

ELR

NEWS & ANALYSIS

Walkerton: Its Impact on Groundwater Protection Law in Canada

by Juli Abouchar

In May 2000, the unthinkable happened; individuals living in Canada became ill, some fatally, from drinking tap water contaminated with a toxic strain of *Escherichia coli* (*e-coli*).¹ Walkerton, a small rural town in Ontario, Canada, was thrust into the spotlight as Canadians tried to understand how this could have happened. A public inquiry was struck to investigate the causes of the tragedy and make recommendations to ensure that it would not happen again. As a result, governments across Canada are taking a close look at how drinking water supplies are protected and managed.

This Article reviews the following questions: (1) what happened in Walkerton in May 2000?; (2) what caused the contamination?; and (3) what are its implications for groundwater protection law? In doing so, it focuses on the *Walkerton Inquiry Report's* source protection recommendations for Ontario and on the groundwater protection reforms of two provinces, British Columbia and New Brunswick.

What Happened in Walkerton?

Walkerton is a small town of about 4,800 people in southern Ontario. In May 2000, Walkerton's drinking water system became contaminated with a deadly bacteria, *e-coli*. More than 2,300 people became ill with intestinal disease lasting on average 4 days. For some people, the infection had more serious consequences leading to acute kidney failure. Seven people died as a result of kidney failure. The system was also contaminated with *Campylobacter jejuni*. This caused diarrhea and contributed to two fatalities.

The community was devastated with feelings of anger, frustration, and insecurity. The tragedy triggered alarm over the safety of drinking water across the province. The Ontario government responded by calling a public inquiry with the following two-part mandate:

- (1) What caused the outbreak, including the effects, if any, of government policy practice and procedure?

Ms. Abouchar received her Bachelor of Science in Earth Science from the University of Waterloo in Waterloo, Canada; her Bachelor of Common Law and Bachelor of Civil Law from McGill University in Montreal, Canada; and her L.L.M. in Environmental Law from the University of London in London, England. Currently she is a Barrister and Solicitor at Birchall Northey in Toronto. She is also a lecturer in environmental law at Ryerson University. She served as Assistant Commission Counsel for the *Walkerton Inquiry*. Ms. Abouchar is grateful to Paul Cavalluzzo and Ronald Forester for reviewing portions of this Article related to the findings of the *Walkerton Inquiry*.

1. The previous major *e-coli* contamination event was in Cabool, Missouri, in December 1989 when 243 people became ill and 4 people died. The largest documented groundwater outbreak occurred in Georgetown, Texas, in 1980 when about 7,900 people became ill from source water contaminated with Coxsackievirus and Hepatitis A virus. U.S. Environmental Protection Agency, *Ground Water Rule: Public Health Concerns*, at <http://www.epa.gov/safewater/standard/phs.html> (last visited Dec. 16, 2002).

- (2) Beyond Walkerton, how can the government ensure the safety of the water supply in Ontario?²

Part One of the Walkerton inquiry was devoted to the events in Walkerton in May 2000, and related issues. It was a judicial process involving 114 witnesses, including residents of Walkerton. Part Two was a less formal process devoted to a broader strategy for safe drinking water in Ontario. It engaged a research advisory panel that commissioned papers from leading experts. The papers were peer-reviewed and brought to the public for comment at public meetings. Thirty-two parties that represented interested individuals and groups also prepared and presented papers. Town hall meetings were held in Walkerton and selected communities to hear further presentations from members of the public. Additionally, Part Two research was international in scope, as it considered the experience of jurisdictions at all levels, including: the World Health Organization; the European Union; Australia, England and Wales, New Zealand, and the United States; the state of Victoria, Australia; New Jersey, New York, and Washington states; the provinces of Alberta, British Columbia, New Brunswick, and Quebec; and New York City.

What Caused the Contamination?

This discussion summarizes the *Walkerton Inquiry Report's* findings and is divided into two sections: (1) the physical causes,³ and (2) the broader causes.⁴

The Physical Causes

The Walkerton water system is owned by the municipality and run by the Walkerton Public Utilities Commission

2. HON. DENNIS R. O'CONNOR, PART ONE REPORT OF THE WALKERTON INQUIRY, THE EVENTS OF MAY 2000 AND RELATED ISSUES app. A (2002) [hereinafter PART ONE REPORT]. Copies of both parts of the report of the *Walkerton Inquiry* are available on the Internet at Ontario Ministry of Attorney General, *Walkerton Commission of Inquiry Reports and Related Documents*, at <http://www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/> (last modified Jan. 15, 2003); by writing to Publications Ontario, 50 Grosvenor St. Toronto, M7A 1 N8; or by telephone at (416) 326-5300.

3. This section summarizes the discussion of physical causes of contamination reviewed in the PART ONE REPORT, *supra* note 2, at 103-79. Readers are encouraged to read the entire *Part One Report* for a full discussion.

4. The broader causes of the tragedy are reviewed in the remainder of the *Part One Report* under chapters related to each of the significant actors: the Walkerton Public Utilities Commission operators; the Walkerton Public Utilities Commission Commissioners; the municipality and mayor; the Public Health Authorities; the Ministry of the Environment; the provincial government budget reductions; and regulatory failures.

(PUC).⁵ The system, which is located next to a farm, was supplied by groundwater from three wells. Water pumped from each of the wells was treated with chlorine before entering the distribution system. The majority of the contamination entered the distribution system through one of these wells, “well 5.” Well 5 extends through roughly two to three meters of overburden.⁶ Its casing ends only five meters below the surface in a zone of highly fractured and weathered bedrock. The well draws water out of this zone. If contaminants breach the overburden, they would enter the fractured bedrock and reach the well in a very short time. Following the events of Walkerton, dye was placed in a spring in an adjacent field, and the well was pumped. The dye came into the well within an hour of pumping.

It rained heavily in Walkerton from May 8 through May 12, 2000. During this time, well 5 was the primary source of drinking water. The report concluded that rain washed manure that had been spread on the adjacent farm into well 5 directly or into the shallow aquifer and then into the well. The farmer was not faulted because he used best management practices in spreading the manure, and there were no additional statutory standards.

On May 13, the foreman of the system performed a daily check on the system but did not measure the chlorine residual as was recommended by the Ministry of Environment (MOE). For years, it had been the practice of the town not to measure chlorine residuals or to enter fictitious numbers. The manager of the PUC used less chlorine because of complaints about the taste of chlorine in the drinking water. The report concluded that the manager did not intentionally put people at risk; he did not understand how serious the risks were and was following years of practice. Evidence showed that the PUC staff believed that the water was safe; they drank from the raw water tap before the chlorine was added. Had the chlorine residual been measured on that day, however, they would have known that there was no residual and that the water was contaminated, and they could have taken steps to protect the system and the community.

On May 15, samples were taken from a highway watermain project, and on May 16, from Walkerton’s distribution system. On May 17, the laboratory told the water manager that the samples from the highway project tested positive for *e-coli* and total coliforms, and the samples from the distribution system “didn’t look good either.”⁷ Neither the laboratory nor the water manager forwarded these results to the MOE or the Health Unit. Had the MOE and the Health Unit been warned of these results, a boil water advisory could have been issued. Instead, the community continued to drink its tap water.

5. Water systems are run in different ways throughout the province. Some are operated directly by the municipality. Others are operated by an outside agency, like the Ontario Clean Water Agency (a Crown agency), or a private company. In some cases, like Walkerton, the water system is operated by a PUC, which is created under, and governed by, a provincial statute, the Public Utilities Act, R.S.O. 1990, ch. P.52. PUCs are creatures of the municipality. They are created by, and can be dissolved by, a municipality. They have all of the rights and privileges of a municipality, and they have the power to make decisions concerning operations of the water system. The municipality remains responsible for the capital borrowing required for the utility and retains ownership of the assets used by the PUC for its operations. See PART ONE REPORT, *supra* note 2, at 220-21.

6. Overburden is the material below the soil and above the bedrock, typically comprised of glacial till, marine sediments, sand, and gravel.

7. PART ONE REPORT, *supra* note 2, at 64.

The first instances of widespread illness appeared on May 18. On May 21, the hospital confirmed that children had bloody diarrhea and tested positive for *e-coli*. The Health Unit responded by issuing a boil water advisory, which was not lifted for 6 months. The MOE began an investigation on May 22 and received the adverse results from the water manager on May 23.

The Broader Causes

The *Walkerton Inquiry Report* found that two serious errors of the Walkerton PUC operators contributed to the outbreak: (1) failure to take chlorine residual measurements in the Walkerton system; and (2) failure to respond in a timely manner to the outbreak in May 2000.⁸

While the PUC manager and staff should have done their job, the report found failures that rested with the supervising government that allowed the PUC to operate in the manner it did. Three government bodies were found to primarily contribute to the tragedy:

- (1) the Walkerton PUC that oversaw the waterworks;
- (2) the MOE, the provincial government ministry that approved and inspected the waterworks; and
- (3) the Provincial Cabinet that made budgetary and regulatory decisions related to environmental protection.

The report reviewed the role of the town of Walkerton and the municipality of Brockton (Walkerton’s successor).⁹ It concluded that at the relevant times, the municipality did not have the legal power to control land use on the adjacent farm. Although well 5 was in Walkerton, the farm, only a few meters away, was in another municipality. Further, the Public Utilities Act gave the PUC, not the municipality, the power to expropriate land in any jurisdiction in order to protect drinking water. The ability of the town council to address problems brought to its attention in a 1998 MOE inspection report was therefore limited because the Public Utilities Act vests control and management in the PUC. The *Walkerton Inquiry Report* thus concluded that the municipality had to rely on the PUC commissioners to take adequate steps to respond to the MOE’s 1998 inspection report.

The Walkerton PUC was responsible for establishing and controlling the policies under which the PUC operated.¹⁰ Yet the commissioners were not knowledgeable about water safety or how the system operated. They relied on the PUC water manager to inform them of any concerns. They were not aware of the vulnerability of well 5 to surface contamination, nor were they aware of the improper chlorination and monitoring practices. The commissioners did not question the water manager when they learned, through the MOE inspection report, of serious concerns about water

8. *Id.* at 182. A separate three-year investigation by the Ontario Provincial Police resulted in the PUC manager and foreman each being charged with public endangerment, forgery, and breach of trust. The charges were laid in April 2003.

9. *Id.* at 234-41.

10. The PUC commissioners are often elected with no previous experience and little training. The Public Utilities Act does not provide any express direction about the roles and responsibilities of the commissioners. For this reason, the report takes a cautious approach to what is expected of them. See *id.* at 218-32 for a review of PUC commissioners’ failures.

safety and how the system was operated. They relied on the water manager to address the MOE's concerns and failed to follow up. The mayor of Walkerton also sat on the PUC commission as the representative of the town council. As a PUC commissioner, he too failed to ensure that the concerns raised in the inspection report were pursued. In sum, the *Walkerton Inquiry Report* concluded that while the operators intended no harm, there was a culture of complacency at the PUC.

Failures of the MOE were also found to have contributed to the tragedy.¹¹ First, the MOE approved well 5 despite knowing that it was shallow and susceptible to contamination. The tragedy would have been prevented if continuous chlorine residual monitors had been installed. An amendment to the Ontario Drinking Water Objectives required continuous monitors for groundwater water that was vulnerable to contamination from surface water.¹² Yet continuous monitors were not installed, and the MOE approvals and inspections programs did not require them to be installed in Walkerton. The tragedy also would have been prevented had the MOE's inspection program detected the vulnerability of well 5 to contamination and the improper treatment and monitoring practices of the PUC and used its authority to order improvements.

The provincial government contributed to the tragedy in two ways. First, its budget reductions led to the discontinuation of government laboratory testing services for municipalities. When it implemented this decision it did not make regulations that required private labs to notify the MOE and the Medical Officer of Health of adverse test results. The provincial government did not heed concerns raised over a number of years about the lack of a notification requirement.¹³ Second, the provincial government's budget reductions made it less likely that the MOE would have identified the need for chlorine residual monitors at well 5 and the improper operating practices of the Walkerton PUC. While the cabinet received warnings about the potential environmental risks associated with budget reductions, it did not assess the nature and scope of the risks or how they could be managed.¹⁴

Implications of Walkerton for Groundwater Protection

While the tragedy occurred in Ontario, governments across Canada stepped up their drinking water protection laws, fearing that the same could happen in their hometowns. A major change of thought has occurred as a result of Walkerton. People no longer assume that tap water is safe. A new vigilance has replaced the complacency over the protection and management of drinking water that had developed in the pre-Walkerton world. Despite the wake-up call, contamination of drinking water has since occurred in North Battleford, Saskatchewan, and towns across Canada where boil water advisories were issued after Walkerton.

At the time of writing, Ontario had yet to implement the *Walkerton Inquiry Report's* recommendations related to

source protection. This Article will review the report's recommendations and two different approaches to protecting groundwater, that of British Columbia and New Brunswick.

The Walkerton Inquiry Report's Recommendations

The report recommends a comprehensive strategy for providing safe drinking water from source to tap, including government oversight, drinking water quality standards, treatment technology, distribution systems, monitoring, defining the roles of laboratories and municipal governments, management, and certification. This Article reviews the primary recommendations related to source protection: a multiple barrier approach, and watershed source protection planning.

Multiple Barrier Approach

Numerous recommendations in the *Walkerton Inquiry Part Two Report* reflect the overarching need to be preventive rather than reactive, and the importance of a multiple barrier approach to drinking water. This means protection from source to tap, at each step along the way to the consumer, as follows:

- (1) protect the source of drinking water;
- (2) treat the water adequately;
- (3) secure the distribution system against intrusions;
- (4) monitor the system to detect contamination; and
- (5) respond to adverse conditions in a well-thought out, thorough way.¹⁵

The report warns against an overreliance on only one barrier; although each barrier offers protection, no single barrier is perfect. The report recommends that the multiple barrier approach be put into effect by assessing and managing the risks to drinking water safety that can be addressed by each barrier.¹⁶ The report further recommends that the precautionary principle has a role to play in risk management; precautionary measures should be applied when uncertainties about specific hazards are expected to persist and where the suspected effects may be serious or irreversible.¹⁷

Watershed Source Protection Planning

The first barrier of a multiple barrier approach is source protection. The *Walkerton Inquiry Part Two Report* recommends that source protection contain a strong planning component and be carried out at the watershed level.¹⁸ It recommends legally binding watershed source protection plans for all watersheds in Ontario.¹⁹

The report provides some detail about how watershed plans ought to be developed. It recommends that source protection plans be prepared through an inclusive process, managed by conservation authorities. In Ontario, conservation authorities have been established for 31 watersheds. Their role is to act as planning, coordination, and manage-

11. *Id.* at 268-363.

12. Ontario Ministry of Environment and Energy, Ontario Drinking Water Objectives, Revised 1994 (Queen's Printer for Ontario, 1994).

13. PART ONE REPORT, *supra* note 2, at 356-401.

14. *Id.* at 403-16.

15. HON. DENNIS R. O'CONNOR, PART TWO REPORT OF THE WALKERTON INQUIRY: A STRATEGY FOR SAFE DRINKING WATER 72-74 (2002) [hereinafter PART TWO REPORT].

16. *Id.*

17. *Id.* at 77.

18. *Id.* at 89.

19. *Id.* at 92.

ment agencies on behalf of municipalities within a watershed.²⁰ Their legislative mandate is broad enough to include the authority to develop watershed management plans and source protection plans.²¹ The board of directors of a conservation authority is comprised of representatives from municipalities in the watershed.

While the development of watershed source protection plans would be managed by the conservation authorities, the report recommends a lead role for the MOE. The MOE would consult with conservation authorities to develop a provincial framework for source protection planning.²² The provincial framework would include suggested components of source protection plans and guidance on developing plans. Draft watershed source protection plans would then be prepared provincewide, at the watershed level, unless the relevant conservation authority lacks the ability to undertake such a project. In that case, the MOE may either build capacity to enable the authority to develop the plan, or develop the plan itself. In either case, the plan would be developed with consultation from affected local groups. The plans would be approved at the provincial level by the MOE.²³

The *Walkerton Inquiry Part Two Report* recommends that, at a minimum, a watershed-based source protection plan should include the following components:

- a water budget for the watershed, or a plan for developing a water budget where sufficient data are not yet available;

- the identification of all significant water withdrawals, including municipal intakes;

- land use maps for the watershed;

- the identification of wellhead areas;

- maps of areas of groundwater vulnerability that include characteristics such as depth to bedrock, depth to water table, the extent of aquifers, and the recharge rates;

- the identification of all major point and nonpoint sources of contaminants in the watershed;

- 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; and

- the identification of significant knowledge gaps and/or research needs to help target monitoring efforts.²⁴

The watershed source protection plans would provide a new tool for local government in Ontario to protect drinking water sources. All provincial government decisions that affect the quality of drinking water sources would have to be consistent with—conform with—the source protection

plans.²⁵ Where the potential exists for direct threats to drinking water sources, municipal official plans and decisions must be consistent with the applicable source protection plan. Otherwise, the report recommends that municipal official plans and decisions “have regard to” the source protection plans. The plans would designate areas where consistency is required.²⁶ The province would provide limited rights of appeal to challenge provincial and municipal decisions that are inconsistent with the plans.²⁷

These recommendations, if implemented, will have considerable implications to local government in Ontario. Their present means to protect drinking water sources involve complex jurisdictional issues related to the role of the province.

For example, municipalities have authority to develop official plan policies and zoning bylaws under the Planning Act to prohibit use of land that is a sensitive groundwater recharge area, a headwater area, or on land that contains a sensitive aquifer.²⁸ Water-taking, however, is a provincial responsibility regulated through a permit system.²⁹ Yet evidence at the Walkerton inquiry was that the province has little idea of the extent of current draws on aquifers and watersheds.³⁰

The jurisdictional power over water between municipalities and the province was recently considered in *In re Gold Mountain Springs*.³¹ The tribunal found authority to coexist, but that municipal authority under the Planning Act could trump provincial authorization. In that case, official plan water protection provisions were applied to deny planning amendments that would have allowed expansion of a water bottling plant despite a provincial water-taking permit that would have allowed the expansion. Most recently, in *Grey Ass'n for Better Planning v. Artemesia*,³² the court found that municipalities could regulate water-taking itself as a “land use” under the Planning Act even though the provincial government may already have issued a permit for the activity under the Ontario Water Resources Act.

Municipalities also have the authority under the Municipal Act of 2001 (in force January 2003) to enact bylaws respecting health, safety, and well-being of the community’s “general welfare.”³³ The Act appears to retract some of the authority municipalities have over general welfare under the previous Municipal Act and as interpreted by the Supreme Court of Canada in *Spraytech v. Hudson*.³⁴ The Supreme Court permitted a municipality to pass a bylaw to prohibit nonessential pesticide use, a matter that was also regulated by legislation at two senior levels of government because the regulated entity could comply with the bylaw and, at the same time, comply with the other two levels’ legislation. While it has not yet been judicially considered,

25. *Id.* at 112.

26. *Id.* at 113.

27. *Id.* at 115.

28. R.S.O., ch. P.13, §§16, 34 (1990).

29. The province issues permits to take water under §34 of the Ontario Water Resources Act, R.S.O., ch. O.40 (1990).

30. PART ONE REPORT, *supra* note 2, at 434.

31. [2002] 44 Can. Env't. L. Rep. 287-301 (Ontario Municipal Board).

32. [2002] 62 O.R. (3d) 200 (Ont. Div. Court) (under appeal to the Ontario Court of Appeal).

33. S.O. 2001, ch. 25 (2001) (in force January 2003).

34. [2001] 19 Mun. & Plan. L. Rep. (3d) 1 (Can.).

20. *Id.* at 98.

21. Conservation Authorities Act, R.S.O., ch. C.27, §§20(1), 21 (1990).

22. PART TWO REPORT, *supra* note 15, at 103.

23. *Id.* at 110.

24. *Id.* at 105.

the new Municipal Act provides that general welfare by-laws can be passed only if a matter is not addressed by another Act.

The watershed protection plans could bring clarity to the responsibility over water. The report's recommendations, if adopted, would provide a coherent, clear, and transparent regime. Roles are clear and transparent; the MOE is designated as lead, with local governments managing the process and interested parties participating. The relationship between source protection, planning, and approvals is also clear; approvals (including water-taking permits) and sensitive planning decisions must respect watershed source protection plans. Finally, the source protection plans are coherent as they would cover all watersheds in Ontario and include an enumerated list of minimum elements.

Provincial Water Source Protection Reform After Walkerton

British Columbia

The province of British Columbia (BC) has a population of four million people. The province is served by 3,500 water systems serving 2 or more customers. Twenty-five percent of the systems are supplied by groundwater. The rest are served by surface water. The BC Auditor General's (AG's) 1999 report, *Protecting Drinking Water Sources*,³⁵ raised concerns about the high per capita incidence of waterborne disease in BC. The BC AG observed that it was higher than any province in Canada. Thus, reform was underway in BC when the contamination outbreak occurred in Walkerton, Ontario.

The BC government's *Drinking Water Protection Plan* began with reference to the tragedy in Walkerton and expressed the need to improve BC's legal protection of drinking water.³⁶ A Drinking Water Review Panel (BC Review Panel) was struck to hold hearings into a proposed Drinking Water Protection Act. The BC Review Panel heard from some 1,600 people in 10 communities,³⁷ and submitted an *Interim Report*³⁸ and a *Final Report*.³⁹ BC passed the Drinking Water Protection Act⁴⁰ (DWPA) prior to the BC Review Panel's *Final Report*. This Act was passed while the Walkerton inquiry was ongoing in Ontario and introduced a framework for protecting and managing drinking water. While passage of this Act moved BC to the forefront of drinking water reform in Canada, much of its effectiveness will depend on the content of regulations, yet to be drafted. The Act, which was not yet in force, was amended follow-

ing the BC Review Panel's Final Report and the Walkerton Report.⁴¹

Much of the water reform in BC parallels recommendations from the Walkerton Report. This Article reviews the reforms relevant to source protection. The BC AG recommended a multi-barrier approach,⁴² which was endorsed by the BC Review Panel.⁴³ While not explicitly adopted in legislation, the BC government committed to a multi-barrier approach.⁴⁴ The DWPA combines a prohibition and a planning process to protect water sources. The DWPA prohibits the introduction of anything into a drinking water source, well recharge zone, or an area adjacent to a drinking water source that will result, or is likely to result in a drinking water health hazard.⁴⁵ However, any activity that is authorized by the enactment is exempt from the prohibition. The DWPA also seeks to protect drinking water sources through water source assessments⁴⁶ and drinking water protection plans.⁴⁷ However, these reforms each raise jurisdictional complexities similar to the present situation in Ontario.

□ *BC Water Source Assessments.* Water source assessments are to be prepared by the water supplier if required by regulation or ordered to do so by the drinking water officer. Where a local government is the owner of the water supply system, it is responsible for the assessment.⁴⁸ The assessment will identify, inventory, and assess the drinking water source for the water supply system, including land use and other activities and conditions that affect that source. The process for, and content of, water source assessments has yet to be determined through regulations. There is presently no legal requirement that all drinking water sources in BC be assessed. The BC Review Panel recommends that assessments be conducted first on water supply areas that are at a high risk of contamination or are already in critical condition.⁴⁹

Once the assessment is complete, the drinking water officer may order that the water supplier prepare an assessment response plan.⁵⁰ The response plan may include provisions related to "co-operative planning" and "input respecting local authority zoning and other land use regulations."⁵¹ This language does not make the assessments binding on provincial approvals and planning as recommended by the Walkerton Report. Nor does the Act clarify the relationship between provincial approvals or planning instruments and assessment response plans.

35. OFFICE OF THE AUDITOR GENERAL OF BC, 1998/1999: REPORT 5 PROTECTING DRINKING WATER SOURCES 2 (1999), at <http://www.oag.bc.ca/pubs/1998-99/report-5/sec-1.htm> (last visited Dec. 17, 2002).

36. BC MINISTRY OF ENVIRONMENT, LANDS, AND PARKS, DRINKING WATER PROTECTION PLAN, A DISCUSSION DOCUMENT (2001) (message from the Minister) [hereinafter DRINKING WATER PROTECTION PLAN].

37. PRAXIS PACIFIC, DRINKING WATER PROTECTION PLAN CONSULTATIONS "WHAT WE HEARD" SUMMARY OF INPUT RECEIVED 2 (2001) (prepared for the BC Ministry of Environment, Lands, and Parks).

38. BC DRINKING WATER REVIEW PANEL, INTERIM REPORT (2001).

39. BC DRINKING WATER REVIEW PANEL, FINAL REPORT: PANEL REVIEW OF BRITISH COLUMBIA'S DRINKING WATER PROTECTION ACT (2002) [hereinafter BC FINAL REPORT].

40. Drinking Water Protection Act, S.B.C. 2001, ch. 9 (assented to Apr. 11, 2001).

41. Amended by Bill 61-2002, Drinking Water Protection Amendment Act, 2002.

42. OFFICE OF THE AUDITOR GENERAL OF BC, *supra* note 35.

43. BC FINAL REPORT, *supra* note 39, at 13.

44. DRINKING WATER PROTECTION PLAN, *supra* note 36, at 3.

45. *Supra* note 40, §23.

46. Drinking Water Protection Act, §§18-22.

47. *Id.* §§31-39.

48. The BC Drinking Water Review Panel, citing concerns about funding and capacity, has recommended that coordinating and completing the assessments should be a provincial responsibility. BC FINAL REPORT, *supra* note 39, at 15.

49. *Id.*

50. The response plan may be required if the assessment has identified threats to the drinking water and the water supply system is of a class prescribed by regulations. Drinking Water Protection Act, §22.

51. *Id.* §22(4).

At present, BC municipalities' authority to protect water sources through regional growth strategies⁵² or official community plans⁵³ appear to run into jurisdictional issues similar to the Ontario situation because water is vested in the province, which licences water use.⁵⁴

A further complication is that the DWPA provides that the authority under the Act is "in addition to and does not restrict authority provided by, or under, any other enactment that may be used to protect drinking water."⁵⁵ Thus, the DWPA may impose requirements that go beyond planning and approval conditions but without restricting the authority of those other decisionmakers. This kind of language serves only to muddy legislative responsibilities.

□ *BC Drinking Water Protection Plans.* The BC drinking water protection plans may provide municipalities more authority than source assessments. However, the plans are prepared by order of the Minister on recommendation of the Provincial Health Officer.⁵⁶ The order would identify who is responsible for preparing the plan, terms of reference, and issues to be addressed. The plan may thus be prepared by the local government or by another person or body, such as the drinking water officer. The plan may address whether changes are required to a water supply system, including measures respecting its water source. Once the plan is developed, the provincial Cabinet may authorize local government to implement the plan by establishing terms and conditions that must be included in certain approvals or restrict the exercise of power under specific Acts. This could give local governments greater authority to protect drinking water sources. However, a municipality could request an order and the Minister deny it.

After completing, the plan is implemented through regulations. Implementation may affect land use as follows:

regulations may require that other specified provincial government or local authority strategic or operational planning processes consider the drinking water protection plan⁵⁷;

regulations may require that the results of specific provincial government or local authority strategic or planning processes be consistent with the drinking water protection plan⁵⁸;

regulations may provide that specified provincial government or local authority strategic or operational plans, bylaws, or other planning documents do not have legal effect to the extent of any incon-

sistency with the drinking water protection plan⁵⁹;

regulations may place restrictions on activities (land use) where prescribed standards in relation to a water source are not met⁶⁰;

local governments may request that a drinking water protection plan be implemented in a way that restricts the issuance of approvals⁶¹; and

regulations may authorize local government to establish terms and conditions that must be included in any authorizations or may restrict the exercise of specific statutory powers.⁶²

Does the DWPA provide a clear, coherent, and transparent regime to protect water sources? The BC Review Panel has made recommendations that would clarify roles and the relationship between the DWPA, approvals, and land use planning.

Currently, the legal authority of the protection plan will depend on how regulations implement the plan. In its final report, the BC Review Panel recommended that the government clarify that other land use planning processes⁶³ must comply with the Drinking Water Protection Plans.⁶⁴ It has recommended there be a clear statement that in critical or high risk watersheds, the provisions of the Act prevail over other Acts and that decisionmakers under certain specified Acts must comply with the DWPA when making authorizations or issuing approvals.⁶⁵

The BC Review Panel has also recommended that the Act include the ability to create standards that prohibit specific activities with negative effects on drinking water sources, and that local government's authority over drinking watersheds and groundwater supply areas be improved.⁶⁶

Currently, neither the plans nor the assessments are required to protect all public water supplies, and the components of each will be determined on a case-by-case basis. The BC Review Panel recommends that the Drinking Water Officer be clearly given the authority to coordinate and develop the plans.

These recommendations, which have yet to be implemented, would make the present DWPA clearer and more coherent.

New Brunswick

The province of New Brunswick has a population of 753,000 people. It has 55 cities, towns, and villages on municipal water supplies. New Brunswick began reforming groundwater protection in the mid-1990s when a northern New Brunswick town was forced to decommission a pro-

52. Local Government Act, R.S.B.C., ch. 483, §849 (1996), provides that a regional growth strategy can protect the quality and quantity of groundwater and surface water

53. *Id.* Section 875 provides that official community plans should work toward the purpose and goals of the regional growth strategy. Official community plans are required to provide restrictions on the use of land that is environmentally sensitive, *id.* §877(1)(d), and may include local government policies relating to protection of the natural environment, *id.* §878(1)(d). All bylaws or works undertaken by a local council must be consistent with the official community plan. *Id.* §884(2).

54. Water Act, R.S.B.C., ch. 483, §2 (1996).

55. Drinking Water Protection Act, §2.

56. While not yet set out in legislation, the Minister of Health will likely be the Minister responsible for the Act. Action Plan for Safe Drinking Water in British Columbia, B.C. 2002.

57. Drinking Water Protection Amendment Act, 2002, §35.1.

58. *Id.*

59. *Id.*

60. Drinking Water Protection Act, S.B.C., ch. 9, §37 (assented to Apr. 11, 2001).

61. *Id.* §38.

62. *Id.*

63. Land and Resource Management Plans, Water Use Plans, Five-year Forest Plans, and Official Community plans are referenced.

64. BC FINAL REPORT, *supra* note 39, at recommendation 15.

65. The Review Panel mentions the Forest Practices Code, R.S.B.C., ch. 159 (1996); Range Act, R.S.B.C., ch. 396 (1996); Farm Practices Protection Act, R.S.B.C., ch. 131 (1996); and the Waste Management Act, R.S.B.C., ch. 482 (1996). Additional Acts with potential jurisdictional conflicts are the Water Act, R.S.B.C., ch. 484 (1996), and the Local Government Act, R.S.B.C., ch. 323 (1996).

66. BC FINAL REPORT, *supra* note 39, at 13-14.

duction well that had become contaminated with dry cleaning fluids.

Following the tragedy in Walkerton, New Brunswick quickly introduced two regulations that seek to protect water sources: Regulation 2001-488⁶⁷ to protect watersheds that are used as sources for public water supply systems (Watershed Regulation); and Regulation 2000-47⁶⁸ to protect groundwater recharge areas that are used as sources for public water supply systems (Wellfield Regulation). The Watershed Regulations protects surface water, indirectly protecting groundwater, while the Wellfield Regulation protects groundwater.

□ *New Brunswick's Watershed Regulation.* The Watershed Regulation designates municipal watersheds as protected areas that encompass three zones. Zone A consists of all lakes, rivers, and streams in the watershed. Zone B is a setback zone or buffer zone that comprises the entire area located within 75 meters of the banks of the watercourses. Zone C defines the land area situation outside the setback zone but inside the watershed boundary. The Watershed Regulation defines the permitted activities that may take place within each zone of a municipal watershed. Any activity, thing, or use that is not permitted under the regulation in each of the zones is prohibited.⁶⁹ Thirty watersheds are currently protected under the regulation.

□ *New Brunswick's Wellfield Regulation.* The Wellfield Regulation designates protected areas that encompass the entire recharge area associated with wells that supply a public water system. Four municipal water supplies are currently protected by the regulation. It is anticipated that the regulation will apply to 55 municipalities by 2008.⁷⁰

Each protected area encompasses three zones. Zone A lies closest to the wellhead and is delineated on the basis of a groundwater travel time of 100 days or 250 days depending on the type of aquifer.⁷¹ Zone B lies more distant from the wellhead and is delineated on the basis of a groundwater travel time of 100 to 250 days to 5 years. Zone C is the most distant and is delineated using a groundwater travel time of 5 to 25 years.

As with the Watershed Regulation, the Wellfield Regulation lists permitted activities, things, and uses, and prohibits any use that is not permitted in the zone.⁷² In addition, every listed activity, thing, or use is subject to the following conditions:

(1) it shall not cause the release of any contaminant into the ground or aquifer;

(2) it shall not adversely affect the quantity or quality of the water in, or otherwise create an interference or a nuisance to the operation of, a public groundwater supply system; and

(3) it is in conformity with all applicable federal, provincial and municipal statutes, regulations, orders and by-laws.⁷³

Where a conflict exists between the provisions of the Wellfield Regulation and provisions of other orders and regulations under the Clean Water Act (CWA), the more stringent or restrictive standard prevails.⁷⁴ The Wellfield Regulation also prevails over other provincial Acts or regulatory requirements where there is a conflict.⁷⁵ However, a person may apply for an exemption from any requirement for the protected area that may be affected by his or her activity.⁷⁶ While the order designating the protected area must be registered in the registry office, kept on file at the Department of Environment head and regional offices, and published in a local newspaper, no such requirements apply to exemptions.⁷⁷

Applying the test set out above, is the framework clear, coherent, and transparent? While the Wellfield Regulation does not yet cover a significant number of municipal wellfields, its framework is clear. The regulation delineates the areas to be protected and lists the permitted activities. While compliance with each level of government's regulations is mandatory, jurisdictional conflicts are to be treated in favor of the wellfield protection area designation or stronger regulations or orders under the CWA. This framework can provide significant protection to groundwater, and the Wellfield Regulation has won acclaim from the National Ground Water Association.⁷⁸

However, the framework currently protects only a small percentage of municipal wellfields. Even if all wellfields were designated, the system of exemptions from the legal protection requirements may erode the coherency of the protected area designations. The exemption system also lacks transparency; criteria for exemptions have not been legislated and exemptions are not required to be made public.

Conclusion

The Walkerton tragedy has triggered governments across Canada to take a good look at how drinking water is protected. The Walkerton Report recommends a clear, coherent, and transparent regime for watershed protection planning, where future approval and sensitive planning decisions would conform with watershed protection plans in all watersheds. This is a new approach for Ontario. The approach has been to mitigate impacts on groundwater through conditions on approvals for landfill sites and sewage plants.

Ontario has not yet implemented these recommendations. However, Ontario municipalities are turning to the current Planning Act authority to require that new development

67. New Brunswick Regulation 2001-83 Under the Clean Water Act OC 2001-488 (in force Nov. 1, 2001) [hereinafter Watershed Regulation].

68. New Brunswick Regulation 2000-47 Under the Clean Water Act OC 2000-451 (in force Oct. 1, 2000) [hereinafter Wellfield Regulation].

69. Watershed Regulation, *supra* note 67, §2(1).

70. News Release, Department of Environment and Local Government, Department Wins International Award (Oct. 29, 2001), available at <http://www.gnb.ca/cnb/news/elg/2001e1066el.htm> and <http://www.gnb.ca/0009/0371/0001/0001-e.pdf> (last visited Mar. 31, 2003).

71. NEW BRUNSWICK DEPARTMENT OF ENVIRONMENT AND LOCAL GOVERNMENT, UNDERSTANDING THE LAW: A GUIDE TO NEW BRUNSWICK'S WELLFIELD PROTECTED AREA DESIGNATION ORDER 9 (undated).

72. Wellfield Regulation §2.

73. *Id.* §4.

74. *Id.* §4(2).

75. Clean Water Act, S.N.B. ch. C-6.1, §3(1).

76. *Id.* §14.1.

77. *Id.* §§14(5), 14.1(6).

78. News Release, *supra* note 70.

show that it will not cause harm to water quantity and quality, and to sensitive groundwater features.

In Canada, BC and New Brunswick have led the reform of groundwater protection, with two separate approaches tailored to their needs. BC has set out a framework for developing source protection plans. Their development, content, and relationship to approvals and planning decisions will be determined by future regulations. Meanwhile, New Brunswick, with a smaller population and fewer municipal wellfields, expects to identify all wellfields and watersheds serving municipalities and mandate permitted and prohib-

ited uses. It will respond to those cases where prohibiting existing uses cause undue hardship through applications for exemption.

Canadians, with easy access to good quality water, have long assumed groundwater to be clean and safe.⁷⁹ The Walkerton tragedy has shown that this can be a dangerous assumption and that in some cases, human activities threaten the safety of groundwater sources. Provinces across the country have reacted by reforming the legal framework for the protection and management of water. Canadians are beginning to see comprehensive legal protection for groundwater resources.

79. *The World Water Development Report: Water for People, Water for Life* (UNESCO Publishing 2003), reports that Canada is the ninth water-rich country worldwide with the second best quality of water.