WATERPROOF 3

CANADA'S DRINKING WATER REPORT CARD

ecojustice

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November 2011

Randy Christensen authored this report.

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ecojustice

1.800.926.7744 | info@ecojustice.ca

VANCOUVER
214 – 131 Water Street
Vancouver B.C. V6B 4M3

TORONTO
Centre for Green Cities
401 – 550 Bayview Avenue
Toronto, ON M4W 3X8

OTTAWA
University of Ottawa
LeBlanc Residence, 107
35 Copernicus Street
Ottawa, ON K1N 6N5

CALGARY
900 – 1000 5th Avenue SW
Calgary, AB T2P 4V1

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EXECUTIVE SUMMARY

"All waterborne disease outbreaks are avoidable. Pathogens can only cause disease and death in humans if water source protection, pathogen removal by disinfection or filtration, or integrity of distribution systems fail."[1]

This is the third drinking water report card from Ecojustice. The five years since our last report will not likely inspire confidence in the quality of Canadian drinking water. Since then:

- White Rock, B.C., was hit with a boil-water advisory, highlighting the fact that White Rock did not chlorinate its water.[2]
- Canada's Auditor General recently reported that more than half of the drinking water on First Nations reserves poses a risk to the people who use it.[3]
- Tests on both source water and treated drinking water in Ontario showed extensive contamination by pharmaceuticals, for which testing is generally not required and which most treatment systems are not designed to remove.[4]

The *Waterproof* series was inspired by the May 2000 waterborne illness outbreak in Walkerton, Ontario that killed seven people and left thousands ill. In response, Ontario held one of the most extensive inquiries in Canadian history. The inquiry revealed a top-to-bottom failure of the "multi-barrier" approach to drinking water protection.

While Walkerton's tragedy was unique in its severity, the underlying conditions that allowed the disaster to happen are not. We began our water analyses in 2001 based on what we then perceived to be the biggest risks to drinking water quality, which were deficiencies and gaps in the frontline of drinking water provision: minimal water treatment, lax standards, poorly-trained operators, and meager testing and reporting requirements.

In our 2006 report, *Waterproof 2,* we updated our 2001 comparisons, expanded our analysis to federal regulation of bottled water, and intensified our examination of the federal government's drinking water protection efforts.

As our assessment of the risks and challenges in providing safe drinking water changes with emerging trends and threats, so does our analysis. In *Waterproof 3*, we add a comparison of source water protection (SWP) efforts by Canadian provinces and territories. SWP is the essential first step in the multi-barrier approach to drinking water and the approach that many experts feel is the hardest to implement.

Our assessment methodology for this report consisted of the following steps:

1) We sent a questionnaire to each province and territory regarding SWP efforts.
2) Internally, we analyzed the laws and regulations from each jurisdiction and compiled preliminary findings on all the factors compared in this report.
3) We combined the responses from the SWP questionnaire and our internal findings and sent each jurisdiction their results for review.
4) Based on the feedback we received, we revised our findings and compiled them into this report.
5) The combined results for all jurisdictions were sent to every jurisdiction for final review.
6) Adjustments were made to the findings as appropriate and are presented in this report.

In *Waterproof 3*, we find among other things:

- British Columbia, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Quebec and Prince Edward Island have dedicated SWP programs, containing planning and consultation requirements, that can create plans with legally-binding restrictions on activities.

- There is a staggering disparity between jurisdictions regarding the number of water sources and percentage of populations receiving water from systems protected by legally-binding SWP. Legally-binding SWP ranges from zero per cent in Alberta, the Northwest Territories and Nunavut to a high of 92 per cent in Prince Edward Island. Some provinces are on track to create 100 per cent coverage for SWP in the coming years.

Overall, there has only been marginal improvement in water treatment, drinking water quality standards, and testing requirements.

- Manitoba, New Brunswick, Ontario and Saskatchewan have dedicated funding programs for SWP.

- Only Manitoba, New Brunswick, and Ontario mandate consultation in SWP planning and programs.

- Manitoba and Ontario have explicit mandatory criteria for the development of plans. British Columbia, New Brunswick, Newfoundland and Labrador, Nova Scotia, and Saskatchewan have created provisions that should be considered, but terms of reference and other criteria are determined on a process-by-process basis.

- In British Columbia, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island, SWP plans are legally-binding or may lead to the creation of instruments that are legally-binding.

- Ontario and Prince Edward Island have not vested the ownership of water in the "Crown." Several authorities have argued that the failure to vest water ownership in the Crown undercuts the ability to regulate water and protect the public interest as the jurisdiction to regulate Crown resources is greater than the jurisdiction to regulate public property.

- The Northwest Territories, Quebec and Saskatchewan have taken positive and commendable action to acknowledge that water is a "public trust" or "community good."

- Quebec stands alone in acknowledging that the government is the custodian of water and is duty-bound to protect it for present and future generations.

- The federal government's prohibitions on bulk water export are weak and narrow. At the provincial and territorial level, New Brunswick, the Northwest Territories, Nunavut and the Yukon enforce bulk water through policy, which is a weaker prohibition than a legislative ban. Future water exports could create a risk to the control of water, particularly for the vast majority of Canadians who live in close proximity to the U.S. border.

- Overall, from 2006 to 2011, there has only been marginal improvement in the quality of water treatment, drinking water standards and testing requirements. There was noticeable improvement in the number of jurisdictions enacting standards and requiring testing for chemicals.

- Throughout Canada there are strong protections for training and certification of operators of water systems and required testing at accredited laboratories.

- Some form of public reporting of testing is required by more than half of Canadian provinces and territories, as opposed to four in the last report. However, only British Columbia, Newfoundland and Labrador, the Northwest Territories and Ontario provide a statutory right to make a complaint about drinking water concerns that must be investigated.

- There is a critical deficiency in the consistency of drinking water advisories (boil-water alerts / do-not-consume orders) in Canada. There is no central repository for drinking water advisories in Canada and many provinces also lack a registry. There are no standard criteria or procedures for conveying warnings about drinking water safety. The terminology and availability of information vary considerably between provinces, regions and even local health units.

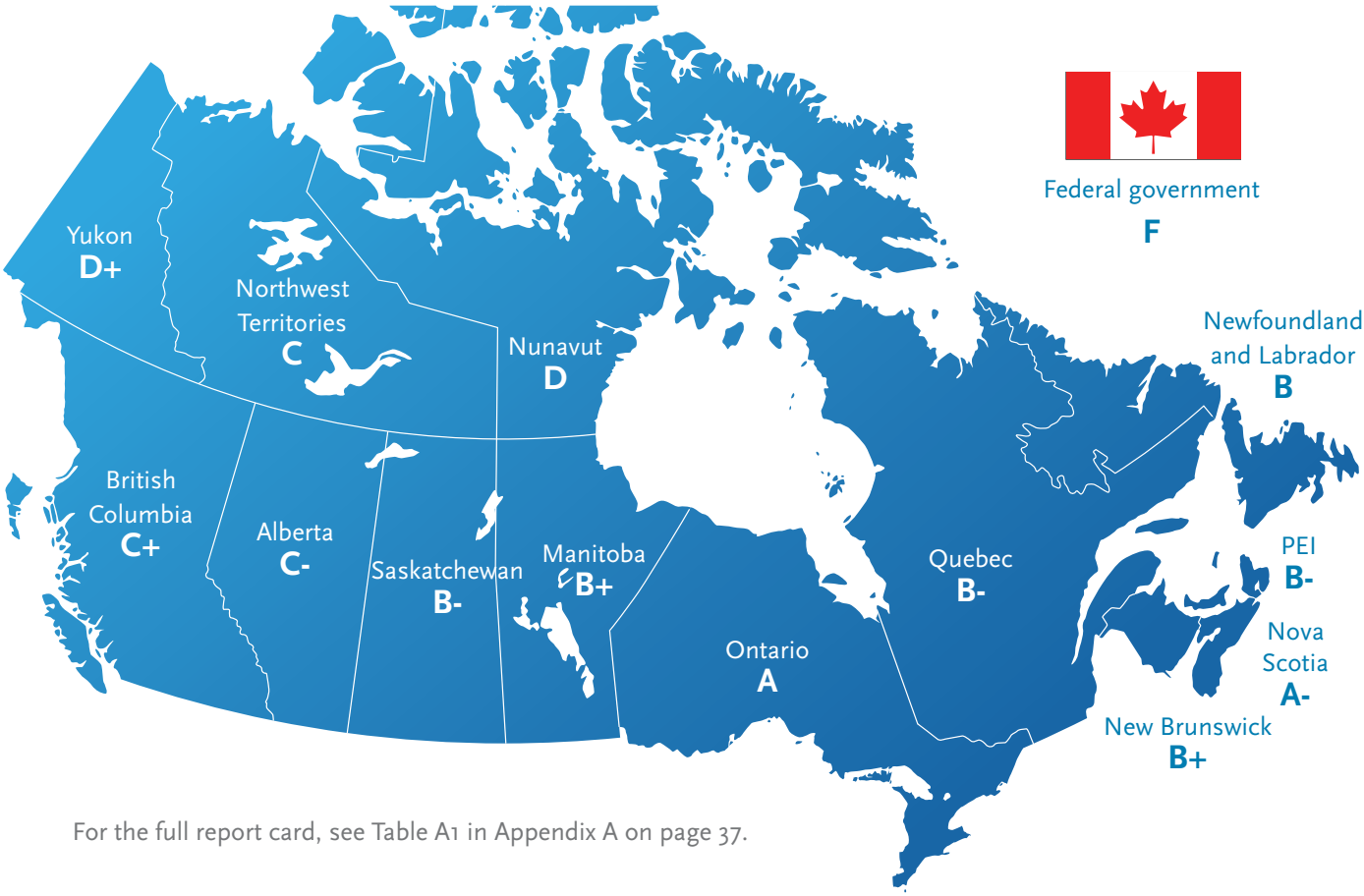
GRADING THE PROVINCES AND TERRITORIES

In previous *Waterproof* reports, we assigned a grade to each province, territory and the federal government for their water protection efforts.

In this report, we continue to issue an overall grade to all governments. However, for provinces and territories, we are assigning three grades: a grade for source water protection efforts (new this year); a grade for other drinking water protection efforts (the factors compared in previous reports); and an overall grade. By breaking down the provincial and territorial grades, we provide a means to monitor progress from previous years. The overall grade is weighted 40-60 between source water protection efforts and other drinking water protection efforts.

The federal government's record for the protection of drinking water continues to worsen. There has been little improvement in the quality of water in First Nations communities and no progress on the legislative front. Despite a scathing Auditor General report on Environment Canada's failure to properly monitor water quality, the current government is making drastic budget cuts that virtually guarantee this situation will continue to worsen. Finally, the federal government is putting ideology before public health by making some drinking water improvement funds available only on the condition that local municipalities engage in public-private partnerships. Government should make these resources available to all systems and prioritize distribution based on need.

There is some cause for optimism regarding the federal government's role in drinking water. This does not come from any federal intentions or plans, but because Canada and the international community have recognized the "right to water." This development could be used to force the federal government to finally begin fulfilling its responsibilities under Canadian law.



For the full report card, see Table A1 in Appendix A on page 37.

WHAT DO OUR FINDINGS MEAN?

In previous editions of this series, our findings led us to conclude that the biggest risks to drinking water came from gaps or deficiencies in the "frontline" of drinking water protection: the laws, programs, policies and personnel directly responsible for collecting, treating and delivering safe drinking water.

Those concerns have not been alleviated. While we found significant improvement from 2001 to 2006, there has been only modest improvement in the frontline areas from 2006 to 2011. Thus, in many places the health of Canadians are still at risk. The lack of recent progress also seems to indicate that the impetus for improved water protection, spurred by events like Walkerton, is on the wane.

Canadians are still at risk. The lack of recent progress also seems to indicate that the impetus for improved water protection, spurred by events like Walkerton, is on the wane.

The most at-risk populations are still those in rural areas and First Nations communities. These deficiencies deserve immediate and sustained attention.

We perceive that going forward, other challenges will arise. These issues include: threats to source water quality; climate change; political trends that undercut environmental protection and slash budgets for SWP and drinking water investments; and perhaps most importantly, the failure of many Canadian jurisdictions to embrace SWP planning.

The following sections analyze regulatory efforts of Canadian jurisdictions to ensure access to safe drinking water.

WP3: MULTI-BARRIER APPROACH

There is no silver bullet to ensure water quality. Threats to Canadian drinking water are ubiquitous. The complexity of these challenges has resulted in the widespread endorsement of a multi-barrier approach to drinking water protection.

> *Even though no approach will guarantee 100 per cent protection all of the time, it has been demonstrated that the most effective way to manage drinking water systems is to implement a multi-barrier approach. The goal of this approach is to reduce the risk of contamination of the drinking water, and to increase the feasibility and effectiveness of remedial control or preventative options. As a safeguard, it is important for contingency plans to be in place to respond to incidents as they arise, and for redundancies to be built into the system wherever feasible.*[5]

The key elements of a comprehensive multi-barrier approach include:

- the protection of water sources to keep raw water as clean as possible;
- adequate treatment including disinfection and additional processes to remove or inactivate contaminants;
- well-maintained distribution systems;
- strong water quality standards;
- rigorous enforcement including regular inspection, testing, monitoring;
- proper operator training and certification;
- public notice, reporting, and involvement;
- contingency planning;
- ongoing research; and
- adequate funding for all elements.[6]

In this section of the report, our analysis looks at the regulatory aspects of implementing the multi-barrier approach.

A. SOURCE WATER PROTECTION

Source water is raw water from streams, lakes or aquifers that supplies drinking water systems. Protecting the quality and quantity of source waters is a critical first step in a multi-barrier approach to achieving safe drinking water systems.

SWP is an essential step because some contaminants are not effectively removed by using standard treatment methods. It lessens treatment burdens and is thus often less expensive and more effective than treating contaminated water. Moreover, SWP is the only type of protection available to some consumers.[7] Many rural residents drink untreated or minimally treated water, particularly groundwater from wells. SWP in these cases may be the only barrier in their drinking water systems.[8]

SWP may occur through a variety of legal instruments and policies addressing a wide range of human and natural threats to the quality and quantity of drinking water sources.

Most SWP approaches are relatively simple, commonsense plans to ensure that activities do not compromise water quality, or — if that is not possible — prohibit certain activities. Although SWP is primarily focused on the protection of human health, it has derivative benefits including reduced water treatment costs and improved environmental quality.

TYPICAL SOURCE WATER PROTECTION ACTIVITIES[9]

- Identification of threats to source waters
- Zoning bylaws and local plan policies
- Identification of permitted activities within vulnerable areas
- Livestock fencing (and other cost-sharing projects with farmers)
- Land acquisition
- Capping abandoned wells
- SWP education and awareness programs
- Septic system stewardship programs
- Wetland preservation or rehabilitation

The regulation of land-use activities likely has the greatest impact on water quality. In many cases, local water providers have no ability to control land-use activities that may affect water quality beyond the ability to provide input or feedback to a provincial decision-maker. For example, provincial approvals for land-use activities may increase turbidity in drinking water. Increased turbidity can overwhelm basic drinking water disinfection methods and thereby render them ineffective.[10]

For many years, Canadian and other jurisdictions pursued an approach of requiring that decision-makers for land-use activities merely "consider" the safety of drinking water when approving other activities. This was the approach that Ontario had in place prior to the Walkerton tragedy, and that led Justice Dennis O'Connor to recommend more robust source water protection measures.

The trend toward engaging in processes and enacting legal protection specifically aimed at protecting water sources goes beyond Ontario. Generally, the development of this type of protection is most effective when it engages a wide range of parties, such as First Nations, local water management agencies, land owners and other local actors. It is often necessary to involve government agencies either in the development of the plan or through formal approval of the plan. Provincial government involvement is necessary because provincial action is generally required to implement legal protections or structure decision-making processes.

The role and importance of protecting source water was a primary focus of the Walkerton Inquiry. Justice O'Connor's first recommendation states:

> *Drinking water sources should be protected by developing watershed-based source protection plans. Source protection plans should be required for all watersheds in Ontario.*[11]

Justice O'Connor also recommended that the preparation of SWP plans be "inclusive," subject to approval, and binding on other decision-making processes. These recommendations are applicable to other Canadian jurisdictions because the considerations they address are present throughout Canada.

Dedicated SWP planning, programs and laws that specifically address drinking water concerns are essential and increase drinking water protection because:

- SWP planning is proactive while considering drinking water in other processes (e.g., approvals for land-use activities) is reactive. A project-by-project, "end-of-pipe" approach results in a failure to regulate the cumulative impacts of water use in a watershed.
- SWP planning puts drinking water protection as the central and highest objective, while in other processes, such as resource extraction, drinking water protection is often one of a sometimes long list of considerations. The failure to place drinking water protection as a first priority has serious ramifications. For example, when drinking water is "considered" in relation to a proposed industrial project, studies quantifying the potential harm to drinking water generally are conducted by consultants hired by the project proponent and thereby create a lack of public confidence in the process.

In our view, adequate SWP extends beyond SWP planning.

SWP can be further enhanced by vesting water in the Crown and most importantly, treating water as a public trust. Vesting water in the Crown and imposing a public trust on water would help protect water for current and future generations, protect the environment and establish that water for essential needs is the highest priority among consumptive uses. These requirements would grant government greater authority to protect water and impose greater responsibility on government to protect water quality.

SELECTED RECOMMENDATIONS FROM THE WALKERTON INQUIRY RELATED TO SOURCE WATER PROTECTION[12]

Recommendation 1: Drinking water sources should be protected by developing watershed-based source protection plans. Source protection plans should be required for all watersheds in Ontario.

Recommendation 2: The Ministry of the Environment should ensure that draft source protection plans are prepared through an inclusive process of local consultation. Where appropriate, this process should be managed by conservation authorities.

Recommendation 3: Draft source protection plans should be reviewed by the Ministry of the Environment and subject to ministry approval.

Recommendation 4: Provincial government decisions that affect the quality of drinking water sources must be consistent with approved source protection plans.

Recommendation 5: Where the potential exists for a significant direct threat to drinking water sources, municipal official plans and decisions must be consistent with the applicable source protection plan. Otherwise, municipal official plans and decisions should have regard to the source protection plan. The plans should designate areas where consistency is required.

Recommendation 6: The provincial government should provide for limited rights of appeal to challenge source protection plans, and provincial and municipal decisions that are inconsistent with the plans.

Recommendation 7: The provincial government should ensure that sufficient funds are available to complete the planning and adoption of source protection plans.

Recommendation 10: The Ministry of the Environment should not issue Certificates of Approval for the spreading of waste materials unless they are compatible with the applicable source protection plan.

Recommendation 17: The regulation of other industries by the provincial government and by municipalities must be consistent with provincially approved source protection plans.

What we are and are not analyzing

In *Waterproof 3*, we focus our analysis on the features and effectiveness of laws and programs specifically intended to protect Canadian source water. Our areas of inquiry include:

- Prohibitions and remedial powers to protect water quality;
- the existence of dedicated SWP provisions and, where found, the characteristics of those programs;
- the percentage of public water systems in a jurisdiction with SWP plans;
- the vesting of water in the Crown and adoption of water as a "common good" or declaration that water is subject to a "public trust;" and,
- water export prohibitions.

General environmental, planning, land-use and resource development laws play a central role in determining source water quality. Those laws are not the subject of analysis and comparison in this report for two primary reasons:

1. In such laws, in almost all instances, there is a very wide discretion to consider impacts on water quality and to make decisions to protect (or not protect) water quality. Thus, the extent to which source water is protected is dependant upon the exercise of discretion rather than any requirement for minimum standards or protections in the laws themselves. A regulatory comparison of laws that contain wide-discretion in decision-making would simply yield a finding that jurisdictions may, but are not required to, protect drinking water quality.

2. The purpose of a cross-jurisdictional analysis of laws, regulations and policies related to drinking water is to identify where stronger laws have reduced risk. That would not be the result of comparing general environmental, planning and land-use laws. An analysis of the stringency of resource extraction laws on paper would yield a misleading result because, for example, stronger laws can be the result of increased risks from activities. Thus, stronger laws in one area might provide the same degree of protection as far weaker laws in a much less risky area. Consider for example steep-slope logging near a municipal water supply as opposed to flat land logging in remote areas.

"Drinking water sources should be protected by developing watershed-based source protection plans. Source protection plans should be required for all watersheds."
— Justice O'Connor

1) Prohibitions and Remedial Powers to Protect Water Quality

Fundamental SWP measures include a general prohibition on discharges and activities that may impair surface water, and the ability to order clean-up or recover the costs of cleaning up.

Every jurisdiction we analyzed has some form of prohibitionary and remedial protection powers. The exact nature of the powers and the process for exercising those powers differ between jurisdictions. Differences include:

- The nature of activities prohibited: from the more broad "any activity impairing water quality" to the narrower "releases" into water;
- the nature and level of the harm threshold required before order-making powers or offences are triggered: for example, "harm to water quality" as opposed to the creation of a "health hazard;"
- the extent to which exemptions may be granted to prohibitions on discharges and activities; and
- the process through which responsible parties may be made to clean up damage: for example, whether clean-up cost may levied directly by a Ministry or whether court proceedings are required.

Despite the differences in approach, it appears that all of the jurisdictions can order actions be taken to prevent or remediate damage to source water quality or collect the costs of remediating water quality.

Detailed information for each jurisdiction is found in Table B1 of Appendix B.

2) Source Water Protection Programs

British Columbia, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Quebec and Prince Edward Island have dedicated SWP programs that contain planning and consultation requirements that can create plans with legally-binding activity restrictions. In British Columbia, no plans have been approved under the SWP program provisions.

Alberta has a framework for water management planning that could support some consideration of water quality and drinking water issues. However, the planning framework is authorized through the *Water Act*. Alberta's *Water Act* primarily focuses on water allocation and scarcity instead of on water quality. Further, the first plan created under the Alberta framework, for the South Saskatchewan River, did not consider drinking water or water quality in a meaningful way. In our view, while Alberta has taken positive steps on water governance issues, including the "Water for Life" strategy, Alberta needs to improve its effort. Specifically, Alberta should improve its water protection efforts by strengthening and mandating drinking water consideration in water management planning or by creating a dedicated SWP program.

Saskatchewan has a robust planning framework but the outcomes are advisory and not legally enforceable. Manitoba is currently in the process of developing source water protection efforts.

Finally, the Northwest Territories and Nunavut do not currently have SWP planning, but the Northwest Territories is developing a model to commence such planning.

Table 1 lists the jurisdictions that have created SWP programs and the general nature of those programs. A more detailed analysis of the features of active SWP programs appears in the following sections.

TABLE 1: HAVE JURISDICTIONS CREATED A SOURCE WATER PROTECTION PROGRAM OR PLANNING REGIME?

(please see Table B2 in Appendix B for more information)

	Extant SWP regime?	Description
Alberta	Partial	The Government of Alberta does not engage in dedicated SWP planning. Alberta does engage in regional Water Management Planning, which could result in protection of water for drinking water quality. There is one approved Water Management Plan for the South Saskatchewan Basin that notes water quality in the basin "should be studied in detail" and notes that such work will support "sustaining growth and managing the rivers to enhance aquatic life."
British Columbia	Yes	Specific provisions allow or may require the preparation of Water System Assessments and Plans, as well as Drinking Water Protection Plans.
Manitoba	Partial	Manitoba's planning framework is under development.
New Brunswick	Yes	The Minister of Environment may make a designation order designating water sources and wellfields as protected areas. Once designated, regulations have provisions that restrict and in some cases prohibit activities that could pose a risk to the source drinking water. These regulations are written in such a way that an activity that is not expressly permitted is prohibited. The minister may issue exemptions for activities that are not permitted on a case-by-case basis. Policies are typically developed to provide guidance with respect to the issuance of exemptions. The minister may also include provisions for water protection in a designation order for a wellfield or water source.
Newfoundland and Labrador	Yes	All designated water supplies receive protection measures that are established through policy. Water supplies that have multiple resource use pressures can, at the request of the town, develop a source protection plan with the help of the province.
Northwest Territories	No	The federal government has primary responsibility over the SWP in the NWT. The territorial and federal governments are currently developing a model for SWP planning as part of the five-year Water Stewardship Action Plan. Existing protection is currently limited to the prohibition of water use or waste deposit without a permit. The chief public health officer may order the restriction of activities that might pose a health hazard.
Nova Scotia	Yes	There is a statutory scheme in place in Nova Scotia to allow the restriction of activities to protect drinking water sources through the designation of protected water areas and the inclusion of term and conditions in approvals to operate. There is a prohibition on certain activities in protected water supply areas and municipal councils may pass bylaws designating lands owned by a municipality as a protected water supply area.
Nunavut	No	N/A
Ontario	Yes	There is a province-wide source protection regime intended to enable communities to protect their drinking water supplies by developing collaborative, locally-driven, watershed-based source protection plans founded on science. Through source protection planning, communities strive to identify potential risks to local water sources and take action to reduce or eliminate these risks.

Table 1 continued

	Extant SWP Regime?	Description
Prince Edward Island	Yes	Municipalities are required to develop wellfield protection plans. These are subject to ministerial approval, and the implementation of these plans is governed by a timeframe set by the municipality.
Quebec	Yes	Municipalities are empowered to commence SWP plans and restrictions.
Saskatchewan	Partial	SWP planning has not been enshrined in law. Saskatchewan facilitates watershed and aquifer planning. Provincial officials work with local watershed advisory committees and technical experts to develop SWP plans. The plans do not have regulatory authority. The plans identify issues of concern to the local watershed advisory committees and technical experts and make recommendations to address these issues. The plans are implemented by locally-directed watershed stewardship associations. Recommendations may include regulatory and stewardship tools.
Yukon	Partial	Yukon has designated water management areas and there are restrictions on the activities that may be conducted in those areas.

The attributes of SWP programs are compared below.

TABLE 2: PERCENTAGE OF WATER SOURCES WITH SOURCE WATER PROTECTION PLAN

(please see Table B3 in Appendix B for more information)

Alberta	No water sources are protected by legally-binding SWP plans. There are provisions for regional planning.
British Columbia	No water sources are protected by legally-binding SWP plans. Approximately 46 drinking water systems have conducted source assessments across the province. Most have been done voluntarily, or as conditions of permits, and some have been ordered. Vancouver has long-term leases for its three watersheds.[13] Victoria owns the land within its watershed, providing a very high level of local control and the ability to protect source water. These communities represent more than 50 per cent of B.C.'s population.
Manitoba	Manitoba did not provide information in response to this inquiry. We did not find any water sources protected by legally-binding SWP plans
New Brunswick	67 individual water supplies designated under regulation have SWP measures in place. 97 per cent of surface water supplies have protections in place. 63 per cent of groundwater supplies have protections in place. SWP plans are either under development or have been completed for 19 municipalities. Two municipalities have yet to develop a SWP plan.
Newfoundland and Labrador	85 per cent of surface water sources have protections in place. 30 per cent of groundwater sources have protections in place. Approximately five source protection plans have been developed in the province.

Table 2 continued	
Northwest Territories	No water sources are protected by legally-binding SWP plans.
Nova Scotia	Approximately 75 per cent of municipal drinking water sources have final or draft plans in place. These drinking water sources serve roughly 90 per cent of the population that receives municipal drinking water. 100 per cent of municipal water utilities have initiated their planning process or have protection measures in place. There are 25 areas designated as protected water areas with a range of prohibitions or restrictions on activities.
Nunavut	No water sources are protected by legally-binding SWP plans.
Ontario	66 per cent of water sources have ongoing SWP plans in development. Once plans are in place, more than 80 per cent of Ontario's population will have its water supplies protected through this process.
Prince Edward Island	92 per cent of water systems have or are in the process of developing wellfield protection plans.
Quebec	Less than 10 per cent of water sources are covered by SWP plans.
Saskatchewan	No water sources are protected by legally-binding SWP plans. Non-binding plans have been created for 82 per cent of water sources.
Yukon	84 per cent of large public drinking water sources meet minimum setback provisions. Whitehorse has a Watershed Management Plan. Six water management areas have been created and some prohibitions exist in those areas.

Funding

SWP planning is generally a time-intensive process that requires sampling, assessments, consultation and public education. Plans will affect a wide array of interests and it is therefore necessary to have adequate resources to bring parties together. Bringing interested parties together will help address their interests and perspectives and validate the process.

Manitoba, New Brunswick, Ontario and Saskatchewan have dedicated funding programs for SWP.

Other jurisdictions do not have dedicated funding but provide discretionary funding for SWP programs through a variety of existing programs. British Columbia and Nova Scotia have provided this type of funding assistance. Newfoundland and Labrador and Nova Scotia provide "in kind" support such as hiring consultants or assigning provincial employees to assist with the development of SWP plans.

Although not specifically focused on SWP, Alberta funds a number of water planning processes and advisory councils.

The Northwest Territories, Nunavut, Prince Edward Island and the Yukon do not fund SWP planning efforts.

Detailed information for each jurisdiction is found in Table B4 of Appendix B.

Public / Community Participation

The involvement of a broad range of affected groups in the SWP planning process is crucial to its success. The process must be broadly and fairly inclusive of the interests that will be affected because it needs public support to be effective.

As a general rule, consultation should err on the side of inclusion, in regards to both the parties consulted and the level of involvement demanded. Consultation should never be pro forma. Consultation should be meaningful and substantial. Interested parties must be given adequate time and information to ensure that their views are fully canvassed and considered. Without extensive consultation, watershed plans are likely to suffer from a lack of commitment and support from affected groups and are thereby less to succeed.

Manitoba, New Brunswick, and Ontario mandate consultation in SWP planning and programs:

- Manitoba requires consultation with First Nations and at least one public meeting.
- In New Brunswick, consultation on the water classification process is required for the public and other interested persons. Anyone potentially affected by a plan must be provided a copy of the plan prior to enactment. Open houses may be held.
- In Ontario, the local Source Protection Committees (SPCs) are made up of one-third municipal representatives, one-third commercial/industrial representatives, and one-third public representatives. There are requirements for posting terms of reference and draft plans on the Internet for public comment and for holding public meetings at several stages during the process. Mandatory notice is required for those parties who may be affected by SWP measures. Consultation with First Nations is mandated at several stages in the process.

Quebec is currently developing a process for public consultation and public consultation is also under consideration in the Northwest Territories.

In other jurisdictions, consultation is not mandatory, but may be required on a case-by-case basis:

- British Columbia requires notice of the process be provided to the public and potentially affected parties. Public consultation is not required.
- In Newfoundland and Labrador consultation opportunities will be determined by locally-based planning committees.
- In Nova Scotia an advisory committee is established and the provincial government recommends that the committee include stakeholders from all sectors.
- On Prince Edward Island, the range and extent of participation is at the discretion of the municipality developing the plan.
- Saskatchewan does not prescribe consultation through regulation but allows any interested community groups to participate in watershed planning.

As mentioned, Alberta conducts several water planning processes, but they are not specifically targeting SWP. Quebec is currently developing a process for public consultation and public consultation is also under consideration in the Northwest Territories.

Detailed information for each jurisdiction is found in Table B4 of Appendix B.

Standards and Criteria for Plan Development

For SWP planning to be effective, it is necessary to take into account a broad range of factors. Part II of the Walkerton Inquiry report recommends that watershed-based source protection plans should *at minimum* include:

- a water budget for the watershed;
- the identification of all significant water withdrawals;
- land-use maps for the watershed;
- the identification of wellhead areas;
- maps of areas of vulnerability for surface and groundwater;
- the identification of all major point and non–point sources of contaminants;
- a model that describes the fate of pollutants in the watershed;
- a program for identifying and properly decommissioning abandoned wells, excavations, quarries, and other shortcuts that can introduce contaminants into aquifers;
- the identification of areas where a significant direct threat exists to the safety of drinking water (in such cases, municipal official plans and zoning decisions must be consistent with the plan); and
- the identification of significant knowledge gaps and or research needs to help target monitoring efforts.[14]

Of the jurisdictions engaged in SWP for drinking water, Manitoba and Ontario have explicit mandatory criteria for the development of plans. British Columbia, New Brunswick, Newfoundland and Labrador, Nova Scotia, and Saskatchewan have created provisions that should be considered, but terms of reference and other criteria are determined on a process by process basis.

Detailed information for each jurisdiction is found in Table B4 of Appendix B.

Legal Status

The goal of SWP planning is to identify existing and potential threats to drinking water sources and propose strategies for addressing those threats.

The legal force of SWP plans varies greatly among jurisdictions. In some jurisdictions, protections may be enshrined in law, while other jurisdictions may simply require consideration of potential impacts in decision-making processes, while other jurisdictions create plans that are "advisory" and are not required to be considered by decision-makers.

In six jurisdictions, SWP plans are legally-binding or may lead to the creation of instruments that are legally-binding. A large percentage of water sources in New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island are protected by legally-binding SWP plans. Ontario has a large number of source water planning processes that are ongoing and will lead to binding legal restrictions. Drinking Water Protection Plans in British Columbia may become binding through provincial approval but no binding plans have been approved.

Manitoba is in the process of developing its SWP program. In Saskatchewan, plans are not legally-binding.

Periodic Review of Plans

Threats to water are not static. New land-use activities, urban expansion, and other factors introduce new threats. The need for continual monitoring and updating of SWP plans was addressed in Part II of the Walkerton Inquiry report:

> *Some aspects of the watershed-based source protection plans will require constant updating to reflect changing circumstances. One component of those plans should therefore be the identification of significant knowledge gaps and a plan for developing knowledge in those areas. The monitoring component of watershed-based source protection should ensure that new data are collected and used to continuously refine watershed models. These improvements must be integrated into the plan through a full and fair process. Original affected groups and new participants should be convened periodically to review and revise the plan as necessary, using a process that is defined by the [Ministry] in co-operation with the affected groups and is similar to the one used to develop the plan.*[15]

In Manitoba, a review will require a review date is specified when a plan is approved.

New Brunswick does not require periodic review and updating, but does require updating upon the occurrence of certain events such as new wells being drilled.

Newfoundland and Labrador does not formally require updating but sets a target date of every five years.

In Nova Scotia, the municipal water utility's approval to operate includes a condition to review and update the SWP plan and implementation schedule of the plan on a yearly basis and document the status and activities of the plan in an annual report.

In Ontario, when Source Protection Plans are approved, the minister must specify the parts of the plan that require review and the review schedule.

Prince Edward Island does not have a requirement to periodically review plans, but there is an expectation that the plans will be updated as needed.

In Saskatchewan, SWP planning is not mandated in legislation so there is no requirement for review. The Saskatchewan Watershed Authority is currently developing criteria that will guide renewals.

Concluding Note on SWP Planning

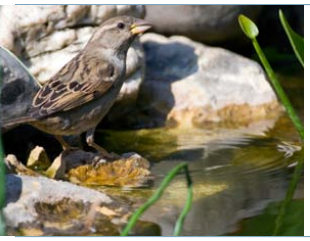
A number of provinces have taken laudable initiatives to protect source water. New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island deserve special mention for being forerunners in these efforts and creating strong legally-binding protections for a large number of public water supplies.

In response to the Walkerton tragedy, Ontario is implementing a SWP program. Of the Canadian initiatives, Ontario's is the most ambitious, comprehensive, inclusive and well-funded. Ontario's efforts are currently mid-process and it will be well-worth it to track its progress.

3) Protection of Public Interest in Water

Water is a substance that is essential to human life, critical to the environment, and irreplaceable in many commercial and industrial processes. The interaction of public, private, environmental and health aspects of water make water regulation one of the most complex legal and policy challenges.

All jurisdictions have created some form of private rights (e.g., riparian rights or domestic use rights) in water or allow the establishment of water-use rights by permit or licence. The creation of private rights in water can limit



Water is a substance that is essential to human life, critical to the environment and has an irreplaceable function in many commercial and industrial processes.

governmental abilities to protect and control use of water. For example, in Texas where landowners legally "own" groundwater, ownership has been used both politically and legally to challenge attempts to limit rates of extraction to prevent the drying up of aquifers.[16]

Vesting water in the Crown is an important step that strengthens the authority of a province to regulate water. Where water is vested in the Crown, private rights to use water cannot be considered "ownership" or "private property" rights. [17] Maintaining ownership of water in the Crown gives government greater ability to adjust water rights after the rights have been issued. This is important in the context of drinking water protection as under many water-use statutes, drinking water is not currently a top priority and changes to priority schemes are likely to occur in the near future.[18]

The declaration of water as a community good or as a "public trust" extends the ability to protect water through regulation even further and arguably creates an obligation to protect the public interest aspects of water. Establishing the public trust in water would make water management a fiduciary duty, strengthen water protection and provide a clear mandate for government to preserve and protect water in the public interest.[19] For a fuller discussion of these issues, please see the joint publication by Ecojustice and the POLIS Water Sustainability Project.[20]

In 2010, the Federal Government introduced the *Transboundary Waters Protection Act,*[21] *(TWPA)*. The *TWPA* was intended to address "remaining gaps" in bulk water export laws.[22] The *TWPA* was criticized as being inadequate and was never enacted. The lack of effective federal water export protection reaffirms the need for provinces and territories to have strong water export bans.

Vesting of Water in Crown

Alberta, Manitoba, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Quebec and Saskatchewan fully vest water in the Crown.

British Columbia vests water in the Crown, except to the extent "private rights" are established under legislation.

New Brunswick vests "control" of water in the province.

In the Yukon, the "administration and control" of water is vested in the territorial government except for waters in federal conservation areas.

Ontario and Prince Edward Island do not vest water in the Crown.

Public Trust / "Common Good"

Three jurisdictions deserve special recognition for specifically acknowledging and protecting the public interest in water through taking steps to recognize that water is a public trust or common good.

In the Northwest Territories, the legislative assembly has passed a motion recognizing a fundamental right to water.

In Saskatchewan, water is considered "a shared legacy, a public trust and a fundamental human right and, therefore, a collective responsibility."

Quebec stands alone in protecting the public's interest in water by affirming that water is a collective good and that the government is duty-bound to protect water quality. Under the *Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection* (An Act to affirm the collective nature of water resources and provide for increased water resource protection), surface and groundwater are recognized as collective goods for the people of Quebec. The law confirms that water resources are part of the province's common heritage and that the state is duty-bound to act as their custodian, for the benefit of current and future generations.

Detailed information for each jurisdiction is found in Table B5 of Appendix B.

Quebec stands alone in protecting the public's interest in water by affirming that water is a collective good and that the government is duty-bound to protect water quality. Legislation confirms that water resources are part of the province's common heritage and that the state is duty-bound to act as their custodian, for the benefit of current and future generations.

4) Water Export Bans

Bulk water export prohibitions can take several forms: legislative bans; regulatory provisions; formal policy statements; and informal policy or practice. Definitions of what constitutes a "bulk water export" vary by jurisdictions and are set out in Table B6 of Appendix B, but generally these permit exports of water in containers up to 25 L (water cooler size).

In Canadian jurisdictions, because governments and their policies can change rapidly, strong protection against water exports can likely be best guaranteed in the long run by enacting legislative bans.

Under a legislative ban, bulk exports would require legislative amendments. Legislative bans would require a change to go through the formal legislative process, with the associated committee hearings, debate and recorded votes. The ban would have the force of law and generally speaking, would receive a higher level of deference from a reviewing court than policy or practice would.

A bulk water export ban enacted through regulation could be rescinded by the provincial or territorial cabinet without a recording of the individual votes of cabinet members. In most cases, there would be no guarantee of public notice of a proposal to change a regulatory ban and no involvement by opposition political parties. A change to a regulation would be published eventually, but it may not come to immediate attention.

Bans implemented through policy are the weakest form of water export prohibition. These "bans" do not have the force of law and, in most cases, could be changed without any notice, debate or public notice. This type of ban would also receive the least deference by a court in a case challenging export prohibitions.

Currently, bulk water export bans in Canadian provinces and territories take the following form:

- LEGISLATIVE BULK WATER BANS: Alberta, British Columbia, Manitoba, Newfoundland and Labrador, Nova Scotia, Ontario, Prince Edward Island, Quebec and Saskatchewan.
- REGULATORY BANS: No jurisdictions enforce bulk water export prohibitions through regulation.
- FORMAL POLICY BANS: The Northwest Territories, Nunavut and the Yukon implement bulk water bans through formal policy statements.
- INFORMAL POLICY BANS: In New Brunswick, the government has an informal policy that the government purports would prohibit bulk water exports through denials under through the *Environmental Impact Assessment* process.

Detailed information for each jurisdiction is found in Table B6 of Appendix B.

B. WATER TREATMENT

Source water protection is the first line of defence in the protection of drinking water. Water treatment is the second. Water treatment is in itself multi-layered and usually includes disinfection.

Water chlorination and filtration has been hailed as the major public health achievement of the 20th century.[23] However, in recent years, public concerns regarding the potential health impacts of byproducts resulting from the disinfection process have grown.

Although disinfection byproducts, such as trihalomethanes and formaldehyde, are linked to various types of cancer, most experts agree that these cancer risks are smaller than the risks posed by pathogenic microorganisms in water that is not disinfected.[24] That said, many steps can be taken to reduce risks associated with disinfection, such as reducing turbidity through filtration and employing disinfection methods other than chlorine, such as ozonation and UV light treatment.

Perhaps the most important factor in disinfecting water is to ensure that the water itself is free of sediment as it can interfere with treatment effectiveness.[25] Surface waters are much more likely than groundwater to experience periodic or chronic turbidity problems. The *Guidelines for Canadian Drinking Water Quality* recognize that microbiological contaminants are the greatest threat to public health and recommend filtration for any surface water and groundwater under the influence of surface water.[26]

In this report, we use the term "basic water treatment" to mean treatment intended to counter microbiological threats (for example, chlorination). Advanced water treatment refers to treatments beyond disinfection, such as filtration (membrane, physical [sand], or chemical), ozonation, and treatment with ultraviolet light aimed at more effective microbiological threat control as well as removing other contaminants and improving physical water characteristics.

In 2006, Prince Edward Island was the only jurisdiction that did not have mandatory basic water treatment or a proposal to implement such a requirement. Advanced treatment requirements are mandatory in at least some situations in Alberta, Ontario, Nova Scotia and Quebec.

All jurisdictions now require some type of basic disinfection. However, in British Columbia and Nunavut, the requirement for disinfection only applies to surface water.

The number of jurisdictions requiring advanced treatment of surface water increased by one to six this year. The Northwest Territories joined Alberta, Ontario, Nova Scotia and Quebec and the Yukon.

TABLE 3: DISINFECTION AND ADVANCED WATER TREATMENT REQUIREMENTS, PROVINCES AND TERRITORIES

(please see Table C1 in Appendix C for details)

Year	2006 (including proposed)	2011
Base disinfection	12	13
Advanced treatment	5	6

1) Standards

The *Guidelines for Canadian Drinking Water Quality* identifies roughly 165 microbiological, chemical (and physical), and radiological contaminants in drinking water that need to be reduced or eliminated to ensure the protection of human health. Table 4 represents the change in the number of jurisdictions with legally-binding standards for contaminants and parameters.

TABLE 4: JURISDICTIONS WITH BINDING STANDARDS FOR CLASSES OF CONTAMINANTS

(please see Table C2 of Appendix C for details)

Year	Microbiological	Chemical	Radiological
2006	11	8	7
2011	13	12	8

From a legal perspective, standards provide a superior level of protection for human health than guidelines because standards are legally-binding and enforceable. A failure to meet standards *should* result in a variety of different actions being taken to ensure compliance in the future. In contrast, guidelines represent voluntary targets that drinking water providers may strive toward

but need not achieve. Guidelines do not necessarily result in remedial action where violations occur.

Because of the inability of guidelines to legally compel action, in the Walkerton Inquiry report, Justice O'Connor concluded that drinking water quality standards for all classes of systems "should have the force of law."[27] The World Health Organization has also said that there should be legally-binding national standards for drinking water quality in all countries.[28]

The enforceability and compulsion that derive from standards make standards superior to guidelines.

In 2006, we found that five jurisdictions had fully adopted, or bettered, the full suite of parameters in the *Guidelines* (Alberta, Nova Scotia, Ontario, Quebec and the Yukon).[29] Eight jurisdictions had adopted some of the *Guidelines* and only New Brunswick and Prince Edward Island had no legally-binding standards.

This year, we find that all jurisdictions have some form of microbiological sampling requirement, including some that are mandated in policy and applied in practice. All jurisdictions except British Columbia have some mandated form of chemical sampling. The number of jurisdictions adopting radiological standards or required sampling has increased to eight.

In recent years, public concerns regarding the potential health impacts of byproducts resulting from the disinfection process have grown.

2) Testing

A sampling program for a drinking water system should address both the scope of contaminants tested and the frequency of testing.

The design of routine contaminant testing will likely vary from water system to water system. When establishing testing requirements for individual systems, regulators will generally take into account previous or initial testing results along with an assessment of potential sources of contamination, both natural and human-induced, that may influence drinking water quality. Regulatory requirements for testing frequency vary by population level and identification of threats to water quality. Generally, communities with smaller populations have less stringent requirements for both the breadth and frequency of testing. Regulators allow less stringent testing due to the financial constraints of communities with smaller populations.

Our assessment focuses on testing requirements for the three broad classes of contaminants established under the *Guidelines* (microbiological, chemical and radiological). In the results presented herein, a finding that a jurisdiction tests for one class of contaminants does necessarily indicate that the jurisdiction is requires testing for every parameter in the *Guidelines;* rather, it indicates that there is some required testing of standards within the broad classes. It is also important to note that a finding that a jurisdiction does not require testing does not necessary mean that individual systems within the jurisdiction are not otherwise required to test for such contaminants (for example, through individualized testing requirements imposed through an operating approval for a water system on a case-by-case basis).

In 2006, we found a noticeable trend toward more comprehensive, mandatory testing with 11 jurisdictions requiring testing for pathogens, eight requiring some sampling of chemical or physical — or both — factors, and two requiring some form of radiological sampling. The

two provinces that did not require testing for pathogens in regulation either sampled water directly (Newfoundland and Labrador) or required sampling in individual operating permits (New Brunswick).

This year, one additional jurisdiction (Yukon) now requires mandatory microbiological testing. In Newfoundland and Labrador, where water system operators are not required to test for microbiological contamination, the province operates a sampling program. Newfoundland and Labrador now also mandates some type of sampling for chemical parameters. British Columbia, New Brunswick, Nunavut, and Saskatchewan do not mandate chemical testing parameters. As stated above, this finding does not preclude the possibility of testing for an individual system within these jurisdictions.

TABLE 5: JURISDICTIONS WITH MANDATORY TESTING FOR CLASSES OF CONTAMINANTS

(please see C3 in Appendix C for more information)

Year	Microbiological	Chemical	Radiological
2006	11	8	2
2011	13	9	2

3) Construction and Modification of Drinking Water Treatment and Distribution Systems

Our analysis of drinking water regulation over three reports finds that there are two ways that regulators impose construction and operation standards for water treatment and delivery systems. Regulatory bodies can adopt standards and requirements that all water suppliers must meet. Alternatively, a regulatory body can require approvals for construction and operation with specific operating conditions imposed on a case-by-case basis.

In 2006, we found that every jurisdiction except New Brunswick regulated water system construction and maintenance. This year, we found that all jurisdictions impose minimum requirements for the construction and modification of drinking water systems through regulation of the approval process.

Detailed information for each jurisdiction is found in Table C4 of Appendix C.

4) Operator Certification

> *"There is no question that competent water operators are an essential element of a safe drinking water system."*[30]

Certification verifying proper training "is an essential component of a safe drinking water system."[31] Operator certification is considered such an important issue in the United States that individual states must establish mandatory certification programs in order to be eligible for certain infrastructure grants.[32]

Training and certification are, strictly speaking, separate issues. Certification is generally accomplished through a regulatory body that considers experience, education and examination. Certification should also ensure the maintenance of skills and the acquisition of new knowledge in the field. Training requirements are not compared in this report but should take into account an employee's duties, experience and education.

In 2006, all jurisdictions required accredited labs to test water samples. This year, the number fell to 12 as the Northwest Territories no longer requires water samples be analyzed at accredited labs.

In 2006, every jurisdiction except Newfoundland and Labrador, New Brunswick, the Northwest Territories and Nunavut had operator certification programs. This year, only Newfoundland and Labrador and the Northwest Territories lack operator certification programs.

TABLE 6: REQUIREMENTS FOR LAB ACCREDITATION AND OPERATOR CERTIFICATION, PROVINCES AND TERRITORIES

(please see Table C5 in Appendix C for more information)

Year	2006 (including proposed)	2011
Lab accreditation	13	12
Operator certification	9	11

R. C. HARRIS WATER TREATMENT PLANT, TORONTO

5) Reporting and Transparency

Prompt reporting of water testing results through drinking water advisories is essential in mitigating the effects of waterborne disease outbreaks.

The need to report goes beyond informing consumers of immediate health threats. It is also important that consumers be informed of the overall quality of their drinking water. Both the United States and the European Union require water suppliers to provide "right-to-know" reports that summarize water quality testing results and contrast the quality of their water with relevant standards. In the United States, these reports are required annually and in the European Union such reports must be delivered every three years.

In 2006, we examined whether Canadian jurisdictions required right-to-know reports, had mandatory criteria for boil-water alerts and whether they posted water quality test results online. We found that five jurisdictions had right-to-know provisions, five had mandatory criteria for boil-water alerts and eight jurisdictions posted some water quality information online.

This year, we present information related to drinking water advisories in the Clear as Mud section on page 24.

In this report we also investigate whether jurisdictions have created a statutory right for the public to require an investigation into concerns about their drinking water sources. The benefits of an adequate statutory right to investigate are that it identifies a specific official responsible for complaints from the public and requires an initial examination and further investigation, if merited. If investigation is not merited, then, pursuant to the statute or through principles of procedural fairness, there must be disclosure of the reasons why an investigation was not pursued.

This year we find that Alberta, British Columbia, Manitoba, Newfoundland and Labrador, Ontario, Prince Edward Island and Saskatchewan require the reporting of water quality results to residents or the posting of the information online. New Brunswick, the Northwest Territories and Nova Scotia produce annual reports where some testing information is reported.

British Columbia, Newfoundland and Labrador, the Northwest Territories and Ontario provide residents the ability to request an investigation regarding drinking water concerns.

TABLE 7: TRANSPARENCY AND PUBLIC ACCOUNTABILITY, PROVINCES AND TERRITORIES

(please see Table C6 in Appendix C for more information)

Year	2006 (including proposed)	2011
Right-to-know reports	5	7 (plus 3 w/ annual provincial reporting of some data)
Right to request investigation	(not analyzed)	4

Drinking water advisories abound in Canada, but pinpointing locations is next to impossible

In Canada, on any given day, there are roughly 1,000 drinking water advisories in effect including, but not limited to, boil-water alerts.[33] These are warnings from public health authorities that tap water is unsafe to drink and may cause illness or transmit disease. About half of the drinking water advisories are for cities and towns. The other half of drinking water advisories are for places such as nursing homes, provincial parks, schools and summer camps.[34]

While we know approximately now many drinking water advisories are issued on average, it is extraordinarily difficult to compile a comprehensive list of advisories because there is no central repository in Canada. There is no standard way of conveying warnings about drinking water safety, and the terminology and availability of information varies considerably between provinces, regions and even local health units.

Some provincial governments do not even publish boil-water advisories. Efforts in these jurisdictions may be limited to the discretionary efforts of local water suppliers (such as physical postings in local locations or ads in community newspapers) without any requirement for online publication. In other words, there is no attempt to make information available beyond local community members, putting visitors at risk.

The lack of national standardized reporting makes it difficult to measure the current state of water at any point in time. It also makes it hard to track trends in water quality.

While transparency regarding water conditions in some provinces is poor, First Nations communities are in an even worse situation (for a full discussion of this issue, please see *Seeking Water Justice,* a joint report by Ecojustice, the Forum for Leadership on Water-Canada, and the Centre for Indigenous Environmental Resources[35] (www.ecojustice.ca/publications/reports/seeking-water-justice/attachment). Too many of these communities live with the kind of sewage and water conditions seen in Third World countries.[36] Unfortunately, status updates on problem areas are not available because Health Canada does not share that information in a meaningful form. Health Canada's website has a page where it lists how many First Nations communities across Canada are currently under a drinking water advisory, but fails to specify which communities are affected.

The situation in Canada is a stark contrast to American federal legislation that mandates each state produce and submit a report identifying the frequency and nature of violations of the *Safe Drinking Water Act* to the Environmental Protection Agency. The EPA in turn produces a comprehensive national report that summarizes trends, draws conclusions and makes recommendations.[37]

In Table 7, we examine whether jurisdictions keep a centralized registry of drinking water advisories that would be useful for monitoring drinking water quality and for analyzing trends. We also look at whether, and what, information is made available to the public online and how people can find out more information about water quality in their local area. Finally, we examine whether any Canadian jurisdictions prepare a report similar to the ones required in the United States.

Our analysis shows that eight jurisdictions keep a registry of drinking water advisories and make advisories available online; five jurisdictions publish a periodic report analyzing the overall frequency of advisories, drawing conclusions and making recommendations; and five jurisdictions and the federal government do not keep an online registry.

TABLE 8: DRINKING WATER ADVISORIES

Jurisdiction	Cent. Reg.	Drinking Water Advisories Available Online?	Report and analysis of trends
Alberta	No	No. There is no online boil-water advisory registry that can be searched by location and/or collects and tabulates drinking water advisories. *Find out more:* All health advisories, including boil-water advisories, are posted on the Alberta Health Services website as they are received and can be viewed at: www.albertahealthservices.ca/1926.asp. Residents can also contact Health Link Alberta toll-free at 1-866-408-5465 if they have additional concerns.	No
British Columbia	Yes (by Reg)	Yes. Each of B.C.'s Health Authorities keeps a registry of the boil-water advisories within its own jurisdiction. The Ministry of Health website does not list the advisories itself, but does contain a page that defines the various types of water advisories and has links to the different Health Authority websites *Find out more:* Ministry of Health: www.health.gov.bc.ca/protect/dwadvisories.html; Vancouver Island Health Authority: www.healthspace.ca/Clients/VIHA/VIHA_Website.nsf; Vancouver Coastal Health Authority (correct link): www.vch.ca/your_environment/water_quality/drinking_water/advisories/; Northern Health Authority: www.healthspace.ca/Clients/NHA/NHA_Website.nsf; Interior Health Authority: http://php.interiorhealth.ca/waternotifications.aspx; Fraser Health Authority: www.healthspace.ca/Clients/FHA/FHA_Website.nsf/Env-Frameset	Yes
Manitoba	Yes	Yes. A list of boil-water advisories and drinking water avoidance advisories for public systems, semi-public systems, and area-wide private wells is available on the Government of Manitoba's Water Stewardship website. *Find out more:* Drinking water advisories may be found at: www.gov.mb.ca/waterstewardship/odw/public-info/boil-water/	No
New Brunswick	Yes	Yes. The government's website contains a list of both the current and past boil-water and do-not-drink advisories. *Find out more:* Current drinking water advisories at: www.gnb.ca/0053/public_health/alerts_advisories-e.asp; Past drinking water advisories: www.gnb.ca/0053/public_health/alerts_advisories_past-e.asp	Yes
Newfoundland	Yes	Yes. Lists of current drinking water advisories for public water systems and a list of advisories lifted in the past 30 days are kept on the government's website. *Find out more:* www.env.gov.nl.ca/env/waterres/quality/drinkingwater/advisories.html	No
Northwest Territories	Yes	Yes. A list of current and past drinking water advisories is available. *Find out more:* www.maca.gov.nt.ca/operations/water/boilwaterview.asp?	Yes
Nova Scotia	Yes	Yes. A list of drinking water advisories for public drinking water supplies is available on the government's website. *Find out more* www.gov.ns.ca/nse/water/boiladvisory.asp	Yes

TABLE 8: DRINKING WATER ADVISORIES

Jurisdiction	Cent. Reg.	Drinking Water Advisories Available Online?	Report and analysis of trends
Nunavut	No	There is no online boil-water advisory registry that may searched by location and / or collects and tabulates drinking water advisories. *Find out more:* All health advisories, including boil-water advisories, are posted on the Health and Social Services website and can be viewed at: www.hss.gov.nu.ca/en/Newsroom%20Health%20Advisories.aspx	No
Ontario	No	Boil-water advisories are issued by the individual Public Health Inspectors at each individual Public Health Office across the province and there is no online boil-water advisory registry. *Find out more:* The Ontario Parks webpage does list which provincial parks are subject to drinking water advisories. FAQ: www.health.gov.on.ca/english/public/pub/watersafe/watersafe_boiled.html. Ontario Parks: www.parkreports.com/report.php	Yes
Prince Edward Island	No	No. There is no online boil-water advisory registry, *Find out more:* There is a page on what to do during a boil-water advisory: www.gov.pe.ca/health/index.php3?number=1020723&lang=E	No
Quebec	Yes	Yes. A list of boil-water and do-not-consume advisories, broken down by administrative region, is kept on the government's website. *Find out more:* www.mddep.gouv.qc.ca/eau/potable/avisebullition/index.htm?cit	No
Saskatchewan	Yes	Yes. A list of all precautionary drinking water advisories and emergency boil-water orders is kept on the government's Sask H20 website. *Find out more*: www.saskh20.ca/advisories.asp	Yes
Yukon	No	No. There is no online boil-water advisory registry.	No
Federal	No	No. Health Canada's website has a page where it lists how many First Nations communities across Canada are currently under a drinking water advisory, but does not specify which communities are affected. *Find out more:* www.hc-sc.gc.ca/fniah-spnia/promotion/public-publique/water-eau-eng.php	No

OTHER HELPFUL SOURCES

The Canadian Medical Association published an article in 2008 that is the most recent, comprehensive point in time assessment of the number of drinking water advisories in effect: www.cmaj.ca/content/178/10/1261.full

The Water Chronicles website provides a list of water advisories by province: www.water.ca/textm.asp

H. Isfeld, *Boil Water Advisory Mapping Project: An exploration and review of available data* (2009): www.pwhce.ca/pdf/boilWater.pdf

A. Picard, "How Safe is Canada's Water", *Globe and Mail* (Toronto), July 29, 2011; available online: www.theglobeandmail.com/life/health/new-health/andre-picard/how-safe-is-canadas-drinking-water-its-tough-to-know/article2080746/

The online site "Health and Safety Watch Canada" provides the ability to sign up for localized health alerts. www.healthand-safetywatch.com

FEDERAL GOVERNMENT FAILURES

It would be much easier to make a list of the things the federal government does well to ensure safe drinking water than a list of the things that it does poorly. The list of things done well would be quite short, perhaps empty, while the list of things done poorly is lengthy and goes well beyond what we canvass below.

All levels of government share responsibility for the provision of safe drinking water. In most communities, provincial governments regulate the frontline aspects of drinking water management, including source protection, treatment, testing, and operator certification. Municipalities and local water providers generally collect, treat and distribute drinking water pursuant to delegated provincial power.

The federal government plays an essential role in drinking water protection on First Nations land and other areas under federal jurisdiction such as military bases, national parks, and on common carriers such as airplanes and ships.

Previously, the federal government recognized the need to ensure the safety of materials and products that come into contact with drinking water, from distribution systems to home treatment devices, and introduced, but did not pass, the *Drinking Water Materials Safety Act*. The failure to pass this *Act*, left a regulatory gap that remains unaddressed.[38]

In 2005, the Commissioner for Environment and Sustainable Development pointed out a number of weaknesses in the federal government's efforts to fulfill these responsibilities, including:

- Around 50 drinking water parameters (contaminant limits) need to be updated to reflect current science and this will take approximately 10 years. That time would increase if emerging contaminants are added;[39]
- extensive failures to provide safe drinking water to aboriginal people on reserves;[40]
- uneven compliance with the *Guidelines for Canadian Drinking Water Quality* at federal facilities;[41] and,
- a failure to inspect water on airplanes.[42]

As discussed in the sections below, the federal government's performance regarding water is unequivocally dismal. While the outlook is bleak, there may be cause for optimism in the recent developments regarding the "right to water" discussed further on in this report.

A. CUTS

In December of last year, the federal Commissioner of Environment and Sustainable Development (part of the Office of the Auditor General of Canada) issued a report that included a number of deeply troubling findings, including that:

- "Environment Canada is not adequately monitoring the quality and quantity of Canada's surface water resources."
- Environment Canada "is not monitoring water quality on the majority of federal lands and does not know whether other federal departments are doing so. As a result, there may be vast areas under federal

jurisdiction where fresh water quality and quantity conditions are not being monitored."[43]

- "Environment Canada cannot assure users that its water quality data is fit for their intended uses"[44] because of a lack of quality control.
- Environment Canada was not publishing reports under the *Canada Water Act* as required.[45]
- Environment Canada's failures go beyond just affecting the environment because "[u]nderstanding the status and long-term trends in the quality and quantity of the country's fresh water resources is of vital importance to Canada's future prosperity."[46]

In the 2011 federal budget, the Government of Canada announced that it would make substantial cuts to environmental programs and initiatives.

The department responded to the report and agreed with all recommendations made. Despite governmental acknowledgement of these problems, the situation will likely get worse.

The reason? In the 2011 federal budget, the Government of Canada announced that it would make substantial cuts to environmental programs and initiatives. These cuts could slash as much as $1.6 billion in funding and eliminate of hundreds of jobs. Among the deep cuts planned are 776 jobs, including scientist, meteorologist and engineer positions. Many of the programs slated for cuts oversee the collection of reliable scientific information and data about our water resources and aquatic environments.

Environment Canada's budget has $222 million of cuts spread over the next three years while the Canadian Environmental Assessment Agency will eliminate one third of its workforce. These cuts come on top of previous cuts and staffing gaps. Environment Canada, for example, no longer has a water quality division. Now, instead of strengthening the ability to understand research and monitor natural resources, the federal government appears to be abandoning water research and assessment as a priority. Without reliable and adequate information, Canada's decision-makers will have great difficulty making informed decisions.

Regarding the cuts, Sierra Club of Canada' executive director, John Bennett, stated: "What it will do is give polluters exactly what they want — a toothless, understaffed Environment Canada with weakened scientific capacity and no enforcement capability."[47]

The 2011 cuts are just another round of attacks on environmental laws and budgets. The federal budget implementation acts of 2009 and 2010 contained significant rollbacks of environmental laws. These rollbacks were adopted under the cover of budgetary and fiscal measures with little public scrutiny or debate.

The *Budget Implementation Act, 2009,*[48] weakened the scope of the *Navigable Waters Protection Act* by limiting the types of activities and projects that require environmental impact assessment and other review.[49]

The *Jobs and Economic Growth Act,* which implemented the 2010 budget,[50] weakened several provisions of the *Canadian Environmental Assessment Act*[51] and gave the federal government increased discretion to limit or eliminate the application of environmental impact assessment requirements for certain projects and activities.[52] Canada's abandonment of its obligations to reduce emissions of greenhouse gases under the *Kyoto Protocol* is a further example of backward movement on environmental protection and we believe it also puts water supplies at risk.[53]

The trend of hobbling Canada's federal environmental capacity is a multi-decade regression. Canada reduced its federal environmental spending by 40 per cent between 1993 and 1997, commencing a long and continuing period of environmental backsliding.[54]

B. WANT SAFE DRINKING WATER? YOU MAY HAVE TO DRINK THE PRIVATIZATION KOOL-AID

In 2007, the Federation of Canadian Municipalities (FCM) raised an alarm for policymakers and Canadians. The report, *Danger Ahead: The Coming Collapse of Canada's Municipal Infrastructure*, pointed to a water infrastructure deficit tied to water supply and waste water and storm water systems. The report estimated it would take $31 billion to repair aging infrastructure largely put in place in the 1930s and 1940s and maintained through under-funded budgets for decades. The FCM estimated another $56.6 billion was needed to build new infrastructure to meet the

demands of a growing population and new provincial and federal regulatory requirements.[55]

These looming infrastructure needs further strain already strapped local government budgets. Now, the federal government is taking advantage of local governments' desperate need for funding to impose ideologically slanted polices.

The manipulation of public funding to drive a political agenda is sparking fierce community battles, such as one occurring in 2011 in Abbotsford and Mission, B.C. There, the two communities initially proposed a project to develop a new water source as a "public-private partnership" (PPP). The decision to build the project as a PPP was taken to gain access to the federal Public Private Partnership Fund for 25 per cent of the project's cost. According to a local councillor, the PPP Fund was the only federal funding available for the project.[56] The proposal generated so much local opposition that Mission was forced to pull out of the plan and Abbotsford was forced to put the matter to referendum (still to be held at the time of writing).[57]

Federal government efforts to increase privatization of public water services include making new funding available only through the PPP Fund, as well through the rules for the Building Canada Fund (BCF). Under the BCF, cities applying for funding were forced to undergo a mandatory PPP screening process for large projects over $50 million. Municipalities had to go through a complicated process involving expensive legal fees before they were allowed to opt out of PPP arrangements. In 2006, Whistler had to spend more than $1 million dollars in legal fees to maintain the public water system local residents demanded.[58]

The federal government's policy choices might be defensible if there were a demonstrated benefit to PPP arrangements, but that is not the case. For decades, policy makers have experimented with PPPs in an effort to save costs. Cost savings were promised under privatization due to the effects of "competition." However, research on the privatization experience at the local government level challenges this understanding. Expectations of costs savings are not well supported by a careful reading of economic theory, and empirically the evidence for cost savings is weak. Theoretically, expectations of cost savings derive primarily from competition, but competition is rarely present in public service markets. Private owners will have incentives to reduce quality, and transaction costs of contracting may be higher than the costs of internal delivery.[59]

In our view, the proper role of federal government should be to assist in meeting Canada's drinking water infrastructure needs, not drive a political agenda. The federal government should make funding equally available to all water systems based on need.

C. FIRST NATIONS

(contributed by Cassandra Porter)

The water safety tragedies in Walkerton, Ont., and North Battleford, Sask., highlighted the vulnerability of Canada's water systems. As a result of these tragedies, improving the safety of drinking water has become a priority throughout Canada, including in First Nations communities.[60] Since then, billions of dollars have been spent and new legislation has been proposed, but water quality in First Nations communities is still far below that of off-reserve communities, and it shows few signs of improving.[61]

The federal government has jurisdiction over water on First Nations reserves, and provides support and funding to help these communities construct, upgrade and manage on-reserve water systems. Aside from federal policies, administrative guidelines and funding arrangements, there is no regulatory regime governing the quality and safety of drinking water in First Nations communities.[62]

Bill S–11 — *An Act respecting the safety of drinking water on First Nations communities* — tabled in Parliament in May 2010, attempted to address this regulatory void. Bill S–11 would have enabled the federal government to regulate drinking water on reserves and incorporate and adapt relevant provincial legislation for the needs of First Nations communities.[63]

Bill S–11 was met with substantial resistance by First Nations groups who claimed it infringed on their jurisdiction.[64] The 2010 Auditor General report also warned that it could take years before regulations under Bill S–11 could be developed and fully implemented.[65] The bill died when a federal election was called in the spring of 2011.

Meanwhile, First Nations groups seek to develop their own water management strategies. For example, the Assembly of First Nations has recently conducted research on the viability of a First Nations Commission on Water.[66]

Recent developments suggest that government spending and programs have failed to deliver safe drinking water to First Nations communities. As of July 2011, there were 126 First Nations communities across Canada under a drinking water advisory, an increase from 106 communities in December 2008.[67] In 2006, the Expert Panel on Safe Drinking Water for First Nations found that "the federal government has never provided adequate funding to First Nations" to ensure that water quality standards on reserves could improve.[68]

The 2010 Auditor General's report states that more than half of water systems on First Nations reserves pose a medium or high risk to community members. The report also notes that First Nations reserves "may still be years

Recent developments suggest that government spending and programs have failed to deliver safe drinking water to First Nations communities.

away from having drinking water protection comparable to what exists off-reserve in Canada."[69]

An independent study commissioned in 2011 by the Department of Aboriginal Affairs and Northern Development Canada (AANDC) estimated it would take $4.7 billion over 10 years to bring on-reserve water systems up to satisfactory standards.[70] Large-scale funding to ensure comparable water quality for all Canadians will require a clear and broad political commitment by the federal government.

Canada also abstained from voting on a United Nations resolution to recognize the right to clean, safe drinking water and sanitation, despite broad support for the resolution, including from First Nations organizations.[71]

More recently, the federal government explicitly committed to promoting access to clean water for First Nations communities in its 2011 throne speech.[72] Without concrete funding and a clear action plan, such verbal commitments do little to ensure that First Nations communities have access to safe drinking water.

D. THE RIGHT TO WATER

(contributed by Anna Johnston)

In recent years, Canada has been criticized, first for opposing, and then later failing to support the "Human Right to Water."[73] While Canada's water and sanitation services in urban centres are among the safest in the world, Canada still faces challenges in small, rural and remote communities.[74] Canada does not have uniform national standards for drinking water, and water supplies in rural communities are often inadequate.[75] As previously noted, the situation on First Nations reserves is even more alarming.

Critics argue that recognizing this right is not only important for upholding Canada's global reputation and responsibilities,[76] it is also a key means of addressing water quality, quantity and accessibility issues within its own borders. [77]

In a historic moment, and despite previous opposition, Canada supported a resolution of the World Health Assembly (the governing body of the World Health Organization) recognizing the right to water in May 2011.[78] Invoking two earlier UN resolutions recognizing the right to water,[79] Resolution 64/24 further calls on countries to take a number of steps with the goal of "improving the realization of the human right to water and sanitation."[80]

Canada's support for Resolution 64/24 is the country's first formal recognition of a right to safe drinking water and sanitation. As such, the resolution may well serve as a transformative moment in the struggle to guarantee all Canadians access to clean, safe drinking water and sanitation.

The potential transformative effect of Canada's recognition of the right to safe water and sanitation resides in the nature of the right itself. Resolution 64/24 defines the human right to water as an entitlement by "everyone, without discrimination, to water and sanitation that is sufficient, safe, acceptable, physically accessible and affordable for personal and domestic uses."[81]

According to the 2007 Annual Report of the UN High Commissioner for Human Rights, the right to safe drinking water covers the "amount of water needed — along with sanitation requirements — to provide for personal and domestic uses, which comprise water for drinking, washing clothes, food preparation and for personal and

household hygiene,"[82] and includes affordable sanitation services that are safely accessible.[83]

These definitions make clear that the right to water is a fundamental positive right. By supporting Resolution 64/24, Canada is now more than ever obligated to provide all Canadians with safe drinking water and sanitation services in an equitable manner.[84]

But what do these obligations entail?

First, the government has an obligation to respect the right to water by protecting it from negative interference, whether that interference comes from government or private action. Second, the government is obligated to ensure that individuals have access to remedies if their right is breached. Finally, the government has an obligation to adopt measures that ensure everyone has equitable access to clean drinking water and sanitation.[85]

Flowing from this third general requirement, among Canada's most pressing obligations under Resolution 64/24 is to implement a national water strategy that ensures all Canadians have full and equal access to safe, clean drinking water and sanitation services.[86] Such a strategy must include a regulatory framework to govern drinking water and sanitation in First Nations communities.[87] An adequate national health strategy will include:

- standardized monitoring and testing;
- clear enforceable standards;
- enforcement;
- infrastructure support;
- measures ensuring the affordability and accessibility of safe drinking water; and
- public participation in water use decisions.

Standardized monitoring and testing are essential to ensure the adequacy of water and sanitation systems.[88] Thus to adequately implement the UN Resolution, Canada must develop clear, enforceable standards for the design and construction of water and sanitation systems, and it must enforce those standards.[89] To ensure consistency, water should be tested according to the *Guidelines for Canadian Drinking Water Quality*, which should incorporate health-based targets to address overall public health policy. [90]

The government's obligations also require it to take proactive measures to provide adequate services. Significant investment in infrastructure is necessary to maintain existing water and sanitation services and improve systems in underserviced areas. Thus, the government must ensure local authorities have the financial resources to maintain, repair and replace infrastructure as necessary.[91]

Canada's obligations to respect and protect the right to safe water also require it to ensure water and sanitation are accessible and affordable. Reliance on private entities to provide services does not absolve the government of its duties in these regards. Where local authorities enter into public-private partnerships, water and sanitation services must remain accessible, affordable, and of a sufficient quality.[92]

The right to water and sanitation includes procedural and substantive rights, such as the right to participate in decision-making. [93] This means consulting with affected communities, especially First Nations communities.

Most importantly, providing clean drinking water requires Canada to safeguard water from contamination and overuse that would infringe the right. Non-contamination requires protecting watersheds and water sources — including groundwater — from pollution. To ensure the efficacy of source water protection, the federal agencies primarily responsible for water resource management must have operating budgets that allow for adequate implementation and enforcement of protection measures.[94]

The right to water is inextricably related to fundamental rights to an adequate standard of living, life, and human dignity.[95] In Canada, this means that the right to water forms a part of the right to life, liberty and security of the person and the right to equality as guaranteed under the Canadian *Charter of Rights and Freedoms*.[96]

Because the right to water is essential for full enjoyment of other fundamental rights, Canada must fully embrace it by recognizing it domestically. Provinces and territories have begun to recognize a right to water through provincial legislation and motions.[97] But for an equitable application, Canada must enshrine the right to safe, clean drinking water and sanitation services in its Constitution.

Finally, as right-holders, it is incumbent on Canadians to demand that government act swiftly to fully implement the right to water.

RECOMMENDATIONS

Source Water Protection

1. All provinces and territories should create SWP plans. Where SWP forms part of a larger planning process, it should be explicit that drinking water has the highest priority for water use and that other land uses will be limited or prohibited as necessary to protect drinking water quality.

2. The preparation of SWP plans should be science-based, widely inclusive, and receive provincial approval and commitment through which the SWP plan becomes legally-binding.

Treatment, Testing and Distribution

3. Commit to reviewing and implementing as appropriate to each jurisdiction the recommendations of the Walkerton Commission of Inquiry.

4. Require disinfection for all source water supplies. Where water tends to be turbid or there are concerns about disinfection byproducts, a plan to address that issue should be promptly developed.

5. Require filtration (or equivalent treatment alternative) for surface source water supplies and source groundwater supplies subject to the influence of surface waters.

6. Require adequate testing for all contaminants listed in the *Guidelines for Canadian Drinking Water Quality*. Exemptions from testing for certain contaminants should be granted only where there is a history of clean tests and there are no ongoing human activities that could affect drinking water quality.

Reporting and Public Transparency

7. Require that water suppliers report test results along with missed sampling and equipment failures to provincial or territorial agencies.

8. Require that water suppliers make system approvals and testing results readily available to the public, including posting such information online. On a periodic basis, water suppliers should prepare right-to-know reports for the populations served.

9. Develop programs for random sampling and inspection with clear follow-up actions required in cases of non-compliance.

10. Publish a periodic report that analyzes the overall frequency of advisories, draws conclusions and makes recommendations concerning water safety.

Federal Government

11. Do not make proposed cuts to critical environmental monitoring and key staff positions at Environment Canada.

12. Reverse cuts already made to critical environmental monitoring and Environment Canada staffing.

13. Undertake an analysis of the resources needed to properly monitor and protect Canada's water resources.

14. The federal government should abandon the legislative approach of simply making First Nations communities subject to provincial regulation and properly engage with First Nations. Proper engagement with First Nations will develop a plan to provide appropriate funding, establish adequate water quality standards or apply the *Guideline for Canadian Drinking Water Quality* standards, and establish a phase-in timeline to allow infrastructure investments and training necessary to meet those standards.

General

15. Canadian communities, particularly those close to the U.S. border, may be at risk to increased demands on existing water sources due to poor water export prohibitions at the federal level or policies only at the provincial and territorial level. All jurisdictions should have strong and comprehensive bans on water exports.

16. Given recent recognition of the right to water, all jurisdictions need to review legislation and policies to ensure consistency with the right to water and make specific, high-priority plans to address situations where Canadians to do not have reliable access to safe drinking water.

17. Like Quebec, the Northwest Territories and Saskatchewan, other jurisdictions should acknowledge that water is a public trust or community good and explicitly acknowledge that government is a trustee of water and is bound to protect it for present and future generations.

CLOSING – DEATH BY IDIOCY

While, thankfully, there has always has been a sizeable proportion of the population that cares deeply about drinking water quantity, there is likely a larger segment of the population that does not consider drinking water safety a priority. In a survey that is both amusing and sad, respondents ranked "sunshine" and "the Internet" higher than "clean drinking water" when asked to list things they could not live without.[98] More than one-quarter of Canadians do not even know where their drinking water comes from.[99]

As noted in the report, the Commissioner for Sustainable Development found that there were more than 50 contaminant standards that need to be updated to reflect current science — a task that will take at least 10 years. This is clear evidence that ensuring safe drinking water is not a governmental priority.

Another trend causes us concern. Not anti-drinking water attitudes, per se, but instead a push to lower taxes and reduce regulation that could side-swipe drinking water protection efforts. These attitudes are even more dangerous in a time of changing climate, fiscal austerity, and economic fears.

The non-partisan U.S. Government Accountability Office (GAO) issued a report that illustrates how starving government jeopardizes health. The GAO found that states either failed to report or inaccurately reported 26 per cent of health-related violations and 84 per cent of drinking water monitoring violations.[100] These lapses were primarily due to inadequate funding, staffing and training.[101]

As discussed in our report, cutbacks at the federal government level in Canada and rollbacks of environmental legislation mean that the situation here is likely to be similar, or worse.

In previous editions of this series, our findings led us to conclude that the biggest risks to drinking water came from gaps or deficiencies in the frontline of drinking water protection — the laws, programs, policies and personnel directly responsible for delivering safe and clean drinking water.

Due to the hard work and dedication of many of those directly responsible for protecting drinking water (truly unsung heroes), this is no longer the case. Now the gravest threat, as we see it, is that the frontlines of drinking water protection will be overwhelmed by other forces.

This is not the time to retreat from measures assuring quality drinking water for all Canadians, but rather a time to proactively tackle the enormous challenges we face, tomorrow, next week and even next decade. Let's review the facts:

Water quality is increasingly under threat.

Canada's water quality is under increasing threat. The reasons are many-fold and include:

- There are emerging chemicals and substances that, while studied for particular uses (e.g. pharmaceuticals), are often not studied for their impact when released into the general environment.[102] Moreover, drinking water treatment and testing is not designed to deal with these substances, and there is a tremendous lack of understanding of how multiple contaminants interact when ingested together.[103]

- Environmental laws have shorter reach due to funding cuts that have devastated the compliance and enforcement functions of many ministries and departments.

Contaminants in drinking water and weaker environmental laws and enforcement capacity have direct impacts on drinking water quality. For these reasons, we strongly believe that our general environmental and land-use laws are not up to the task. We need specific programs and legal protection of drinking water, such as those outlined in the SWP section of our report.

Water availability will vary with climate change.

Climate change will affect water resources through its impact on the quantity, variability, timing, form, and intensity of precipitation. According to the Intergovernmental Panel on Climate Change all regions of the world show an overall net negative impact on water resources and freshwater ecosystems from climate change. Areas in which runoff is projected to decline are likely to face a reduction in the value of the services provided by water resources. The beneficial impacts of increased annual runoff in other areas are likely to be tempered in some areas by negative effects of increased precipitation variability and seasonal runoff shifts in water supply, water quality and flood risks.[104]

We may already be seeing the impacts of climate change on water quantity. Renewable water resources have declined in Southern Canada over the past three decades: From 1971 to 2004, water yield in Southern Canada, the area in which 98 per cent of the population lives, fell by an average of 3.5 cubic kilometres a year.[105] How much is that? It is almost as much water as was supplied to Canada's entire residential population in 2005. This represents an overall loss of 8.5 per cent of the water yield in Southern Canada during a 34-year period.[106]

Increasing precipitation variability may pose an even bigger risk. According to a recent report from Simon Fraser University:

> *According to climate models, this variability is likely to become greater in the future, which will result in extensive and costly on-going damage, not just to public infrastructure such as roads, bridges and water treatment plants, but to our entire built environment. The fear is that the cost of this ongoing damage may in time be substantial enough to make it difficult to sustain prosperity as we know it today and still keep our cities, towns, national transportation systems and other crucial infrastructure in functional repair.*
>
> *The economic costs are already clear and rising. The insurance industry is already warning us of these concerns. In August of 2011, the Insurance Bureau of Canada observed that the number and severity of storms is having a negative effect on the industry and that insurers are particularly worried about the rapidly increasing rate of water-damage claims. An industry spokesman reported that, while historically most insurance claims were related to fire and theft, half of every dollar now paid out by insurance companies is for water damage related to extreme weather events. The industry is lobbying governments to invest in infrastructure, including improving sewer systems, to prevent future worsening of the problem.*[107]

Water treatment and distribution equipment is aging.

Although not the subject of our analysis, an aging infrastructure has to be considered one of the most pressing threats to drinking water.

The thousands of kilometres of underground pipes that move water from treatment plants to our taps leak 13 to 30 per cent of the clean, drinkable water they carry into the ground.[108] At the same time, waste water and storm water systems cannot keep up and are allowing pollutants to flow into rivers, lakes and oceans.[109]

In 2007, the Federation of Canadian Municipalities (FCM) raised an alarm for policymakers and Canadians. The report, *Danger Ahead: The Coming Collapse of Canada's Municipal Infrastructure*, pointed to a water infrastructure deficit tied to water supply and waste water and storm water systems in the order of $31 billion. This was the estimated amount needed to repair aging infrastructure largely put in place in the 1930s and 1940s and maintained through under-funded budgets for decades. The FCM estimated another $56.6 billion was needed to build new infrastructure to meet the demands of a growing population and new provincial and federal regulatory requirements.[110]

Public complacency is being replaced by public antipathy.

In 2000 and 2001 public vigilance about drinking water increased, to some extent, due to drinking water crises in Walkerton, Ont., and North Battleford, Sask. As these events fade into the recesses of history, complacency seems to be returning.[111]

For instance, small communities across Canada live under boil-water alerts for years at a time and the abominable conditions in many First Nations communities go unresolved despite years of attention.[112]

In 2000 and 2001 public complacency about drinking water receded, to some extent, due to drinking water crises in Walkerton, Ont., and North Battleford, Sask.

During the last year, headlines across the country have criticized proposed tax increases that would fund drinking water improvements.[113] This is not to say that drinking water investments should not be intelligent and efficient, but the tenor of these articles is that increased tax rates — often minimal — or government spending is the concern, not the underlying water system deficiencies or threats to drinking water.[114]

One cannot help but fear that attitudes from south of the border could take root in Canada. In the United States, a leading presidential candidate is running on a platform that in order to enact a new regulation, another regulation of equivalent scale would have to be eliminated.[115] Such an approach is so simplistic and arbitrary that it rises to the level of comedy,[116] yet is still part of mainstream U.S. political discourse.

Canada can do better. We possess the capacity to improve our health and our children's health. It requires that we assure the air we breathe is clean, the water we drink is of the highest quality, and the food we eat is free of harmful pollutants. Though this may be a daunting challenge, Canadians have done better in these areas than many other countries and have the potential to do even better.

Guaranteeing a clean natural environment and healthy citizens can only be accomplished through adequate systems, laws, policies and government commitment. As the well-worn maxim goes: "People get the government they deserve." In short, our future rests in our hands.

NATIONAL DRINKING WATER GRADES

TABLE A1: NATIONAL DRINKING WATER GRADES

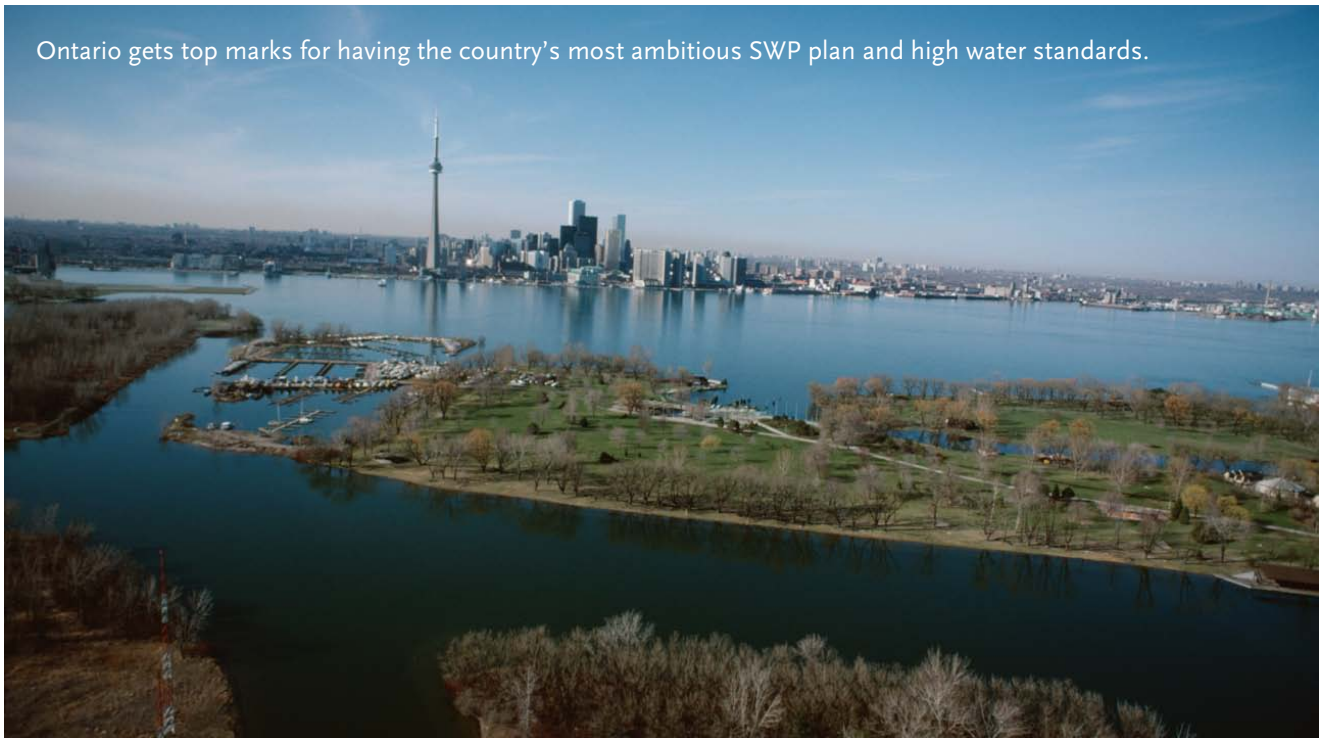
Jurisdiction	Comments	2006 grades	2011 grades		
			Only 2006 factors	Source water protection	Compre-hensive
Alberta	Alberta efforts aimed specifically at SWP for drinking water lag behind other jurisdictions and more general water planning has not focused on source water. Alberta has ranked well in *Waterproof* reports for strong treatment and testing provisions. Those efforts have remained at a consistent level while other jurisdictions continue to improve.	B	C	D+	C-
British Columbia	B.C. has fairly robust legislation for creating drinking water protection plan, but it has not resulted in actually approved plans. Over half the population has very strong SWP, but this is not a result of the current regulatory framework but is a result of decisions from late 19th and early 20th centuries. B.C.'s legislation related to treatment, testing and contaminant standards is weaker than most other Canadian jurisdictions	C+	C	B-	C+
Manitoba	Manitoba recently enacted a robust statutory scheme to create SWP plans. Plans are not, however, legally-binding but there may be requirements that plans be considered by other decision-makers. Manitoba has significantly improved requirements for treatment and testing.	C+	B+	B+	B+
New Brunswick	New Brunswick has one of the longest track records for SWP. It has strong protections for source water that apply to a high percentage of water sources. New Brunswick has improved standards for water treatment and testing.	C-	B	B+	B+

TABLE A1: NATIONAL DRINKING WATER GRADES

Jurisdiction	Comments	2006 grades	2011 grades		
			Only 2006 factors	Source water protection	Compre-hensive
Newfoundland and Labrador	Newfoundland and Labrador has a long-standing SWP program that covers a high percentage of groundwater sources. Newfoundland and Labrador has improved water standards and testing requirements. The province has a testing program for some contaminants. Newfoundland and Labrador does not have an operator certification program.	D	B	B	B
Northwest Territories	The Northwest Territories is developing a model for SWP planning. The Northwest Territories has improved water treatment standards but has not implemented an operator certification program.	C+	C+	C	C
Nova Scotia	Nova Scotia has a long-standing SWP program and has protected a large percentage of water sources that concomitantly protect the vast majority of the population. Nova Scotia continues to have strong measures in place for drinking water treatment, standards and testing.	B	B+	A-	A-
Nunavut	Nunavut has not engaged in SWP planning. Nunavut's standards for basic disinfection are weaker than most Canadian jurisdiction.	C	C-	D	D
Ontario	Ontario has the most well-funded and ambitious program to protect source water. Ontario's standards for water treatment, testing, standards and reporting are as strong as or stronger than other Canadian jurisdictions.	A-	A	A	A
Prince Edward Island	PEI has a long-standing SWP program and has protected a large percentage of water sources that concomitantly protects a large percentage of the population.. PEI has improved standards related to treatment, testing and reporting.	C-	B-	B-	B-
Quebec	Quebec engages in some SWP planning efforts as do individual municipalities but efforts are not as advanced as other jurisdictions. Quebec is a leader in taking steps to protect water quality, including creating a governmental obligation to protect water for all residents and future generations. Quebec's standards for water treatment, testing, standards and reporting are very strong.	B+	B	C+	B-

TABLE A1: NATIONAL DRINKING WATER GRADES

Jurisdiction	Comments	2006 grades	2011 grades		
			Only 2006 factors	Source water protection	Compre-hensive
Saskatchewan	Saskatchewan has a robust SWP planning program, but final plans are not legally-binding.	B-	B-	B	B-
Yukon	Yukon engaged in some SWP efforts through passing general protection in regulation. In 2006, Yukon had a number of proposed improvements to its drinking water regulatory scheme that were subsequently brought into force.	C-	C	C-	D+
Federal Government	The Federal Government has made little progress in improving water in First Nation's communities. Budget cuts for Environment Canada and other agencies will likely hinder water protection efforts. The Federal Government is using drinking water funding to push an ideological agenda by making some funding only available to water systems that engage in public-private partnerships.	F	–	–	F



Ontario gets top marks for having the country's most ambitious SWP plan and high water standards.

SOURCE WATER PROTECTION BY JURISDICTION

TABLE B1: DOES ANY GOVERNMENTAL BODY HAVE THE LEGAL AUTHORITY TO REQUIRE THOSE THAT DAMAGE WATER TO RESTORE WATER TO ITS ORIGINAL STATE OR SEE REPARATIONS BY WAY OF COMPENSATORY MEASURES?

Jurisdiction	2011 Findings
Alberta	Yes. There is a prohibition against the release of substances in an amount that causes or may cause a significant adverse effect. Generally, releases must be reported. Remedial measures must be implemented whenever a release causes, or has the potential to cause, a significant adverse effect.[117]
British Columbia	Yes. There is a prohibition against the introduction of anything into a drinking water source (and related, defined areas) that is likely to produce a health hazard.[118] The Drinking Water Officer may order a person to remedy circumstances that may cause or contribute to a drinking water health hazard. If the person fails to take the action required by the order, the costs and expenses occurred are recoverable in court.[119]
Manitoba	Yes. A person may be required to pay the costs of any actions taken to prevent or remedy a health hazard.[120] Costs may be sought in relation to removal of "manure, filth or refuse" in proximity to water bodies.[121] There are prohibitions against depositing or discharging substances that will foul or contaminate any body of water, unless specifically authorized. Discharging, without written permission, any materials including raw or untreated sewage, or any creamery, trade, or mine waste that may render the waters used for municipal or private domestic water supply dangerous or unfit for use is an offence.[122]
New Brunswick	Yes. Where a contaminant has been released into water, the Minister of Environment may restore water to its original state or issue an order requiring a person to remedy the contamination, including an order requiring a person to install, replace or alter a wastewater treatment facility or waterworks in order to remedy that release.[123] The minister may recover the costs of remedying the contamination and repairing damage caused by it.[124] The Minister of Health may also issue orders in situations where a contaminant is present in a public water supply system that poses a significant health risk. Actions may include the installation of a new water supply system.[125]
Newfoundland and Labrador	Yes. The minister may order a person undertaking an activity to carry out water quality analysis and take the action that the minister considers necessary to prevent adverse effects to drinking water supplies.[126]
Northwest Territories	Yes. The territorial and federal governments share responsibility for managing water in the NWT. Inspectors may direct a person to remedy damage to water, and may recover the costs of remediation if the person does not comply. The government may also recover the cost of remediating damage to water caused by abandoned or closed works.[127]

Table B1 continued

Jurisdiction	2011 Findings
Nova Scotia	Yes. A person responsible for a release of a substance has a duty to prevent, reduce and remedy any adverse effects including rehabilitating the environment to a standard prescribed by the Department.[128] The Ministerial Order powers allow the minister to require remedial actions to mitigate effects caused by a substance release, including remedying any damage that is caused.[129] Upon conviction, civil proceedings may be used to recover a debt for any matter related to the offence. The court may order compensation for loss or damage to property as a result of the commission of the offence.[130]
Nunavut	There is a general prohibition on the deposit of waste in Nunavut waters.[131] Compliance and enforcement of water licences and provisions of the Act fall under the jurisdiction of the federal Department of Indian and Northern Affairs and the minister appoints inspectors for that purpose. Persons may be fined for the violation of the prohibition against deposit but there is no provision for requiring an offender to remedy the damage or specifically compensate for damage to the water body.[132]
Ontario	Yes.[133] Every person that discharges or causes or permits the discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters is guilty of an offence.[134] Certain activities are prohibited within public water supply areas.[135] The introduction of anything that might cause a drinking water hazard is prohibited.[136] There is authority for the issuance of a Remedial Order to "repair the injury or damage" done to the natural environment,[137] as well as authority to "cause things to be done" and to recover costs for doing those things.[138] Additionally, there is authority for restitution orders and like orders that allows a Court, upon conviction, to levy an additional penalty upon the convicted party in the form of a restitution order.[139]
Prince Edward Island	Yes. PEI has the legal authority to require restoration of water quality in general, and more specifically for petroleum hydrocarbons.[140]
Quebec	Yes. If a person, or illegal act of a person, causes damage to water resources, the Attorney General of Quebec may institute an action to seek the restoration of the water to its original state, or reparation by way of compensatory measures.[141]
Saskatchewan	Yes. There is a prohibition on discharges into water.[142] The Minister of Environment has the authority to require the restoration of damages to water or hold a person liable for cleanup costs.[143] Water rights licences may be cancelled for cause or if it is in the public interest.[144]
Yukon	Yes. There is a prohibition against the contamination of source water. An owner of a water supply system is required to consider a water source that is least likely to be subject to contamination. Ground water sources must be located a minimum distance from potential sources of contamination.[145] The Yukon Water Board has been established as an independent administrative tribunal responsible for the issuance of water use licences for the use of water or the deposit of waste into water or both.[146] A water licence may provide for mitigation measures such as restoration.[147] A Water Inspector may issue an Inspector's direction to prohibit activities or require remediation of a threat to water quality. Where necessary, clean up or other actions may be undertaken and costs assessed against a responsible party.[148] First Nation Final Agreements in the Yukon provide for a right of unaltered quantity, quality and rate of flow.[149]

TABLE B2: HAVE JURISDICTIONS CREATED A SOURCE WATER PROTECTION PROGRAM OR PLANNING REGIME?

Jurisdiction	2011 Findings
Alberta	Partial. The Government of Alberta does not specifically mandate "source water protection" planning in Alberta. Alberta does engage in regional water management planning, that could result in the protection of water for drinking water quality. There is one approved Water Management Plan, for the South Saskatchewan Basin, that notes water quality in the basin "should be studied in detail" and that such work will support "sustaining growth and managing the rivers to enhance aquatic life."[150] Regional water management planning may well provide considerable benefits, including benefits to drinking water. However, as it is not comparable to the SWP planning programs in other jurisdictions and thus, we do not specifically detail its features.
British Columbia	Yes. Specific provisions allow or may require the preparation of Water System Assessments and Plans, as well as Drinking Water Protection Plans.[151]
Manitoba	Partial. As of July 2010, there is new authority to make regulations setting or adopting water quality standards, objectives or guidelines; to designate any area as a water quality management zone; and to prohibit certain activities in these zones.[152]
New Brunswick	Yes. The Minister of Environment may make a designation order designating water sources and wellfields as protected areas.[153] Once designated, regulations have provisions that restrict and, in some cases, prohibit activities that could pose a risk to the source drinking water.[154] These Regulations are written in such a way that an activity that is not expressly permitted is prohibited. The minister may issue exemptions for activities that are not permitted on a case-by-case basis. Policies are typically developed to provide guidance with respect to the issuance of Exemptions. The minister may also include provisions for protecting water in a designation order for a wellfield or water source.
Newfoundland and Labrador	All designated water supplies receive protection measures established through policy.[155] Water supplies that have multiple resource use pressures can, at the request of the municipality develop a source protection plan with the help of the province. The plan may have additional protection measures.
Northwest Territories	In development. The federal government has primary responsibility over the protection of source water in the NWT. The territorial and federal governments are currently developing a model for SWP planning as part of the five-year Water Stewardship Action Plan.[156] Current water protection is limited to the prohibition of water use and waste deposit without a permit.[157] The Chief Public Health Officer may order the restriction of activities that might pose a health hazard.[158]
Nova Scotia	Yes. There is a statutory scheme in place allowing the restriction of activities to protect drinking water sources through the designation of protected water areas[159] and the inclusion of term and conditions in approvals to operate.[160] There are prohibitions on certain activities in protected water supply areas and municipal councils may pass bylaws designating lands owned by a municipality as a protected water supply area.[161]
Nunavut	No. Currently there is no specific SWP plan implemented by the Government.

Table B2 continued

Jurisdiction	2011 Findings
Ontario	Yes. The *Clean Water Act* establishes a province-wide source protection regime intended to enable communities to protect their drinking water supplies by developing collaborative, locally-driven, watershed-based source protection plans founded on science. Through source protection planning, communities strive to identify potential risks to local water sources and take action to reduce or eliminate identified risks.
Prince Edward Island	Yes. Municipalities are required to develop wellfield protection plans. These plans are subject to ministerial approval, and the implementation of these plans is governed by a timeframe set by the municipality.[162]
Quebec	Yes. Municipalities are empowered to commence SWP plans.[163]
Saskatchewan	Yes. SWP planning has not been legally enshrined. Saskatchewan facilitates watershed and aquifer planning. Provincial officials work with local watershed advisory committees and technical experts to develop SWP plans. The plans do not have regulatory authority. The plans identify issues of concern to the local watershed advisory committees and technical experts and make recommendations to address these issues. The plans are implemented by locally directed watershed stewardship associations.
Yukon	Partial. Six water management areas have been established, and water use within these areas is subject to increased protection.[164] There is a general prohibition on the deposition of waste in water management areas that is subject to exemptions.[165] The Yukon Water Board has been established as an independent administrative tribunal responsible for the issuance of water use licences for the use of water or the deposit of waste into water or both and the tribunal may consider SWP in that process.[166]

TABLE B3: HOW MANY WATER SUPPLIES HAVE SOURCE WATER PROTECTION MEASURES? WHAT PERCENTAGE OF WATER SOURCES?	
Jurisdiction	**2011 Findings**
Alberta	Zero per cent of water sources covered by legally-binding SWP plans. No water sources are protected by specific SWP plans. As in all jurisdictions, drinking water sources may receive additional consideration in other planning and decision-making processes.
British Columbia	Zero per cent of water sources covered by legally-binding SWP plans. Approximately 46 drinking water systems have conducted source assessments across the province. Most have been done voluntarily, or as conditions of permits, while some have been ordered.[238] Vancouver has long-term leases for its watershed and Victoria owns its watershed. These communities represent over 50 per cent of B.C.'s population. Such arrangements grant communities perhaps the greatest ability to protect their source water. There are no completed and legally approved Drinking Water Protection Plans in B.C. The province has designated some areas as "community watersheds" and land use practices in these areas may be subject to greater scrutiny.
Manitoba	Information was not provided.
New Brunswick	There are 67 individual water supplies that have SWP measures in place (water supplies that are designated under regulation). Ninety-seven per cent of the surface water supplies in the province are designated under regulation. There is only one surface water supply that is not designated as the water is obtained directly from the Saint John River and there are complexities associated with defining the protected area. Of the municipalities that use groundwater supplies in the province 63 per cent of them are designated under regulation (36 municipalities out of 57). It should be noted that some municipalities utilize both surface and groundwater supplies. SWP plans are either under development or have been completed for 19 of the municipalities, while two municipalities have yet to develop a SWP plan.[239]
Newfoundland and Labrador	85 per cent of surface water sources and 30 per cent of groundwater sources receive legislative protection.[240] Approximately five source protection plans have been developed in the province.[241]
Northwest Territories	N/A
Nova Scotia	Approximately 75 per cent of municipal drinking water sources have final or draft plans in place. These serve approximately 90 per cent of the population that receives municipal drinking water. All municipal water utilities have initiated their planning process or have protection measures in place.[242] There are 25 areas designated as protected water areas with a range of prohibited or restricted activities.[243]
Nunavut	Information was not provided.

Table B3 continued

Jurisdiction	2011 Findings
Ontario	The primary focus of the CWA is on the protection of source water for municipal drinking water systems. Currently, there are 457 (66 per cent) municipal drinking water systems under the auspices of the CWA out of the 693 municipal systems in Ontario. Once plans are in place, more than 80 per cent of Ontario's population will have their water supplies protected through this process.
Prince Edward Island	There are a total of 12 municipal water supply utilities in the province, and of these 11 (92 per cent) have or are in the process of developing well field protection plans.
Quebec	Less than 10 surface water sources and approximately 100 groundwater sources. Less than 10 per cent total.[244]
Saskatchewan	Eighty-two per cent of people in Saskatchewan (2006 census data) live in an area covered by a (non-legally-binding) watershed protection plan. This percentage will increase as more plans are completed. Site specific SWP plans have only been completed in a few locations (e.g. Yorkton Area Aquifers).[245]
Yukon	Eight-four per cent of groundwater sources for large public drinking water systems (LPDWS – 15 or more piped connections or five or more truck delivery sites) meet minimum setbacks to potential sources of pollution such as sewage disposal systems and solid waste sites. There is also regulatory power to require greater meet minimum setback distances based on the results of hydrogeological studies.[246] There are currently 20 large public drinking water systems which serve the majority of Yukoners either through piped or trucked delivery systems or self haul. There is a small percentage of the population on private wells distributed across the Yukon. As there is no regulatory program for private wells, the number of people on private wells is unknown.[247] Currently there is one LPDWS that is on surface water. There is no SWP plan as there is very little human activity on the lake which serves as the source. If the circumstances change, the Medical Health Officer may require the system owner to identify and assess risks to the water source and to implement measures to manage risks. This requirement can also be extended to groundwater wells and to GUDI wells of which there are several servicing LPDWS in Yukon.[248] The City of Whitehorse has a Watershed Management Plan which was developed in response to direction from the Medical Health Officer.

TABLE B4: WHAT ARE THE RELEVANT ASPECTS OF ANY DEDICATED SOURCE WATER PROTECTION PROGRAM/PROCESS?	
Jurisdiction	**2011 Findings**
Alberta	**(a) Who initiates SWP planning:** Alberta states that Water Management plans will articulate source water protection, and will be developed under the non-legislative Water for Life Water strategy. The plans can be developed by anyone for a single issue and must follow Alberta's "Framework for Water Management Planning." The Government of Alberta has the responsibility for the approval and adoption of water management plans and decisions under the Water Act. **(b) Is there funding for plan development?** Alberta Environment provides Watershed Planning and Advisory Councils with an annual grant for core services and also funds Watershed Planning and Advisory Councils for specific projects. **(c) What level of public participation is provided for?** In its water management planning, Alberta a tiered model of planning at provincial, regional and local level. At the provincial level, Alberta provides representation from four broad sectors: provincial government, industry, other governments, and non-government organizations (NGOs). At the regional level, stakeholders include provincial, municipal and federal governments, important industrial sectors, conservation groups, and aboriginal communities. At the local level, representation depends on the situation. **(d) Are there criteria for what must be in plan?** Alberta has produced a policy document — "Framework For Water Management Planning" — that lists factors that must be listed in a plan and a structure for public consultation. **(e) Does the plan require approval and, if so, who has the responsibility for approval?** Approvals are required at two times in the planning process. The first approval required is the authorization of the Terms of Reference. The second approval is for required for a Water Management Plan. **(f) What legal force does the SWP plan have ?** If an Approved Water Management Plan exists, it must be considered when making licence and approval decisions under the Water Act and Environmental Enhancement and Protection Act. Currently, The "South Saskatchewan River Basin Approved Water Management Plan" is the only plan in Alberta that has been approved by cabinet. It does not address water quality issues in a substantive manner. **(g) Is there a requirement for periodic review of the plan?** Approved Water Management Plans have a schedule.

Table B4 continued

Jurisdiction	2011 Findings
British Columbia	**(a) Who initiates SWP planning?** Water suppliers must prepare an assessment if required by the regulations or ordered by a drinking water officer.[167] The minister may, on the recommendation of the provincial health officer, order an area be designated for developing a drinking water protection plan. This may include provisions for SWP.[168] **(b) Is there funding for plan development?** Funding is not provided through the *Drinking Water Protection Act*. Grants to facilitate planning may be available through other government programs such as through the Ministry of Community, Sport and Cultural Development. **(c) What level of public participation is provided for?** Public notice of water assessment planning is required.[169] Public consultation in the preparation of water assessment planning is not mandatory. The terms of reference for a drinking water protection plan must include a plan for public consultation. Minimum requirements for public consultation are not specified.[170] **(d) Are there standards for what must be in plan?** The purpose of a Water Source Assessment is to identify, inventory and assess: • the drinking water source for the water supply system, including land use and other activities and conditions that may affect that source; • the water supply system, including treatment and operation; • monitoring requirements for the drinking water source and water supply system; and • threats to the drinking water that is provided by the system.[171] A proposed drinking water protection plan may consider and propose the regulation of any activities or areas of concern. The matters considered in a Drinking Water Protection Plan are discretionary.[172] **(e) Does the plan require approval and, if so, who has the responsibility for approval?** Drinking water protection plans require review by the provincial a health officer and approval is granted by the Lieutenant Governor in Council.[173] **(f) What legal force does the SWP plan have ?** A drinking water protection plan may be given legal status by determination of provincial Cabinet. The legal status may range from merely a document that must be considered to one that limits or prohibits certain activities or government decisions.[174] **(g) Is there a requirement for periodic review of the plan?** Review of the plan may be ordered by the minister but is not prescribed by legislation.[175]

Table B4 continued

Jurisdiction	2011 Findings
Manitoba	**(a) Who initiates SWP planning/ measures?** Regulation is currently under development. Designation of watersheds will be by the Lieutenant Governor in Council.[176] **(b) Is there funding for plan development?** A Water Stewardship Fund has been established to support research; projects to protect water; to assist in the implementation of watershed management plans or watershed conservation programs; and to support any other water management or water quality purpose determined by the Lieutenant Governor.[177] **(c) What level of public participation is provided for?** Consultation with First Nations and other interests is required and at least one public meeting must be held.[178] **(d) Are there standards for what must be in a plan?** Watershed plans must identify issues related to the protection of drinking water and contain policies and recommendations regarding: • conservation, protection and restoration of drinking water; • activities in water quality management zones; • water demand management and conservation of water supplies; • supply distribution, storage and retention of water to ensure access to clean, potable water; and • emergency preparedness.[179] **(e) Does the plan require approval and, if so, who has the responsibility for approval?** Watershed plans are approved by the minister.[180] **(f) What legal force does the SWP plan have?** Watershed plans are not legally-binding on persons or statutory decision-makers, but the Lieutenant Governor in Council may, by regulation, require that an approved watershed management plan be considered before a prescribed decision or approval is issued.[181] **(g) Is there a requirement for periodic review of the plan?** A water planning authority must review its approved watershed management plan either when directed to do so by the minister or according to any review date specified in the plan. The plan must be reviewed in accordance with Regulations.[182]
New Brunswick	**(a) Who initiates SWP planning/ measures?** The development of SWP plans is a collaborative effort between the Department of Environment and the municipality who operates the water supply. For new groundwater supplies the process begins with registration of the project under the Environmental Impact Assessment Regulation. As a requirement of the EIA determination, municipalities are required to develop a protection plan and to designate the protected area in regulation. For older groundwater supplies that were in existence at the time of enactment of the "Wellfield Protected Area Designation Order," the department requires a resolution from the municipal council to proceed with the designation of the wellfield. This was a policy decision that was made before the regulation came into effect. Surface drinking water supplies in the province are all designated under the "Watershed Protected Area Designation Order." If any new surface water supplies were developed it would be mandatory for them to be designated as protected areas.[183] The Minister of Environment must include a description or plan of a protected area in a designation order.[184] The Outstanding Natural Waters Class Review Panel must report to the minister and recommend whether or not to classify watercourses as Outstanding Natural Waters. The minister must consider the panel's recommendation before deciding whether and how to classify a water source.[185]

Table B4 continued

Jurisdiction	2011 Findings
New Brunswick *continued*	**(b) Is there funding for plan development?** For older groundwater supplies the Department of Environment has provided funds for the development of protection plans on a cost-share basis with the municipality. For new groundwater supplies, the municipality is encouraged to include the costs associated with a protection plan development within applications for infrastructure development (i.e. within applications for new well development and/or associated water system infrastructure). Some municipalities have funded the development of protection plans within their own municipal budgets.[186] **(c) What level of participation provided for?** The minister must provide opportunities to be involved in the water classification process to interested members of the public, including landowners, business enterprises, and groups of interested persons. Members of the public may recommend that watercourses be classified as Outstanding Natural Waters.[187] After the protection plan has been completed, all those that are affected by the plan are notified in writing and provided with a copy of the plan and the regulatory provisions that apply to that plan. The Department of Environment and the municipality hold a joint open house where those affected are invited to attend and discuss in detail any specific implications. If necessary, one-on-one consultation with affected property owners can be arranged.[188] **(d) Are there standards / criteria for what must be in plan?** The terms of reference for developing the protection plan clearly outlines the criteria as to what should be included in the plan. Once completed the plan is designated under regulation and the provisions of the regulation apply.[189] Designation orders may set out requirements respecting the following: • the prohibition, control or limitation of any activity or thing that might impair the quality or the quantity of the water in a protected area; • the allocation of the use of the water in a protected area; • the prohibition, control or limitation of the use of the land in a protected area; • terms and conditions respecting the land or the water in a protected area; or, • standards for the purpose of protecting the quality and quantity of the water in a protected area and methods of enforcing the standards.[190] Generally, a consultant is hired to prepare the plan.[191] **(e) Does the plan require approval and, if so, who has the responsibility for approval?** Designation of protected areas by designation order requires the approval of the Lieutenant-Governor in Council before they are added into regulation.[192] **(f) What legal status does the SWP plan have (e.g., is it binding on other decision-making processes)?** All persons must comply with designation orders, unless the person has obtained an exemption.[193] Orders are binding on individuals and authorities with jurisdiction over the land or premises where a release of a contaminant has occurred.[194] It is an offence to violate the terms of a designation order.[195] The SWP plan is added into regulation, and the specific land-use/activity restrictions contained within the regulation would apply to the protected areas that are defined in the plan. Once in regulation, it is binding on other decision-making processes and if the provisions in the regulation are stricter than provisions in other regulations, the provisions in the source protection regulations would prevail. **(g) Is there a requirement for review and assessment of the plan (e.g., every 5 years)?** While there is no specific requirement to review the plan in a specified time period, the addition of new wells to a municipal system would require the plan to be updated to include expanded or reduced protection areas, and a review in the change in land uses and activities. The regulatory framework around SWP is reviewed on an as-required basis to incorporate new science and policy where appropriate.[196]

Table B4 continued

Jurisdiction	2011 Findings
Newfoundland and Labrador	**(a) Who initiates SWP planning/ measures?** The minister may designate an area surrounding a present or potential source of public water supply as a public water supply area.[197] Municipalities may apply to the minister for this designation. **(b) Is there funding for plan development?** There is no designated funding from the province for protection plans, but in kind support is offered to towns who want to develop plans. Also, the province has hired consultants to develop plans in the past.[198] **(c) What level of participation provided for?** The no regulatory guidance on this issue, however, if a town wants to develop a source protection plan, a planning committee is established and all stakeholders are invited to participate as per the terms of reference for the committee.[199] **(d) Are there standards / criteria for what must be in plan?** The province has produced "A Municipal Guide to Developing a Watershed Management Plan."[200] **(e) Does the plan require approval and, if so, who has the responsibility for approval?** Both the municipality and the relevant provincial must approve the plan.[201] **(f) What legal status does the SWP plan have (e.g., is it binding on other decision-making processes)?** Protections for plan are legally-binding. Regulations may be passed allowing exceptions to the general prohibitions in the plan.[202] **(g) Is there a requirement for review and assessment of the plan (e.g., every 5 years)?** There is no formal requirement for review, but a target of every five years is typically included in a plan.[203]
Northwest Territories	N/A
Nova Scotia	**(a) Who initiates SWP planning/ measures?** The minister *may*, when requested by an operator of a water works or a proposed water works, designate the source or future source of a water supply as a protected water area and make any applicable regulations. This designation may also be removed by the minister at the request of an operator of a water works or proposed water works.[204] **(b) Is there funding for plan development?** There is no formal provincial funding program for SWP planning although municipal water utilities can apply to the general Provincial Capital Assistance Program for assistance.[205] Nova Scotia Environment has two watershed planners that guide municipalities through the SWP planning process. In addition, other provincial departments may have staff members that sit on SWP committees.[206] **(c) What level of participation provided for?** The SWP planning process includes forming an advisory committee and it is recommended that the committee include stakeholders from multiple sectors.[207] **(d) Are there standards / criteria for what must be in plan?** There are no legally-mandated criteria for what must be in the plan. However, the Department of Environment has produced extensive technical documents meant to guide the development of the protection plan.[208]

Table B4 continued

Jurisdiction	2011 Findings
Nova Scotia *continued*	**(e) Does the plan require approval and, if so, who has the responsibility for approval?** The development of a SWP plan is included as a term and condition of the municipal water utility's approval to operate. The "source water protection plan" must be approved by Nova Scotia Environment per the approval to operate. When the municipal water utility chooses "designation of a protected water area" as a management option of the SWP plan, this triggers the initiation of a separate process.[209] The municipal water utility may end up with a SWP plan that includes • acquisition of certain lands; • municipal bylaws or best management practices for certain lands; • contingency plans; • designation for certain lands; or, • education. This SWP plan is approved by Nova Scotia Environment, then the municipal water utility proceeds to other approval processes for its plan (e.g. municipal bylaws or other regulations). The approval of the Minister of Environment is required for the designation of an area as a protected water area.[210] The minister's approval is also required for the implementation of any regulations associated with the plan.[211] **(f) What legal status does the SWP plan have (e.g., is it binding on other decision-making processes)?** The binding legal status depends on the management options selected to protect the source water. If the municipality chooses to use "acquisition of land," "bylaws" or "designation/regulations" in their SWP plan, these are legally-binding options. There are 25 "protected water areas," of which eight have no regulations associated with the protected water areas designation.[212] Of the 21 designated protected water areas, only six do not have legally-binding regulations.[213] Regulations may prohibit, regulate or require the doing of any act or acts. **(g) Is there a requirement for review and assessment of the plan (e.g., every 5 years)?** The municipal water utility's approval to operate includes a term and condition to review and update the SWP plan and implementation schedule of the plan on a yearly basis and document the status and activities of the plan in the annual report.[214]
Nunavut	**(a) Who initiates SWP planning?** Not applicable **(b) Is there funding for plan development?** Not applicable **(c) What level of public participation is provided for?** Not applicable **(d) Are there criteria for what must be in plan?** Not applicable **(e) Does the plan require approval and, if so, who has the responsibility for approval?** Not applicable **(f) What legal force does the SWP plan have ?** Not applicable **(g) Is there a requirement for periodic review of the plan?** Not applicable

Table B4 continued

Jurisdiction	2011 Findings
Ontario	**(a) Who initiates SWP planning/ measures?** Under the Clean Water Act, source protection areas and source protection committees have been established through regulation. There are now 19 source protection committees across the province, who will prepare plans for the 38 source protection areas. Each committee's chair is appointed by the Minister of the Environment. In total, there are about 290 representatives from a wide range of sectors sitting on the committees, and another 150 Conservation Authority staff dedicated to this work. Committees are required under the CWA to produce three documents: 1. *Terms of Reference:* Terms of reference documents must be developed for each protection area, listing the systems to be included in their source protection plan and setting out workplans for local risk assessment and plan preparation. 2. *Risk Assessment & Assessment Reports:* Risk assessments identify activities/land uses in vulnerable areas that could pose a risk to water supplies, and classify them as significant, moderate or low threats according to the ministry's technical rules. 3. *Source Protection Plans:* Plans must include policies to reduce the level of risk from activities identified as significant threats in the assessment reports. The body responsible for implementation varies with the policy choice in the plan. **(b) Is there funding for plan development?** The Government of Ontario is providing funding to the Source Protection Authorities and Committees to develop the assessment reports and source protection plans. The province has provided over $170M in funding for technical work, and the Ontario Drinking Water Stewardship Program has been in place since 2006/07 to help landowners and businesses take early action to protect water sources. Over 2,000 local, on-the-ground actions to protect water supplies have been funded through the Stewardship Program. **(c) What level of participation provided for?** The local Source Protection Committees (SPCs) are made up of 1/3 municipal representation, 1/3 commercial/industrial representation, and 1/3 public representation. The CWA and Ontario Regulation 287/07 prescribe several opportunities for public participation and consultation throughout the source protection planning process; draft source protection documents (ToR, Assessment Report and Plan) must be posted on the Internet for public comment before being submitted to the ministry, and committees must hold public meetings while documents are being developed. They are also required to notify anyone who may be carrying out activities designated under the CWA as posing risks to drinking water (ie, those who may be required to take action by source protection plans). Opportunities for First Nations (with a reserve in a source protection area) to participate in the drinking water source protection process include: • Opportunity to participate as a member of an SPC • Consultation on the ToRs, assessment reports and source protection plans; and • Band Councils may submit a resolution requesting that a planned or existing on-reserve system be included in the source protection planning process. **(d) Are there standards / criteria for what must be in plan?** Yes — there are requirements for the content and mandatory components of the plan. For example, plans must contain policies to address all significant threats identified in assessment reports and set out timelines for their implementation. They must also include a rationale for each policy choice (e.g. risk management plan versus education and outreach).[215]

Table B4 continued

Jurisdiction	2011 Findings
Ontario *continued*	**(e) Does the plan require approval and, if so, who has the responsibility for approval?** Terms of reference for source planning are approved by the Minister of Environment.[216] Assessment reports are approved by the director.[217] Source protection plans are submitted to the minister who may make amendments to the plan.[218] **(f) What legal status does the SWP plan have (e.g., is it binding on other decision-making processes)?** Policies in the approved plan are legally-binding upon the bodies named implicitly or explicitly in the policies.[219] **(g) Is there a requirement for review and assessment of the plan (e.g., every 5 years)?** When source protection plans are approved, the minister shall specify the parts of the plan that require review and the schedule for review.[220]
Prince Edward Island	**(a) Who initiates SWP planning/ measures?** The municipal water utility is responsible for the development of the plan, however the province provides the numerical groundwater modeling to delineate the extent of the well field capture zones to be protected, and provides guidance on the issues to consider and potential approaches to addressing them.[221] **(b) Is there funding for plan development?** No. **(c) What level of participation provided for (e.g., roles for community groups, First Nations, opportunities for public to participate, etc)?** The range and extent of participation is at the discretion of the municipality developing the plan.[222] **(d) Are there standards / criteria for what must be in plan?** A municipality's protection plan "shall" include: • proposed measures such as laws, agreements and purchases intended to prevent contamination of capture zone; • emergency response plans; • identification of capture zones; and, • inventory of potentially harmful activities within a capture zone and present or proposed bylaws to control, restrict or eliminate those activities.[223] **(e) Does the plan require approval and, if so, who has the responsibility for approval?** The plan is subject to ministerial approval, and the minister sets, and may amend, the date upon which the plan must be completed.[224] Implementation of a plan is deemed complete where bylaws, agreements and other measures have been enacted, entered into or otherwise completed.[225] **(f) What legal status does the SWP plan have (e.g., is it binding on other decision-making processes)?** Plans may lead to bylaws or agreements that are legally enforceable.[226] **(g) Is there a requirement for review and assessment of the plan (e.g., every 5 years)?** There is no requirement to periodically review plans, but there is an expectation that the plans will be updated as needed.[227]

Table B4 continued

Jurisdiction	2011 Findings
Quebec	**(a) Who initiates SWP planning/ measures?** Municipalities. **(b) Is there funding for plan development?** The province will fund vulnerability assessments. The government is currently considering how protection plans might be funded.[228] **(c) What level of participation provided for (e.g., roles for community groups, First Nations, opportunities for public to participate, etc)?** Quebec responded that: "The ministry [of Environment] will publish its own source water protection strategy for public consultation in fall 2011. All stakeholders will be involved in some part to participate to reach that goal. We expect that any source water assessment studies and protection plan will be published." Participation in development of SWP measures at the municipality may be provided. **(d) Are there standards / criteria for what must be in plan?** This is under development and consultation is ongoing.[229] **(e) Does the plan require approval and, if so, who has the responsibility for approval?** This is under development and consultation is ongoing. Some level of governmental approval should be put in place for quality control of vulnerability assessment studies and protection plan.[230] **(f) What legal status does the SWP plan have (e.g., is it binding on other decision-making processes)?** This is under development and consultation is ongoing.[231] **(g) Is there a requirement for review and assessment of the plan (e.g., every 5 years)?** This is under development and consultation is ongoing.[232]
Saskatchewan	**(a) Who initiates SWP planning/ measures?** Saskatchewan Watershed Authority **(b) Is there funding for plan development?** Watershed plans are developed with input and support of local watershed advisory committees and technical experts. Expenses are covered for local watershed advisory committee meetings. Once the plan is completed, local watershed stewardship associations may receive up to $92,500 per year in core funding from SWA (2011 finding grant allocation). Stewardship associations are expected to secure additional funding from other sources to undertake projects.[233] **(c) What level of participation provided for (e.g., roles for community groups, First Nations, opportunities for public to participate, etc)?** Participation requirements are not set out in regulation. Any local organized community group is welcome to participate in watershed planning. Current groups include: rural and urban municipalities, First Nations, Tribal Councils and Métis locals, hamlet boards, wildlife federations, local agricultural organizations, local environmental organizations and local industries. Public participation in all phases of plan development and implementation of the local watershed advisory committees is fundamental in the process. The general public is asked for input at open houses at the beginning of the process and at the plan review stage.[234]

Table B4 continued

Jurisdiction	2011 Findings
Saskatchewan *continued*	**(d) Are there standards / criteria for what must be in plan?** As the watershed planning process is not defined in legislation, there is no legislated list of issues to be addressed in the plan. The local watershed advisory committees and technical experts determine the issues, based on local and professional experience.[235] **(e) Does the plan require approval and, if so, who has the responsibility for approval?** Provincial and federal agencies are involved in the planning process from the beginning and are involved in setting plan objectives. These agencies have another opportunity to comment on the plan in the draft stage. SWA and MOE provide advice to the local watershed advisory committee and the final approval of the plan is the responsibility of the watershed advisory committee. [236] **(f) What legal status does the SWP plan have (e.g., is it binding on other decision-making processes)?** The watershed protection plan is not binding on other decision-making processes. **(g) Is there a requirement for review and assessment of the plan (e.g., every 5 years)?** As the watershed planning process is not defined in legislation, there is no legal requirement for review and assessment. The Saskatchewan Watershed Authority is currently developing criteria for review.[237]
Yukon	**(a) Who initiates SWP planning/ measures?** The water licensing process, established by the Waters Act could consider SWP plans if they were brought forward during the public comment phase of the Yukon Water Board process. **(b) Is there funding for plan development?** Not applicable **(c) What level of public participation is provided for (e.g., roles for community groups, First Nations, opportunities for public to participate, etc)?** Public participation is provided for in the Yukon Water Board process. In general, and subject to the rights of authorized water users, a Yukon First Nation has the basic right to have no change in quality, quantity and rate of flow of that water on or next to its settlement land. **(d) Are there standards / criteria for what must be in a SWP plan?** Not applicable **(e) Does the plan require approval and, if so, who has the responsibility for approval?** Not applicable **(f) What legal status does the SWP plan have (e.g., is it binding on other decision-making processes)?** Not applicable **(g) Is there a requirement for review and assessment of the plan (e.g., every 5 years)?** Not applicable

TABLE B5: DOES THE JURISDICTION PROCLAIM WATER IS A COMMON GOOD OR SUBJECT TO A PUBLIC TRUST? IS THERE A PROVINCIAL AUTHORITY RESPONSIBLE AND LEGALLY OBLIGATED FOR ENSURING WATER QUALITY IS PROTECTED AND RESTORED?	
Jurisdiction	**2011 Findings**
Alberta	The property in and the right to the diversion and use of all water in the province is vested in Her Majesty in right of Alberta except as provided for in the regulations.[249] There is no recognition of the public trust or declaration of water as a community good. There is no obligation that requires the government to maintain or ensure the remediation of ambient water quality. Alberta has adopted River Water Quality Objectives.
British Columbia	Water is vested in the government "except only in so far as private rights have been established under licences issued or approvals given under this or a former Act."[250]There are no legal provisions establishing water as a public trust or obligating the government to ensure a minimum level of ambient water quality (non-drinking water regulation). The province is undertaking efforts that could lead to increased protection of public interests in water.[251]
Manitoba	Water is vested in the province.[252] There are no legal provisions establishing water as a public trust or obligating the government to ensure a minimum level of ambient water quality (non-drinking water regulation).
New Brunswick	The *Clean Water Act* vests the control of waters within the province in the Crown.[253] There is no statutory obligation for the province to protect or remediate ambient water quality. Water has not been proclaimed as common good or subject to the public trust doctrine.
Newfoundland and Labrador	The property in and the right to the use and flow in water is vested in the Crown, subject to rights of property, use and flow conferred on a person by a grant, lease, licence or other instrument or under a statute of the province.[254] There is no legal requirement that obligates the province to protect ambient water quality. Newfoundland and Labrador have not proclaimed water as a community good or subject to the public trust.
Northwest Territories	Yes. The Legislative Assembly has passed a motion recognizing a fundamental right to water.[255] All waters are vested in the Crown.[256]
Nova Scotia	Legislation vests all watercourses and the right to use, divert and appropriate them in the right of the province. The precautionary principle is also cited in legislation governing the environment.[257] The is no legal obligation requiring Nova Scotia to protect or remediate ambient water quality, but there are a range of government programs and initiatives intended to do so. Water has not been declared as a common good and is not subject to the public trust doctrine.
Nunavut	All waters are vested in the Crown.[258] Nunavut has not declared water to be a common good or subject to the public trust. There is no legal obligation requiring Nunavut to protect or remediate ambient water quality.
Ontario	Water is not vested in the Crown. Water is not subject to a public trust and there is no obligation that requires the provincial government to protect or remediate ambient water quality. Ontario has a range of laws and programs in place to protect ambient water quality.
Prince Edward Island	Water is not vested in the Crown by legislation. There is no statutory legal obligation on the province to protect or remediate ambient water quality (PEI's drinking water systems use groundwater exclusively). Water has not been declared to be a community good or subject to the public trust doctrine.

Table B5 continued

Jurisdiction	2011 Findings
Quebec	*The Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection* (An Act to affirm to collective nature of water resources and provide for increased water resource protection), surface and groundwater are recognized as collective goods for the people of Quebec. The law confirms that water resources are part of our common heritage and that the state is duty-bound to act as their custodian, for the benefit of current and future generations.[259]
Saskatchewan	The property in and the right to the use of all groundwater and surface water is, and is deemed always to have been, vested in the Crown.[260] Saskatchewan considers water as "a public trust, a shared legacy and a collective responsibility."[261] There is no legal obligation on government to maintain or remediate water quality.
Yukon	The Commissioner of the Yukon has the administration and control of all rights in respect of water in Yukon, other than waters in a federal conservation area as defined in the *Yukon Act*.[262] Water has not been declared a public trust and there is no legal obligation that requires government to protect water quality.

TABLE B6: IS THERE PROTECTION AGAINST THE EXPORT OF WATER?

Jurisdiction	2011 Findings
Alberta	Water transfers out of the country, with the exception of processed water and municipal water, are prohibited under the Water Act (2000). Exports may be approved by act of the Legislature.
British Columbia	The *Water Protection Act* prohibits removal of British Columbia's water in bulk supply to locations outside of this province (subject to limited exceptions, e.g., grandparenting of existing bulk water removal rights).[263]
Manitoba	The *Water Resources Conservation Act* prohibits the removal of water from a water basin or subwater basin. "Water basin" is defined as the Manitoba portion of the Hudson Bay drainage basin. Subwater basins can be designated by regulation (s. 1).
New Brunswick	Any project involving the export of water would be required to undertake an Environment Impact Assessment (EIA). All projects involving the transfer of water between drainage basins are subject to an environmental impact assessment.[264] As a matter of policy, the Department of Environment would not allow the export of water from New Brunswick. The department would deny such a project through the EIA process.[265]
Newfoundland and Labrador	Yes, water may not be removed from the province, subject to certain exceptions.[266]
Northwest Territories	Yes. The federal government has adopted a policy prohibiting the bulk removal of freshwater from the Northwest Territories.[267]
Nova Scotia	Nova Scotia's Water Resources Protection Act bans bulk exports of water greater than 25 litres.[268]

Table B6 continued

Jurisdiction	2011 Findings
Nunavut	The removal of freshwater in bulk quantities from the major drainage basins within Nunavut is prohibited. Any licences submitted to the minister authorizing bulk water removal will not be approved.[269]
Ontario	Yes, water transfers out of Ontario's three main basins (Great Lakes-St. Lawrence River Basin, Nelson Basin, and Hudson Basin) have been prohibited, with limited exemptions such as water in containers of 20 litres or less, water incorporated into products, and historical diversions.[270]
Prince Edward Island	Under the *Environmental Protection Act,* the province prohibits the "bulk export" of water, and water export is limited to shipping of containers of 25 litres capacity or less.[271]
Quebec	The *Water Resources Preservation Act* provides that no water (surface water and groundwater) taken in Quebec can be transferred outside of Quebec, except under the conditions prescribed by the Act.[272]
Saskatchewan	Yes. There shall not be any grant of a licence or approval to transfer water out of a watershed. This does not apply to water transferred between watersheds or portions of watershed within Saskatchewan, water packaged in containers of less than the maximum prescribed capacity or water removed for carrying water in a vehicle for the use of people or animals while they are transported in the vehicle.[273]
Yukon	Yes. The Yukon government has developed an interim policy statement for use in the territory based on the Indian and Northern Affairs Canada policy statements (December 2003) for the Northwest Territories and Nunavut prohibiting bulk water removals from major river basins in those territories.[274]

GENERAL WATER FINDINGS BY JURISDICTION

TABLE C1: WATER TREATMENT REQUIREMENTS

Jurisdiction	2006 Findings	2011 Findings
Alberta	Disinfection is required for both groundwater and surface water. Chemically-assisted filtration or slow-sand filtration is required for surface water. Treatment must achieve specified reductions in pathogens.	**BASIC DISINFECTION:** Disinfection is required for both groundwater and surface water. Treatment must achieve specified reductions in pathogens.[275] *Standards and Guidelines* are made binding by s. 7 of the *Potable Water Regulation* issued under the *Environmental Protection and Enhancement Act.* **ADVANCED TREATMENT:** Chemically-assisted filtration or slow-sand filtration is required for surface water.[276]
British Columbia	Disinfection of surface water is required. Ground water disinfection is discretionary.	No change from 2006. Disinfection of surface water is required. Ground water disinfection may be required by drinking water officers on a case-by-case basis as a condition in the operating permit.[277]
Manitoba	Current: Chlorination is required. Proposed: Regulations are currently being drafted under the *Drinking Water Safety Act*.	**BASIC TREATMENT:** Chlorination or another approved method of disinfection is required.[278] **ADVANCE TREATMENT:** No advanced treatment required, except where ordered through individual licences.
New Brunswick	Continuous disinfection is mandatory for all public water supply systems.	There are no mandatory requirements for treatment, although treatment may be required (to meet drinking water quality standards) through the approval process for individual municipal water systems. The *Atlantic Canada Guidelines for the Supply, Treatment, Storage, Distribution, and Operation of Drinking Water Supply Systems* were adopted by the Atlantic Provinces (including New Brunswick) in 2004.[279]
Newfoundland and Labrador	Chlorination is required. Other treatment may be required through the approval process for individual municipal water systems.	Continuous disinfection is mandatory for all public water supply systems.[280] There are no requirements for advanced treatment.

TABLE C1 continued

Jurisdiction	2006 Findings	2011 Findings
Northwest Territories	Chlorination (or other approved disinfection) for surface water is required, while groundwater may require chlorination (or other approved disinfection) if the water may be subject to contamination.	Water treatment standards are regulated and must comply with standard operating procedures. Typically water is filtered prior to chlorination, but may be substituted for UV disinfection where source water is sufficiently pristine.
Nova Scotia	Filtration and disinfection are both required for surface water and disinfection is required for groundwater. Minimum standards are set for both.	Filtration and disinfection are both required for surface water and disinfection is required for groundwater. Minimum standards are set for both.[281]
Nunavut	Chlorination (or other approved disinfection) for surface water is required, while groundwater may require chlorination (or other approved disinfection) if the water could be subject to contamination.	Chlorination (or other approved disinfection) for surface water is required, while groundwater may require chlorination (or other approved disinfection) if the water could be subject to contamination.[282]
Ontario	Surface water and groundwater must meet the primary disinfection standards of Procedure for Disinfection of Drinking Water in Ontario. Treatment must achieve specified reductions in pathogens.	Surface water and groundwater must meet the primary disinfection standards of Procedure for Disinfection of Drinking Water in Ontario. Treatment must achieve specified reductions in pathogens.[283]
Prince Edward Island	No treatment required. Treatment may be imposed on a case-by-case basis depending. Utilities that do not chlorinate must meet a heightened sampling requirement.	No treatment required. Treatment may be imposed on a case-by-case basis depending and in practice all municipalities chlorinate water.[284] Utilities that do not chlorinate must meet a heightened sampling requirement.[285]
Quebec	Surface water and groundwater under surface water influence must undergo a continuous filtration and disinfection treatment. Treatment must achieve specified reductions in pathogens.	Surface water and groundwater under surface water influence must undergo a continuous filtration and disinfection treatment. Treatment must achieve specified reductions in pathogens.[286] Proposed amendments to the Regulation increase the treatment requirements where the quality of raw water has deteriorated.[287]
Saskatchewan	Chlorination (or other approved disinfection) is required.	**BASIC DISINFECTION:** Chlorination (or other approved disinfection) is required.[288] **ADVANCED TREATMENT:** There is no requirement for advanced treatment.
Yukon	Current: No treatment required. Proposed: Surface water requires filtration and disinfection. Groundwater requires disinfection.	**BASIC DISINFECTION:** Current: Chlorination, or a similarly effective method of disinfection, is required for large public drinking water systems. Chlorination is also required for bulk delivery systems.[289] Proposed: Extend treatment requirements to small public drinking water systems.[290] **ADVANCED TREATMENT**: Filtration is required for surface water and well water under the direct influence of surface water.[291]

TABLE C2: DRINKING WATER QUALITY STANDARDS

Jurisdiction	2006 Findings	2011 Findings
Alberta	Water quality must meet the microbiological, chemical and radiological characteristics in the Canadian Guidelines.	Water quality must meet the microbiological, chemical and radiological characteristics in the Canadian Guidelines.[292]
British Columbia	Water quality must meet a coliform standard. Other standards may be imposed on a case-by-case basis. Canadian Guidelines have not been adopted.	No change from 2006. Water quality must meet a coliform standard. Other standards may be imposed on a case-by-case basis. Canadian Guidelines have not been adopted.[293]
Manitoba	Water quality must meet a microbiological standard. Canadian Guidelines have not been adopted. Proposed: The Lieutenant Governor in Council has the discretion to make regulations specifying drinking water quality standards.	Water quality must meet microbiological, chemical, radiological, and physical standards based on the Canadian Guidelines. These standards are currently in a phase-in period; water suppliers have until March 2012 to comply.[294]
New Brunswick	The Canadian Guidelines are adopted as binding for bacteriological standards. The Guidelines are non-binding objectives for chemical and physical monitoring standards.	The province has adopted the Canadian *Guidelines for Canadian Drinking Water Quality*. Municipally and provincially-owned and operated water systems are required to sample water for a specified list of microbiological, chemical and aesthetic parameters. Regulated drinking water that exceeds these limits will be subject to a health risk assessment which may result in the issuance of an interdiction (in the form of a boil order, do-not-consume order, or other directive), to ensure the safety of citizens.[295]
Newfoundland and Labrador	Water quality standards are discretionary.	Drinking water quality guidelines are adopted in Ministry policy for bacteriological and chemical standards. Guidelines used by the Government of Newfoundland and Labrador for drinking water quality are based on the "*Guidelines for Canadian Drinking Water Quality*" developed by Health Canada.[296]
Northwest Territories	Microbiological, physical, chemical and radiological characteristics are addressed in legislation.	The NWT has adopted the Canadian drinking water guidelines. Operators must follow these Guidelines, the NWT Drinking Water Sampling and Testing Requirements, and standard operating procedures approved by the Chief Public Health Officer.[297]
Nova Scotia	Microbiological, physical, and chemical characteristics of a public drinking water supply must not exceed the maximum acceptable concentration for substances listed in the Canadian Guidelines.	Microbiological, physical, and chemical characteristics of a public drinking water supply must not exceed the maximum acceptable concentration for substances listed in the Canadian Guidelines.[298]

TABLE C2 continued

Jurisdiction	2006 Findings	2011 Findings
Nunavut	Microbiological, physical, chemical and radiological characteristics are addressed in legislation.	Microbiological, physical, chemical and radiological characteristics are addressed in legislation.[299]
Ontario	Microbiological, chemical, and radiological standards equal or surpass the Canadian Guidelines. There are also standards to ensure the effectiveness of water treatment.	Microbiological, chemical, and radiological standards equal or surpass the Canadian Guidelines. There are also standards to ensure the effectiveness of water treatment.[300]
Prince Edward Island	No binding standards but testing is now required for microbiological and chemical analysis, which allows comparison with Canadian Guidelines.	Standards are not independently binding, but testing is now required for microbiological and chemical analysis, and testing is prescribed with reference to the Canadian Guidelines.[301]
Quebec	Parameters for microbiological, inorganic, organic, and radioactive substances are mandated as well as turbidity levels in the distribution system.	Parameters for microbiological, inorganic, organic, and radioactive substances are mandated as well as turbidity levels in the distribution system.[302] Proposed amendments to the Regulation Respecting the Quality of Drinking Water updates the standards of quality of drinking water on the basis of new knowledge (arsenic, trichloroethylene, algal toxins, disinfection by-products, etc.).[303]
Saskatchewan	Bacteriological, chemical, radiological, and pesticide standards are mandated. Turbidity standards are mandated based on source water and treatment types.	Bacteriological, chemical, radiological, and pesticide standards are mandated. Turbidity standards are mandated based on source water and treatment types.[304]
Yukon	Current: Standards related to coliforms, chlorine residual and some physical characteristics. Proposed: Public drinking water systems must meet the criteria set forth in the Canadian Guidelines.	Current: Large public drinking water systems and bulk delivery systems must meet the microbiological, chemical, and physical standards set out in the Canadian Guidelines.[305] Proposed: Extend water quality standards to small public drinking water systems.[306]

TABLE C3: WATER QUALITY TESTING REQUIREMENTS

Jurisdiction	2006 Findings	2011 Findings
Alberta	The frequency of testing varies by type of contaminant and the population served. Microbiological sampling and testing for chlorine residuals, turbidity and fluoride are required. Testing for chemical and physical standards also required.	The frequency of testing varies by type of contaminant and the population served. Microbiological sampling and testing for chlorine residuals, turbidity and fluoride are required. Testing for chemical and physical standards also required.[307]
British Columbia	Testing for coliforms is mandatory. All other testing is discretionary. The frequency of sampling is discretionary. Frequency of sampling varies according to the population served.	Testing for coliforms is mandatory. Other testing may be required by drinking water officers on a case-by-case basis as a condition on the operating permit. The frequency of sampling is decided at the discretion of the drinking water officer and is based on population served, the nature of the source and the history of previous sampling.[308]
Manitoba	Current: Testing for chlorine residuals and microbiological sampling is required and the frequency is mandated; all other testing is discretionary. Proposed: Sampling will be mandated. Testing will be required for bacteriological contaminants and other analyses to be prescribed in the regulations.	Testing for disinfectant residuals and microbiological, chemical, radiological, and physical sampling is required. The frequency of sampling is mandated.[309]
New Brunswick	Testing by water system operators is not required. Instead, the provincial government has an established sampling program. There are no provincial legislative requirements relating to sampling frequency. Government states that it samples based on the *Canadian Guidelines.*	Public water suppliers require only an approved sampling plan.[310] The sampling frequency and scope are established in the Department of Environment's Sampling Plan Standard Operating Procedure and are applied to all systems.[311]
Newfoundland and Labrador	Sampling frequency and scope are discretionary. Public water suppliers must have an approved sampling plan.	Bacteriological monitoring is undertaken by the Government Services Centre (GSC) as per established policy guidelines.[312] Testing of chemical and inorganic parameters is required and frequency is mandated.[313]
Northwest Territories	The Chief Medical Health Officer determines the manner and frequency of sampling for bacteriological, physical, and chemical characteristics. The Department of Health and Social Services issues water sampling protocols.	The Chief Medical Health Officer determines the manner and frequency of sampling for bacteriological, physical, and chemical characteristics or raw and treated water. The Department of Health and Social Services issues water sampling protocols. Standards governing water sampling and testing are set out in the regulations and must comply with the standard operating procedures approved by the Chief Public Health Officer.[314]
Nova Scotia	Monitoring of bacteriological, physical, and chemical parameters is required. Monitoring of turbidity, disinfection residuals, and fluoride levels is also required.	Monitoring of bacteriological, physical, and chemical parameters is required. Monitoring of turbidity, disinfection residuals, and fluoride levels is also required.[315]

TABLE C3 continued

Jurisdiction	2006 Findings	2011 Findings
Nunavut	The Chief Medical Health Officer determines the manner and frequency of sampling for bacteriological, physical, and chemical characteristics. The Department of Health and Social Services issues water sampling protocols.	The Chief Medical Health Officer determines the manner and frequency of sampling for bacteriological, physical, and chemical characteristics. The Department of Health and Social Services issues water sampling protocols.[316]
Ontario	Sampling is required and the frequency is mandated. Testing varies by contaminant and the population served. Testing requirements are rigorous compared to most provinces and territories.	Sampling is required and the frequency is mandated. Testing requirements are rigorous compared to most provinces and territories.[317] Drinking water testing requirements, procedures and protocols are proscribed.[318]
Prince Edward Island	Frequency of sampling is mandated. Sampling for chlorine, coliform bacteria, and E. coli is done on at least a quarterly basis each year and a general chemical analysis is done at least once each year. Sampling frequency follows the recommendations of the World Health Organization and Health Canada.	Frequency of sampling is mandated. Sampling for chlorine, coliform bacteria, and E. coli is done on at least a quarterly basis each year for smaller communities (more frequently for larger communities) and a general chemical analysis is done at least once each year. Sampling frequency follows the recommendations of the World Health Organization and Health Canada.[319]
Quebec	There is mandatory testing for bacteriological, physical, and chemical characteristics, including trihalomethanes, organic substances, and continuous monitoring of turbidity and disinfection residuals. The frequency of testing varies by type of contaminant and the population served by the water systems.	There is mandatory testing for bacteriological, physical, and chemical characteristics, including trihalomethanes, organic substances, and continuous monitoring of turbidity and disinfection residuals. The frequency of testing varies by type of contaminant and the population served by the water systems.[320] Proposed amendments to the control requirements for disinfection by-products and entrust municipalities with the control of water quality for the small private networks they serve.[321]
Saskatchewan	Required sampling and frequency are specified in the individual water permit or as directed by an order made pursuant to the Act. Testing is required for bacteria and chlorine, and for any other constituents that the permit requires to be monitored.	Required sampling and frequency are specified in the individual water permit or as directed by an order made pursuant to the Act. Testing is required for bacteria and chlorine, and for any other constituents that the permit requires to be monitored.[322]
Yukon	Current: Sampling and frequency is discretionary, as determined by the Environmental Health Services. Proposed: Testing is required for bacteriological, chemical, and physical quality, turbidity, trihalomethanes, and other organisms or substances as may be required by a health officer.	Current: Sampling is required for bacteriological, chemical, and physical quality, turbidity, trihalomethanes, chlorine residual, and any other organisms or substances as may be required by a health officer. Frequency of sampling is mandated.[323] Proposed: Extend testing requirements to small public drinking water systems.[324]

TABLE C4: REGULATION OF WATER SYSTEM DESIGN AND CONSTRUCTION

Jurisdiction	2006 Findings	2011 Findings
Alberta	Alberta requires design and construction permits for drinking water systems. Pursuant to the Potable Water Regulation, all water treatment systems must be designed, constructed and operated in accordance with standards issued by Alberta.	Alberta requires design and construction permits for drinking water systems. Pursuant to the *Potable Water Regulation*, all water treatment systems must be designed, constructed and operated in accordance with standards issued by Alberta.[325]
British Columbia	B.C. requires both a construction permit and an operating permit. Provincial regulators review construction plans prior to issuing a construction permit. However, there are no binding standards related to design, construction, materials, or treatment methods or additives.	No change from 2006. B.C. requires both a construction permit and an operating permit. Provincial regulators review construction plans prior to issuing a construction permit. However, there are no binding standards related to design, construction, materials, or treatment methods or additives.[326]
Manitoba	The Minister of Health must approve plans and specifications before a public water system can be constructed, operated or altered. However, there are no binding standards related to design, construction, materials, or treatment methods or additives.	Approval is required for the construction or alteration of a public water system or a semi-public water system. The Office of Drinking Water applies the Recommended Standards for Water Works (commonly known as The Ten State Standards), CSA and AWWA standards, and provincial standards and guidelines, but they are not binding. A permit application must include a statement by the engineer that the design was in general conformance with these standards along with an explanation or justification for any significant deviations from these standards which may impact the protection of public health.[327]
New Brunswick	The Minister of Environment must approve plans and specifications before a public water system can be constructed, operated or altered. However, there are no binding standards related to design, construction, materials, or treatment methods or additives.	Drinking water systems are typically required to go through the Environmental Impact Assessment[328] process and also apply for an approval to construct. Submitted engineering plans and specifications must be stamped by a New Brunswick Professional Engineer.[329] A peer review is then undertaken by Engineers at the Department of Environment and an approval to construct is issued for the project. Maintenance requirements of drinking water systems are covered in approvals to operate. Every drinking water system with an approval to operate (which number over 100) are also subject to an approval compliance evaluation (ACE) conducted by an Engineers once per year.[330]
Newfoundland and Labrador	New Brunswick regulates water system design and construction. There are construction and materials standards for wells, but not for water treatment systems.	The Minister of Environment must approve plans and specifications before a public water system can be constructed, operated or altered. Guidelines have been issued related to design, construction, materials, treatment methods and additives, and these may be proscribed in individual approvals.[331]

Table C4 continued

Jurisdiction	2006 Findings	2011 Findings
Northwest Territories	Approval to construct a drinking water treatment system is required. Standards are prescribed in the regulations for filtration, chlorination and feed equipment.	New regulations in place. Approval to construct a drinking water treatment system is required. Specifications must be certified by an engineer and approved by the Chief Public Health Officer. Water systems are reviewed approximately every three years, and health officers conduct public health inspections of water treatment plants every six months. A pilot project is currently underway to test remote monitoring systems.[332]
Nova Scotia	Public water systems must be classified (based on population served) and registered with the province. There are no specific binding standards regarding design, construction, or materials used, but materials and chemicals must be "food grade."	When an approval to construct or operate is issued, design engineers are to refer to Nova Scotia's treatment standards.[333] Once a system is constructed it is classified, the classification is included in the approval to operate and serves to establish requirements regarding the class of certified operator required to operate and maintain the facility.[334] Section 32(2) of the Water and Wastewater Facilities and... Regulations is the section that deems municipal water systems with approvals to be public drinking water supplies so that they do not have to fill in a separate application for registration.
Nunavut	Approval to construct a drinking water treatment system is required. Standards are prescribed in the regulations for filtration, chlorination and feed equipment.	Approval to construct a drinking water treatment system is required. Standards are prescribed in the regulations for filtration, chlorination and feed equipment.[335]
Ontario	The establishment, alteration, extension or repair of waterworks requires an approval issued by the Environment Ministry. Plans and specifications for water works may be reviewed during the approval process. There are no binding standards for design, construction or materials, but the criteria set out in the Recommended Standards for Water Works should be met.	The establishment, alteration, extension or repair of waterworks requires an approval issued by the Environment Ministry. Plans and specifications for water works may be reviewed during the approval process. The design and construction of both primary and secondary disinfection facilities should normally conform to the criteria set out in the Recommended Standards for Water Works ("Ten State Standards") published by the Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (of which Ontario is a member).[336]
Prince Edward Island	Approvals for system construction, modification, and operation are required. There are no binding standards for design, construction or materials (but these can be reviewed through the approval process and officials refer to non-binding standards when approving).	Approvals for system construction, modification, and operation are required. There are no binding standards for design, construction or materials (but approvals generally conform to the "Atlantic Canada Standards and Guidelines for Water Supply" and any conditions or requirements in approvals are legally-binding).[337]

Table C4 continued

Jurisdiction	2006 Findings	2011 Findings
Quebec	The construction or operation of public waterworks requires approval. Performance requirements for filtration, disinfection, and turbidity are established under the regulations.	The construction or operation of public waterworks requires approval. Performance requirements for filtration, disinfection, and turbidity are established under the regulations.[338] The Draft Regulation implements a five-year program for the inspection of drinking water treatment equipment.[339]
Saskatchewan	The construction or operation of public waterworks requires approval and there are binding standards regarding design, construction and materials.	The construction or operation of public waterworks requires approval and there are binding standards regarding design, construction and materials: Saskatchewan Min. Environment, *Guide to Waterworks Design,* EPB 01 (January 2008).
Yukon	Current: Approvals are required according to the Territorial Government. Proposed: Approval by Environmental Health Services is required for construction or modification of a water system.	Current: Approval by Environmental Health Services is required for construction or substantial modification of drinking water systems. There are no binding standards related to design, construction, materials, or treatment methods or additives. Trucks used for bulk water delivery must meet certain design standards.[340] Proposed: Extend regulations to small public drinking water systems.[341]

TABLE C5: LAB ACCREDITATION AND OPERATOR CERTIFICATION

Jurisdiction	2006 Findings	2011 Findings
Alberta	The operation of the water treatment system must be performed by a person holding a valid certificate issued by the Director. Certificates must be renewed every three years. The Director must also approve laboratories.	Laboratories must be approved by the Director.[342] The operation of the water treatment system must be performed by a person holding a valid certificate issued by the Director. Certificates must be renewed every three years.[343]
British Columbia	Operator certification is required for larger systems, and may be required for smaller systems. Testing must be performed at accredited labs.	Operator certification is required for larger systems, and may be required for smaller systems. Testing must be performed at accredited labs.[344]
Manitoba	Current: Water system operators must obtain certification from the Director. The provincial government selects (by contract) the labs where testing is performed. A "laboratory" is defined as being accredited in accordance with the regulations or approved by the Director. Proposed: Regulations for operating licences under the *Drinking Water Safety Act*.	Labs: A laboratory must be accredited according to the parameters set by the Standards Council of Canada, or equivalent accreditation.[345] Operator Certification: Operators are required to be certified.[346]

TABLE C5 continued

Jurisdiction	2006 Findings	2011 Findings
New Brunswick	There are no requirements for operator training or certification. The use of accredited labs is not required, but testing performed by the province is done at the provincial lab or another accredited lab.	Water must be tested in accordance with the sampling plan that applies to that system at a laboratory that is accredited by the Canadian Association of Environmental Analytical Laboratories, certified by the Canadian Association of Environmental Analytical Laboratories to perform the testing required of that system in its sampling plan, or is acceptable to the Minister of Health and Wellness.[347] The province requires reporting to a third-party database tracking system specifically designed to monitor and report on drinking water quality, which provides the ability to track trends and rapid notification of exceedences.[348] There is a condition included in all approvals to operate requiring the use of accredited labs.[349] Proposed change to the *Potable Water Regulation* (s. 9(1)) are in process that will enshrine the requirement to use accredited labs. Although operator certification is not strictly mandatory, the minister may require operators to undertake mandatory training[350] and has in all water system approvals.[351]
Newfoundland and Labrador	There are no requirements for operator training or certification. The Minister of the Environment has the discretion to prescribe a training program. Testing must be performed at accredited labs.	Microbiological testing is done at the Provincial lab or another accredited lab. Accredited labs are required for chemical analysis of drinking water.[352] Operator certification is not required. Certified water system operators are encouraged for each water supply system.
Northwest Territories	There are no requirements for operator training or certification. Testing must be conducted at a certified laboratory (one designated by the Chief Medical Health Officer).	Unless otherwise approved, operators in charge of a public water supply system must be certified to operate the class of system they operate. Territorial standard operating procedures do not require laboratories to be certified, although Canadian guidelines do require it for areas of federal jurisdiction.[353]
Nova Scotia	There are operator requirements for education and experience for each class of water system. Certificates must be renewed every four years. All testing results, except bacteriological, must be from accredited labs.	There are operator requirements for education and experience and examination requirements for each class of water system. Certificates must be renewed every four years.[354] Accredited labs are required for testing.[355]
Nunavut	There are no requirements for operator training or certification. Testing must be conducted at a certified laboratory (one designated by the Chief Medical Health Officer).	There are no requirements for operator training or certification. Testing must be conducted at a certified laboratory (one designated by the Chief Medical Health Officer).
Ontario	There are operator certification requirements varying by class. All testing must be done at an accredited lab.	All testing must be done at an accredited lab.[356] There are operator certification requirements varying by class.[357]

TABLE C5 continued

Jurisdiction	2006 Findings	2011 Findings
Prince Edward Island	Operators must be certified and renew every four years. The owner of public drinking water facilities must ensure that testing is done at an accredited laboratory.	Operator certification is required and certificates must be renewed every four years, and operators are subject to continuing education requirements.[358] Testing of public water facilities must be done at an accredited laboratory.[359]
Quebec	Operators must be certified and renew every five years. The use of accredited labs is required.	The use of accredited labs is required.[360] The Draft Regulation introduces minimum lab accreditation requirements for the analysis of radioactive substances in water.[361] Operators must be certified and renew every five years.[362]
Saskatchewan	All operators must be certified. All testing must be done at an accredited lab.	All testing must be done at an accredited lab.[363] Generally, operators must be certified.[364] Operator certification is not required for some municipal waterworks serving less than 50 consumers or for some water pipelines with less than 15 service connections.[365]
Yukon	Current: There are no requirements for operator training or certification. Testing is at accredited labs. Proposed: Classes of operators must be certified. Testing is at accredited labs.	Operators of large public drinking water systems and bulk water delivery trucks must be certified by the Environmental Operators Certification Program in British Columbia.[366]

TABLE C6: TRANSPARENCY AND ACCOUNTABILITY

Jurisdiction	2006 Findings	2011 Findings
Alberta	Public reporting of water quality tests is not yet required, but action is underway to provide Internet access to drinking water quality data. Disinfection equipment failures and adverse water quality tests must be reported. The Regional Health Authority Officer has the discretion to issue a boil-water advisory to the public.	Reporting of Test Results: Disinfection equipment failures and adverse water quality tests must be reported. The Regional Health Authority Officer has the discretion to issue a boil-water advisory to the public. New protocol has been developed for exceedances of chemical health parameters in drinking water, under which the Alberta Health Service can issue a "do-not-consume" or "do-not-use" advisory to customers.[367] Alberta Environment posts electronic reports from many of Alberta's approved water treatment facilities on its website. For those facilities which do not yet participate in online reporting, printed copies of the reports can be obtained from local Alberta Environment offices.[368] Period "right to know reports" are not required. Right to Request Investigations: No.

TABLE C6 continued

Jurisdiction	2006 Findings	2011 Findings
British Columbia	Routine water testing results must be reported to the provincial government where testing is required. Public notification of potential health threats must be provided by the drinking water officer. A water supplier must make test results, an annual report, and contingency plans available to the public. There is a requirement for the provincial health officer to prepare an annual drinking water protection report.	Reporting of Test Results: Routine water testing results must be reported to the provincial government where testing is required. Public notification of potential health threats must be provided by the drinking water officer. A water supplier must make test results, an annual report, and contingency plans available to the public. There is a requirement for the provincial health officer to prepare an annual drinking water protection report, but no report has yet been provided. Two reports have been prepared by the provincial health officer on the progress on the Action Plan for Safe Drinking Water, which serve as the annual reports for 2003/4 – 2006/7: www.health.gov.bc.ca/pho/reports/drinkingwater.html Right to Request Investigations: If a person considers that there is a threat to their drinking water, they may make a formal request to the drinking water officer to investigate the matter, detailing the specifics of the facts that the person considers constitute the threat. Discretion is left with the officer whether or not an investigation is warranted. If an investigation is conducted, the complainant must be informed of the results.[369]
Manitoba	Current: No mandatory provisions requiring public reporting of water quality testing results, non-compliance incidents, or public reporting of emergencies. Proposed: According to Manitoba Water Stewardship, they have acquired software for a database and expect it to be operational this fiscal year. Emergencies and non-compliance will require immediate notification of the director, a medical officer, or a drinking water officer.	Testing: Laboratories must report routine testing results for bacteriological results within 7 days, reporting of other results within 30 days is required.[370] Test results that indicate a significant health risk must be reported immediately. There is no mandatory reporting of those test results to the public (i.e., the issuance of drinking water advisory is at the discretion of health authorities).[371] Water systems serving more than 1,000 residents must prepared and made available to residents.[372] Investigations: No
New Brunswick	The Department of Environment and Conservation undertakes testing and produces annual and quarterly reports. The test results on physical parameters, major ions, nutrients, and metals are regularly provided to the public online. Boil-water advisories are available online, but there are no regulatory criteria specifying when boil alerts should be issued or the notification procedures.	Individual water systems are not required to publish periodic reports but the provincial government publishes an Annual Report that includes information about water quality trends and water systems. It also maintains a database of groundwater quality data collected from domestic water wells drilled since 1994. Residents do not have a statutory right to request an investigation of water quality concerns.

TABLE C6 continued

Jurisdiction	2006 Findings	2011 Findings
Newfoundland and Labrador	There is no requirement for individual systems to provide public reporting. The provincial government does not produce an annual report regarding drinking water quality trends or testing results. According to the Department of Environment, the contracts for water systems require operators to maintain contingency plans and to notify the Department when emergencies occur.	Reporting of Test Results: Exceedance reports shall be provided to all communities when a laboratory result is above the *Guidelines for Canadian Drinking Water Quality* for contaminant parameters as soon as the results are received by the Department.[373] Seasonal testing reports and annual reports are made available to communities.[374] Chemical drinking water quality monitoring schedule shall be published on the WRMD website at the beginning of each fiscal year. This schedule will detail the planned monitoring for the fiscal year for each public water supply. The schedule shall include the type and frequency of monitoring. Drinking water data for the preceding year is available on the WRMD website.[375] Right to Request Investigations: Where two or more people believe that another person is contravening or has contravened the *Water Resources Act,* they may jointly request that the department investigate the alleged contravention. The minister shall investigate the complaint and report back to the complainants proposing further action or discontinuing the complaint (with reasons for the discontinuance stated).[376]
Northwest Territories	There is no requirement for individual systems to provide public reporting and the territorial government does not produce an annual report. There is a water quality database online, complete with boil-water advisories. However, there are no regulatory criteria specifying when boil-water alerts should be issued or the proper notification procedures.	Members of the public may make a complaint regarding water quality which the Chief Public Health Officer shall inquire into and determine whether the water presents a health hazard.[377] Operators must maintain records and report to the Chief Public Health Officer when directed. The territorial government produces an annual drinking water report that provides an overview of water quality initiatives, and maintains a database on municipal water systems.[378]
Nova Scotia	There is no requirement for individual systems to provide public reporting and the provincial government does not produce an annual drinking water report. If water quality standards are not met, Nova Scotia Environment and Labour (NSEL) must be informed. If one or more of the criteria set out for boil-water advisories is met, the owner has a duty to contact NSEL and initiate the advisory.	Reporting of Test Results: Drinking water performance measures, based on meeting criteria for coliform bacteria set in the *Guidelines for Canadian Drinking Water Quality*, are reported on in Nova Scotia Environment's Annual Accountability Report.[379] Where conditions established by the *Guidelines for Monitoring Public Drinking Water Supplies* are not met, the owner of the utility "shall" initiate a boil-water advisory and notify Nova Scotia Environment.[380] Right to Request Investigations: There is no statutory right of a resident to request an investigation.

TABLE C6 continued

Jurisdiction	2006 Findings	2011 Findings
Nunavut	There is no requirement for individual systems to provide public reporting and the territorial government does not produce an annual report. Online reporting is not available even though a database is kept. However, there are no regulatory criteria specifying when boil-water alerts should be issued or the proper notification procedures.	There is no requirement for individual systems to provide public reporting and the territorial government does not produce an annual report. Online reporting is not available even though a database is kept. There are no regulatory criteria specifying when boil-water alerts should be issued or the proper notification procedures. There is no statutory right for an individual resident to request and investigation.
Ontario	Annual reports are required and test results must be made available to the public. Additionally, Ontario's Chief Drinking Water Inspector presented his first annual report in 2006. Details of adverse water quality incidents are available online. There are specific criteria for when adverse test results must be reported to the Ministry and the medical officer of health and when public notices must be issued.	Annual reports are required and test results must be made available to the public. Ontario's Chief Drinking Water Inspector continues to publish annual reports.[381] Ontario requires reporting adverse test results and has recently updated requirements.[382] Members of the public may request an investigation of a potential violation of the *Safe Drinking Water Act*.[383]
Prince Edward Island	Utilities are required to report water quality testing to consumers annually. The Department of Environment, Energy, and Forestry is planning on producing annual reports and developing a water quality database. There are no specific regulatory criteria specifying when boil-water alerts should be issued or the notification procedures for alerts.	Water quality testing results must be reported to consumers annually.[384] There are no specific regulatory criteria specifying when boil-water alerts should be issued or the notification procedures for alerts.[385] There is no statutory provision through which a resident may file a request for a drinking water investigation.
Quebec	Water suppliers must report violations of contaminant standards. Boil-water alerts are required in certain circumstances, and the procedure and public notification requirements are legally-binding. Regional reports are prepared by each of the public health directors and are made public. Water testing results must be communicated electronically to government.	Water suppliers must report violations of contaminant standards. Boil-water alerts are required in certain circumstances, and the procedure and public notification requirements are legally-binding. Water testing results must be communicated electronically to government.[386]

TABLE C6 continued

Jurisdiction	2006 Findings	2011 Findings
Saskatchewan	Annual reports by the utilities must be given to consumers. An annual report prepared by the department, as well as community specific reports are available online. In emergencies, the minister has the discretion to issue a boil-water advisory, issue an order suspending operation of the waterworks, or take other appropriate action. Inspection reports are now available online.	Reporting of Test Results: Annual reports by the utilities must be given to consumers. An annual report prepared by the department, as well as community specific reports are available online. In emergencies, the minister has the discretion to issue a boil-water advisory, issue an order suspending operation of the waterworks, or take other appropriate action. Inspection reports are now available online.[387] Legislation remains the same. Water sample test results for most of the province's waterworks can now be viewed online at: www.saskh2o.ca/MyDrinkingWater.asp Right to Request Investigations: No.
Yukon	Current: Routine testing results and violations of water quality standards must be reported to territorial officials. There is no requirement for the preparation of a right-to-know report. The public can obtain information through Environmental Health Services or their provider. There are no regulations regarding boil-water advisories. Proposed: Environmental Health Services may choose to post or release testing information to the public. The health officer has the discretion to issue a boil-water advisory.	Reporting of Testing Current: Routine testing results and violations of water quality standards must be reported to territorial officials. The health officer has the discretion to issue a boil-water advisory. The health officer may give notice of the boil-water advisory to the consumers in any method the officer feels appropriate. The owner of the system must ensure that assessments, annual reports, and sampling and testing results pertaining to the water system are made available for inspection by any member of the public. Environmental Health Services may choose to post or release testing information to the public.[388] Proposed: Extend regulations to small public drinking water systems.[389] Statutory Right to Request Investigation: No statutory right for members of the public to request an investigation, but Medical Health Officers have a duty to advised named officials of a reasonable belief of the existence of a heath hazard.[390]

NOTES

1 Australian National Health and Medical Research Council, *Australian Drinking Water Guidelines 6*, (Online, NHMRC, 2004) at 1-1, online: www.nhmrc.gov.au/_files_nhmrc/publications/attachments/eh34_adwg_11_06.pdf.

2 In response, White Rock installed chlorination for its water supply. See: Alison Bailey, "One year later, officials fully confident in White Rock water system," CKNW Radio (21 August 2011), online: www.cknw.com/Channels/Reg/NewsLocal/Story.aspx?ID=1525608.

3 *2011 Status Report of the Auditor General of Canada to the House of Commons: Programs for First Nations on Reserves*, ch 4 (Online: OAGC, 2011) at 4.23, online: www.oag-bvg.gc.ca/internet/English/parl_oag_201106_04_e_35372.html.

4 Ontario, Ministry of the Environment, *Survey of the Occurrence of Pharmaceuticals and Other Emerging Contaminants in Untreated Source and Finished Drinking Water in Ontario* (Online, MOE), online: www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079830.pdf.

5 Federal-Provincial-Territorial Committee on Environmental and Occupational Health & Canadian Council of Ministers of the Environment, *From Source to Tap: The Multi-Barrier Approach to Drinking Water Protection*, (Online, FPTCEOH, May 2002) online: www.ccme.ca/assets/pdf/mba_eng.pdf.

6 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part 1: The Events of May 2000 and Related Issues*, (Online: AG, 2002) at 108–112, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part1/.

7 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part II*, ch 4(Online: AG, 2002) at 89, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_4.pdf.

8 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part II: The Protection of Drinking Water Sources*, ch 4 (Online: AG, 2002) at 89, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_4.pdf.

9 "An Introduction to Source Water Protection Governance", Water Policy and Governance Group, University of Waterloo, (UW: April 2009), online: www.governanceforwater.ca/sites/default/files/WPGG_article1_v3.pdf.

10 British Columbia, Ministerial Technical Advisory Committee: Ministry of Health, *Turbidity and Microbiological Risk in Drinking Water*, (online: MOH, 2008), online: www.health.gov.bc.ca/protect/pdf/TACsubmitted.pdf.

11 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part II: An Overview*, ch 1 (Online: AG, 2002), online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_1.pdf.

12 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part II: An Overview*, ch 1 (Online: AG, 2002) at 17-20, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_1.pdf.

13 Vancouver's Coquitlam watershed also contains a BC Hydro power generation facility which limits some aspects of local control.

14 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part II*, ch 4(Online: AG, 2002) at 104-105, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_4.pdf.

15 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part II*, ch 4(Online: AG, 2002) at 115, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_4.pdf.

16 Because of the seemingly absolute nature of groundwater rights, Texas water law has often been called the "law of the biggest pump." Texas courts have consistently ruled that a landowner has a right to pump all the water that he can from beneath his land regardless of the effect on wells of adjacent owners. See, e.g., *Sipriano v. Great Spring Waters of America, et al., 1 SW3d 75* (Texas 1999).

17 Private rights of use that are not private property are sometimes considered "usafructory" rights – the right of enjoying a thing, the property of which is vested in another.

18 For illustration, contrast the priority of domestic water use in Alberta, which grants unlicenced domestic users superior rights to licencees (s. 27 of the Alberta *Water Act*) and B.C. which makes unlicenced users subordinate and potentially subject to cut-off based on licenced water use (s. 42 of the B.C. *Water Act*).

19 Oliver Brandes and Randy Christensen, "The Public Trust and a Modern B.C. *Water Act*", Legal Issues Brief, 2010-1. Found online at: www.ecojustice.ca/media-centre/media-release-files/public-trust-and-a-modern-bc-water-act

20 Oliver Brandes and Randy Christensen, "The Public Trust and a Modern B.C. *Water Act*", Legal Issues Brief, 2010-1. Found online at: http://poliswaterproject.org/sites/default/files/public_trust_brief_2010-1.p www.ecojustice.ca/media-centre/media-release-files/public-trust-and-a-modern-bc-water-act

21 Canada, *BILL SUMMARY (C-26) The Transboundary Waters Protection Act*, (Online: Canada), online: www.canadainternational.gc.ca/can-am/bilat_can/bill-loi.aspx?lang=eng&view=d.

22 "Tories toughen bulk-water removal rules", CTV News (13 May 2010) online: www.ctv.ca/CTVNews/Canada/20100513/tories-toughen-water-removal-rules-100513/.

23 R. L. Calderon, "The Epidemiology of Chemical Contaminants of Drinking Water" (2000) 38 Food and Chemical Toxicology at S13-S20.

24 Boyd, D.R., "The Water We Drink", David Suzuki Foundation, November 2006 p. 13, online: www.polisproject.org/files/pub_database/water_we_drink_eng.pdf

25 Health Canada, "Relationship Between Turbidity and Other Water Quality Parameters", online: www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/turbidity/chap_5-eng.php.

26 Health Canada, "Relationship Between Turbidity and Other Water Quality Parameters" at s. 5.1.4, online: www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/turbidity/chap_5-eng.php.

27 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry, Part 1* (Online: AG, 2002) at 355–358, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part1/WI_Chapter_09.pdf.

28 World Health Organization, *Guidelines for Drinking-water Quality, 3rd ed*. (Geneva: WHO, 2004) at 31.

29 At the time of *Waterproof 2*, the Yukon had a pending proposal to adopt the *Guideline*. The Yukon has now adopted the Guideline.

30 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part II: The Protection of Drinking Water Sources*, ch 4 (Online: AG, 2002) at 378, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_12.pdf.

31 Ontario, Ministry of the Attorney General, *Report of the Walkerton Inquiry: Part II: The Protection of Drinking Water Sources*, ch 4 (Online: AG, 2002) at 378, online: www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/Chapter_12.pdf.

32 "Final Additions to the Final Guidelines for the Certification and Recertification of the Operators of Community and Nontransient Noncommunity Public Water Systems; Final Allocation Methodology for Funding to States for the Operator Certification Expense Reimbursement Grants Program", Federal Register Vol. 66, No. 75 (2001) at 19939, online:, http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2001_register&docid=fr18ap01-59.pdf.

33 There is no up to date, verified, comprehensive database of drinking water advisories. However, point in time analyses consistently show more than 1,000 drinking water advisories in effect. See for example, Laura Eggerton, "Investigative report: 1766 boil-water advisories now in place across Canada" (2008) 178 No. 10 Expand+Canadian Medical Association Journalwww.cmaj.ca

34 The Water Chronicles website: List of water advisories by province, online: www.water.ca/textm.asp.

35 Randy Christensen, Nancy Goucher, & Merrell-Ann Phare, "Seeking Water Justice: Strengthening Legal Protection For Canada's Drinking Water" (Ecojustice, FLOW Canada, CIER, May 2010), online: www.ecojustice.ca/publications/reports/seeking-water-justice/attachment

36 See for example, www.winnipegfreepress.com/local/third-world-aid-agency-looks-north-mennonite-central-committee-wants-island-lakes-water-sewage-fixed-113062984.html.

37 *Safe Drinking Water* Act, 42 USC § 1414(c)(3)(B) 42 U.S.C. § 300f et seq.

38 See: Canada, "Notes on Bill C-14: The Drinking Water Materials Safety Act", (Online, 1997), online:, http://dsp-psd.pwgsc.gc.ca/Collection-R/LoPBdP/LS/361/c14-e.htm.

39 *2005 September Report of the Commissioner of the Environment and Sustainable Development: Safety of Drinking Water: Federal Responsibilities,* ch 4 (Online: OAGC, 2005) at "What We Found", online: www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_04_e_14951.html

40 *2005 September Report of the Commissioner of the Environment and Sustainable Development: Drinking Water in First Nations Communities*, ch 5 (Online: OAGC, 2005) at "What We Found", online: www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_05_e_14952.html

41 *2005 September Report of the Commissioner of the Environment and Sustainable Development: Safety of Drinking Water: Federal Responsibilities,* ch 4 (Online: OAGC, 2005) at "What We Found", online: www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_04_e_14951.html

42 Commissioner of the Environment and Sustainable Development, *2005 September Report of the Commissioner of the Environment and Sustainable Development*, ch 4 (Online: Office of the Auditor General of Canada, 2005). Found online at: www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_04_e_14951.html

43 Commissioner of the Environment and Sustainable Development, *2010 Fall Report of the Commissioner of the Environment and Sustainable Development*, ch 2 (Online: Office of the Auditor General of Canada, 2010). Found

online at: www.oag-bvg.gc.ca/internet/English/parl_cesd_201012_02_e_34425.html

44 Commissioner of the Environment and Sustainable Development, *2010 Fall Report of the Commissioner of the Environment and Sustainable Development*, ch 2 (Online: Office of the Auditor General of Canada, 2010). Found online at: www.oag-bvg.gc.ca/internet/English/parl_cesd_201012_02_e_34425.html

45 Commissioner of the Environment and Sustainable Development, *2010 Fall Report of the Commissioner of the Environment and Sustainable Development*, ch 2 (Online: Office of the Auditor General of Canada, 2010) at 2.75. Found online at: www.oag-bvg.gc.ca/internet/English/parl_cesd_201012_02_e_34425.html

46 Commissioner of the Environment and Sustainable Development, *2010 Fall Report of the Commissioner of the Environment and Sustainable Development*, ch 2 (Online: Office of the Auditor General of Canada, 2010). Found online at: www.oag-bvg.gc.ca/internet/English/parl_cesd_201012_02_e_34425.html

47 "Thoughts on 700 Job Cuts", Sierra Club of Canada, press release, Aug. 4, 2011. www.sierraclub.ca/node/4435

48 *Budget Implementation Act*, SC 2009, c. 2.

49 *Budget Implementation Act*, SC 2009, c. 2, ss 317-340.

50 *Jobs and Economic Growth Act*, SC 2010, c. 12.

51 *Jobs and Economic Growth Act*, SC 2010, c. 12, ss 2153-2171.

52 *Jobs and Economic Growth Act*, SC 2010, c. 12, s 2155., and see Letter from Richard C. Lundgren, Counsel, Canadian Environmental Law Association, to James Rajotte, Chair, Standing Committee on Finance, House of Commons (13 May 2010) online: www.cela.ca/sites/cela.ca/files/721B-L-BillC-9.pdf.

53 See Government of Canada, "Canada Lists Emissions Target Under the Copenhagen Accord" (2010) online at, www.climatechange.gc.ca/default.asp?lang=En&XML=D5E39C3A-C958-4876-8222-E3541F7B9C8D (setting emissions reduction targets for 2020 that are significantly higher than Canada's obligations under the *Kyoto Protocol* for 2012).

54 See Scott Vaughan, "Thinking North American Environmental Management," No. 5 of *Thinking North America*, Thomas J. Courchene, Donald J. Savoie & Daniel Schwanen, eds., 2 *The Art of the State* (Montreal: Institute for Research on Public Policy, 2004) at 12.

55 Federation of Canadian Municipalities, "Danger Ahead: the Coming Collapse of Canada's Municipal Infrastructure, 2007, online: www.fcm.ca/CMFiles/mdeficit10pt-792008-3425.pdf

56 "Mission Chamber dismayed by council decision around P3 water plan", Abbotsford Times, April 5, 2011, online: Abbotsford Times, www.abbotsfordtimes.com/Mission+Chamber+dismayed+council+decision+around+water+plan/4564779/story.html#ixzz1ZwhxXnZc

57 "Floodgates open on P3 water proposal in advance of Abbotsford civic elections", Abbotsford Times, October 4, 2011.
online: Abbotsford Times, www.canada.com/news/Floodgates+open+water+proposal+advance+Abbotsford+civic+elections/5499950/story.html#ixzz1ZwjuY4Ly

58 Although the P3 screen was put on hold for federal stimulus projects since 2009 there is nothing to suggest that the underlying political agenda has changed in any way. Cameron K, et. al *Public Water for Sale: How Canada Will Privatize Our Public Water Systems*, Council of Canadians, (December 2010) online: Council of Canadians, www.canadians.org/trade/documents/CETA/water-report-1210.pdf

59 Warner. M, and Hefetz A., "Privatization and Reverse Privatization in US Local Government Service Delivery, 2002-2007" Paper prepared for Public Service International and the Council of Global Unions Conference, Geneva, Switzerland, Oct. 2010 online: www.qpsconference.org/sites/default/files/Warner_EN_Reverse_Privatisation.pdf

60 Commissioner of the Environment and Sustainable Development, *2005 September Report of the Commissioner of the Environment and Sustainable Development*, ch 5 (Online: Office of the Auditor General of Canada, 2005) online at www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_05_e_14952.html

61 Commissioner of the Environment and Sustainable Development, *2005 September Report of the Commissioner of the Environment and Sustainable Development*, ch 5 (Online: Office of the Auditor General of Canada, 2005) at "What We Found" online at www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_05_e_14952.html

62 Canada, Parliamentary Information and Research Service, *Safe Drinking Water in First Nations Communities* by Tonina Simeone (Ottawa: Library of Parliament, 2010) online at, www.parl.gc.ca/content/LOP/ResearchPublications/prb0843-e.htm.

63 Canada, Bill S–11, *An Act Respecting the Safety of Drinking Water on First Nations Lands*, 3rd Sess, 40th Parl, (Second Reading in senate 14 December 2010), online: Parliament of Canada, www.parl.gc.ca/About/Parliament/LegislativeSummaries/bills_ls.asp?lang=F&ls=s11&Parl=40&Ses=3&source=library_prb.

64 Assembly of First Nations, "*Bill S–11, Safe Drinking Water for First Nations Act*", Special Chiefs Assembly (Online, 2010) online, www.afn.ca/uploads/files/water/10-12-14.pdf.

65 Office of the Auditor General of Canada, *2011 June Status Report of the Auditor General of Canada*, ch 4 (Online: Office of the Auditor General of Canada, 2011), online at, www.oag-bvg.gc.ca/internet/English/parl_oag_201106_04_e_35372.html.

66 Assembly of First Nations, "Water and Wastewater", Policy Statement, online: AFN, www.afn.ca/index.php/en/policy-areas/water.

67 Health Canada, "First Nations, Inuit and Aboriginal Health – Drinking Water and Wastewater", online: Health Canada, www.hc-sc.gc.ca/fniah-spnia/promotion/public-publique/water-eau-eng.php#how_many.

68 Canada, The Standing Senate Committee on Aboriginal Peoples, *Safe Drinking Water for First Nation*s, (Online: 2007), online: Parliament of Canada, www.parl.gc.ca/Content/SEN/Committee/391/abor/rep/repo8jun07-e.htm.

69 *2011 Status Report of the Auditor General of Canada to the House of Commons: Programs for First Nations on Reserves*, ch 4 (Online: OAGC, 2011) at 4.23, online: www.oag-bvg.gc.ca/internet/English/parl_oag_201106_04_e_35372.html.

70 Canada, Aboriginal Affairs and Northern Development Canada, "Fact Sheet – The Results of the National Assessment of First Nations Water and Watershed Systems", (Online: AANDC, 14 July 2011) at "Growth", online:, http://ainc-inac.gc.ca/enr/wtr/nawws/drp-eng.asp.

71 Assembly of First Nations, News Release, "Assembly of First Nations, Amnesty International and Council of Canadian urge political leaders to recognize the human right to water" (28 April 2011) online: AFN, www.afn.ca/index.php/en/news-media/latest-news/assembly-of-first-nations-amnesty-international-and-council-of-canadia.

72 Canada, "Speech from the Throne" (3 June 2011) online: Government of Canada, www.speech.gc.ca/eng/media.asp?id=1390.

73 Notable among its refusals are Canada's abstention from a 2010 UN General Assembly resolution recognizing the human right to water and sanitation, *The human right to water and sanitation*, (GA Res 64/292, UNGAOR, 64th Sess, UN Doc A/RES/64/292, (2010) [the GA Resolution].

74 UNWHAOR, 64th Sess, 5th Mtg, UN Doc WHA64/B/PSR/5 (2011) at 18.

75 Maude Barlow, *Our Right to Water: A people's guide to implementing the United Nations' recognition of the right to water and sanitation* (Council of Canadians, 2011) at 27.

76 See: Lynda Collins, "Environmental Rights on the Wrong Side of History: Revisiting Canada's Position on the Human Right to Water" (2010) RECIEL 19(3) 351; and see Louise Arbour, quoted in M. De Souza, 'UN Rejects Water as Basic Human Right: The Harper Government Can Declare Victory After a United Nations Meeting Rejected Calls for Water to be Recognized as a Basic Human Right', *CanWest MediaWorks* (25 March 2008), online: www.canada.com/topics/news/world/story.html?id=b65b35fd-477f-4956-98f4-c17a46fe3e26.

77 See: Dr. David R. Boyd, "The Right to Water: A briefing note" (Paper delivered at the InterAction Council High-Level Expert Group Meeting, Toronto, 21-23 March, 2011) at 7; and see Maude Barlow, *Our Right to Water: A people's guide to implementing the United Nations' recognition of the right to water and sanitation* (Council of Canadians, 2011) at 9-11, 23-39; and see Lynda Collins, "Environmental Rights on the Wrong Side of History: Revisiting Canada's Position on the Human Right to Water" (2010) RECIEL 19(3) 351.

78 *Drinking-Water, Sanitation and Health*, WHA Res 64/24, UNWHAOR, 64th Sess, UN Doc A64/24, (2011) [WHA Resolution] at preamble.

79 *The human right to water and sanitation*, (GA Res 64/292, UNGAOR, 64th Sess, UN Doc A/RES/64/292, (2010); and *Human rights and access to safe drinking water and sanitation*, HRC Res 15/9, UNHRCOR, 15th Sess, UN Doc A/HRC/RES/15/9 (2010) [HRC Resolution].

80 *Drinking-Water, Sanitation and Health*, WHA Res 64/24, UNWHAOR, 64th Sess, UN Doc A64/24, (2011).

81 *Drinking-Water, Sanitation and Health*, WHA Res 64/24, UNWHAOR, 64th Sess, UN Doc A64/24, (2011), at art 1(3).

82 High Commissioner for Human Rights, *Report of the UN High Commissioner for Human Rights on the scope and content of the relevant human rights obligations related to equitable access to safe drinking water and sanitation under international human rights instruments*, UNHRCOR, 6th Sess, UN Doc A/HRC/6/3, (2007) [HCHR Report] at 10.

83 High Commissioner for Human Rights, *Report of the UN High Commissioner for Human Rights on the scope and content of the relevant human rights obligations related to equitable access to safe drinking water and sanitation under international human rights instruments*, UNHRCOR, 6th Sess, UN Doc A/HRC/6/3, (2007) at 12.

84 See *The human right to water and sanitation*, (GA Res 64/292, UNGAOR, 64th Sess, UN Doc A/RES/64/292, (2010); and *Human rights and access to safe drinking water and sanitation*, HRC Res 15/9, UNHRCOR, 15th Sess, UN Doc A/HRC/RES/15/9 (2010)at preamble; and Maude Barlow, *Our Right to Water: A people's guide to implementing the United Nations' recognition of the right to water and sanitation* (Council of Canadians, 2011) at 16.

85 High Commissioner for Human Rights, *Report of the UN High Commissioner for Human Rights on the scope and content of the relevant human rights obligations related to equitable access to safe drinking water and sanitation under international human rights instruments*, UNHRCOR, 6th Sess, UN Doc A/HRC/6/3, (2007) at17-18.

86 *Drinking-Water, Sanitation and Health*, WHA Res 64/24, UNWHAOR, 64th Sess, UN Doc A64/24, (2011).

87 *2005 September Report of the Commissioner of the Environment and Sustainable Development: Drinking Water in First Nations Communities*, ch 5 (Online: OAGC, 2005) at 5.36, online: www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_05_e_14952.html

88 *2005 September Report of the Commissioner of the Environment and Sustainable Development: Drinking Water in First Nations Communities*, ch 5 (Online: OAGC, 2005) at 16, 20-21, online: www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_05_e_14952.html

89 *2005 September Report of the Commissioner of the Environment and Sustainable Development: Drinking Water in First Nations Communities*, ch 5 (Online: OAGC, 2005) at 21-22, online: www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_05_e_14952.html

90 WHO, *Guidelines for Drinking-water Quality*, 4th ed (Geneva: WHO Press, 2011) at 35-36.

91 High Commissioner for Human Rights, *Report of the UN High Commissioner for Human Rights on the scope and content of the relevant human rights obligations related to equitable access to safe drinking water and sanitation under international human rights instruments*, UNHRCOR, 6th Sess, UN Doc A/HRC/6/3, (2007) at 18.

92 High Commissioner for Human Rights, *Report of the UN High Commissioner for Human Rights on the scope and content of the relevant human rights obligations related to equitable access to safe drinking water and sanitation under international human rights instruments*, UNHRCOR, 6th Sess, UN Doc A/HRC/6/3, (2007) at 17.

93 High Commissioner for Human Rights, *Report of the UN High Commissioner for Human Rights on the scope and content of the relevant human rights obligations related to equitable access to safe drinking water and sanitation under international human rights instruments*, UNHRCOR, 6th Sess, UN Doc A/HRC/6/3, (2007) at 18.

94 Maude Barlow, *Our Right to Water: A people's guide to implementing the United Nations' recognition of the right to water and sanitation* (Council of Canadians, 2011) at 24.

95 *Drinking-Water, Sanitation and Health*, WHA Res 64/24, UNWHAOR, 64th Sess, UN Doc A64/24, (2011) at 10-12.

96 Notable among its refusals are Canada's abstention from a 2010 UN General Assembly resolution recognizing the human right to water and sanitation, *The human right to water and sanitation*, (GA Res 64/292, UNGAOR, 64th Sess, UN Doc A/RES/64/292, (2010) at art 1.

97 As noted in the report, the Northwest Territories, Quebec and Saskatchewan have taken steps to recognize the right to water– see Table 5 of the Appendix.

98 Thenextweb.com, "Survey says Brits would prefer to live without Facebook than a toilet", online:, http://thenextweb.com/socialmedia/2011/09/09/survey-says-brits-would-prefer-to-live-without-a-toilet-than-without-facebook/.

99 Canadians' water conservation efforts declining: 2010 Canadian Water Attitudes Study (Royal Bank of Canada) found online: www.rbc.com/newsroom/2010/0317-waterstudy.html

100 Governmental Accountability Office, *Unreliable State Data Limit EPA's Ability to Target Enforcement Priorities and Communicate Water Systems' Performance*, (June 2011) at 1 online: www.gao.gov/new.items/d11381.pdf.

101 Governmental Accountability Office, *Unreliable State Data Limit EPA's Ability to Target Enforcement Priorities and Communicate Water Systems' Performance*, (June 2011) at 39 and 40 online: www.gao.gov/new.items/d11381.pdf.

102 See: Ontario Ministry of the Environment, PIBS 7269e, *Survey of the Occurrence of Pharmaceuticals and Other Emerging Contaminants in Untreated Source and Finished Drinking Water*, online: www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079830.pdf; and see: Government Accountability Office, *Action Needed to Sustain Agencies' Collaboration on Pharmaceuticals in Drinking Water*, (August 2009) at 1, online: www.gao.gov/new.items/d11346.pdf.

103 Mark J. Benotti, et al, "Pharmaceuticals and Endocrine Disrupting Compounds in U.S. Drinking Water", EST, (2009) 43 No. 3, at 597–603, online:, http://pubs.acs.org/doi/abs/10.1021/es8018455a.

104 Working Group II, "Impacts, Adaptation and Vulnerability", Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Martin Parryet al (eds.), (Online) at 1000, online: www.ipcc-wg2.org/index.html.

105 Statistics Canada, *Human Activity and the Environment: Freshwater Supply and Demand in Canada*, 2010, online: www.statcan.gc.ca/daily-quotidien/100913/dq100913b-eng.htm.

106 Statistics Canada, *Human Activity and the Environment: Freshwater Supply and Demand in Canada*, 2010, online: www.statcan.gc.ca/daily-quotidien/100913/dq100913b-eng.htm.

107 Sanford, B. "Climate Change Adaptation and Water Governance: Summary for Decision-Makers", Adaptation to Climate Change Team, Simon Fraser University, (October 2011) online: Adapation to Climate Change Team, http://act-adapt.org/wp-content/uploads/2011/06/09-11-Water-Summary-Recommendations-WEB.pdf

108 Environment Canada Report (2004), "Threats to Water Availability in Canada". National Water Research Institute, Burlington, Ontario. NWRI Scientific Assessment Report Series No. 3 and ACSD Science Assessment Series No. 1.

109 See, e.g.: Elaine MacDonald, "Great Lakes Sewage Report Card", (November 2006) www.ecojustice.ca/publications/reports/the-great-lakes-sewage-report-card/attachment

110 Federation of Canadian Municipalities, "Danger Ahead: the Coming Collapse of Canada's Municipal Infrastructure, 2007, online: www.fcm.ca/CMFiles/mdeficit10pt-792008-3425.pdf

111 See, for example, the year over year results from the Royal Bank of Canada's "Water Attitudes Survey": 2008, 2009, and 2010.

112 Canadian Medical Association, *Investigative report: 1766 boil-water advisories now in place across Canada*, (2008), online: www.cmaj.ca/content/178/10/1261.full.

113 See: TheRecord.com, "Tax hike to follow water hike in Waterloo", online: www.therecord.com/news/local/article/308614--tax-hike-to-follow-water-hike-in-waterloo; and see: "Toronto water rates, garbage fees could rise", online: www.cbc.ca/news/canada/toronto/story/2010/12/21/toronto-water-rates.html.

114 See: "They promised not to raise taxes or fees", online, www.brantfordexpositor.ca/ArticleDisplay.aspx?e=3256057; and see: "In Toronto, money flows like water: How one City of Toronto department has jacked its fees, and why", online: www.torontosun.com/2011/07/22/in-toronto-money-flows-like-water.

115 Mitt Romney, "My Plan to Turn Around US Economy" online: www.mittromney.com/blogs/mitts-view/2011/09/my-plan-turn-around-us-economy.

116 Comedian Jon Stewart described this campaign promise as follows: "It's so brilliantly arbitrary! Perfect, there you go! You want higher fuel efficiency, do ya? Well, that means we get to put mouse turds back in Funions." See: "Jon Stewart rips into Romney's Economic Plan", online: www.dailykos.com/story/2011/09/08/1014551/-Jon-Stewart-rips-into-Romneys-economic-plan.

117 Environmental Protection and Enhancement Act, *RSA 2000, c E-12, ss 90-106,* online: CanLii, www.canlii.org/en/ab/laws/stat/rsa-2000-c-e-12/latest/rsa-2000-c-e-12.html; Alberta Environment, Alberta Tier 1 Soil and Groundwater Remediation Guidelines, (Alberta: 2010) at 5, online: Alberta Environment, http://environment.gov.ab.ca/info/library/7751.pdf.

118 Drinking Water Protection Act, SBC 2001, c 9, s 23, online: CanLii, www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

119 Drinking Water Protection Act, SBC 2001, c 9, ss 25-27, online: CanLii, www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

120 Public Health Act, CCSM c P210, s 28(2), online: www.canlii.org/en/mb/laws/stat/ccsm-c-p210/70899/.

121 Man Reg 326/88 R Protection of Water Sources Regulation), s. 4, online: www.canlii.org/en/mb/laws/regu/man-reg-326-88-r/65611/.

122 Man Reg 326/88 R (Protection of Water Sources Regulation), s. 2, online: www.canlii.org/en/mb/laws/regu/man-reg-326-88-r/65611/.

123 Clean Water Act, SNB 1989, C-6.1, ss 4(1)(f), 4(1)(h), 12(2), and 13, online: CanLii, www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/latest/snb-1989-c-c-6.1.html.

124 Clean Water Act, SNB 1989, c C-6.1, s 6, online: CanLii, www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

125 Clean Water Act, SNB 1989, c C-6.1, s 13(3)-(4), online: CanLii, www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

126 Water Resources Act, SNL 2002, c W-4.01, s 40, online: CanLii, www.canlii.org/en/nl/laws/stat/snl-2002-c-w-4.01/64435/.

127 Northwest Territories Waters Act, SC 1992, c 39, s 8(3), 37, 39, online: CanLii, www.canlii.org/en/ca/laws/stat/sc-1992-c-39/32382/.

128 Environment Act, SNS 1994-95, c 1, s 71, online: CanLii, www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/51800/.

129 Environment Act, SNS 1994-95, c 1, s 125, online: CanLii, www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/51800/.

130 Environment Act, SNS 1994-95, c 1, s 141-144, 156-171, online: CanLii, www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/51800/.

131 Nunavut Waters and Nunavut Surface Rights Tribunal Act, SC 2002, c 10, s. 12, online: www.canlii.org/en/ca/laws/stat/sc-2002-c-10/78606/.

132 Nunavut Waters and Nunavut Surface Rights Tribunal Act, SC 2002, c 10, s. 90, online: www.canlii.org/en/ca/laws/stat/sc-2002-c-10/78606/.

133 Clean Water Act, SO 2006, c 22, online: CanLii, www.canlii.org/en/on/laws/stat/so-2006-c-22/82734/; Ontario Water Resources Act, RSO 1990, c O-40, online: CanLii, www.canlii.org/en/on/laws/stat/rso-1990-c-o-40/89483/.

134 Ontario Water Resources Act, RSO 1990, c O-40, s 30, online: CanLii, www.canlii.org/en/on/laws/stat/rso-1990-c-o-40/89483/.

135 Ontario Water Resources Act, RSO 1990, c O-40, s 33, online: CanLii, www.canlii.org/en/on/laws/stat/rso-1990-c-o-40/89483/.

136 Safe Drinking Water Act, SO 2002, c 32, s 20, online: CanLii, www.canlii.org/en/on/laws/stat/so-2002-c-32/78505/.

137 Environmental Protection Act, RSO 1990, c E-19, s 17, online: CanLii, http://canlii.org/en/on/laws/stat/rso-1990-c-e19/latest/rso-1990-c-e19.html.

138 Environmental Protection Act, RSO 1990, c E-19, ss 146-155, online: CanLii, http://canlii.org/en/on/laws/stat/rso-1990-c-e19/latest/rso-1990-c-e19.html.

139 Environmental Protection Act, RSO 1990, c E-19, s 190.1, online: CanLii, http://canlii.org/en/on/laws/stat/rso-1990-c-e19/latest/rso-1990-c-e19.html. Section 190.1 See also: Clean Water Act, SO 2006, c 22, ss 64 – 69, online: CanLii, www.canlii.org/en/on/laws/stat/so-2006-c-22/82734/, Sections 64 – 69 contain similar provisions providing the ability to "cause things to be done" and to recover costs for doing those things.

140 Petroleum Hydrocarbon Remediation Regulations, PEI Reg EC 2006-655, s 25, online: CanLii, www.canlii.org/en/pe/laws/regu/pei-reg-ec655-06/63551/.

141 An Act to affirm the Collective Nature of Water Resources and Provide for Increased Water Resource Protection, RSQ 2009, c C-6.2, s 8, online: CanLii, www.canlii.org/en/qc/laws/stat/rsq-c-c-6.2/70916/.

142 Environmental Management and Protection Act, SS 2002, c E-10.21, s 4, online: CanLii, www.canlii.org/en/sk/laws/stat/ss-2002-c-e-10.21/11736/.

143 Environmental Management and Protection Act, SS 2002, c E-10.21, s 7, 16, online: CanLii, www.canlii.org/en/sk/laws/stat/ss-2002-c-e-10.21/11736/.

144 Saskatchewan Watershed Authority Act, SS 2005, c S-35.03, s 69, online: CanLii, www.canlii.org/en/sk/laws/stat/ss-2005-c-s-35.03/10706/.

145 Drinking Water Regulation, YOIC 2007/139 (), ss. 7 - 9, online: www.canlii.org/en/yk/laws/regu/yoic-2007-139/80282/.

146 Waters Act, (Yukon) SY 2003, c 19, ss 8, 10; online: CanLii, www.canlii.org/en/yk/laws/stat/sy-2003-c-19/latest/sy-2003-c-19.html

147 Waters Act, (Yukon) SY 2003, c 19, s 13; online: CanLii, www.canlii.org/en/yk/laws/stat/sy-2003-c-19/latest/sy-2003-c-19.html

148 Waters Act, (Yukon) SY 2003, c 19, s 34 – 35; online: CanLii, www.canlii.org/en/yk/laws/stat/sy-2003-c-19/latest/sy-2003-c-19.html

149 See, e.g., Final Agreement of the Champagne & Aishihik First Nations, s. 14.5.5.3, online: www.cyfn.ca/uploads/jd/KB/jdKBhmcWSSolYtifwlFz8Q/chama_e1.pdf

150 Alberta Environment, Approved Water Management Plan for the South Saskatchewan River Basin (Alberta), (Alberta: 2006) at 16, online:, http://environment.alberta.ca/documents/SSRB_Plan_Phase2.pdf.

151 Drinking Water Protection Act, SBC 2001, c 9, s 18-39, online: CanLii, www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

152 CCSM c W65 (Water Protection Act), ss. 4(1); 5(1); 5(2)(3), online: www.canlii.org/en/mb/laws/stat/ccsm-c-w65/82300/.

153 Clean Water Act, SNB 1989, c C-6.1, s 14, online: CanLii, www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/; NB Reg 2001-83, online: CanLii Watershed Protected Area Designation Order, www.canlii.org/en/nb/laws/regu/nb-reg-2001-83/latest/nb-reg-2001-83.html [see 2001-83 (WsPADO) and the "Wellfield Protected Area Designation" Order 2000-47(WfPADO)].

154 Guides for both the WsPADO (www.gnb.ca/0009/0371/0004/watershed-e.pdf) and WfPADO (www.gnb.ca/0009/0371/0001/Wellfield-E.pdf) programs are available for review.

155 See: Newfoundland and Labrador, Department of Environment and Conservation, Policy for Land and Water Related Developments in Protected Public Water Supply Areas, (10 March 1999), online: www.env.gov.nl.ca/env/waterres/regulations/policies/water_related.html.

156 Northwest Territories Min. Environment and Natural Resources, NWT Water Stewardship: A Plan for Action 2011-2015 (May 2011), online: www.enr.gov.nt.ca/_live/documents/content/NWT_Water_Strategy_Action_Plan.pdf.

157 Northwest Territories Waters Act, SC 1992, c 39, s 8(1), 9(1), online: www.canlii.org/en/ca/laws/stat/sc-1992-c-39/32382/.

158 Public Health Act, SNWT 2007, c C-17, s 11, online: www.canlii.ca/en/nt/laws/stat/snwt-2007-c-17/latest/snwt-2007-c-17.html.

159 Environment Act, SNS 1994-95, c 1, s 106, online: www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/51800/.

160 Activities Designation Regulations, NS Reg 47/1995, Division 3, Part 3, online: www.canlii.org/en/ns/laws/regu/ns-reg-47-95/latest/ns-reg-47-95.html#TOC2_3.

161 Municipal Government Act, SNS 1998, c 18, s 180, online: CanLii, www.canlii.org/en/ns/laws/stat/sns-1998-c-18/52669/.

162 Drinking Water and Wastewater Facility Operating Regulations, PEI Reg EC 2004-710, s 20, online: www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

163 Wallot v Québec (Ville de), 2010 QCCS 1370, online: www.canlii.org/fr/qc/qccs/doc/2010/2010qccs1370/2010qccs1370.html.

164 Water Regulation, YOIC 2003/58, Schedule 1, online: www.canlii.org/en/yk/laws/regu/yoic-2003-58/80267/.

165 Waters Act, SY 2003, c 19, s 7, online: www.canlii.org/en/yk/laws/stat/sy-2003-c-19/71408/.

166 Waters Act, SY 2003, c 19, ss 8 and 10; online: www.canlii.org/en/yk/laws/stat/sy-2003-c-19/latest/sy-2003-c-19.html

167 Drinking Water Protection Act, SBC 2001, c 9, s 18-22, online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

168 Drinking Water Protection Act, SBC 2001, c 9, s 31-39, online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

169 Drinking Water Protection Act, SBC 2001, c 9, s 21, online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

170 Drinking Water Protection Act, SBC 2001, c 9, s 32(3)(c), online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

171 Drinking Water Protection Act, SBC 2001, c 9, s 18(2), online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

172 Drinking Water Protection Act, SBC 2001, c 9, s 32, online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

173 Drinking Water Protection Act, SBC 2001, c 9, s 34, online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

174 Drinking Water Protection Act, SBC 2001, c 9, s 35, online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

175 Drinking Water Protection Act, SBC 2001, c 9, s 39, online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

176 Water Protection Act, CCSM c W65, s 14, online: www.canlii.org/en/mb/laws/stat/ccsm-c-w65/82300/.

177 Water Protection Act, CCSM c W65, s 29, online: www.canlii.org/en/mb/laws/stat/ccsm-c-w65/82300/.

178 Water Protection Act, CCSM c W65, s 17, online: www.canlii.org/en/mb/laws/stat/ccsm-c-w65/82300/.

179 Water Protection Act, CCSM c W65, s 16, online: www.canlii.org/en/mb/laws/stat/ccsm-c-w65/82300/.

180 Water Protection Act, CCSM c W65, s 19, online: www.canlii.org/en/mb/laws/stat/ccsm-c-w65/82300/.

181 Water Protection Act, CCSM c W65, s 23, online: www.canlii.org/en/mb/laws/stat/ccsm-c-w65/82300/.

182 Water Protection Act, CCSM c W65, s 22, online: www.canlii.org/en/mb/laws/stat/ccsm-c-w65/82300/.

183 Watershed Protected Area Designation Order, NB Reg 2001-83, online: www.canlii.org/en/nb/laws/regu/nb-reg-2001-83/latest/nb-reg-2001-83.html.

184 Clean Water Act, SNB 1989, c C-6.1, s 14(4)-(5), online: CanLii, www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

185 Water Classification Regulation, NB Reg 2002-13, s 9(1)(a), online: www.canlii.org/en/nb/laws/regu/nb-reg-2002-13/latest/nb-reg-2002-13.html.

186 Personal correspondence with Tony Whelan, Senior Water & Wastewater Engineer New Brunswick Environment, (12 August 2011).

187 Water Classification Regulation, NB Reg 2002-13, ss 8(1) and 9(1)(e), online: www.canlii.org/en/nb/laws/regu/nb-reg-2002-13/latest/nb-reg-2002-13.html

188 Personal correspondence with Tony Whelan, Senior Water & Wastewater Engineer New Brunswick Environment, (12 August 2011).

189 Personal correspondence with Tony Whelan, Senior Water & Wastewater Engineer New Brunswick Environment, (12 August 2011).

190 Clean Water Act, SNB 1989, c C-6.1, s 14(3), online: www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

191 Personal correspondence with Tony Whelan, Senior Water & Wastewater Engineer New Brunswick Environment, (12 August 2011).

192 Clean Water Act, SNB 1989, c C-6.1, s 14(1), online: www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

193 Clean Water Act, SNB 1989, c C-6.1, ss 4(3), 14, 14.1, online: www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

194 Clean Water Act, SNB 1989, c C-6.1, s 4(3), online: www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

195 Clean Water Act, SNB 1989, c C-6.1, s 25(1), online: www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

196 Personal correspondence with Tony Whelan, Senior Water & Wastewater Engineer New Brunswick Environment, (22 July 2011).

197 Water Resources Act, SNL 2002, c W-4.01, s 39, online: www.canlii.org/en/nl/laws/stat/snl-2002-c-w-4.01/64435/.

198 Personal correspondence, Haseen Khan, Newfoundland and Labrador (10 August 2011).

199 Personal correspondence, Haseen Khan, Newfoundland and Labrador (10 August 2011).

200 Natural Resources Canada, A Municipal Guide to the Development of a Watershed Management Plan (St. John's: 2007), online: www.env.gov.nl.ca/env/waterres/cycle/surfacewater/manual.pdf.

201 Personal correspondence, Haseen Khan, Newfoundland and Labrador (10 August 2011).

202 Water Resources Act, SNL 2002, c W-4.01, s 39, online: www.canlii.org/en/nl/laws/stat/snl-2002-c-w-4.01/64435/.

203 Personal correspondence, Haseen Khan, Newfoundland and Labrador (10 August 2011).

204 Environment Act, SNS 1994-95, c 1, s 106, online: www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/51800/.

205 Personal communication with Judy MacDonald, Supervisor, Drinking Water Management, Nova Scotia (6 July 2011).

206 Nova Scotia Environment, Developing a Municipal Source Water Protection Plan: A Guide for Water Utilities and Municipalities – Step 1 (Water and Wastewater Branch, 2009), online: www.gov.ns.ca/nse/water/docs/WaterProtectionPlanStep1.pdf.

207 Nova Scotia Environment, Developing a Municipal Source Water Protection Plan: A Guide for Water Utilities and Municipalities – Step 1 (Water and Wastewater Branch, 2009), online: www.gov.ns.ca/nse/water/docs/WaterProtectionPlanStep1.pdf.

208 Nova Scotia Environment, "Developing a Municipal Source Water Protection Plan" (21 January 2011), online: www.gov.ns.ca/nse/water/sourcewater.asp.

209 See: Nova Soctia, "Designation of a Protected Water Area", online: www.gov.ns.ca/nse/water/protectedwaterarea.asp.

210 Environment Act, SNS 1994-95, c 1, s 106(1), online: www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/51800/.

211 Environment Act, SNS 1994-95, c 1, s 106(1), 106(6), online: www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/51800/.

212 Personal communication with Judy MacDonald, Supervisor, Drinking Water Management, Nova Scotia (9 August 2011).

213 See: Regulations under the Environment Act, "Protected Water Areas," online: www.gov.ns.ca/just/regulations/rxaa-l.htm#env.

214 Personal communication with Judy MacDonald, Supervisor, Drinking Water Management, Nova Scotia (9 August 2011).

215 Clean Water Act, SO 2006, c 22, online: www.canlii.org/en/on/laws/stat/so-2006-c-22/82734/; O Reg 287/07, online: www.canlii.org/en/on/laws/regu/o-reg-287-07/latest/o-reg-287-07.html.

216 Clean Water Act, SO 2006, c 22, s10, online: www.canlii.org/en/on/laws/stat/so-2006-c-22/82734/.

217 Clean Water Act, SO 2006, c 22, s 17 online: www.canlii.org/en/on/laws/stat/so-2006-c-22/82734/.

218 Clean Water Act, SO 2006, c 22, s25, online: www.canlii.org/en/on/laws/stat/so-2006-c-22/82734/.

219 Clean Water Act, SO 2006, c 22, ss 37 -40, 42 -45, 104, online: www.canlii.org/en/on/laws/stat/so-2006-c-22/82734/.

220 Clean Water Act, SO 2006, c 22, s 36, online: www.canlii.org/en/on/laws/stat/so-2006-c-22/82734/.

221 Drinking Water and Wastewater Facility Operating Regulations, PEI Reg EC 2004-710, s 20(1), online: www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

222 Personal communication with George Somers, Manager, Drinking Water, Land and Systems Protection Section, Environment Division, PEI Department of Environment, Energy and Forestry (6 July 2011).

223 Drinking Water and Wastewater Facility Operating Regulations, PEI Reg EC 2004-710, s 20(3), online: www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

224 Drinking Water and Wastewater Facility Operating Regulations, PEI Reg EC 2004-710, s 20(4)-(7), online: www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

225 Drinking Water and Wastewater Facility Operating Regulations, PEI Reg EC 2004-710, s 20(9), online: www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

226 Personal communication with George Somers, Manager, Drinking Water, Land and Systems Protection Section, Environment Division, PEI Department of Environment, Energy and Forestry (6 July 2011).

227 Personal communication with George Somers, Manager, Drinking Water, Land and Systems Protection Section, Environment Division, PEI Department of Environment, Energy and Forestry (6 July 2011).

228 Personal communication with Carole Jutras, Chef du Service des eaux municipales, Direction des politiques de l'eau, Ministère du Développement durable, de l'Environnement et des Parcs, Québec (19 July 2011).

229 Personal communication with Carole Jutras, Chef du Service des eaux municipales, Direction des politiques de l'eau, Ministère du Développement durable, de l'Environnement et des Parcs, Québec (19 July 2011).

230 Personal communication with Carole Jutras, Chef du Service des eaux municipales, Direction des politiques de l'eau, Ministère du Développement durable, de l'Environnement et des Parcs, Québec (19 July 2011).

231 Personal communication with Carole Jutras, Chef du Service des eaux municipales, Direction des politiques de l'eau, Ministère du Développement durable, de l'Environnement et des Parcs, Québec (19 July 2011).

232 Personal communication with Carole Jutras, Chef du Service des eaux municipales, Direction des politiques de l'eau, Ministère du Développement durable, de l'Environnement et des Parcs, Québec (19 July 2011).

233 Personal correspondence, Thon Phommavong, Saskatchewan (29 August 2011).

234 Personal correspondence, Thon Phommavong, Saskatchewan (29 August 2011).

235 Personal correspondence, Thon Phommavong, Saskatchewan (29 August 2011).

236 Personal correspondence, Thon Phommavong, Saskatchewan (29 August 2011).

237 Personal correspondence, Thon Phommavong, Saskatchewan (29 August 2011).

238 Email from Mike Zemanek, Director, Healthy Community Environments, Ministry of Health, British Columbia (19 July 2011).

239 Personal communication with Tony Whalen, Senior Water & Wastewater Engineer, Water and Wastewater Management Section, New Brunswick Min. Environment (22 July 2011).

240 This information is updated annually. See Newfoundland and Labrador, Department of Environment and Conservation, "Drinking Water: Drinking Water Safety Annual Report", online: Newfoundland and Labrador, www.env.gov.nl.ca/env/waterres/reports/index.html#1.

241 Personal correspondence, Haseen Khan, Newfoundland and Labrador (10 August 2011).

242 Personal communication with Judy MacDonald, Supervisor, Drinking Water Management, Nova Scotia (6 July 2011).

243 Nova Scotia, Map, Protected Water Areas of Nova Scotia (2009), online: Nova Scotia, www.gov.ns.ca/nse/water/docs/Protected.Water.Areas.Map.pdf; Nova Scotia Environment, Designated Protected Water Areas in Nova Scotia (2010), online: Nova Soctia, www.gov.ns.ca/nse/water/ docs/ProtectedWaterAreasRegulations.pdf.

244 Personal communication with Carole Jutras, Chef du Service des eaux municipales, Direction des politiques de l'eau, Ministère du Développement durable, de l'Environnement et des Parcs, Québec (19 July 2011).

245 Personal correspondence, Thon Phommavong, Saskatchewan (29 August 2011).

246 Drinking Water Regulation, (Public Health and Safety Act, Yukon) Y.O.I.C. 2007/139 s. 9; online: www.canlii.ca/en/yk/laws/regu/yoic-2007-139/latest/yoic-2007-139.html. Personal correspondence, Patricia Brooks, Drinking Water Program Coordinator Environmental Health Services, September 1, 2011.

247 Personal correspondence, Patricia Brooks, Drinking Water Program Coordinator Environmental Health Services, September 7, 2011.

248 Drinking Water Regulation, Y.O.I.C. 2007/139 s. 6(1) and (2); online: www.canlii.ca/en/yk/laws/regu/yoic-2007-139/latest/yoic-2007-139.html

249 Water Act, RSA 2000, c W-3, s 3(2), online: www.canlii.org/en/ab/laws/stat/rsa-2000-c-w-3/85126/.

250 Water Act, RSBC 1996, c 483, s 2, online: www.canlii.org/en/bc/laws/stat/rsbc-1996-c-483/87769/.

251 Government of British Columbia, Living Water Smart, online: BC Living Water Smart, www.livingwatersmart.ca/; B.C. Ministry of Health, Action Plan for Safe Drinking Water in British Columbia (2002), online: www.health.gov.bc.ca/cpa/publications/safe_drinking_printcopy.pdf. B.C. has adopted goals including "Lead the world in sustainable environmental management, with the best air and water quality, and the best fisheries management, bar none." See Government of British Columba, "Province of B.C.: Strategic Plan 2011/12-2013/14" (February 2010), online: www.bcbudget.gov.bc.ca/2011/stplan/2011_Strategic_Plan.pdf. See also B.C. Ministry of Health Planning and B.C. Ministry of Health Service, "Action Plan for Safe Drinking Water in British Columbia", online: www.health.gov.bc.ca/cpa/publications/safe_drinking_printcopy.pdf This action plan is approved by Cabinet and provides 8 principles that all ministries should consider as their activities can influence drinking water.

252 Water Rights Act, CCSM c W80, s 2, online: www.canlii.org/en/mb/laws/stat/ccsm-c-w80/latest/ccsm-c-w80.html.

253 Clean Water Act, SNB 1989, c C-6.1, s 9, online: www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/.

254 Water Resources Act, SNL 2002, c W-4.01, s 9, online: www.canlii.org/en/nl/laws/stat/snl-2002-c-w-4.01/64435/.

255 Northwest Territories, Legislative Assembly, Hansard, 15th Leg, 5th Sess, Day 34 (5 March 2007) at 1177, online: www.assembly.gov.nt.ca/_live/documents/content/5th%20Session%20-%20Day%201%20to%2039.pdf.

256 Northwest Territories Waters Act, SC 1992, c 39, s 4, online: www.canlii.org/en/ca/laws/stat/sc-1992-c-39/32382/.

257 Environment Act, SNS 1994-95, c 1, s 2(b)(iii), s 103, online: www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/51800/.

258 Northwest Territories Waters Act, SC 1992, c 39, s 4, online: www.canlii.org/en/ca/laws/stat/sc-1992-c-39/32382/.

259 An Act to affirm the Collective Nature of Water Resources and Provide for Increased Water Resource Protection, RSQ 2009, c C-6.2, s 1, online: www.canlii.org/en/qc/laws/stat/rsq-c-c-6.2/70916/.

260 Saskatchewan Watershed Authority Act, SS 2005, c S-35.03, s 38, online: www.canlii.org/en/sk/laws/stat/ss-2005-c-s-35.03/10706/.

261 See, e.g., "Conserving Our Water: A Water Conservation Plan for Saskatchewan" Saskatchewan Watershed Authority (2005) online: www.swa.ca/WaterConservation/Documents/WaterConservation.pdf

262 Waters Act, SY 2003, c 19, s 3, online: www.canlii.org/en/yk/laws/stat/sy-2003-c-19/71408/.

263 Drinking Water Protection Act, SBC 2001, c 9, ss 4, 5, and 7 online: www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

264 Clean Environment Act, Reg. 87-83, Sched. A, subsec. (r). online: www.canlii.ca/en/nb/laws/regu/nb-reg-87-83/latest/nb-reg-87-83.html

265 Personal communication with Tony Whalen, Senior Water & Wastewater Engineer, Water and Wastewater Management Section, New Brunswick Min. Environment (22 July 2011).

266 Water Resources Act, SNL 2002, c W-4.01, s 12, online: www.canlii.org/en/nl/laws/stat/snl-2002-c-w-4.01/64435/.

267 Canada, Indian and Northern Affairs, A Policy Respecting the Prohibition of Bulk Water Removal from Major River Basins in the Northwest Territorie,s (Ottawa: Minister of Public Works and Government Services Canada, 2003) at 3.

268 Water Resources Protection Act, SNS 2000, c 10, s 4, online: www.canlii.org/en/ns/laws/stat/sns-2000-c-10/51973/.

269 Indian and Northern Affairs Canada, A Policy Respecting the Prohibition of Bulk Water Removal from Major River Basins in Nunavut (2003), p. 3, online: www.waterpolicy.ca/nunavut-water-policy.

270 Ontario Water Resources Act, RSO 1990, c O-40, s 34.3(3), online: www.canlii.org/en/on/laws/stat/rso-1990-c-o-40/89483/.

271 Environmental Protection Act, RSPEI 1988, c E-9, s 12.1, online: www.canlii.org/en/pe/laws/stat/rspei-1988-c-e-9/latest/rspei-1988-c-e-9.html.

272 Water Resources Preservation Act, RSQ 2001, c P-18.1, s 1, online: www.canlii.org/en/qc/laws/stat/rsq-c-p-18.1/14663/.

273 Saskatchewan Watershed Authority Act, SS c S-35.03, ss 56 – 57, online: www.canlii.ca/en/sk/laws/stat/ss-2005-c-s-35.03/latest/ss-2005-c-s-35.03.html

274 Johansen, D. "Bulk Water Removals: Canadian Legislation", (Industry, Infrastructure and Resources Division, Parliamentary Information and Research Service, Library of Parliament) revised July 7, 2010, Online: www.parl.gc.ca/content/LOP/ResearchPublications/prb0213-e.htm

275 Alberta, Ministry of Environment, Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (Alberta: 2006) at 1-1, 1-3, 1-6, online: Government of Alberta, http://environment.gov.ab.ca/info/posting.asp?assetid=6979&subcategoryid=96.

276 Alberta, Ministry of Environment, Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (Alberta: 2006) at 1-1, 1-4, online: Government of Alberta, http://environment.gov.ab.ca/info/posting.asp?assetid=6979&subcategoryid=96.

277 Drinking Water Protection Regulation, BC Reg 200/2003, s 5, online: www.canlii.org/en/bc/laws/regu/bc-reg-200-2003/latest/bc-reg-200-2003.html.

278 Drinking Water Safety Regulation, Man Reg 40/2001, s 17, online: www.canlii.org/en/mb/laws/regu/man-reg-40-2007/66465/; Drinking Water Safety Act, CCSM c D101, s 20(1), online: www.canlii.org/en/mb/laws/stat/ccsm-c-d101/67337/.

279 Atlantic Canada Water Works Association, Nova Scotia, New Brunswick, PEI and Newfoundland and Labrador, Atlantic Canada Guidelines for the Supply, Treatment, Storage, Distribution, and Operation of Drinking Water Supply Systems (September 2004), online: Nova Scotia, www.gov.ns.ca/nse/water/docs/WaterSystemGuidelines.pdf.

280 Newfoundland and Labrador Department of Environment and Conservation, "Bacteriological Quality of Drinking Water" online: www.env.gov.nl.ca/env/waterres/regulations/policies/standards_microbiological.html.

281 Nova Scotia, Ministry Environment and Labour, Treatment Standard for Municipal Surface Source Water Treatment Facilities (1 April 2003), online: www.gov.ns.ca/nse/water/docs/municipalsurfacesourcewaterstd.pdf.

282 Public Water Supply Regulations, RRNWT (Nu) 1990 c P-23 (), ss 15(1) and 17(1), online: www.canlii.org/en/nu/laws/regu/rrnwt-nu-1990-c-p-23/72682/.

283 Ontario, Ministry of Environment, Procedure for Disinfection of Drinking Water in Ontario (As adopted by reference by Ontario Regulation 170/03 under the Safe Drinking Water Act) (June 4, 2006), online: www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079706.pdf.

284 Personal communication with George Somers, Manager, Drinking Water, Land and Systems Protection Section, Environment Division, PEI Department of Environment, Energy and Forestry (12 August 2011).

285 Prince Edward Island Department of Agriculture, "Drinking Water Quality" (January 22, 2003), online: Government of PEI, www.gov.pe.ca/roundtable/index.php3?number=69426; Drinking Water and Wastewater Facility Operating Regulations, PEI Reg EC 2004-710, s 11, online: www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

286 Regulation Respecting the Quality of Drinking Water, RRQ 2008, c Q-2, r 18.1.1, ss 5 and 22, online: www.canlii.org/en/qc/laws/regu/rq-c-q-2-r18.1.1/latest/.

287 Québec Ministère du Développement durable, de l'Environnement et des Parcs, Projet de règlement modifiant le Règlement sur la qualité de l'eau potable (Draft Regulation to amend the Regulation respecting the quality of drinking water), ss 5, 22, and 22.01, online: www.mddep.gouv.qc.ca/eau/potable/reglement/rqep-refondu-en.pdf.

288 Water Regulations, RRS, c E-10.21, Reg 1, s 30(5), online: www.canlii.org/en/sk/laws/regu/rrs-c-e-10.21-reg-1/latest/rrs-c-e-10.21-reg-1.html.

289 Drinking Water Regulation, YOIC 2007/139, ss. 38; 39; 80, online: www.canlii.org/en/yk/laws/regu/yoic-2007-139/80282/.

290 Yukon Health and Social Services, Guidelines for PART 3 – Small Public Drinking Water Systems, ss 122 and 123, (April 13, 2007), online: www.hss.gov.yk.ca/pdf/drinking_water_pt3_guidelines.pdf.

291 Drinking Water Regulation, YOIC 2007/139, s 36(1), online: www.canlii.org/en/yk/laws/regu/yoic-2007-139/80282/.

292 Alberta, Ministry of Environment, Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (Alberta: 2006) at 1-1, online:, http://environment.gov.ab.ca/info/posting.asp?assetid=6979&subcategoryid=96; Potable Water Regulation, Alta Reg 277/2003, s6(1)(a), online: www.canlii.org/en/ab/laws/regu/alta-reg-277-2003/88719/.

293 Drinking Water Protection Regulation, BC Reg 200/2003, s 5, online: www.canlii.org/en/bc/laws/regu/bc-reg-200-2003/latest/bc-reg-200-2003.html.

294 Man Reg 41/2007 (Drinking Water Quality Standards Regulation), ss. 2-7, online: www.canlii.org/en/mb/laws/regu/man-reg-41-2007/65852/.

295 Clean Water Act, SNB 1989, c C-6.1, s 13(2), online: www.canlii.org/en/nb/laws/stat/snb-1989-c-c-6.1/76685/; New Brunswick Department of Health, "Drinking Water Quality Guidelines in New Brunswick", online: www.gnb.ca/0053/public_health/water-quality_guidelines-e.asp.

296 Newfoundland and Labrador Department of Environment and Conservation, "Bacteriological Quality of Drinking Water", online: www.env.gov.nl.ca/env/waterres/regulations/policies/standards_microbiological.html; Newfoundland and Labrador, Department of Environment and Conservation, "Drinking Water Monitoring & Reporting", online: www.env.gov.nl.ca/env/waterres/regulations/policies/water_quality.html.

297 NWT Reg 108-09, s 12, online: CanLii Water Supply System Regulations, www.canlii.org/en/nt/laws/regu/nwt-reg-108-2009/76263/.

298 NS Reg 186/2005, s 35, online: CanLii Water and Wastewater Facilities and Public Drinking Water Supplies Regulations, www.canlii.org/en/ns/laws/regu/ns-reg-186-2005/57847/.

299 RRNWT (Nu) 1990 c P-23 (Public Water Supply Regulations), s. 11, online: www.canlii.org/en/nu/laws/regu/rrnwt-nu-1990-c-p-23/72682/.

300 O Reg 169/03, Schedule 1- 3, online: CanLii Ontario Drinking Water Quality Standards, www.canlii.org/en/on/laws/regu/o-reg-169-03/36791/

301 PEI Reg EC 2004-710, s 8 online: CanLii, Drinking Water and Wastewater Facility Operating Regulations, www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

302 RRQ 2008, c Q-2, r 18.1.1 schedule 1, s 1, 6, online: CanLii Regulation Respecting the Quality of Drinking Water, www.canlii.org/en/qc/laws/regu/rq-c-q-2-r18.1.1/latest/.

303 Québec Ministère du Développement durable, de l'Environnement et des Parcs, Projet de règlement modifiant le Règlement sur la qualité de l'eau potable (Draft Regulation to amend the Regulation respecting the quality of drinking water), ss 5.1, 6, 9.2, 22, amendments to Schedules 1 and 2, online: Government of Quebec, www.mddep.gouv.qc.ca/eau/potable/reglement/rqep-refondu-en.pdf.

304 RRS, c E-10.21, Reg 1, s 31(2)(b), 32(1), 33, 34, online: CanLii Water Regulations, www.canlii.org/en/sk/laws/regu/rrs-c-e-10.21-reg-1/latest/rrs-c-e-10.21-reg-1.html.

305 YOIC 2007/139 (Drinking Water Regulation), ss. 4; 44(1); 63(1), online: www.canlii.org/en/yk/laws/regu/yoic-2007-139/80282/.

306 Yukon Health and Social Services, Guidelines for PART 3 – Small Public Drinking Water Systems, s. 90, (April 13, 2007), online: www.hss.gov.yk.ca/pdf/drinking_water_pt3_guidelines.pdf.

307 Alta Reg 277/2003, s 17(3), online: CanLii Potable Water Regulation, www.canlii.org/en/ab/laws/regu/alta-reg-277-2003/88719/; Alberta, Ministry of Environment, Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (Alberta: 2006) at 1-46, online: Government of Alberta, http://environment.gov.ab.ca/info/posting.asp?assetid=6979&subcategoryid=96.

308 BC Reg 200/2003, Schedule A, B, s 2, 8, online: CanLii, Drinking Water Protection Regulation, www.canlii.org/en/bc/laws/regu/bc-reg-200-2003/latest/bc-reg-200-2003.html.

309 Man Reg 40/2007 (Drinking Water Safety Regulation), ss. 23; 26; 27; Schedule A; Schedule B, online: www.canlii.org/en/mb/laws/regu/man-reg-40-2007/66465/; CCSM c D101 (Drinking Water Safety Act), s. 21(1), online: www.canlii.org/en/mb/laws/stat/ccsm-c-d101/67337/.

310 NB Reg 93-203, s 7(1)(a), online: CanLii Potable Water Regulation, www.canlii.org/en/nb/laws/regu/nb-reg-93-203/56549/.

311 Personal communication with Tony Whalen, Senior Water & Wastewater Engineer, Water and Wastewater Management Section, New Brunswick Min. Environment (22 July 2011).

312 Newfoundland and Labrador Department of Environment and Conservation, "Bacteriological Quality of Drinking Water", online: Newfoundland and Labrador, www.env.gov.nl.ca/env/waterres/regulations/policies/standards_microbiological.html.

313 Newfoundland and Labrador, Department of Environment and Conservation, "Drinking Water Monitoring & Reporting – 5.0 Drinking Water Quality Monitoring", online: Newfoundland and Labrador, www.env.gov.nl.ca/env/waterres/regulations/policies/water_quality.html.

314 NWT Reg 108-09, s 12, online: CanLii Water Supply System Regulations, www.canlii.org/en/nt/laws/regu/nwt-reg-108-2009/76263/.

315 Nova Scotia Min. Environment and Labour, Guidelines for Monitoring Public Drinking Water Supplies (12 December 2005), s 4.1.6, 4.2.6, 5.1.5, 5.2.6, online: Nova Scotia, www.gov.ns.ca/nse/water/docs/Guidelines_for_Monitoring_Public_Drinking_Water_Supplies.pdf; Nova Scotia Environment, "Overview of the New Public Drinking Water Supply Program" (11 March 2011), online: Nova Scotia, www.gov.ns.ca/nse/water/publicwateroverview.asp.

316 RRNWT (Nu) 1990 c P-23 (Public Water Supply Regulations), ss. 9; 17(6)(a), online: www.canlii.org/en/nu/laws/regu/rrnwt-nu-1990-c-p-23/72682/.

317 O Reg 170/03, Schedule 7-13, online: CanLii Drinking Water Systems, www.canlii.org/en/on/laws/regu/o-reg-170-03/83014/.

318 O Reg 248/03, online: CanLii Drinking Water Testing Services, www.canlii.org/en/on/laws/regu/o-reg-248-03/77774/.

319 PEI Reg EC 2004-710, s 8-11, online: CanLii, Drinking Water and Wastewater Facility Operating Regulations, www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

320 RRQ 2008, c Q-2, r 18.1.1 s 11, 14, 15, 18, 19, 21, 33, online: CanLii Regulation Respecting the Quality of Drinking Water, www.canlii.org/en/qc/laws/regu/rq-c-q-2-r18.1.1/latest/.

321 RRQ 2008, c Q-2, r 18.1.1 s 11, 14, 14.1, 14.2, 15, 18, 19, 21, 33, online: CanLii Regulation Respecting the Quality of Drinking Water, www.canlii.org/en/qc/laws/regu/rq-c-q-2-r18.1.1/latest/.

322 RRS, c E-10.21, Reg 1, s 39(1), online: CanLii Water Regulations, www.canlii.org/en/sk/laws/regu/rrs-c-e-10.21-reg-1/latest/rrs-c-e-10.21-reg-1.html; Saskatchewan, Ministry of Environment, Municipal Drinking Water Quality Monitoring Guidelines, (Regina: 2007), online: Saskatchewan, www.saskh20.ca/DWBinder/

EPB202MunicipalDrinkingWaterQualityGuidelinesEdition3.pdf.

323 YOIC 2007/139 (Drinking Water Regulation), ss. 42(1); 43; 81(1); Schedule B; Schedule C, online: www.canlii.org/en/yk/laws/regu/yoic-2007-139/80282/.

324 Yukon Health and Social Services, Guidelines for PART 3 – Small Public Drinking Water Systems, ss. 125; 126; Schedule E, (April 13, 2007), online: www.hss.gov.yk.ca/pdf/drinking_water_pt3_guidelines.pdf.

325 Alta Reg 277/2003, s 4(1), 5(1), online: CanLii Potable Water Regulation, www.canlii.org/en/ab/laws/regu/alta-reg-277-2003/88719/.

326 BC Reg 200/2003, s 7, online: CanLii, Drinking Water Protection Regulation, www.canlii.org/en/bc/laws/regu/bc-reg-200-2003/latest/bc-reg-200-2003.html.

327 CCSM c D101 (Drinking Water Safety Act), s. 7, online: www.canlii.org/en/mb/laws/stat/ccsm-c-d101/67337/; Man Reg 40/2007 (Drinking Water Safety Regulation), s. 3, online: www.canlii.org/en/mb/laws/regu/man-reg-40-2007/66465/;

Manitoba Office of Drinking Water, Project Approval Requirements for Drinking Water Systems (December 15, 2010), online: www.gov.mb.ca/waterstewardship/odw/reg-info/forms/approval_guideline_ag01_dec_10-permit_process.pdf.

328 New Brunswick, Environmental Impact Assessment, "Projects that Must be Registered under EIA", online: Department of Environment, www.gnb.ca/0009/0377/0002/0006-e.asp.

329 NB Reg 82-126, S 6(5), online: CanLii Water Quality Regulation, www.canlii.org/en/nb/laws/regu/nb-reg-82-126/latest/nb-reg-82-126.html.

330 Personal communication with Tony Whalen, Senior Water & Wastewater Engineer, Water and Wastewater Management Section, New Brunswick Min. Environment (22 July 2011).

331 Water Resources Act, SNL 2002, c W-4.01, s 37, online: CanLii, www.canlii.org/en/nl/laws/stat/snl-2002-c-w-4.01/64435/; Newfoundland and Labrador, Department of Environment and Conservation, Guidelines for the Design, Construction and Operation of Water and Sewerage Systems (2005), online: Newfoundland and Labrador, www.env.gov.nl.ca/env/waterres/waste/groundwater/report.html.

332 NWT Reg 108-09, s 5-7, online: CanLii Water Supply System Regulations, www.canlii.org/en/nt/laws/regu/nwt-reg-108-2009/76263/.

333 Available at Nova Scotia, "Municipal Water Approval Protocols", online: Nova Scotia, www.gov.ns.ca/nse/water/municipalwaterapproval.asp.

334 NS Reg 186/2005, s 6-13, online: CanLii Water and Wastewater Facilities and Public Drinking Water Supplies Regulations, www.canlii.org/en/ns/laws/regu/ns-reg-186-2005/57847/.

335 RRNWT (Nu) 1990 c P-23 (Public Water Supply Regulations), ss. 14(2); 15(2)-(6); 16(1); 16(5); 17(5); 18(1); 20(1), online: www.canlii.org/en/nu/laws/regu/rrnwt-nu-1990-c-p-23/72682/.

336 Ontario, Ministry of Environment, Procedure for Disinfection of Drinking Water in Ontario (As adopted by reference by Ontario Regulation 170/03 under the Safe Drinking Water Act) (4 June 2006) at 1, online: www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079706.pdf.

337 PEI Reg EC 2004-710, s 20(9), online: CanLii, Drinking Water and Wastewater Facility Operating Regulations, www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.; Personal communication with George Somers, Manager, Drinking Water, Land and Systems Protection Section, Environment Division, PEI Department of Environment, Energy and Forestry (12 August 2011).

338 Environmental Quality Act, RSQ, c Q-2, Division IV, s 22, online: CanLii, www.canlii.org/en/qc/laws/stat/rsq-c-q-2/latest/rsq-c-q-2.html#history; RRQ 2008, c Q-2, r 5, s 6, 22, online: CanLii Regulation Respecting the Quality of Drinking Water, www.canlii.org/en/qc/laws/regu/rq-c-q-2-r18.1.1/latest/; see also Québec Ministère du Développement durable, de l'Environnement et des Parcs, Guide de conception des installations de production d'eau potable (2002), online: www.mddep.gouv.qc.ca/eau/potable/guide/index.htm.

339 Québec Ministère du Développement durable, de l'Environnement et des Parcs, Projet de règlement modifiant le Règlement sur la qualité de l'eau potable (Draft Regulation to amend the Regulation respecting the quality of drinking water), s 53.2, online: www.mddep.gouv.qc.ca/eau/potable/reglement/rqep-refondu-en.pdf.

340 YOIC 2007/139 (Drinking Water Regulation), ss. 16; 78, online: www.canlii.org/en/yk/laws/regu/yoic-2007-139/80282/.

341 Yukon Health and Social Services, Guidelines for PART 3 – Small Public Drinking Water Systems, s. 112, (April 13, 2007), online: www.hss.gov.yk.ca/pdf/drinking_water_pt3_guidelines.pdf.

342 Alta Reg 277/2003, s 1(1)(b), 17(1)(b), online: CanLii Potable Water Regulation, www.canlii.org/en/ab/laws/regu/alta-reg-277-2003/88719/.

343 Alta Reg 277/2003, s 14(1), 15(1), online: CanLii Potable Water Regulation, www.canlii.org/en/ab/laws/regu/alta-reg-277-2003/88719/; Alberta, Ministry of Environment, Water and Wastewater Operators' Certification Guidelines (Alberta: 2011), online: Government of Alberta – Environment, http://environment.alberta.ca/documents/Water_Certification_Guidelines.pdf.

344 Drinking Water Protection Act, SBC 2001, c 9 s 9(1), online: CanLii, www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/; BC Reg 200/2003, s 12, online: CanLii, Drinking Water Protection Regulation, www.canlii.org/en/bc/laws/regu/bc-reg-200-2003/latest/bc-reg-200-2003.html. See also BC Ministry of Health and Enhanced Water Quality Association, "Laboratories Approved by Provincial Health Officer for Drinking Water Microbiology Testing" (15 June 2011), online: EWQA, www.phsa.ca/NR/rdonlyres/5B077C99-9015-42AC-943F-32F74E9968B6/0/831PHOApprovedLaboratoryList20110615.pdf and, www.phsa.ca/AgenciesAndServices/Services/PHSA-Labs/Testing-Requisitions/Environmental/Enhanced-Water-QA/default.htm.

345 Man Reg 40/2007 (Drinking Water Safety Regulation), s. 35, online: www.canlii.org/en/mb/laws/regu/man-reg-40-2007/66465/.

346 Man Reg 77/2003 (Water and Wastewater Facility Operators Regulation), online: www.canlii.org/en/mb/laws/regu/man-reg-77-2003/65849/.

347 NB Reg 93-203, s 9, online: CanLii Potable Water Regulation, www.canlii.org/en/nb/laws/regu/nb-reg-93-203/56549/.

348 Personal communication with Tony Whalen, Senior Water & Wastewater Engineer, Water and Wastewater Management Section, New Brunswick Ministry of Environment (22 July 2011).

349 Personal communication with Tony Whalen, Senior Water & Wastewater Engineer, Water and Wastewater Management Section, New Brunswick Min. Environment (22 July 2011).

350 NB Reg 82-126, s 19, online: CanLii Water Quality Regulation, www.canlii.org/en/nb/laws/regu/nb-reg-82-126/latest/nb-reg-82-126.html.

351 Personal communication with Tony Whalen, Senior Water & Wastewater Engineer, Water and Wastewater Management Section, New Brunswick Min. Environment (22 July 2011).

352 Personal correspondence, Haseen Khan, Newfoundland and Labrador (10 August 2011).

353 NWT Reg 108-09, s 21(1), online: CanLii Water Supply System Regulations, www.canlii.org/en/nt/laws/regu/nwt-reg-108-2009/76263/.

354 NS Reg 186/2005, s 19-22, online: CanLii Water and Wastewater Facilities and Public Drinking Water Supplies Regulations, www.canlii.org/en/ns/laws/regu/ns-reg-186-2005/57847/.

355 See Nova Scotia, "Policy on Acceptable Certification of Laboratories" (1 August 2006), online CALA, www.cala.ca/NSpolicy2006.pdf.

356 Safe Drinking Water Act, SO 2002, c 32, s 11(3), online: CanLii, www.canlii.org/en/on/laws/stat/so-2002-c-32/78505/; O Reg 188/07, online: CanLii Licensing of Municipal Drinking Water Systems, www.canlii.org/en/on/laws/regu/o-reg-188-07/36740/.

357 O Reg 128/04, s 6-15, 29, online: CanLii Certification of Drinking Water System Operators and Water Quality Analysts, www.canlii.org/en/on/laws/regu/o-reg-128-04/86028/.

358 PEI Reg EC 2004-710, s 5(2), 5(4)-5(6), online: CanLii, Drinking Water and Wastewater Facility Operating Regulations, www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

359 PEI Reg EC 2004-710, s 13(1), online: CanLii, Drinking Water and Wastewater Facility Operating Regulations, www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

360 RRQ 2008, c Q-2, r 5, s 43, 44, online: CanLii Regulation Respecting the Quality of Drinking Water, www.canlii.org/en/qc/laws/regu/rq-c-q-2-r18.1.1/latest/; Environmental Quality Act, RSQ, c Q-2, Division IV, s 45.1, online: CanLii, www.canlii.org/en/qc/laws/stat/rsq-c-q-2/latest/rsq-c-q-2.html#history.

361 Québec Ministère du Développement durable, de l'Environnement et des Parcs, Projet de règlement modifiant le Règlement sur la qualité de l'eau potable (Draft Regulation to amend the Regulation respecting the quality of drinking water), s 31, online: www.mddep.gouv.qc.ca/eau/potable/reglement/rqep-refondu-en.pdf.

362 RRQ 2008, c Q-2, r 5, s 43, 44, online: CanLii Regulation Respecting the Quality of Drinking Water, www.canlii.org/en/qc/laws/regu/rq-c-q-2-r18.1.1/latest/; Environmental Quality Act, RSQ, c Q-2, Division IV, s 45.1, online: CanLii, www.canlii.org/en/qc/laws/stat/rsq-c-q-2/latest/rsq-c-q-2.html#history.

363 RRS, c E-10.21, Reg 1, s 38, online: CanLii Water Regulations, www.canlii.org/en/sk/laws/regu/rrs-c-e-10.21-reg-1/latest/rrs-c-e-10.21-reg-1.html.

364 Saskatchewan Min. Environment, Saskatchewan Water and Wastewater Works Operator Certification Standards, EPB 139/02/2M (Regina: 2002), online: Saskatchewan, www.environment.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=766,75; RRS, c E-10.21, Reg 1, s 61(1)(a), 63, 68, online: CanLii Water Regulations, www.canlii.org/en/sk/laws/regu/rrs-c-e-10.21-reg-1/latest/rrs-c-e-10.21-reg-1.html.

365 RRS, c E-10.21, Reg 1, s 63.1-63.2, online: CanLii Water Regulations, www.canlii.org/en/sk/laws/regu/rrs-c-e-10.21-reg-1/latest/rrs-c-e-10.21-reg-1.html.

366 Yuk Reg. 2007/139 ("Drinking Water Protection"), S. 33(1) and 75(1), www.canlii.org/en/yk/laws/regu/yoic-2007-139/80282/yoic-2007-139.html

367 Alta Reg 277/2003, s 11, online: CanLii Potable Water Regulation, www.canlii.org/en/ab/laws/regu/alta-reg-277-2003/88719/; Alberta, Ministry of Environment and Ministry of Health, Communication And Action Protocol For Failed Bacteriological Results In Drinking Water For Waterworks Systems Authorized Under The

Environmental Protection And Enhancement Act (Alberta: 2009), online: Government of Alberta – Environment, http://environment.gov.ab.ca/info/library/7827.pdf; Alberta, Ministry of Environment, Action Protocol for Exceedances of Chemical Health Parameters in Drinking Water (29 September 2009) at 5, 7, online: Government of Alberta – Environment, http://environment.gov.ab.ca/info/library/8189.pdf.

368 Government of Alberta, "Regulated Drinking Water in Alberta", online: Government of Alberta – Environment, http://environment.alberta.ca/apps/regulateddwq/Default.aspx.

369 Drinking Water Protection Act, SBC 2001, c 9, s 29, online: CanLii, www.canlii.org/en/bc/laws/stat/sbc-2001-c-9/56949/.

370 Man Reg 40/2007 (Drinking Water Safety Regulation), s. 29, online: www.canlii.org/en/mb/laws/regu/man-reg-40-2007/66465/.

371 CCSM c D101 (Drinking Water Safety Act), s. 22(2), online: www.canlii.org/en/mb/laws/stat/ccsm-c-d101/67337/.

372 Man Reg 40/2007 (Drinking Water Safety Regulation), online: www.canlii.org/en/mb/laws/regu/man-reg-40-2007/66465/.

373 Newfoundland and Labrador, Department of Environment and Conservation, "Drinking Water Monitoring & Reporting – 6.1 Drinking Water Quality Reporting", online: Newfoundland and Labrador, www.env.gov.nl.ca/env/waterres/regulations/policies/water_quality.html.

374 Newfoundland and Labrador Department of Environment and Conservation, "Drinking Water Monitoring & Reporting – 6.0 Drinking Water Quality Reporting" at 6.2-6.4, online: www.env.gov.nl.ca/env/waterres/regulations/policies/water_quality.html.

375 Newfoundland and Labrador Department of Environment and Conservation, "Drinking Water Monitoring & Reporting – 6.5 Web Documents on Drinking Water Quality", online: Newfoundland and Labrador, www.env.gov.nl.ca/env/waterres/regulations/policies/water_quality.html; Newfoundland and Labrador, Department of Environment and Conservation, "Water Resources Management", online: Newfoundland and Labrador, www.env.gov.nl.ca/env/waterres/index.html.

376 Water Resources Act, SNL 2002, c W-4.01, s 68-69, online: CanLii, www.canlii.org/en/nl/laws/stat/snl-2002-c-w-4.01/64435/.

377 Public Health Act, SNWT 2007, c C-17, s 21, online: CanLii, www.canlii.ca/en/nt/laws/stat/snwt-2007-c-17/latest/snwt-2007-c-17.html.

378 NWT Reg 108-09, s 23, online: CanLii Water Supply System Regulations, www.canlii.org/en/nt/laws/regu/nwt-reg-108-2009/76263/.

379 Nova Scotia Environment, Annual Accountability Report for the Fiscal Year 2010-2011 (July 2011), p 15, online: Nova Scotia, www.gov.ns.ca/nse/dept/docs/nse.accountability.report.2010-2011.pdf.

380 Nova Scotia Min. Environment and Labour, Guidelines for Monitoring Public Drinking Water Supplies (15 December 2005), s 5.5.1, 5.6.1, online: Nova Scotia, www.gov.ns.ca/nse/water/docs/Guidelines_for_Monitoring_Public_Drinking_Water_Supplies.pdf.

381 Ontario, Ministry of Environment, *Annual Report 2009-2010: Chief Drinking Water Inspector (2010)*, online: Ministry of Environment, www.ene.gov.on.ca/environment/en/resources/STDPROD_083948.html.

382 Safe Drinking Water Act, SO 2002, c 32, s 18, 18.1, online: CanLii, www.canlii.org/en/on/laws/stat/so-2002-c-32/78505/.

383 O Reg 242/05, s 7, online: CanLii Compliance and Enforcement, www.canlii.org/en/on/laws/regu/o-reg-242-05/36796/.

384 PEI Reg EC 2004-710, s 14, 19, online: CanLii, Drinking Water and Wastewater Facility Operating Regulations, www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

385 PEI Reg EC 2004-710, s 14(1), online: CanLii, Drinking Water and Wastewater Facility Operating Regulations, www.canlii.org/en/pe/laws/regu/pei-reg-ec710-04/63644/.

386 Public Health Act, RSQ, c S-2.2, s 10, online: CanLii, www.canlii.org/en/qc/laws/stat/rsq-c-s-2.2/latest/rsq-c-s-2.2.html; RRQ 2008, c Q-2, r 5, s 35, 36, online: CanLii Regulation Respecting the Quality of Drinking Water, www.canlii.org/en/qc/laws/regu/rq-c-q-2-r18.1.1/latest/.

387 RRS, c E-10.21, Reg 1, s 44(1), online: CanLii Water Regulations, www.canlii.org/en/sk/laws/regu/rrs-c-e-10.21-reg-1/latest/rrs-c-e-10.21-reg-1.html; Environmental Management and Protection Act, SS 2002, c E-10.21, s 3(1), 31, 32, 62, online: CanLii, www.canlii.org/en/sk/laws/stat/ss-2002-c-e-10.21/11736/.

388 YOIC 2007/139 (Drinking Water Regulation), ss. 31; 45(1); 49; 58; 59; 83; 84, online: www.canlii.org/en/yk/laws/regu/yoic-2007-139/80282/.

389 Yukon Health and Social Services, Guidelines for PART 3 – Small Public Drinking Water Systems, ss. 103; 104; 107; 109; 127; 129(1), (April 13, 2007), online: www.hss.gov.yk.ca/pdf/drinking_water_pt3_guidelines.pdf.

390 *Public Health and Safety Act, RSY 2002, c 176, s. 16 – 17; online: Canlii* www.canlii.ca/en/yk/laws/stat/rsy-2002-c-176/latest/rsy-2002-c-176.html

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