

Municipal World

CANADA'S MUNICIPAL MAGAZINE SINCE 1891

MARCH 2010

10 YEARS AFTER WALKERTON

What have we learned?

ALSO INSIDE:

Green infrastructure design for municipal roads

Engaging citizens in flood reduction planning

Inclusionary zoning for affordable housing

Recent research on recycling behaviour

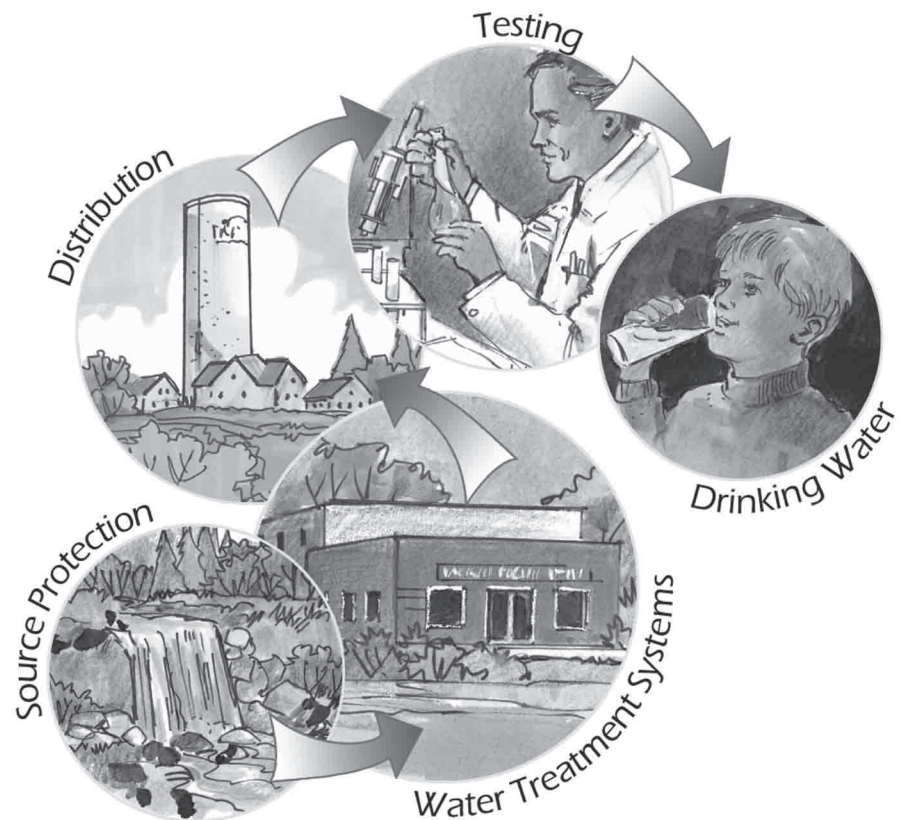
10 YEARS AFTER WALKERTON

Protecting Municipal Drinking Water Sources

May 2010 will mark the 10th anniversary of the Walkerton drinking water tragedy. After a few days of very heavy rainfall in mid-May 2000, the water supply for the Town of Walkerton, Ontario became contaminated with the highly dangerous O157:H7 strain of *E. coli* bacteria, from farm runoff into an adjacent well that was known for years to be vulnerable to contamination. Many residents began to simultaneously experience bloody diarrhea, gastrointestinal infections, and other symptoms of *E. coli* infection. Seven people died from drinking contaminated water and over 2,000 became ill. The effects are still felt today by a number of Walkerton residents.

In the wake of the Walkerton tragedy, the provincial government established a public inquiry known as the Walkerton Commission. It was led by Court of Appeal for Ontario Associate Chief Justice Dennis O'Connor and the Commission released its report in two parts in 2002. The report estimated that the Walkerton water tragedy cost a minimum of \$64.5-155 million, and laid much of the blame at the door of the Walkerton Public Utilities Commission.

In the intervening years, Ontario's system of managing and protecting



municipal drinking water has undergone a complete overhaul. The foundation of the new system was laid by the Part 2 Report of the Walkerton Inquiry, which recommended a multi-barrier approach to protecting drinking water. A multi-barrier approach recognizes that there is always some risk of failure for any technology,

system, or person and seeks to reduce that risk by building several layers of defense instead of relying on just one, such as treatment. The multi-barrier approach used in Ontario and many jurisdictions includes taking actions to prevent contamination of sources of our water, using adequate water treatment and distribution systems, water testing, and training of water managers. In the last 10 years, Ontario

Charley Worte, MSc. is Source Water Protection Manager for Conservation Ontario. He can be reached at 905-895-0716, ext. 226 or <cworte@conservationontario.ca>.

has acted to strengthen all of these barriers.

Background

The focus of this article is the first barrier, the protection of drinking water sources. In Ontario, this is the last barrier to be put in place, in large part because of its complexity and scope.

Our drinking water comes from lakes, rivers, streams or underground sources (aquifers) located across the province. All of these sources of water are linked in a watershed through the water cycle. The best way to protect sources of water is on a watershed basis, because water flows across traditional municipal boundaries. However, moving beyond the wells and surface water intakes to protect drinking water in the broader environment has implications on how we use and manage water and land.

Ontario's approach to source protection was established under the *Clean Water Act*, which was enacted in 2006. This legislation requires communities to develop source protection plans on a watershed basis in order to protect their municipal sources of drinking water. These plans identify potential threats to drinking water sources and develop strategies to reduce or eliminate these threats.

Because source protection plans can have implications to many different stakeholders, the *Clean Water Act* established Source Protection Committees with representation from municipalities, agriculture, industry, business, community groups, First Nations, and the public to oversee the development of watershed-based source protection plans. Conservation Authorities, which are watershed-based resource management agencies in Ontario, were designated as Source Protection Authorities and tasked with providing technical and administrative support to the committees.

Progress

We have made significant progress in developing "environmental snapshots" of our watersheds, and today we are working towards identifying specific threats to our drinking water

sources and what can be done to reduce or eliminate those threats.

A total of 19 Source Protection Committees were established in 2007 and, since that time, they have completed terms of reference that will guide the overall process, and are currently working on assessment reports. These are comprehensive watershed-based technical studies that determine vulnerable areas, such as wellhead protection areas, as well as identifying existing and potential drinking water threats in those areas, and classifying threats as significant, moderate, and low.

Assessment reports also develop water budgets for the watersheds and assess threats to the quantity of water available. Draft assessment reports are released for municipal and public review and comment, which is underway in some watersheds now. Based on comments received, assessment reports are finalized and submitted to the Minister of the Environment for approval. All assessment reports will be submitted in 2010.

Approved assessment reports then form the basis for developing source protection plans that will mitigate the identified threats. This will be the most challenging part of the process. Source protection plans must develop policies that reduce or eliminate all identified significant threats in the watershed. This could include prohibitions or restriction on certain activities or land uses; development of risk management plans for individual properties; regulation of activities through a variety of provincial instruments; as well as voluntary stewardship measures.

All source protection plans must be submitted to the Ministry of the Environment by August 2012 and are subject to provincial approval.

Other Provinces

Walkerton not only had an impact on Ontario, but caused other provinces to review their own drinking water programs. Most other provinces have adopted or are in the process of adopting their own programs for protecting drinking water sources. Variations in

approach depend to some extent on the type of water supplies – whether they are ground water or surface water; the nature and intensity of water and land use in source water areas; and variations in geography and climate.

For example, New Brunswick has implemented an approach that has designated 30 watersheds that are surface supplies for municipal drinking water. Watershed designation establishes protected areas, including a 75-metre setback zone, the rest of the watershed drainage area, and the watercourse itself. In each of these areas, certain land and water use activities are prohibited or controlled.

In Saskatchewan, source protection plans have been developed for six watersheds and one priority aquifer area within the province. Like Ontario, Saskatchewan's approach is a watershed-based collaborative process. However, it is founded on a generic watershed planning model that can be applied to a broad range of planning scenarios. The primary focus of the watershed and aquifer management planning process is to protect source water to ensure future safe drinking water. However, activities designed to address these issues are expected to have a positive impact on other water-related and ecological issues within the planning area.

The Nova Scotia approach is based on developing source protection plans for individual municipal water supplies. On October 17, 2002, the Province of Nova Scotia released a comprehensive drinking water strategy that adopted a multi-barrier approach and a stakeholder-driven source protection planning process. Source water protection plans are developed by the municipality and utility and are mandatory for all municipal water supplies. To date, approximately 70 percent of the plans have been submitted, with most of the smaller suppliers continuing to work on their plans.

The Big Lessons

Looking back from 2010, there are obviously many lessons to be learned from Walkerton. Based on how On-

tario and other jurisdictions have responded, we have acted on many of them.

There are a couple of fundamental lessons that have implications beyond drinking water, and with which we perhaps have still not yet come to terms.

The first is that humans are part of the environment. Our society is not, and cannot be isolated from the environment in which we live. Too often, environmental protection is characterized as protection of nature, with environmental management decisions made as if they had no direct impact on us one way or the other. What should be clear from Walkerton is that environmental management is also about human health and safety; that we are dependent daily on the environment around us; and that we need to pay attention to it.

The second lesson has to do with the way we have responded. One of the most frequently asked questions is, why is source protection taking so long? After all, it will be 10 years from the release of the Walkerton Inquiry Report to the completion of source protection plans. Basically, it takes this long because it is a comprehensive, science-based, multi-stakeholder approach with mandatory requirements for implementation. Getting the science right and ensuring good stakeholder and public consultation are important, but they take time. If successful, the results will be worthwhile; however, once done, it is still only about protecting municipal drinking water sources – a pretty specific aspect of water management.

So, the second fundamental lesson is that taking a fragmented, issue-based approach to managing our environment is time consuming and expensive. The focus on source protection does little to build capacity to deal with other environmental hazards. Are we ready for a major flood? An extended drought? Or, will we take the same time-consuming approach to addressing the next environmental disaster?

Integrated Watershed Management

Ideally, source protection activities should be nested into a broader planning, policy, and program approach called Integrated Watershed Management (IWM).

IWM is the process of managing human activities and natural resources on a watershed basis, taking into account social, economic, and environmental issues, as well as community interests, in order to manage water resources sustainably.

What we do on the land impacts the quality and sustainability of our natural resources – particularly water – so we can't ignore these influences when we are making decisions about the environment.

The concept is really that there is a suite of interconnected issues that are addressed within a process that gives voice to the community and results in sustainable outcomes. This approach allows us to protect important water resources, while at the same time addressing critical issues such as the current and future impacts of rapid growth and climate change.

Integrated watershed management requires the involvement of environmental practitioners, water users, industry, government, and a wide range of other stakeholders, because their actions impact our natural resources and they need to be at the decision-making tables.

IWM is increasingly being adopted in Canada and most provincial water strategies are including it as a fundamental principle. This is especially critical today as we struggle to adapt to the increasing impacts of a changing climate. Integrated watershed management will help us to assess all the interconnected stressors being experienced in a watershed in order to develop local adaptation solutions.

The Path Forward

While the Ontario *Clean Water Act* takes a comprehensive watershed approach, it is designed to deal with one specific issue – municipal drinking water. However, it can be used as an important starting point for the eventual development of a more integrated approach to water management in the province. In fact, Justice O'Connor recognized the need for a broader approach and stated in Part 2 of the Report of the Walkerton Inquiry, "I want to emphasize that a comprehensive approach is needed and should be adopted by the province. Source protection plans should be a subset of broader watershed plans."

Effective IWM ultimately leads to better decision making, smarter priority setting, opportunities to pool existing resources, and increased efficiency between a variety of stakeholders such as municipalities, residents, provincial agencies, and businesses. [MW](#)

as published in

Municipal World

CANADA'S MUNICIPAL MAGAZINE – SINCE 1891

1-888-368-6125

www.municipalworld.com