic environments. Goal Four: Regulate groundwater extraction and use.
All discharges to surface and ground water for oil and gas activities should require permits.	Goal One: Protect stream health and aquatic environments. Goal Four: Regulate groundwater extraction and use.
Licensed allocations and discharge permits should be set within limits that do not compromise other priorities (e.g., basic human and ecosystem needs).	Goal Three: Introduce more flexibility and efficiency in the water allocation system.
<i>Require monitoring/metering and public reporting of actual water withdrawals and discharges from and to surface and groundwater supplies in the oil and gas sector.</i>	Goal One: Protect stream health and aquatic environments. Goal Three: Introduce more flexibility and efficiency in the water allocation system. Goal Four: Regulate groundwater extraction and use.
<i>Utilize appropriate pricing and related regulation of surface water and groundwater to promote efficiency of use</i>	Goal Two: Improve water governance arrangements. Goal Three: Introduce more flexibility and efficiency in the water allocation system.
<i>Prioritize the need for adequate resources for monitoring and enforcement of Water Act provisions, particularly with respect to oil and gas activity.</i>	Goal Three: Introduce more flexibility and efficiency in the water allocation system.
<i>Restore responsibility and resourcing for Water Act enforcement and compliance to the Ministry of Environment, not the Oil and Gas Commission.</i>	Goal Two: Improve water governance arrangements.
<i>Establish a clear hierarchy of administrative penalties for licence violations or harm to water resources in the Water Act offence provisions, incorporating meaningful dollar amounts that will act as a real deterrent.</i>	Goal Two: Improve water governance arrangements.
<i>Establish a clear capacity for spot audits as an additional means to secure meaningful enforcement.</i>	Goal Two: Improve water governance arrangements.
<i>Bring into force complementary legislation such as the remaining provisions of the Fish Protection Act and the Environmental Management Act.</i>	Goal Two: Improve water governance arrangements.