



Explanatory Document  
for the Draft Source Protection Plan

Cataraqui Source Protection Committee

February 2012



*Made possible through the support of the Government of Ontario*

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## 1.0 Introduction

This explanatory document was prepared by the Cataraqui Source Protection Committee as a companion piece to the draft Source Protection Plan, in accordance with the requirements of Ontario Regulation 287/07 (General).

This project received funding support from the Government of Ontario. Such support does not indicate endorsement by the Government of Ontario of the contents of this document.

The Committee's intent was for the planning process to be open and consultative. There were extensive opportunities for municipalities, community organizations, businesses, residents and provincial ministries to provide input to the development of the policies throughout the process, including:

1. community roundtables
2. pre-consultation on draft policies with the public and designated implementation bodies
3. municipal staff level meetings and presentations to municipal councils
4. consultation on the draft Source Protection Plan (currently underway)
5. consultation on the proposed Source Protection Plan (at a future date).

The purpose of this document is to provide these stakeholders with information that influenced the policy decisions.

In accordance with Section 40 of Ontario Regulation 287/07 (as amended), the explanatory document includes the following information:

- a summary of pre-consultation comments received and an explanation of how they were considered
- consideration of financial implications
- consideration of climate change
- an explanation of the Source Protection Committee's reasons for each policy or group of policies set out in the Source Protection Plan
- an explanation of reasons for prohibiting certain activities using Section 57 of the *Clean Water Act*
- an explanation of why non-regulatory measures are considered sufficient to address statement indicating that the Source Protection Committee is of the opinion that non-

regulatory measures are sufficient to address significant threats, when used as a stand-alone policy tool.

At this time, all of the comments referenced in the Explanatory Document relate to the draft policies that were published for pre-consultation.

## 2.0 Development of the Source Protection Plan

The Cataraqui Source Protection Committee developed a draft Source Protection Plan for the Cataraqui Source Protection Area based on the requirements of the Ontario *Clean Water Act, 2006* and in accordance with Ontario Regulation 287/07 (General).

### 2.1 Cataraqui Source Protection Committee Mission Statement

The Source Protection Committee took into consideration its mission statement when it developed and evaluated policies:

The overall objective of the Source Protection Committee, in partnership with local communities and the Ontario government, is to protect the quality and quantity of present and future sources of drinking water in the Cataraqui Source Protection Area. We will work with others to gather technical knowledge on which well-informed, consensus-based decisions can be made in an open and consultative manner. **We will aim to propose policies in the Cataraqui Source Protection Plan that are appropriate, effective, and economical for local communities.** We will make use of the available science to assess drinking water threats and issues and where there is uncertainty we will be mindful of the precautionary approach.

### 2.2 Policy Evaluation

The Source Protection Committee discovered early in the planning process that only a small number of the prescribed threats to drinking water are prevalent throughout the CSPA, and that there are limited occurrences of significant threats. Although there are several types of policy tools available through the *Clean Water Act*, their applicability varies by threat. These findings are based on the results of the Assessment Report, a detailed analysis of the land uses in each of the wellhead protection areas and intake protection zones, and a series of staff-generated background reports on the prescribed and local drinking water threats.

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The Committee aimed to build on existing actions by government, organizations and individuals, and to use more than one type of policy tool to address a drinking water threat, wherever possible and suitable.

The Source Protection Committee took into consideration a number of factors that were used to determine whether or not a policy was appropriate, effective and affordable for local communities (**Table 2-1**).

**Table 2-1: Considerations for Policy Evaluation**

Criteria	Factors for Consideration
Effectiveness	<ul style="list-style-type: none"> <li>• Will the policy adequately manage site-specific activities that are or would be threats to drinking water so that the risk of water quality being adversely affected is eliminated or reduced?</li> <li>• The sooner the policy is implemented and the threat is addressed, the least amount of time the threat poses an inherent risk to people and the environment.</li> </ul>
Appropriateness	<ul style="list-style-type: none"> <li>• Is the scale of the policy suitable for the severity of inherent risk? (e.g., in groundwater, bacteria will eventually die and is treatable whereas dry cleaning solvents (DNAPL) do not degrade and are difficult to clean up)</li> <li>• What is the administrative capacity of the delivery agent to implement the policy, including compliance monitoring? (e.g., mandate, expertise)</li> <li>• Does the policy have community buy in, or is there opposition from landowners?</li> <li>• Does the approach treat parties with similar circumstances (in the vulnerable area and elsewhere) equitably?</li> </ul>
Affordability	<ul style="list-style-type: none"> <li>• What is the financial capacity of the delivery agent to implement the policy, including compliance monitoring?</li> <li>• Direct and indirect financial costs and benefits for those responsible for implementation (program delivery and on-the-ground actions) now and in the future.</li> <li>• The cost of watershed monitoring required to demonstrate the effectiveness of the policy.</li> </ul>

Criteria	Factors for Consideration
Other Considerations	<ul style="list-style-type: none"> <li>• Text that can easily be transferred to official plans and other documents for consistency between municipalities.</li> <li>• The method of policy introduction to the community.</li> <li>• What is the breadth of the policy approach – will it address a threat that affects the entire Cataraqui Source Protection Area?</li> <li>• Does the policy avoid regulatory duplication?</li> <li>• Is this precedent setting? Does it have broader implications beyond the Cataraqui Source Protection Area?</li> </ul>

### 3.0 Policy Organization

The policies in the draft Source Protection Plan are arranged by those applicable to:

1. All vulnerable areas in the Cataraqui Source Protection Area (Chapter 4)
2. Highly vulnerable aquifers and significant groundwater recharge areas (Chapter 5)
3. Wellhead protection areas (Chapter 6)
4. Surface water intake protection zones (Chapter 7).

The Plan is organized in this way so that a local implementing body or resident of a given vulnerable area can easily locate relevant policies and maps. It also allowed the Source Protection Committee to develop policies that take into consideration local physical characteristics and land use patterns. Similarly, policies directed to provincial ministries are grouped together in each chapter.

Many of the policies outline general requirements with the intent that the specific actions will be determined by the implementing body during policy implementation. This leaves the implementing body with the discretion to determine the specific activities associated with strategic action policies that will be performed based on its available resources and capacity to undertake the task.

The policy organization and generally the policy requirements are based on comments received from municipalities and provincial ministries during the pre-consultation process.

## 4.0 Consultation on the Plan

The *Clean Water Act* sets out the process for consultation. It stipulates who must be consulted, how the related materials are to be presented and the minimum amount of time allowed for review. There are three main opportunities for consultation including:

1. Pre-consultation on the draft policies,
2. Consultation on the draft source protection plan, and
3. Consultation on the proposed source protection plan.

To date, the pre-consultation process has been completed.

### 4.1 Pre-consultation on Draft Policies

The Source Protection Committee consulted on the draft source protection policies with the parties that would be responsible for their implementation, in accordance with Ontario Regulation 287/07. Customized notices were sent to all of the parties, with a request for comments.

The pre-consultation process was broken into three parts: June, September and October 2011. Each part consisted of the draft policies for specific vulnerable areas.

The first part focused on draft policies for the three wellhead protection areas and three surface water intake protection zones where significant drinking water threats can occur: Cana, Lansdowne, Miller Manor, Brockville, James W. King and Sydenham.

The second part of the pre-consultation process focused on the draft policies for the six additional intake protection zones (i.e., Sandhurst Shores, A.L. Dafoe, Bath, Fairfield, Point Pleasant, Kingston Central) and regional areas of vulnerable groundwater (i.e., highly vulnerable aquifers and significant groundwater recharge areas).

The third part of the pre-consultation process involved requesting comments on two new draft policies for the wellhead protection areas.

More details on this process are located in **Appendix A** of the draft Source Protection Plan.

At this time, all of the comments referenced in the Explanatory Document relate to the draft policies that were published for pre-consultation. While, individual comments may not be

specified in the Explanatory Document, depending on their nature, explanations of how these comments affected the development of the policies set out in the draft Source Protection Plan are specified in the relevant sections of the Explanatory Document.

## 4.2 Consultation on the Draft Plan

[placeholder for text]

## 4.3 Consultation on the Proposed Plan

[placeholder for text]

## 5.0 Financial Considerations

Affordability (economics) was one of the three criteria that the Source Protection Committee used to evaluate the policies that are included in the draft Source Protection Plan.

At the request of municipalities and on behalf of the Committee, staff of the Cataraqui Region Conservation Authority developed a series of documents during the pre-consultation process to help explain the intent behind the draft policies, estimate the anticipated level of effort, and outline some options for implementation.

The Cataraqui Source Protection Authority and of the majority of the municipalities that responded to the Source Protection Committee's request for written comments made it clear that their implementation of policy will be contingent on provincial funding. However, at this time there is no provincial commitment to fund implementation of the Source Protection Plan. The Source Protection Committee endeavored to make the link between source protection planning and existing policy tools and programs. Implementation timelines were aligned with established review and reporting cycles (e.g., circulation of notices of decision under the *Planning Act*) in consideration for the potential cumulative impact that the requirements of various policies could have on the financial capacity and available resources (e.g., staffing) of the Authority and municipalities.

In addition to the policies pertaining to significant threats to drinking water that implementing bodies are legally obligated to implement, the draft Source Protection Plan contains many strategic action policies that the Source Protection Committee believes would be effective and appropriate for protecting sources of drinking water. The implementing bodies are strongly encouraged to implement these policies even though they are not legally obligated to do so.

## 6.0 Consideration of Climate Change

The Assessment Report contains a summary, based on readily accessible information, of how the conclusions reached in the Assessment Report may be affected by climate change over the following 25 years. The summary indicated that depending on the type of climate change there may or may not be an impact on the quality and quantity of sources of drinking water, and that the impact could be positive or negative.

The draft Source Protection Plan includes policies intended to gather data on climate conditions in the Cataraqui Source Protection Area to address the uncertainty expressed in the Assessment Report (i.e., 5.4.3-NB, 5.4.4-NB). There are also a number of policies that can be linked to climate change. For example,

- managing moderate and low drinking water threats in wellhead protection areas and intake protection zones where the threat would become significant if the delineations and/or vulnerability scores changed due to changing climate;
- updating salt management plans if general precipitation and temperature norms change to consider the impact of varying levels of service (e.g., salt usage) on the quality of drinking water sources;
- encouraging the continued separation of combined sewers, and stormwater retrofits, especially if storm intensity and frequency increases; and
- including material on water conservation in regional education and outreach programs, particularly if average summer or annual precipitation decreases.

## 7.0 Reasons for Policies

This section of the Explanatory Document:

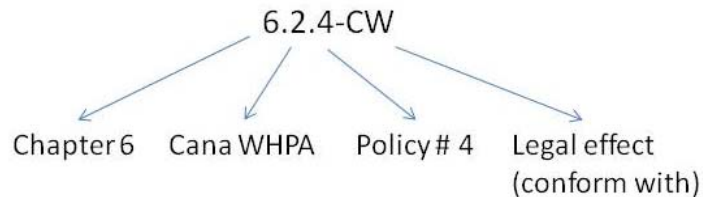
- provides justification for each policy or group of policies set out in the draft Source Protection Plan
- explains how comments received during the pre-consultation process affected the development of the policies
- indicates how financial implications affected policy decisions over and above what is described in section 5.0
- specifically notes where the policy is intended to provide leverage to an existing program.

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The explanations are generally presented in the same order as the chapters and policies in the draft Source Protection Plan. Comments were not received for every draft policy during the pre-consultation process.

There is a reference number associated with each policy in the Plan. For example:



The various types of legal effects are described in **Table 7-1**.

The policy reference numbers used in the draft Source Protection Plan are different from the reference numbers that were used for pre-consultation purposes. The reader may use the conversion tables in **Appendix D** to the Plan to track the progression of policies of interest. Draft policies from pre-consultation that were not carried forward to the Source Protection Plan are identified as “n/a” in the conversion tables. New policies that emerged as a result of pre-consultation are described at the end of the Appendix.

Table 7-1: Code Describing the Legal Effect of the Policies

Code	Description
CW	<ul style="list-style-type: none"> <li>• The <i>Clean Water Act</i> requires <b>municipalities, local boards or source protection authorities</b> to <b>comply</b> with any obligations imposed on it to address a <b>significant</b> drinking water threat, regardless of the particular tool or approach used in the policy.</li> <li>• The Act requires decisions under the <i>Planning Act and Condominium Act, 1998</i> to <b>conform</b> to policies on <b>significant</b> threats.</li> <li>• The Act required decisions related to <b>prescribed instruments</b> to <b>conform</b> with policies on <b>significant</b> threats.</li> <li>• Persons carrying out <b>significant</b> threat activities must <b>conform</b> with policies that use <b>Part IV</b> powers under the <i>Clean Water Act</i>.</li> <li>• Public bodies designated in the Source Protection Plan to carry out <b>monitoring</b> required by the <i>Clean Water Act</i> must <b>conform</b> with the obligations set out in the monitoring policies.</li> </ul>
HR	<ul style="list-style-type: none"> <li>• The Act requires decisions under the <i>Planning Act and Condominium Act, 1998</i> to <b>have regard</b> to policies on <b>moderate and low</b> threats.</li> <li>• The Act required decisions related to <b>prescribed instruments</b> to <b>have regard</b> to policies on <b>moderate and low</b> threats.</li> </ul>
NB	<p>Other types of policies that, while the Committee has determined are important to achieving the Plan’s objectives, are not given legal effect by the Act. These include:</p> <ul style="list-style-type: none"> <li>• Policies on <b>significant, moderate and low</b> threats to be implemented by <b>bodies <u>other than</u></b> municipalities, local boards or source protection authorities <b>and</b> which do <u>not rely</u> on Part IV, prescribed instrument or <i>Planning Act</i> tools.</li> <li>• <b>Other permitted policies</b> governing:             <ul style="list-style-type: none"> <li>○ Incentive programs and education &amp; outreach programs, including for systems not in terms of reference</li> <li>○ The update of spills prevention, contingency or response plans along highways, railways or shipping lanes</li> </ul> </li> </ul>

	○ Transport pathways in wellhead protection areas and intake protection zones.
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## 7.1 Monitoring Policies

Applicable policies:	4.2.1-NB (e)	6.2.16-CW	6.3.26-CW (b)	7.3.11-CW
	4.2.2-NB (c)	6.2.17-NB	6.4.16-CW	7.3.12-NB
	4.2.3-NB (b)	6.2.20-CW	6.4.17-NB	7.4.12-CW
	4.3.3-NB (c)	6.2.21-NB	6.4.20-CW	7.4.13-NB
	4.3.3-NB (d)	6.2.22-CW (c)	6.4.21-NB	7.5.5-NB
	4.3.4-NB (b)	6.2.24-CW (b)	6.5.6-CW	7.6.5-NB
	4.3.5-NB (c)	6.3.16-CW	6.5.7-NB	7.7.5-NB
	4.3.8-NB (c)	6.3.17-NB	6.5.8-NB (c)	7.8.4-NB
	4.3.10-NB (d)	6.3.20-CW	6.5.9-NB (c)	7.9.5-CW
	5.2.4-NB	6.3.21-NB	6.5.13-CW	7.9.6-NB
	5.2.5-NB (c)	6.3.22-CW (c)	6.5.14-NB	7.9.7-NB (b)
	5.3.3-NB	6.3.23-NB (c)	7.2.12-CW	7.9.13-CW
	5.3.4-HR (c)	6.3.24-NB (c)	7.2.13-NB	7.9.14-NB
	5.3.5-NB (c)	6.3.25-NB (c)	7.2.18-NB (c)	

The *Clean Water Act* requires monitoring for any policy that addresses a significant drinking water threat. The draft Source Protection Plan includes policies that require and/or request information from implementing bodies be given to the Cataraqui Source Protection Authority in order to facilitate the preparation of annual progress reports to the Ministry of the Environment. This requirement was incorporated into each of the policies wherever it is mandated or deemed appropriate and possible. The implementing bodies may be asked to provide information on a one-time basis or a regular occurrence depending on the policy of interest.

The Source Protection Authority will work with the implementing bodies to develop a standardized reporting framework or protocol, if necessary, and will use existing reporting mechanisms where appropriate. This approach should address concerns raised by some municipalities during pre-consultation about the potential for additional administrative burden and duplication of existing legislated reporting requirements.

During the pre-consultation process, the Ministry of the Environment indicated that it will consider how to implement reporting that would meet the requirements for the monitoring policies of all of the source protection plans in Ontario to streamline implementation. The

Ministry of Agriculture, Food and Rural Affairs also indicated support for the reporting requirements.

## **7.2 Chapter 4: Policies for All Vulnerable Areas**

There are a number of actions specified in Chapter 4 of the draft Source Protection Plan that the Source Protection Committee strongly encourages municipalities in the Cataraqui Source Protection Area, provincial ministries and the Cataraqui Source Protection Authority to consider undertaking. These actions apply to all of the vulnerable areas in the Cataraqui Source Protection Area: wellhead protection areas, intake protection zones, highly vulnerable aquifers and significant groundwater recharge areas. The purpose of these policies is to make sure that the vulnerable areas identified in the Assessment Report are given due consideration through existing and proposed policies, procedures and programs in the Cataraqui Source Protection Area.

### **7.2.1 Salt Management Plans**

Applicable policies: 4.2.1-NB 4.3.10-NB

All road authorities in the Cataraqui Source Protection Area use road salt as part of winter road maintenance. Salt management plans are a widely accepted tool used to responsibly plan for and record road salt storage, handling and application. The purpose of the policies is to make sure that the vulnerable areas identified in the Assessment Report are given due consideration in salt management plans so that the potential for future contamination of drinking water sources is reduced.

Winter in the Cataraqui Source Protection Area brings with it a number of specific activities that can negatively impact the quality of our sources of drinking water. These activities include:

- The application of road salt
- The handling and storage of road salt
- The storage of snow, which can contain salt and other contaminants.

The majority of road salt is used as a de-icer or an ice prevention agent. The most commonly used products are sodium chloride and calcium chloride because they are effective, inexpensive, readily available and easy to use. The main reason road salt is considered a threat is due to the potential for these products to run off roads and parking areas and enter into sources of drinking water. More than half of the road salt applied to roads infiltrates through soil into the groundwater, the remainder is transported in surface runoff (RiverSides Stewardship Alliance

and Sierra Legal Defence Fund, 2006). This is most noticeable in urbanized areas and along major roads.

Sodium and chloride are the two main components of the most commonly applied de-icer. They both readily dissolve in water, and once in solution are difficult to remove, especially chloride. Some water purification technologies (reverse osmosis, distillation and ion exchange) can remove sodium, but these technologies are more expensive than the methods normally applied such as chlorine disinfection or activated carbon filters. The Ontario Drinking Water Standards include both an aesthetic objective (200 milligrams/litre) and health objective (20 milligrams/litre) for sodium. If the amount of sodium in drinking water is measured to be at or above the health objective threshold, the local Medical Officer of Health should be notified so that local physicians can advise their patients on sodium restrictive diets not to drinking the water as it could cause adverse cardiac impacts.

Snow plowed from roads and parking lots can be contaminated with salt, oil, grease and heavy metals from vehicles, litter and airborne pollutants. Therefore it must be stored and disposed of in an appropriate manner. Storing large quantities of snow in one location concentrates the contaminants in melt water, which results in a greater impact on the surrounding environment.

The road authorities in the Cataraqui Source Protection Area have a road salt management plan that addresses the activities listed above, with the exception of the Township of Frontenac Islands and the Township of South Frontenac. Also, the Township of Leeds and the Thousand Islands operates a public works yard that includes the handling and storage of road salt in Lansdowne WHPA-B. The specific protection measures recommended to protect this aquifer are generally outside the scope of the Salt Management Plan for the United County of Leeds and Grenville, which applies to this Township.

These policies were revised based on comments received from several municipalities, the Ministry of Transportation and the Ministry of Municipal Affairs and Housing during pre-consultation. The comments generally related to the proposed requirements and timing of the updates.

The Ontario Good Roads Association, of which all municipalities in the CSPA are members, indicated during pre-consultation that its board recently endorsed a high level policy statement that complements these policies. The Association also reviewed and updated its salt management plan template to require the identification of vulnerable areas, and to outline steps to be taken to minimize impacts on vulnerable areas.

## **7.2.2 Municipal Waste Management Strategies**

Applicable policy: 4.2.2-NB

The Government of Ontario gave waste managers in Ontario the goal of diverting 60 percent of waste from disposal facilities by the end of 2008. This goal indirectly supports the drinking water source protection initiative through the implementation of policies and programs that increase the lifespan of waste disposal sites (i.e., fewer new waste disposal sites are required), and keep certain materials out of landfills, thereby improving the quality of runoff and leachate from the site that enters surface water and groundwater.

Municipalities that provided comments during pre-consultation had minor suggestions for this policy which were taken into consideration, and revisions made where appropriate. This policy is intended to apply to all municipalities, so its implementation would require varying levels of effort depending on the municipality's program.

## **7.2.3 Management of Hauled Sewage**

Applicable policy: 4.2.3-NB

In the Cataraqui Source Protection Area (CSPA), approximately 36 percent of the population lives in a rural area that is not serviced by municipal water and sanitary sewers. There are also many businesses that are connected to private services in the rural area. There are more than 23,000 septic systems and/or holding tanks in the CSPA. The number of septic systems will increase with the creation of new rural lots over time. The standard recommendation in Ontario is for septic tanks to be pumped out every three to five years as part of regular septic system maintenance. This will be actively encouraged through the septic system education and awareness programs recommended elsewhere in this Plan.

The City of Kingston's Cataraqui Bay Wastewater Treatment Plant is the main municipal facility in the CSPA that accepts hauled sewage from the greater area. It is partly located in the Point Pleasant Intake Protection Zone. The Town of Greater Napanee and Loyalist Township accept limited quantities of hauled sewage generated within their jurisdictions. None of the other local facilities are designed to accept and process hauled sewage.

If there is limited or no capacity at local wastewater treatment facilities due to increased demand and no other available options for stabilization and/or treatment, this could lead to more frequent land application of hauled sewage in the highly vulnerable aquifers, significant groundwater recharge areas, Bath IPZ-2, Sandhurst Shores IPZ-2, and Lansdowne WHPA-C and WHPA-D, where this activity would be a moderate or low drinking water threat depending on the

vulnerable area. These vulnerable areas contain land that may meet the provincial guidelines for the application of hauled sewage.

Some municipalities that commented during pre-consultation, particularly Utilities Kingston on behalf of the City of Kingston, had concerns regarding the implications of this policy on capital expenditures. Other municipalities, such as Loyalist Township, were satisfied with this policy since they have already considered hauled sewage management for their jurisdictions.

The Source Protection Committee continues to promote this policy as an appropriate action to protect municipal sources of drinking water as well as the highly vulnerable aquifers and significant groundwater recharge areas.

#### **7.2.4 Connections to Sanitary Sewer Services**

Applicable policy: 4.2.4-NB

This is a new policy proposed based on comments received from the City of Brockville during the pre-consultation process; it is consistent with what other source protection committees in eastern Ontario are proposing. It is also consistent with most municipal servicing policies in the Cataraqui Source Protection Area.

The use of municipal sewers instead of individual on-site sewage systems generally poses a lower risk to sources of drinking water because the on-going use of municipal sanitary servicing are regulated to a higher degree than individual on-site sewage systems, their operations are supervised by professionals, and the waste materials are transported to a centralized facility for treatment rather than being treated on-site over the aquifers that supply drinking water. Where municipal sanitary servicing is available at the property line and where capacity permits, failing and inadequate septic systems should be decommissioned and the property connected to municipal services. This approach would phase out the use of septic systems over time where the alternative of municipal services exists, and is consistent with most municipal servicing policies.

As requested by the City of Kingston, this policy would apply within the urban boundary as defined in the City's Official Plan.

#### **7.2.5 Raw Water Quality Sampling**

Applicable policy: 4.3.1-NB, 4.3.2-NB

Water treatment plant operators are required to take limited raw water quality samples, however, this is an opportune way to monitor the potential impact of surrounding land uses and activities

as well as the effectiveness of the Source Protection Plan at addressing significant drinking water threats.

Water quality sampling at the municipal intakes and supply wells is limited, especially for the raw (i.e., untreated) water. The only requirement for raw water quality sampling and testing for the systems within the Cataraqui Source Protection Area is for microbiological parameters at the municipal wells (Government of Ontario, 2003). There are additional sampling requirements for treated and distributed water, however the presence and concentrations of the parameters have been affected by the treatment process and no longer reflect source water quality. Also, the sampling that does occur is not tied to any particular water condition or drinking water threat activity that may be present in the wellhead protection area. The one exception is in particular instances where on a site-specific basis there may be additional process wastewater, raw water, or treated water monitoring conditions imposed in Drinking Water Permits, Certificates of Approval, or Provincial Officer's Orders.

Municipalities may also voluntarily participate in the Ministry of Environment Drinking Water Surveillance Program, an additional sampling program to monitor raw and treated water quality.

For source water protection it is important to know whether activities associated with drinking water threats are impacting the quality of the source water so that action can be taken to determine the source of contamination and impose or encourage appropriate risk management measures. The Source Protection Committee believes that additional and targeted raw water sampling will better characterize the source water for the municipal intakes and supply wells and act as an important measure of the effectiveness of source protection policies.

These policies expand on the draft policy proposed during the pre-consultation process (SD.23-SA), which encouraged the Township of South Frontenac to undertake baseline inspections and monitoring of water conditions of Sydenham Lake from various activities and for seasonal variation to determine the potential impact of these activities on Sydenham's source of drinking water.

Policy 4.3.1-NB indicates that the Ministry of the Environment should amend Ontario Regulation 170/03 so that it will require the necessary base information about the raw water quality to inform issues identification and to aid in determining whether the source protection policies are effective.

The purpose of policy 4.3.2-NB is to act as a bridge between the source protection plan effective date and when Ontario Regulation 170/03 is amended so that locally important raw water quality data is collected sooner.

## 7.2.6 Provincial Emergency and Spill Response

Applicable policy: 4.3.3-NB

A discharge or spill associated with any of the prescribed threats to drinking water quality, including the transportation of certain substances which is a local threat, can be a significant, moderate or low threat depending on the vulnerable area and circumstance. It is important that agencies that respond to these situations have up-to-date information and procedures that would help improve local response to a spill, particularly in the most vulnerable areas.

During the pre-consultation process, the Ministry of the Environment indicated that it would review options for how Spills Action Centre may more directly identify the source protection information available for a given spill, and evaluate how this information would affect spill response.

Since pre-consultation this policy has been revised to include a reporting requirement that would directly inform that Cataraqui Source Protection Authority of spill occurrences in the wellhead protection areas and intake protection zones so that the information can at least be considered in future policy development and forwarded to drinking water treatment plant operators to inform decisions about raw water quality sampling.

Policies 7.9.7-NB, 7.9.8-NB and 7.9.16-NB also relate to emergency and spill response at the provincial-level.

## 7.2.7 Stormwater Management Guidelines

Applicable policy: 4.3.4-NB

Stormwater is runoff from precipitation or snow melt. As it flows over the ground surface it picks up pollutants such as sand, road salt, oil, fertilizer and pesticides. By its nature stormwater exists throughout the Cataraqui Source Protection Area, but is only typically managed (i.e., treated) in the built up areas using stormwater water facilities (e.g., ponds).

The *Stormwater Management Planning and Design Manual* (2003) provides technical and procedural guidance for the planning, design, and review of stormwater management practices, and is a reference document used in the review of applications for approval under section 53 of the *Ontario Water Resources Act*. The manual includes requirements for the enhanced treatment of discharges to sensitive surface water areas, but does not address treatment requirements for sensitive groundwater areas. The Source Protection Committee believes that it is appropriate to require enhanced treatment and aquifer protection measures in sensitive groundwater areas.

During the pre-consultation process, the Ministry of the Environment indicated that its policies and guidelines are undergoing continuous review and updating, and source protection information will be reviewed for incorporation into guidelines as they are updated.

### **7.2.8 Ontario Pesticide Education Program**

Applicable policy: 4.3.5-NB

The application, handling and storage of pesticides can be significant drinking water threats in parts of the wellhead protection areas, and the intake protection zones where the vulnerability score is greater than eight (i.e., Brockville, James W. King, Sydenham). These activities are considered to be a lesser threat in the other vulnerable areas.

Ontario Regulation 63/09 (Ontario's Cosmetic Pesticides Ban) requires that all pesticide operators and vendors be licensed and certified to purchase, sell or apply pesticides. Certification programs are conducted through the Ontario Pesticide Education Program. The Source Protection Committee determined that this existing program is an appropriate venue for raising awareness of the risk associated with pesticide use near municipal supply wells, intakes and in sensitive groundwater areas.

This policy was revised based on comments received from the Ministry of the Environment during pre-consultation. The Ministry indicated that it would look into bringing source water protection information forward to the Ontario Pesticides Education Program Committee.

### **7.2.9 Recognition for Proactive Businesses**

Applicable policy: 4.3.6-NB

Public recognition of the good work being done by landowners and businesses, who are making changes to their properties and practices to reduce the risk of their activities on the environment, would provide positive reinforcement in the community and across Ontario of the importance of protecting sources of drinking water.

There are a number of existing recognition programs on which to base a source water related program. For example, the Wildlife Habitat Council is a body that was formed to help businesses develop biodiversity programs and to provide third party validation that the work done meets a pre-set standard. This enables them to put signs up on their properties that indicate they are certified and to use it as part of their Corporate Social Responsibility programs. Another example would be an awards program to which businesses that have implemented novel water improvement ideas or related programs could apply for an award.

Such a recognition program is appropriate at the provincial level so that there is consistency across each source protection region and area. Also, as Lake Ontario modeling demonstrated, activities at one end of Lake Ontario can impact source water at other locations along the lake.

### **7.2.10 Fuel Storage Standards and Safety**

Applicable policy: 4.3.7-NB

Complementing the requirement for risk management plans, this policy encourages the Ministry of Consumer Services and the Technical Standards and Safety Authority to review the existing provincial regulations and codes that govern the fuel storage to determine if any other measures are needed to better protect sources of drinking water. The regulations and Codes were enacted in 2001 and a measurement of their effectiveness is not known. If this policy is implemented, risk management plans may be needed on an interim basis to address the immediate risk to sources of drinking water since it could be several years before positive change is made at the provincial level. The Ministry of Consumer Services indicated during pre-consultation that it would engage TSSA on the topic of inspection frequency by fuel suppliers.

### **7.2.11 Research on Discharge from Water Softeners**

Applicable policies: 4.3.8-NB

Education, outreach and research are used to address the significant threat associated with discharge from water softeners because, in the opinion of the Committee, there are no regulatory mechanisms that are appropriate to prohibit or manage this activity. Although the intent of this research policy is to address a significant drinking water threat, it is not legally binding on the Ministry of Municipal Affairs and Housing because the *Clean Water Act* does not have authority over the Ministry for this type of policy. If implemented, these policies will promote the achievement of the objectives of the plan to ensure this significant drinking water threat ceases to exist or does not come into existence.

This research project is proposed for the following reasons:

- Hard water is prevalent throughout the Cataraqui Source Protection Area. The Cataraqui Source Protection Watershed Characterization Study (CRCA, 2008) identified that the median hardness value for groundwater in the CSPA was 316 milligrams per litre (note: sample size of 423 wells) whereas the upper limit for ideal hardness is 200 milligrams per litre. This means that many homes use water softeners to obtain more acceptable water hardness.

- Concrete septic tanks will corrode as a result of water softener backwash effects unless the tank is specifically cured during manufacturing.
- Water softener backwash can change the density of the liquid in the septic tank such that proper settling is impeded.
- There is no agreement in the scientific community about the best method for disposing of water softener backwash.
- A local research project would ensure that the most effective disposal method is being used for water softener backwash.
- The Ontario Building Code states that water softener backwash can be disposed in a septic system if it is designed to accept it, but there is no clear indication of said proper design.

The Ministry of Municipal Affairs and Housing indicated during pre-consultation that it would work with the Ministry of the Environment to consider the feasibility of undertaking a research project on effective disposal methods for water softener backwash.

### **7.2.12 Changes to Nutrient Management Act**

Applicable policy: 4.3.9-NB

Complementing the requirement for risk management plans, the purpose of this policy is to encourage the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) to amend Ontario Regulation 267/03 (General) under the *Nutrient Management Act* to apply to all farms in wellhead protection areas and intake protection zones where the application, storage and management of agricultural source material is a significant drinking water threat. The original draft policy applied to all wellhead protection areas and intake protection zones regardless of the level of risk associated with these activities.

The Source Protection Committee considered the existing legislative framework as well as the fact the agricultural operators are generally aware of and comfortable with the *Nutrient Management Act* requirements to determine that it would be better to phase in the significant drinking water threat activities under the *Nutrient Management Act* than to introduce a new method of regulation through the *Clean Water Act* that essentially duplicates the process.

It is intended that risk management plans would be used in the interim to address those agricultural operations that are not phased-in and managed under O. Reg. 267/03.

During the pre-consultation process, OMAFRA indicated that regulatory amendments are not anticipated at this time, but that the suggestion is noted for future consideration. It is the opinion

of the Ministry that farming operations with significant drinking water threats that are not phased in under the *Nutrient Management Act* (NMA) can have risk management plans that utilize NMA standards and management practices, and offered existing educational material that could be used by the risk management official to negotiate the plans.

### **7.2.13 Source Protection Road Signs**

Applicable policy: 4.3.11-NB

The main purpose of signing these vulnerable areas is to make emergency responders immediately aware that they are in a vulnerable area for a drinking water source and that special consideration should be given to spill containment and clean-up. All other travelers along the marked roads will also become more familiar with the drinking water protection areas and may take the initiative to learn more about source water protection.

During the pre-consultation process, the Ministry of Transportation (MTO) recommended that a formal proposal be developed on behalf of all of the source protection areas and regions in Ontario. The proposal would need to identify how source protection signage would fit into an education and outreach program, as well as specific considerations for the purpose, geographical extent and sign placement criteria. The Ministry also recommended that the signs should be consistent throughout Ontario, be acceptable to participating municipalities, and that the design and supporting implementation policy be led by MTO.

This policy is based on the on-going work of a group composed of representatives from the Ministry of Transportation, the Ministry of the Environment, and source protection areas and regions across Ontario to address the above comments.

The MTO would be responsible for signs along provincial highways. Municipalities should consider signing their roadways as appropriate for the local circumstance.

### **7.2.14 Area-wide Education and Outreach Initiatives**

Applicable policy: 4.4.1-NB

A key component of source protection is education and outreach. About 93 percent of the Cataraqui Source Protection Area is identified as some type of vulnerable area, whether it is a wellhead protection area, intake protection zone, highly vulnerable aquifer, or significant groundwater recharge area. Education and outreach programs are important to the successful implementation of the Source Protection Plan, especially considering that source water protection is a relatively new concept in the Area, and many of the policies in the draft Source Protection Plan rely on voluntary action by implementing bodies and individuals. The specific

components of the education and outreach program listed in the draft Plan focus on activities that are threats to drinking water and on transport pathways that are common throughout the Cataraqi Source Protection Area.

The Source Protection Committee is aware of a number of successful programs currently in operation in the Cataraqi Source Protection Area that aim to reduce the impact of particular drinking water threats and transport pathways on source water (e.g., Well Aware). In addition, there are organizations with expertise on particular topics that could help to develop and/or deliver educational materials throughout the Area. The Committee intends that the Cataraqi Source Protection Authority would work with pertinent organizations in the Area to capitalize on the existing, successful programs and to fill any gaps such that area residents and business owners are provided with information on a variety of topics from local experts.

The Township of South Frontenac general comment during pre-consultation on the policies that preceded 4.4.1-NB, 4.4.2-NB and the groundwater data sharing policy 5.4.3-NB was that although these measures seem important and appropriate, cumulatively, they will require a great amount of staff time and municipal expense.

Also during the pre-consultation process, Utilities Kingston questioned who should undertake the communication and education piece with City of Kingston residents and businesses, and how such a program would be funded.

The following provides information about each component of the education and outreach program as outlined in the draft Source Protection Plan in support of policy 4.4.1-NB.

### **Agriculture**

Almost half of the prescribed drinking water threats relate to agricultural operations. Farming is a common land use in the rural portions of the Cataraqi Source Protection Area. There are a number of active local farm organizations that could be approached to incorporate source water protection information into their education and outreach materials and events. The Ontario Ministry of Agriculture, Food and Rural Affairs, which is actively involved in the education of farmers and rural residents, indicated during the pre-consultation process that it is supportive of this aspect of the education and outreach policy and that they could assist in identifying resources that would help implementation within the Cataraqi Source Protection Area.

### **Fuel**

Policy 4.4.1-NB aims to reduce the risk of fuel leaks and spills that could contaminate sources of drinking water.

The Canadian Oil Heat Association and the Ontario Marine Operators Association play an active role in educating the public on best practices for the handling and storage of fuel. As industry professionals, these two organizations would be key partners in developing accurate local educational materials on fuel.

Early in the pre-consultation process, the executive director of the Ontario Chapter of the Canadian Oil Heat Association noted on behalf of its members that they fully support participating in an inclusive dialogue, and encourage creating awareness of source water protection through public outreach and education.

The Clean Marine Program offered by the Ontario Marine Operators Association includes a component about the handling and storage of fuel at marines and marinas which they could consider revising to incorporate the identification and consideration of drinking water intakes in the vicinity of marinas.

### **On-site Sewage Systems**

The proper care and maintenance of on-site sewage systems (e.g., septic systems and holding tanks) is critical to reducing the risk to drinking water that is associated with these structures. With the exception of the urban areas in the Cataraqui Source Protection Area, the Cana Subdivision and the Village of Lansdowne, all development is serviced by private on-site sewage systems. These systems are identified as low threats to drinking water.

The Source Protection Committee believes that it is important to educate the owners of on-site sewage systems in order to reduce the threat to sources of drinking water. This education and outreach would occur on a broad scale, as well as part of any on-site sewage system maintenance inspection programs that are implemented in targeted areas.

KFL&A Public Health, the Leeds, Grenville, Lanark and District Health Unit, and the Township of Rideau Lakes are the principle authorities for the enforcement of Part 8 of the Ontario Building Code (Sewage Systems) in the Cataraqui Source Protection Area.

The two health units currently produce educational material, and lead the septic portion of the locally successful Well and Septic Workshops organized by the Cataraqui Region Conservation Authority.

During the pre-consultation process, KFL&A Public Health indicated support for the principles of education, public outreach and data-gathering/sharing related to safe water activities; however, budgetary constraints mean that priorities will need to be set. It also indicated that the policies referencing education and outreach for the operation of on-site sewage systems is achievable, and that it has existing educational material that could be enhanced to meet the objectives of the drinking water source protection program.

The Leeds, Grenville and Lanark District Health Unit also indicated that it should be included in the development and implementation of such an education and outreach program.

### **Drinking Water Wells (transport pathways)**

There are more than 24,000 private wells in the Cataraqui Source Protection Area. Wells must be in good working order (e.g. proper casing with adequate grout located away from sources of contamination) or they function as short-cuts for contamination to reach the underlying groundwater used as a drinking water source.

The draft Source Protection Plan identifies Well Aware, the Ontario Groundwater Association and licensed professionals as groups that could lead education about properly constructing and maintaining wells, and the de-commissioning of abandoned wells.

Well Aware is a program of Green Communities Canada that focuses on encouraging residential well owners to protect their wells and groundwater supplies. The main component of the program involves property visits where a trained advisor educates the well owner about ways to reduce potential risks to his or her well. Well Aware provided support for the aspect of this policy that would address groundwater basics and proper well maintenance during the pre-consultation process. Well Aware also indicated that its education material could be adapted to more directly address source water protection, if the changes are agreeable and if funding is made available for the modifications.

The Ontario Groundwater Association facilitates various sectors of the groundwater industry to deliver safe and clean water supplies. Since the Association's goals are similar to those of the drinking water source protection initiative, the Source Protection Committee believes that the Association's members can provide technically valid information to well owners to ensure their wells are in good working order.

### **Hauled Sewage**

The majority of development on waterfront properties, and all of the island properties, that are located in the Brockville and James W. King Intake Protection Zones are serviced by on-site sewage systems. Participants at the community roundtables for these areas admitted that it can be difficult to secure the services of sewage pumping companies with barges since it is costly to mobilize the equipment, and generally only worthwhile when there are a number of tanks to pump at the same time. Participants suggested that if these companies developed a regular schedule for septic tank pump-outs, it would help residents to properly maintain their systems thereby reducing the sewage-related threat to drinking water.

Such a schedule would be important to the success of any on-site sewage system maintenance inspection program that might be implemented along the St. Lawrence River in these two intake protection zones.

### **Source Protection Measures for Business**

Participants at some of the community roundtables raised concerns about the potential impact of existing businesses that involve the handling and storage of liquid fuel, DNAPLs and/or organic solvents on their communities' sources of drinking water.

Since the prohibition and risk management plan tools under Part IV of the *Clean Water Act* cannot be used to address activities that are moderate and low drinking water threats, municipalities are encouraged to use other means to work with property and business owners to manage the risk associated with existing activities to better protect their community's source of drinking water.

This topic was a standalone policy at the pre-consultation phase. During the pre-consultation process, Loyalist Township observed that it may be difficult to complete the activities identified in the original policy, and that their success would be dependent on the cooperation of property owners.

### **Marina Spill Prevention and Contingency Plans**

There are marinas located in the following intake protection zones: Bath, Brockville, James W. King and Kingston Central. These marinas should be encouraged to develop new, or update existing, spill prevention and contingency plans for their operations to address spills related to the handling and storage of liquid fuel, and the collection and storage of sewage from marine vessels. Spills involving these activities could negatively impact water quality at the municipal intakes.

The plans could result in measures being implemented to reduce the likelihood of spills, and should identify how to react quickly to a spill so that the drinking water source will be better protected.

This topic was a standalone policy at the pre-consultation phase.

### **Water Access Point Signage**

The majority of the intake protection zones have marinas or water access points (e.g., boat ramps) within their boundaries. Educational signage at these facilities would make boaters aware of the location of nearby sources of drinking water, and identify reasonable actions that

they could take to reduce the impact of their boating activities (e.g., handling of fuel, sewage pump-outs) on sources of drinking water.

This topic was a standalone policy at the pre-consultation phase.

### **Awareness of Incentive Programs**

Incentive programs are variable and people may not be aware of opportunities to subsidize the cost of making improvements to their properties to reduce the risk of drinking water threats and transport pathways on sources of drinking water. An assessment of all available funding opportunities should be completed by the Cataraqui Source Protection Authority on an on-going basis that would match risk management measures to operational programs.

### **Locating Drinking Water Wells**

Given the highly vulnerable nature of groundwater in the Cataraqui Source Protection Area, it is important that individuals and businesses give due consideration to the proper placement and construction of drinking water wells. Regulation 903 (Wells) includes minimum setback requirements between wells and potential sources of contamination.

The Water Supply Wells – Requirements and Best Management Practices (MOE, 2009) specifies the considerations that should be made when determining where to place a new well, and outlines well construction standards. This publication is a good source of information that can be used to inform future well owners about well placement and construction. The publication also notes that it is important to exceed the minimum setback distance included in Regulation 903 in situations where wells are in highly fractured bedrock with thin soil (i.e., the highly vulnerable aquifers in the Cataraqui Source Protection Area). Future well owners need to be made aware of this best practice since it is common to drill a well as close as possible to the building being serviced as well as any related sources of contamination in order to reduce the cost of piping.

The aspect of this policy that recommends a checklist for well siting and construction considerations during development was originally directed to the municipalities for implementation. While Loyalist Township indicated during the pre-consultation process that this policy could easily be implemented by adding language to the Township's forms and staff can also disclose during pre-consultation, other municipalities had differing opinions. The Township of Elizabethtown-Kitley suggested that this same policy should not be the responsibility of the Township. The Township of the South Frontenac and the City of Brockville suggested that the local health unit could help to implement the policy.

### **Geothermal Heating Systems**

The education and outreach program envisioned in policy 4.4.1-NB should include a primer on the installation and use of geothermal heating systems because:

1. Geothermal heating systems are becoming more prevalent throughout the Cataraqui Source Protection Area.
2. As with drinking water wells, improperly constructed and/or sealed geothermal heating systems can act as transport pathways for contamination.
3. The Canadian Standards Association standards for design and installation of geothermal heating systems (C448.2-01 and C448.2-02) are only applied where there is an application under the Ontario Building Code. There appears to be a generally lack of understanding about the permitting requirements for geothermal heating.

### **7.2.15 Financial Incentives**

Applicable policy: 4.4.2-NB

The Cataraqui Source Protection Committee evaluated the prevalence and level of risk associated with drinking water threats and transport pathways within the Cataraqui Source Protection Area. It was determined that there are three priorities for on-the-ground actions that could benefit from an incentive program:

- Fuel storage improvements
- On-site sewage system replacement or repair
- Well upgrades and plugging of un-used wells and replacements

The comments received during the pre-consultation process about the proposed incentive programs, which were originally directed to each of the vulnerable areas, varied considerably by respondent.

Loyalist Township suggested that a fuel incentive program could require considerable effort and expense on the part of the Township, but staff suggested that there may be merit in considering this further.

The Township of South Frontenac suggested that the septic and fuel incentive program policies for Sydenham should be explored as these measures seem innovative and very appropriate, and that grants and loans to help fund them may be obtained through the development of a Community Improvement Plan for Sydenham.

City of Brockville staff said that priority should be given to converting private services to municipal services when such municipal servicing is or becomes available. They questioned the need for a fuel incentive program in the Brockville Intake Protection Zone. The first comment led to the development of policy 4.2.4-NB, which encourages the municipality to require connections to municipal sanitary servicing within designated serviced areas in specific situations.

The City of Kingston suggested that the general tax base would not likely be supportive of a program that would provide funding to a selective number of residents to conduct home maintenance.

The intent of the area-wide policy in the draft Source Protection Plan is provide economies of scale to such a program by having it organized and administered on an area-wide basis. It recognizes that the three priorities (i.e., fuel storage, on-site sewage systems, and wells) are most applicable to the highly vulnerable aquifers and significant groundwater recharge areas; and that landowners in the wellhead protection areas and intake protection zones had multiple opportunities to access funds for similar projects through the Ontario Drinking Water Stewardship Program since 2007.

The following reasons are provided for each of the above noted aspects of policy on incentive programs.

### **Fuel Storage**

- Leaking underground storage tanks contaminate groundwater.
- The United Counties of Leeds and Grenville Groundwater Study (Dillon Consulting, 2001) recommended the creation of an incentive program to replace underground fuel storage tanks with above ground ones.
- The majority of tanks manufactured before 1980 were made from easily corroded steel. It is estimated that 50 percent of these tanks leaked within 15 years of installation unless they were properly maintained (Environment Canada, 1999; International Joint Commission, 2010).
- It is estimated that between 5 and 35 percent of all commercial underground storage tanks, including those containing fuel, are leaking (International Joint Commission, 2010).

- Participants at the community roundtables were concerned about fuel tanks that are not removed upon the closure of gas stations. They were also interested the idea of funding for secondary containment.

### **On-site Sewage Systems**

- The concept of an incentive program for on-site sewage systems was raised by the majority of participants at the community roundtables.
- The International Joint Commission Study on the Great Lakes Basin (2010) notes that overall, 90 percent of water-borne pathogenic disease outbreaks are attributable to water systems supplied from groundwater, and more than half of these water-related illnesses may be due to viruses. The primary source of disease-causing viruses is human fecal waste from malfunctioning septic tank and seepage bed systems and leaking sanitary sewers. Studies have correlated the occurrence of waterborne viral disease to the density of septic systems.

### **Drinking Water Wells**

- The concept of an incentive program for wells was raised by the majority of participants at the community roundtables.
- Abandoned wells or those wells that are sub-standard allow contaminants from the surface to by-pass any natural attenuation afforded by materials overlying the aquifer.
- Part One Report of the Walkerton Inquiry (O'Connor, 2002) notes that:
  - Unused wells were a factor in the Walkerton Tragedy; and
  - Holes in well casing, improperly maintained backflow valves, and other aspects of well construction may provide a direct route for contamination.
- Many abandoned wells have little evidence of existence at the ground surface and contaminating activities could be happening in close proximity.
- The Water Well Sustainability in Ontario, Expert Panel Report (prepared for the Ontario Ministry of the Environment Sustainable Water Well Initiative Final Report January 30, 2006) notes that in many cases, wells that are discovered to perform poorly or have poor water quality can be rehabilitated through upgrading and proper maintenance.
- Western Cataraqui Regional Groundwater Study (Trow, 2007) recommends that all abandoned wells should be plugged and that all wells constructed before 1974 be upgraded.

- The Well Aware Guides indicated the need for a repair in 89 percent of the visits conducted
- The Watershed Based Source Protection: Implementation Committee Report to the Minister of the Environment (Government of Ontario, November 2004), the Water Well Sustainability in Ontario, Expert Panel Report (prepared for the Ontario Ministry of the Environment Sustainable Water Well Initiative Final Report January 30, 2006), and the United Counties of Leeds and Grenville Groundwater Study (Dillon Consulting, 2001) all recommend that an incentive program be made available to well owners to repair, upgrade and decommission wells.

### **7.2.16 Research on Septic System and Well Separation**

Applicable policy: 4.4.3-NB

The hydrogeologic setting of the Cataraqui Source Protection Area, as with other parts of Eastern Ontario, is complex and features thin soil overburden and fractured bedrock. The minimum setback requirements and evaluation tools used to determine the appropriate location and density of on-site sewage systems may not be sufficient to account for the highly vulnerable nature of the aquifers. The research proposed in this policy could help to develop separation distances and a water quality impact assessment that would be effective for our local context and to improve the existing requirements.

## **7.3 Chapter 5: Policies for Sensitive Regional Groundwater Sources**

### **7.3.1 Land Use Planning and Development**

Applicable policies: 5.2.1-HR 5.2.2-NB 5.2.3-HR

According to the Ministry of the Environment Technical Rules, activities cannot be identified as significant drinking water threats in the highly vulnerable aquifers and significant groundwater recharge areas. Activities that are moderate and low threats occur throughout these vulnerable areas.

Moderate and low drinking water threats will be managed in the vulnerable areas where the activity is a common occurrence, or it has the potential to become established based on the land uses permitted by the municipality, local development patterns, and the physical characteristics of the area. Minimum thresholds are associated with these threats in most cases (e.g., handling and storage of more than 2,500 litres of liquid fuel).

Local stakeholders raised concerns about the potential impact of many of the activities listed in these policies on their drinking water (e.g., public works yards, waste disposal sites) at the community roundtables about the highly vulnerable aquifers and significant groundwater recharge areas.

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future.

### **Disclosure Reports**

During the pre-consultation process, the Ministry of Municipal Affairs and Housing was supportive of the policies that required disclosure reports as part of a complete application under the *Planning Act*. The Township of South Frontenac was also supportive of these policies. Loyalist Township noted that these policies can easily be incorporated into its planning approvals process. The City of Kingston Legal Department confirmed that there may be circumstances under which activities can be regulated by municipalities under the *Planning Act*. These policies are intended to ensure that municipalities are aware of planned development related to drinking water threat activities early in the development review process so that discussions about appropriate risk management measures can be identified and incorporated into the design.

The Source Protection Authority could work with municipalities to develop guidance material for the contents of the proposed disclosure report.

### **Karst Formations**

Karst formations create a direct link, or short cut, from the surface to the underlying aquifer such that any contamination on the surface quickly reaches the groundwater leaving no time to clean up a spill or for the contaminant to breakdown. This means that careful consideration of the types of activities over and near karst is important. Karst is present in the Bobcaygeon and Gull River limestone bedrock formations in the Cataraqui Source Protection Area (present in the Town of Greater Napanee, Loyalist Township, the City of Kingston, the Township of South Frontenac and the Township of Frontenac Islands).

The Geological Survey of Canada gathered data and produced mapping of known karst formations in Ontario (Brunton and Dodge, 2008). This is a useful resource, but it does not include all occurrences within the Cataraqui Source Protection Area. It is important for municipalities to be aware of the known locations of these formations and to also be watchful for currently unidentified features.

The Source Protection Committee included this policy in the draft Source Protection Plan so that some of the most sensitive aquifers in the Cataraqui Source Protection Area are first known and then protected when municipalities consider development applications.

The intent of this policy was clarified based on comments received from municipalities during pre-consultation. The Township of South Frontenac supported this policy during pre-consultation.

### **7.3.2 On-site Sewage Systems**

Applicable policies:    5.2.5-NB                      5.2.6-NB

The Ontario Building Code provides municipalities with a legislative framework to ensure that failed and improperly functioning on-site sewage systems (e.g., septic systems) do not continue to release untreated or poorly treated sewage to groundwater and surface water. The draft Source Protection Plan encourages municipalities to establish discretionary on-site sewage system maintenance inspection programs in areas that are subject to increased risk of groundwater contamination from on-site sewage systems within the highly vulnerable aquifers and significant groundwater recharge areas (policy 5.2.5-NB), and to support these programs with targeted education and outreach initiatives (policy 5.2.6-NB).

The discharge from on-site sewage systems is or would be a low drinking water threat in the highly vulnerable aquifers and significant groundwater recharge areas, but this low ranking should not undermine the impact poorly functioning systems can have on ground and surface water sources. The International Joint Commission Study on the Great Lakes Basin (2010) notes that 90 percent of water-borne pathogenic disease outbreaks are attributable to water systems supplied from groundwater and more than half of these water-related illnesses may be due to viruses. The primary source of disease-causing viruses is human fecal waste from malfunctioning septic tank and seepage bed systems and leaking sanitary sewers. Studies have correlated the occurrence of waterborne viral disease to the density of septic systems.

An education and outreach program is important to the successful implementation of any program. Therefore the on-site sewage system maintenance inspection programs described above must be complemented with an awareness campaign to assist landowners to understand the proper operation and maintenance of their on-site sewage systems, and to inform them of the benefits of well-maintained systems.

KFL&A Public Health and the Leeds, Grenville, Lanark and District Health Unit indicated during pre-consultation that they should likely coordinate the inspection programs with

municipalities since the health units are generally involved with existing septic maintenance inspection programs. They should also be involved in developing the corresponding educational material. Loyalist Township suggested that there may be value in such an inspection program where rural residential density is greater such as in the Township's hamlets and some rural clusters.

### **7.3.3 Waste Disposal Sites and Sewage Works**

Applicable policies:    5.3.1-HR                      5.3.2-HR

Moderate and low drinking water threats will be managed in the highly vulnerable aquifers and significant groundwater recharge areas where the activity is a common occurrence, or it has the potential to become established based on the land uses permitted by the municipality, local development patterns, and the physical characteristics of the area. Waste disposal sites and sewage works may be moderate or low drinking water threats in the highly vulnerable aquifers and significant groundwater recharge areas. They are generally associated with permitted land uses in these areas. At the community roundtables, local stakeholders raised concerns about the potential impact of many of these activities on their drinking water (e.g., marinas and large industry adjacent to surface water intakes).

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future. These activities will be managed using prescribed instruments where applicable.

During the pre-consultation process, the Ministry of the Environment indicated that it does consider the potential impact to the environment when issuing approvals under the *Environmental Protection Act* and the *Ontario Water Resources Act*. In the future, it will review options for how it can more directly identify the source protection information available for a specific approval application and transparently demonstrate how the information would be incorporated into its decision-making. The policy was revised to reflect this comment.

### **7.3.4 Licenses for Aggregate Resources**

Applicable policy:    5.3.4-HR

The Cataraqui Source Protection Area includes aggregate deposits (e.g., sand and gravel) of economic value for which pits and quarries are developed to extract the material. These aggregate extraction sites are generally situated in hydrogeologically sensitive areas (i.e., highly permeable sand and gravel deposits), and can be considered transport pathways since the protective soil layers are removed to access the underlying sand and gravel deposits.

It is common for the handling and storage of liquid fuel to occur at these sites to power the heavy equipment necessary to extract and move the material within and off the site. It is important to ensure that the licenses for the extraction sites include consideration for measures to reduce the risk of contamination from a spill or leak.

It is important that risk management measures be implemented through the licenses for these sites to reduce the chance of groundwater contamination from a spill or leak associated with the handling and storage of liquid fuel.

During the pre-consultation process, the Ministry of Natural Resources indicated that it is prepared to require risk management measures for fuel at aggregate extraction sites where necessary.

### **7.3.5 Municipal Guidance on Groundwater Protection**

Applicable policy: 5.3.5-NB

Groundwater protection is a relatively new consideration for some municipal Councils and staff. The implementation of groundwater protection policies and principles in municipal planning documents and decisions is an important aspect of overall source water protection.

The Ministry of Municipal Affairs and Housing provides municipalities with guidance on a wide variety of matters, therefore the Source Protection Committee believes that the Ministry is the appropriate body to disseminate information about groundwater protection to the municipalities in the Cataraqui Source Protection Area.

### **7.3.6 Protecting Groundwater in Rural Settlement Areas**

Applicable policy: 5.4.1-NB

There are many rural settlement areas (i.e., hamlets and villages) that depend on private wells for their drinking water. It became apparent to the Source Protection Committee while preparing the Assessment Report (June 2011) and through consultation with communities across the Cataraqui Source Protection Area that historical and current land uses and practices may be affecting the quality of the groundwater on which these residents and businesses rely.

The Cataraqui Source Protection Authority should provide municipalities with the information necessary for them to consider how to proactively protect the sources of drinking water for these areas, to consider protecting these sources for the long term where a municipal drinking water supply may be required in the future, and to manage activities that would pose a threat to the quality of the public groundwater sources.

This policy supports subsection 2.2.1 of the Provincial Policy Statement which states that planning authorities shall protect, improve or restore the quality and quantity of water through a variety of actions.

In order to be in scope of the *Clean Water Act*, the focus of this policy changed since pre-consultation from having the municipalities confirm the extent of significant groundwater recharge areas that provide drinking water to unserviced hamlets and villages to the Source Protection Authority providing the municipalities with information that they need to make decisions about how to protect these settlement areas.

During the pre-consultation process, Loyalist Township suggested that the implementation cost for the original draft policy would be high, and that the Ministry of the Environment and the Cataraqui Source Protection Authority should act as the lead so that a common approach is taken throughout the Cataraqui Source Protection Area.

The Township of Elizabethtown-Kitley and the City of Kingston voiced similar concerns about the cost of implementing the study portion of the original draft policy. The Township of Elizabethtown-Kitley suggested that prioritizing locations should be part of the policy, and that agricultural nutrients should be considered in addition to the activities listed in policy 5.2.1-HR. The Township of South Frontenac supported the original draft policy during pre-consultation.

### **7.3.7 Targeting Clusters of Water Contamination**

Applicable policy: 5.4.2-NB

Bacteriological sampling by homeowners is one of the few sources of water quality data in the highly vulnerable aquifers and significant groundwater recharge areas with relatively good geographic coverage. Wherever possible the Source Protection Committee has endeavored to use existing programs and information to bolster source protection policies and vice versa. Knowing on-the-ground impacts of drinking water threat activities is valuable to inform education program delivery (refer to policy 4.4.1-NB) and to consider how source protection policies could be improved for the future.

### **7.3.8 Research and Monitoring**

During preparation of the Assessment Report (June 2011), it became evident that there is insufficient groundwater information in the Cataraqui Source Protection Area, and that the existing information is not organized in an accessible manner. This was echoed by municipalities and local agencies during pre-consultation on the draft source protection policies.

The Cataraqui Source Protection Area is already affected by drought conditions. Private well owners experience water shortages and it is of interest to monitor how climate change may impact these sources of drinking water in the future as well as the municipal supplies. Implementation of the two policies that follow would provide a more comprehensive dataset for consideration and could help to identify specific locations of at-risk and poor water quantity and/or quality for which further research or education and outreach programs could be used to better define the problem areas and mitigate the condition where possible.

### **Organization of Groundwater Data**

Applicable policy: 5.4.3-NB

The existing groundwater data collected by agencies in the Cataraqui Source Protection Area is one source of information that should be used to fill the knowledge gap on groundwater quality and quantity. The Source Protection Authority should facilitate a meeting of these agencies to determine what data are available and how it would best be organized and shared. The provincial “CA Maps” initiative (an internet mapping portal) is an established tool that may be used to implement this policy.

The Leeds, Grenville, Lanark and District Health Unit indicated during pre-consultation that it is interested in the data sharing envisioned in this policy. Staff of the City of Brockville and KFL&A Public Health also supported the intent of this policy.

### **Groundwater Monitoring Network**

Applicable policy: 5.4.4-NB

The Cataraqui Region Conservation Authority, in cooperation with the Ministry of the Environment, operates a groundwater monitoring network within its jurisdiction, which was established in 2002. The main purpose of the network is to collect ambient water level (quantity measure) and quality data from representative aquifer types. The high quality data from the seven existing monitoring wells is instrumental to understanding what the quality and quantity of groundwater should be when it is not impacted by contamination. It is a valuable resource for identifying benchmark conditions on a major aquifer basis, as well as for drought monitoring and regional groundwater studies.

There are at least three geographically extensive aquifer types that are not currently included in the network. The addition of at least three monitoring wells in these aquifer types within the CRCA Provincial Groundwater Monitoring Network would provide a more comprehensive and representative set of data for analysis.

## 7.4 Chapter 6: Policies for Wellhead Protection Areas

Chapter 6 of the draft Source Protection Plan includes policies that are applicable to the Cana, Lansdowne and Miller Manor Wellhead Protection Areas.

### 7.4.1 Land Purchasing Strategies

Applicable policies: 6.2.1-CW 6.3.1-CW 6.4.1-CW

The land in WHPA-A is closest to the supply well and therefore it is most important to ensure that any activities on the land surface do not cause contamination to the underlying aquifer. The City of Kingston, Township of Leeds and the Thousand Islands and the United Counties of Leeds and Grenville own a portion of land in their respective WHPA-A; however, there may be opportunities to purchase additional lands in these vulnerable areas. Direct municipal control over these lands should prevent or manage all of the prescribed drinking water threats, and prevent the establishment of transport pathways.

During the pre-consultation process, the City of Kingston indicated that it has no major concerns with this policy provided that the intent is to acquire vacant lands only. The policy does not specify what considerations must or should be included in the strategy such that each municipality is free to develop its own purchasing criteria.

Staff of the United Counties of Leeds and Grenville suggested that a land purchasing strategy should be considered, but also that a policy prohibiting the development or redevelopment of certain uses in a restricted area may be more acceptable. This is consistent with policies within the wellhead protection area that prohibit the establishment of significant drinking water threats.

### 7.4.2 Municipal Emergency and Spill Response

Applicable policies: 6.2.2-CW 6.3.2-CW 6.4.2-CW

The emergency and spill response policies were prepared in accordance with subsection 26(1)(v) of Ontario Regulation 287/07.

A discharge or spill associated with any of the prescribed drinking water quality threats and local transportation-related threats, can be a significant, moderate or low threat depending on the vulnerable area and circumstance. It is important that agencies that respond to these situations have up-to-date information and procedures that would help improve local response to a spill.

The municipal policies relate to Emergency Management Plans, department supplementary plans, and Drinking Water Quality Management System Operational Plans, based on comments received from the City of Kingston and Loyalist Township during pre-consultation. The City of Kingston Emergency Management Office recommended that the vulnerable area information should be included in the City GIS system and in the standard operating procedures for the divisions and agencies directly responsible for tactical and operational responses to spills and emergencies. The policy remains generalized, recognizing that the capacity of individual municipalities varies.

### **7.4.3 Addressing Significant Drinking Water Threats**

The Source Protection Committee considered whether a given significant drinking water threat can be managed, or whether it should be prohibited now and/or in the future

The *Clean Water Act* requires that policies be developed for all significant drinking water threats identified in the Assessment Report (June 2011) in order to ensure that source protection committees capture all land-based activities that are or would be significant drinking water threats. Existing significant threats will be managed, and those activities that would be significant threats if they were to occur in the future are prohibited.

In the Cataraqui Source Protection Area, detailed analyses and ground-truthing were performed for the wellhead protection areas and intake protection zones where significant drinking water threats can occur based on their vulnerability scores to determine what activities and land uses have the potential to occur now and in the future.

#### **7.4.3.1 Prohibition of Activities that are Significant Drinking Water Threats**

Applicable policies related to Part IV of the <i>Clean Water Act</i> :	6.2.3-CW	6.3.3-CW	6.4.3-CW
	6.2.4-CW	6.3.4-CW	6.4.4-CW
	6.2.5-CW	6.3.5-CW	6.4.5-CW
Applicable policies related to land use planning:	6.2.10-CW	6.3.10-CW	6.4.10-CW
	6.2.11-CW	6.3.11-CW	6.4.11-CW
Applicable policies related to prescribed instruments:	6.5.1-CW	6.5.3-CW	6.5.10-CW

It was determined that many of the activities that must be addressed are not feasible in these vulnerable areas based on the land uses permitted by the municipalities, local development patterns, and the physical characteristics of the areas. Therefore, it is proposed that where these activities would be significant drinking water threats if they became established in the future,

they will be prohibited in one of three ways: Part IV of the *Clean Water Act*, land use planning, and/or prescribed provincial instruments (e.g., certificate of approval). Other significant drinking water threats for which the Committee believes that risk management would not be sufficient to address the risk to source water are prohibited.

Part IV prohibition is used for those activities which cannot be managed through land use planning (e.g., the handling and storage of pesticides), and that do not require approval under a Provincial prescribed instrument.

Land use planning tools are used to prohibit land uses that are drinking water threats (e.g., waste disposal sites), and Provincial prescribed instruments are used where they are applicable to the activity. Both of these tools are used to complement each other where appropriate.

The intent of the prohibition policies is to protect municipal sources of drinking water from contamination that could result from specific activities if they were permitted or if appropriate risk management measures are not put in place. These policies would be effective and appropriate to address the significant threats associated with the identified activities. Activities that could become established in the future are prohibited where the Source Protection Committee is of the opinion that the risk to source water associated with the activity is unacceptable (e.g., gas station in WHPA-A and WHPA-B). The Committee recognizes that there could be an economic impact on particular landowners in these vulnerable areas.

During the pre-consultation process, the Ministry of the Environment supported the use of complementary land use planning policies and prescribed instrument policies to prohibit significant drinking water threats. The Ministry raised concerns about the policies prohibiting the Director from issuing approvals, and recommended that the policies use more direct language that prohibits the activity. This recommendation was incorporated into the policies to the extent possible.

### **Application and Storage of Materials**

Generally speaking the future land application and storage of any material listed as a significant drinking water threat are prohibited in WHPA-A and the storage of the materials is prohibited in WHPA-B.

The Source Protection Committee believes that it is unacceptable to apply to land and store large volumes of contaminants in close proximity to the supply wells due to the short time of travel and the thin overlying protective soil layer. In all three locations the aquifer is made of fractured bedrock.

- Cana Wellhead Protection Area: variable soil depths with some areas having between zero and five metres (Golder Associates, 2009a)
- Lansdowne Wellhead Protection Area: soil depths are between zero and three metres (two metres in the vicinity of the supply wells); both wells have cascading water and casings that are not up to current Ontario Regulation 903 standards (Geofirma Engineering Ltd., 2011)
- Miller Manor Wellhead Protection Area: variable soil depths with some areas having between zero and ten metres (Golder Associates, 2009b). There is 4.8 m of soil at the well and zero metres south of the well.

Thin soil and fractured bedrock means that contaminants can move quickly from the surface to the underlying aquifer, which is the source of drinking water for these communities.

The Committee's reasons are supported by Part Two of the Walkerton Inquiry (O'Connor, 2002) which noted that although the primary, if not only, source of contamination was manure application in April of 2000, the manure handling, spreading and storage practices were consistent with what are considered best management practices by the Ontario Ministry of Agriculture and Rural Affairs and the farmer cannot be faulted. Although the *Nutrient Management Act* has since been enacted to address setbacks to wells from manure storages and spreading, farms that have yet to be phased in, farms that generate less than five nutrient units and pastures do not require any setbacks to wells.

During the pre-consultation process, the Ministry of Agriculture, Food and Rural Affairs indicated that it is supportive of prohibiting agricultural activities (with the exception of pasturing and grazing) in WHPA-A and IPZ-1 since this is consistent with the requirements under the *Nutrient Management Act*. It is the Ministry's opinion that grazing and pasturing can be managed in these zones using nutrient management practices where the soil depth is greater than 30 cm and where the livestock density is < 1 NU/acre. The Ministry also suggests that agricultural activities can be managed outside of WHPA-A. These comments have been considered; however, based on local soil and bedrock characteristics, municipal well conditions, and findings from the Walkerton Inquiry the proposed policies have not been changed.

In terms of the handling and storage of chemicals, the Committee took into consideration that dense non-aqueous phase liquids (DNAPLs) and organic solvents have a high solubility to toxicity ratio and are extremely difficult and sometimes impossible to remediate once an aquifer is contaminated. In addition, it is known that petroleum loss at fuel outlets via spills and leaks is a common occurrence, and that a small volume of spilled fuel can contaminate a large volume of water.



Currently fuel oil tanks, including those for home heating, are only required to be inspected by the fuel oil distributor once every ten years. Oil storage tanks have been found to leak in a much shorter time frame. Some, but not all, fuel oil distributors are requiring more frequent inspections. The Fuel Oil Burning Code requires the owner of the equipment to have it maintained at least once every year; however, this does not consistently occur since many homeowners are not aware of this requirement.

Risk management plans for home heating oil would require, at a minimum, annual inspections by a certified person and any necessary equipment replacement to be with equipment known to reduce the risk to source water.

The Tables of Drinking Water Threats (MOE, 2009a) specify that below grade fuel storage is a significant drinking water threat, and that above grade storage is a moderate or low threat. However, industry knowledge indicates that outdoor, above grade liquid fuel storage tanks are more likely to leak due to temperature changes, corrosion resulting from condensation, and physical damage due to falling objects. Therefore the risk management plans will not encourage the relocation of below grade storage tanks (i.e., in a basement) to be outside and above grade.

Complementing this policy, policy 4.4.1-NB will serve to provide landowners with information about how to reduce the potential for leaks and spills from liquid fuel storage regardless of the risk classification in the Tables of Drinking Water Threats.

There are existing fuel pumps at the municipal building in the Lansdowne Wellhead Protection Area that are identified as a significant drinking water threat. In order to ensure that proper maintenance and spill prevention measures are in place a risk management plan is required for the storage and handling of the fuel. Since the fuel pumps are not open to the public they are considered a private fuel outlet and as such are not subject to any inspection requirements through the existing legislation.

The City of Kingston suggested during pre-consultation that risk management plans for fuel should be overseen by the Technical Standards and Safety Authority (TSSA) rather than by the municipality. Also during pre-consultation, TSSA confirmed that the role of risk management official would be outside its current legislated authority. The TSSA generally does not have the authority to refuse approvals or authorizations where equipment is in compliance with applicable codes and standards. In addition, the *Clean Water Act* has no legal authority over TSSA.

Municipalities that do not have the resources to have their own risk management officials to implement the policies made under Part IV of the *Clean Water Act* may enter into agreements to:

- a) Share joint enforcement within their municipalities;
- b) Transfer the enforcement responsibility to another municipality;

- c) Transfer the enforcement responsibility to a board of health, planning board or source protection authority; or
- d) Transfer the enforcement responsibility to the Crown for agreed upon activities.

This is a topic for which affected municipalities will need to discuss options for implementation in order to be prepared to implement the Source Protection Plan.

Complementing the requirement for risk management plans, policy 4.3.7-NB encourages the Ministry of Consumer Services and the Technical Standards and Safety Authority to review the existing provincial regulations and codes that govern the fuel storage to determine if any other measures are needed to better protect sources of drinking water. If this policy is implemented, the risk management plans may be needed on an interim basis to address the immediate risk to sources of drinking water since it could be several years before positive change is made at the provincial level. The Ministry of Consumer Services indicated during pre-consultation that it would engage TSSA on the topic of inspection frequency by fuel suppliers.

### **Nutrient-related threats**

The Source Protection Committee chose to use the risk management tool to address existing circumstances involving the following activities where they are not already regulated through municipal by-laws or Ontario Regulation 267/03 (General) under the *Nutrient Management Act*

- the application and storage of agricultural source material
- livestock grazing and pasturing, outdoor confinement areas and barnyards.

It is the opinion of the Committee that these threats can be adequately managed. It also did not want to create undue hardship to farmers and businesses in the wellhead protection areas. This approach is consistent with public opinion in the Lansdowne Wellhead Protection Area that current agricultural uses at the Lansdowne Agricultural Fairgrounds must be allowed to continue and that stewardship is already taking place to protect the Lansdowne wells.

Complementing the requirement for risk management plans, policy 4.3.9-NB encourages the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) to amend Ontario Regulation 267/03 (General) under the *Nutrient Management Act* to apply to all farms in wellhead protection areas and intake protection zones where the application, storage and management of agricultural source material is a significant drinking water threat. This is an established and understood piece of legislation that could be used to address these nutrient-related threats instead of duplicating the process through the use of risk management plans. Risk management plans would be used in the interim to address those agricultural operations that are not phased-in and managed under O. Reg. 267/03.

In response to policy 4.3.9-NB, OMAFRA indicated during pre-consultation that regulatory amendments are not anticipated at this time, but that the suggestion is noted for future consideration. It is the opinion of the Ministry that farming operations with significant drinking water threats that are not phased in under the *Nutrient Management Act* (NMA) can have risk management plans that utilize NMA standards and management practices, and offered existing educational material that could be used by the risk management official to negotiate the plans.

### **7.4.3.3 Managing Activities that are Significant Drinking Water Threats through Prescribed Instruments**

Prescribed instruments are used to manage existing activities that are significant drinking water threats in circumstances where the activity requires an approval related to legislation included in the *Clean Water Act*.

#### **Sewage-related threats**

Applicable policy:      6.5.3-CW                              6.5.4-CW

The Source Protection Committee is of the opinion that wastewater treatment facilities/outfalls and large on-site sewage systems should not be located in areas where they would be a significant drinking water threat. The nature of development in the wellhead protection areas does not necessitate their establishment in these areas.

The originally proposed policy was revised to reflect the Ministry of the Environment pre-consultation comment that the policy should be re-worded to specifically state what types of sewage works are prohibited.

Policy 6.5.3-CW will ensure that source water protection is considered as part of the anticipated upgrade or replacement of the Cana Sewage Treatment Plant that is located in Cana WHPA-A.

#### **Nutrient-related threats**

Applicable policies:      6.5.12-CW

This policy will ensure that source water protection is considered in the nutrient management strategies and/or plans for existing farms where the application and/or storage of agricultural source material occur. These policies were supported by the Ministry of Agriculture, Food and Rural Affairs during the pre-consultation process.

#### 7.4.3.4 Restricted Land Uses

Applicable policies:	6.2.7-CW	6.3.8-CW	6.4.8-CW
	6.2.8-CW	6.3.9-CW	6.4.9-CW
	6.2.9-CW		

The restricted land use policies are made under section 59 of the *Clean Water Act*. This tool is used to flag specific land uses in a given area that are or may be associated with the activities that are prohibited under section 57 of the *Clean Water Act* or that require a risk management plan under section 58 of the *Clean Water Act*. Before making an application under the *Planning Act* or the Ontario Building Code, the proponent would need to receive confirmation from the risk management official that (a) the proposed activity is not prohibited nor requires a risk management plan, or (b) a risk management plan is required, in which case they would need to negotiate and agree to a plan.

#### 7.4.4 Managing Activities that are Moderate or Low Drinking Water Threats through Land Use Planning

Applicable policies:	6.2.12-HR	6.3.12-HR	6.4.12-HR
	6.2.13-NB	6.3.13-NB	6.4.13-NB
	6.2.14-HR	6.3.14-HR	6.4.14-HR
	6.2.15-HR	6.3.15-HR	6.4.15-HR

Moderate and low drinking water threats will be managed using land use planning tools in the vulnerable areas where the activity is a common occurrence, or it has the potential to become established based on the land uses permitted by the municipality, local development patterns, and the physical characteristics of the area. Minimum thresholds are associated with these threats in most cases (e.g., handling and storage of more than 2,500 litres of liquid fuel).

The activities listed in these policies may be moderate or low drinking water threats in the specified wellhead protection areas. They are generally associated with permitted land uses in these areas. Local stakeholders raised concerns about the potential impact of many of these activities on their drinking water (e.g., public works yards, waste disposal sites) at the community roundtables for the wellhead protection areas.

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future.

During the pre-consultation process, the Ministry of Municipal Affairs and Housing was supportive of the policies that required disclosure reports as part of a complete application under

the *Planning Act* (i.e., policies 6.2.12-HR, 6.3.12-HR and 6.4.12-HR). The City of Kingston Legal Department confirmed that there may be circumstances under which activities can be regulated by municipalities under the *Planning Act*. The intent of these three policies is to ensure that appropriate risk management measures are identified and incorporated into the design of development proposed under the *Planning Act*.

The Source Protection Authority could work with municipalities to develop guidance material for the contents of the proposed disclosure report.

Policies 6.2.14-HR, 6.3.14-HR and 6.4.14-HR recognize industry knowledge that gasoline stations always lose some product to the environment through spills and leaks. Underground storage tanks are more likely to have unnoticed leaks than above grade so it is preferable for any gas station development to use above grade storage. Implementation of oil grit separators and additional protection measures will also reduce the impact of any spills on the underlying aquifer.

The intent of policies 6.2.15-HR, 6.3.15-HR and 6.4.15-HR is for the municipalities to encourage the design of stormwater management facilities that will protect the underlying aquifer from contamination in the wellhead protection areas. Policy 4.3.4-NB complements these policies by encouraging the Ministry of the Environment to review and update the *Stormwater Management Planning and Design Manual* (2003) to address treatment requirements for sensitive groundwater areas.

#### **7.4.5 On-site Sewage Systems**

Applicable policies:	6.2.18-CW	6.3.18-CW	6.4.18-CW
	6.2.19-NB	6.3.19-NB	6.4.19-NB

The Ontario Building Code provides municipalities with a legislative framework to ensure that failed and improperly functioning on-site sewage systems (e.g., septic systems and holding tanks) do not continue to release untreated or poorly treated sewage to groundwater and surface water.

Under the Ontario Building Code, municipalities are required to establish an on-site sewage system maintenance inspection program for those areas where septic systems are significant drinking water threats by October 2016 (i.e., within five years of the Assessment Report being approved by the Ministry of the Environment).

The discharge from on-site sewage systems is or would be a significant drinking water threat in the Cana, Lansdowne and Miller Manor WHPA-A and WHPA-B where the vulnerability score is ten. There are three systems in each of Cana and Lansdowne, and 17 systems in Miller Manor.

Policies 6.2.19-NB, 6.3.19-NB and 6.4.19-NB encourage the City of Kingston, Township of Leeds and the Thousand Islands and the Township of Front of Yonge to extend the mandatory inspection program required by the Ontario Building Code to the remainder of each of the wellhead protection areas. There are 13 systems in Cana, 2 in Lansdowne and 85 in Miller Manor that would fall under such a program.

An education and outreach program is important to the successful implementation of any program. Therefore the on-site sewage system maintenance inspection programs described above must be complemented with an awareness campaign to assist landowners to understand the proper operation and maintenance of their on-site sewage systems, and to inform them of the benefits of well-maintained systems (policies 6.2.18-CW, 6.3.18-CW, and 6.4.18-CW). The Source Protection Committee is of the opinion that this education and outreach policy is sufficient to address the significant threat associated with on-site sewage systems, since the inspection of these systems is mandated by the Ontario Building Code. The inspection program will identify any systems that require repair or replacement, and ensure that remedial work is performed.

Both KFL&A Public Health and the Leeds, Grenville, Lanark and District Health Unit indicated during pre-consultation that they should likely coordinate the inspection programs with municipalities since the health units are generally involved with existing septic maintenance inspection programs. They should also be involved in developing the corresponding educational material.

#### **7.4.6 Municipal Operations and By-laws**

Municipalities have a variety of responsibilities related to their operations that directly involve activities that are a threat to drinking water. The draft Source Protection Plan includes policies that direct municipalities to take action on activities that are significant drinking water threats, and encourages them to also consider other activities around their wells that are a lower threat. The municipal operations policies are specific to each of the wellhead protection areas.

##### **7.4.6.1 Cana Wellhead Protection Area**

The City of Kingston and Utilities Kingston are identified as the implementing bodies for policies related to the existing wastewater treatment facility and associated sewage network and local drainage in the Cana Wellhead Protection Area.

**Wastewater Treatment Facility**

Applicable policies: 6.2.22-CW                      6.2.23-NB

According to Utilities Kingston, the sanitary sewer laterals in the Cana Wellhead Protection Area are experiencing an inflow/infiltration of water rather than a loss of sewage to the groundwater. Therefore, the Source Protection Committee determined that an education and outreach program was sufficient to address the risk to source water posed by the sanitary sewer laterals.

During the pre-consultation process, Utilities Kingston expressed concern that the sewer laterals are located on private property and that the landowners would need to pay for the cost of any repairs to these sewer lines. The private ownership of the laterals was another reason why the Source Protection Committee revised the policy from a previous version that required the Utility to work with landowners to identify any cracks or misalignments of the pipes and repair them as required.

Applicable policy: 6.2.24-CW

A 2009 assessment of the Cana wastewater treatment facility concluded that it was in poor condition. A Municipal Class Environmental Assessment is currently underway to determine the fate of the facility. Drinking water source protection is a topic considered through the Class EA. Policy 6.5.3-CW will ensure that source water protection is considered as part of the anticipated upgrade or replacement of the Cana Sewage Treatment Plant that is located in Cana WHPA-A.

In the meantime, there are actions that can be taken to address the risk to source water associated with this facility.

The Ministry of the Environment Communal Sewage Report (December 18, 2008) raised concerns about the proximity of the facility's sewage tanks to the supply well (75 metres), the age of the main tank (more than 30 years old), and that this tank has not been tested for actual or potential leaks.

Policy 6.2.24-CW will ensure that the existing Standard Operating Procedure for this facility is implemented, and that corrective actions will be prioritized and undertaken if problems are observed. The Source Protection Committee chose this approach in consideration for the concerns raised by Utilities Kingston about the alternative, which is to amend the facility's certificate of approval when it is subject to an ongoing Environmental Assessment.

### **Local Drainage**

Applicable policy: 6.2.25-NB

The drainage swale located approximately 20 metres south of the Cana Well Supply was identified as a transport pathway in the Assessment Report (June 2011). Although there is no documented near flooding of the supply well from the swale, the well and the aquifer are relatively shallow. The Source Protection Committee believes that it is justifiable to incorporate visual inspection of the swale for blockages that could cause flooding into Utilities Kingston's routine checks that are dictated by the Standard Operating Procedure.

#### **7.4.6.2 Lansdowne Wellhead Protection Area**

The Township of Leeds and the Thousand Islands are identified as the implementing body for policies related to the existing wastewater treatment facility, local drainage, the public works yard and by-law enforcement.

### **Wastewater Treatment Facility**

Applicable policy: 6.3.22-CW

The sanitary sewer network that serves the village of Lansdowne is affected by inflow and infiltration of water percolating from the ground surface. It is also possible that the cracks and misalignments of the sewer pipes are allowing sewage to exfiltrate (i.e., leak out) into the surrounding groundwater.

Although the Township of Leeds and the Thousand Islands has applied for funding to address this issue under the Ontario Small Waterworks Assistance Program, the Ministry of Municipal Affairs and Housing noted that the Township has no guarantee that its application for this funding will be approved or that this funding program will continue in perpetuity, and that the program awards one time payments. The Ministry raised concerns about financial capacity and resources of the Township to fulfill the obligation imposed by this policy.

Applicable policy: 6.3.23-NB

The Lansdowne Sewage Lagoons are located in WHPA-C and WHPA-D, and while the Source Protection Committee is not aware of a monitoring program to identify any sewage leaks to the subsurface, it believes it is important to ensure the underlying aquifer is protected from any potential leaks.

### **Local Drainage**

Applicable policy: 6.3.24-NB

The drainage ditch located approximately 15 metres from Lansdowne Supply Well #2 was identified as a transport pathway in the Assessment Report (June 2011). Drainage is poor in the vicinity of the supply wells, especially around Well #2. The wells are identified as potentially GUDI; consequently wellhead protection area 'E' has been delineated around each of the wells. Note that the wells experience cascading water below well casings that are shorter than specific in Regulation 903 (Wells). Therefore, it is important to ensure that surface water does not collect near the wells.

### **Public Works Yard**

Applicable policy: 6.3.25-NB

The municipal road salt storage building that is located in Lansdowne WHPA-B is ranked as a low drinking water threat. According to Township staff the following best management practices are currently implemented at the facility:

- Salt deliveries are made during dry, calm weather whereby salt and sand are dumped outside and mixed using a conveyor as it is loaded into the storage building
- All salt storage is in an enclosed building
- Road maintenance vehicles back up to the storage building doors to be loaded
- Loading areas are cleaned up after each storm event.

Public concern about the location of the road salt storage building and its potential impact on the groundwater was raised at the community roundtable in Lansdowne. The participants suggested that:

1. The salt storage should be relocated.
2. There should be more frequent and comprehensive reporting about road salt use and management.
3. The 1990 municipal by-law that was enacted to ensure that fuel, manure and road salt would not be stored in the area in order to protect the Lansdowne supply wells, no longer appears in municipal planning documents.

The water quality monitoring program recommended in this policy is an appropriate first step to determine if the current best management practices are sufficient to protect the underlying aquifer.

### **Enforcement of By-law 06-056**

Applicable policy: 6.3.26-CW

Township of Leeds and the Thousand Islands By-law 06-056 regulates manure management in Lansdowne WHPA-A and WHPA-B. The Source Protection Committee believes that this by-law is appropriate and effective to manage the existing activities involving the storage of agricultural source material, which is a significant drinking water threat in WHPA-A and WHPA-B.

### **7.4.6.3 Miller Manor Wellhead Protection Area**

Applicable policy: 6.4.17-NB

The Miller Manor Apartments Supply Well is located 12 metres from County Road 2, while the Regulation 903 (Wells) requires a minimum 15 metre separation distance between drilled wells and sources of contamination. Although a Ministry of the Environment guidance document, *Water Supply Wells - Requirements and Best Management Practices* (MOE, 2009b), does not specifically include road salting areas (i.e., roads) in the definition of “sources of contamination” it does consider road salt storage and the fact that sodium is known to migrate from both storages and roads to impact groundwater sources. Sodium concentrations in the raw well water at Miller Manor exceed the 20 mg/L concentration identified as a health objective in the Ontario Drinking Water Standards.

The Source Protection Committee believes an effective mitigation measure to reduce the impact of road salt on the supply well would be for the road authority to inspect the road side ditch in the vicinity of the Miller Manor well and address any grading or culvert placement that may be causing water to pool. This action will reduce the infiltration of runoff and therefore road salt inputs to the groundwater.

### **7.4.7 Managing Activities that are Moderate or Low Drinking Water Threats through Prescribed Instruments**

#### **Waste Disposal Sites and Sewage Works**

Applicable policies: 6.5.2-HR 6.5.5-HR

Moderate and low drinking water threats will be managed in the wellhead protection areas where the activity is a common occurrence, or it has the potential to become established based on the land uses permitted by the municipality, local development patterns, and the physical characteristics of the area.

Waste disposal sites and sewage works may be moderate or low drinking water threats in parts of the wellhead protection areas. They are generally associated with permitted land uses in these areas. At the community roundtables, local stakeholders raised concerns about the potential impact of many of these activities on their drinking water (e.g., marinas and large industry adjacent to surface water intakes).

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future. These activities will be managed using prescribed instruments where applicable.

The Ministry of the Environment indicated during pre-consultation that it does consider the potential impact to the environment when issuing approvals under the *Environmental Protection Act* and the *Ontario Water Resources Act*. In the future, it will review options for how it can more directly identify the source protection information available for a specific approval application and transparently demonstrate how the information would be incorporated into its decision-making. The policy was revised to reflect this comment.

#### **Nutrient-related threats**

Applicable policies:    6.5.11-HR            6.5.13-HR

Prescribed instruments are used to manage existing activities that are significant drinking water threats in circumstances where the activity requires an approval related to legislation included in the *Clean Water Act*.

These policies will ensure that source water protection is considered in the nutrient management strategies and/or plans for existing farms where the application and/or storage of agricultural source material occur. These policies were supported by the Ministry of Agriculture, Food and Rural Affairs during pre-consultation.

#### **7.4.8 Amendments to Regulation 903**

Applicable policies:    6.5.8-NB            6.5.9-NB

Properly constructed wells are critical to protecting aquifers from contamination.

The Water Well Sustainability in Ontario, Expert Panel Report (January 30, 2006) that was prepared for the Ontario Ministry of the Environment Sustainable Water Well Initiative communicated that:

- There has been a decline in recent years in the number of inspection staff at the Ministry of the Environment (MOE) to support enforcement and compliance with regulations. There have been no well inspection positions at MOE since 1998. There is one experienced staff member within the branch to handle all incidents related to apparent non-compliance with the regulations, such as licensing violations and issues of substandard construction; and
- Observations made during the Healthy Futures upgrade and decommissioning program audits indicate that lack of enforcement can lead to poor construction practices. Recently upgraded wells or decommissioned wells were observed for adherence to best practices. Best practices were used in 59 of 396 (15 percent) of well upgrades and 61 of 102 (60 percent) decommissions. Many contractors who did not adhere to best practices offered lower prices to the client, making the use of poor practitioners favorable to clients.

The Watershed Based Source Protection: Implementation Committee Report to the Minister of the Environment (November 2004) includes the following recommendation:

- Construction of new private wells should be field verified and existing legislation (Regulation 903 under the *Ontario Water Resources Act*) strictly enforced in highly vulnerable areas to ensure they do not become conduits of contamination for the aquifer.
- Permits should be required to construct new wells (this is current practice in Ontario), and those permits should be made conditional on the proper decommissioning of any abandoned wells or wells to be abandoned on the property.

It is necessary to inspect wells during construction since aspects like the annular seal and seating into bedrock are no longer visible when construction is complete.

And finally, the Western Cataraqui Region Groundwater Study (Trow Consulting, 2007) noted that there are about 1,800 unused wells recorded in the Ontario Ministry of the Environment Water Well Records Database, the majority of which are not properly decommissioned. The study also stated that the actual number of unused wells is anticipated to be higher.

The Ministry of the Environment commented on a version of policy 6.5.8-NB during preconsultation and informed the Source Protection Committee of the Ministry's current enforcement strategy as well as an inspection pilot program to audit wells during construction.

This input resulted in a revised policy that account for the current strategy and intends to build on the pilot program.

Policy 6.5.9-NB was revised to apply to the wellhead protection areas based on pre-consultation comments received from the Ministry of the Environment that clarified that the Clean Water Act does not permit the Source Protection Plan to include policies about transport pathways in the highly vulnerable aquifers and significant groundwater recharge areas.

## **7.5 Chapter 7: Policies for Intake Protection Zones**

### **7.5.1 Municipal Emergency and Spill Response**

Applicable policies:	7.2.1-CW	7.4.1-CW	7.6.1-NB
	7.2.2-NB	7.4.2-NB	7.7.1-NB
	7.3.1-NB	7.5.1-NB	7.8.1-NB

The emergency and spill response policies were prepared in accordance with subsection 26(1)(v) of Ontario Regulation 287/07.

A discharge or spill associated with any of the prescribed drinking water quality threats and local transportation-related threats can be a significant, moderate or low threat depending on the vulnerable area and circumstance. It is important that agencies that respond to these situations have up-to-date information and procedures that would help improve local response to a spill.

The municipal policies relate to Emergency Management Plans, department supplementary plans, and Drinking Water Quality Management System Operational Plans, based on comments received from the City of Kingston and Loyalist Township during the pre-consultation process. The City of Kingston Emergency Management Office recommended that the vulnerable area information should be included in the City GIS system and in the standard operating procedures for the divisions and agencies directly responsible for tactical and operational responses to spills and emergencies. The policy remains generalized, recognizing that the capacity of individual municipalities varies.

### **7.5.2 Addressing Significant Drinking Water Threats**

The Source Protection Committee considered whether a given significant drinking water threat can be managed, or whether it should be prohibited now and/or in the future

The *Clean Water Act* requires that policies be developed for all significant drinking water threats identified in the Assessment Report (June 2011) in order to ensure that source protection

committees capture all land-based activities that are or would be significant drinking water threats. Existing significant threats will be managed, and those activities that would be significant threats if they were to occur in the future are prohibited.

In the Cataraqui Source Protection Area, detailed analyses and ground-truthing were performed for the wellhead protection areas and intake protection zones where significant drinking water threats can occur based on their vulnerability scores to determine what activities and land uses have the potential to occur now and in the future.

### **7.5.2.1 Prohibition of Activities that are Significant Drinking Water Threats**

Applicable policies related to Part IV of the <i>Clean Water Act</i> :	7.2.4-CW	7.3.3-CW	7.4.3-CW
Applicable policies related to land use planning:	7.2.7-CW 7.2.8-CW	7.3.6-CW 7.3.7-CW	7.4.7-CW 7.4.8-CW
Applicable policies related to prescribed instruments:	7.9.1-CW	7.9.3-CW	7.9.9-CW

It was determined that the many of activities that must be addressed are not feasible in these vulnerable areas based on the land uses permitted by the municipalities, local development patterns, and the physical characteristics of the areas. Therefore, it is proposed that where these activities would be significant drinking water threats if they became established in the future, they will be prohibited in one of three ways: Part IV of the *Clean Water Act*, land use planning, and/or prescribed provincial instruments (e.g., certificate of approval). Other significant drinking water threats for which the Committee believes that risk management would not be sufficient to address the risk to source water are prohibited.

Part IV prohibition is used for those activities that cannot be managed through land use planning (e.g., the handling and storage of pesticides), and that do not require approval under a Provincial prescribed instrument.

Land use planning tools are used to prohibit land uses that are drinking water threats (e.g., waste disposal sites), and Provincial prescribed instruments are used where they are applicable to the activity. Both of these tools are used to complement each other where appropriate.

The intent of the prohibition policies is to protect municipal sources of drinking water from contamination that could result from specific activities if they were permitted or if appropriate risk management measures are not put in place. These policies would be effective and appropriate to address the significant threats associated with the identified activities. Activities

that could become established in the future are prohibited where the Source Protection Committee is of the opinion that the risk to source water associated with the activity is unacceptable. The Committee does not anticipate that there would be an economic impact on any particular landowners in these vulnerable areas.

During the pre-consultation process, the Ministry of the Environment supported the use of complementary land use planning policies and prescribed instrument policies to prohibit significant drinking water threats. The Ministry raised concerns about the policies prohibiting the Director from issuing approvals, and recommended that the policies use more direct language that prohibits the activity. This recommendation was incorporated into the policies to the extent possible.

The Township of South Frontenac was supportive of these policies. The City of Kingston Legal Department confirmed that there may be circumstances under which activities can be regulated by municipalities under the *Planning Act*.

#### **7.5.2.2 Risk Management Plans**

Applicable policies:    7.2.4-CW                    7.3.3-CW                    7.4.4-CW

Risk management plans under Part IV of the *Clean Water Act* are used to address existing activities that are significant drinking water threats, and that are not already regulated through a different means such as a municipal by-law or a prescribed instrument.

The majority of plans for existing activities in the intake protection zones would address agriculture and golf course related drinking water threats, in the event that the relevant activities are not already regulated through different means such as municipal by-laws and Ontario Regulation 267/03 (General).

#### **Nutrient-related threats**

The Source Protection Committee chose to use the risk management tool to address existing circumstances involving the following activities where they are not already regulated through Ontario Regulation 267/03(General) under the *Nutrient Management Act*

- the application and storage of agricultural source material
- livestock grazing and pasturing, outdoor confinement areas and barnyards.

It is the opinion of the Committee that these threats can be adequately managed. It also did not want to create undue hardship to farmers and businesses in the intake protection zones. This approach is consistent with opinions raised at the Sydenham community roundtable.

Complementing the requirement for risk management plans, policy 4.3.9-NB encourages the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) to amend Ontario Regulation 267/03 (General) under the *Nutrient Management Act* to apply to all farms in wellhead protection areas and intake protection zones where the application, storage and management of agricultural source material is a significant drinking water threat. This is an established and understood piece of legislation that could be used to address these nutrient-related threats instead of duplicating the process through the use of risk management plans. Risk management plans would be used in the interim to address those agricultural operations that are not phased-in and managed under O. Reg. 267/03.

In response to policy 4.3.9-NB, OMAFRA indicated during pre-consultation that regulatory amendments are not anticipated at this time, but that the suggestion is noted for future consideration. It is the opinion of the Ministry that farming operations with significant drinking water threats that are not phased in under the *Nutrient Management Act* (NMA) can have risk management plans that utilize NMA standards and management practices, and offered existing educational material that could be used by the risk management official to negotiate the plans.

#### **Pesticide-related threats**

Risk management plans will also be used to manage the application of pesticides (specifically MCPA) to land areas greater than ten hectares. Ontario Regulation 63/09 (Ontario's Cosmetic Pesticides Ban) requires golf courses to be fully accredited by the IPM Council of Canada in order to continue using Class 9 pesticides (including MCPA) in their maintenance operations. The risk management plan may recognize existing pesticide management plans.

### **7.5.2.3 Managing Activities that are Significant Drinking Water Threats through Prescribed Instruments**

#### **Nutrient-related threats**

Applicable policy: 7.9.11-CW

Prescribed instruments are used to manage existing activities that are significant drinking water threats in circumstances where the activity requires an approval related to legislation included in the *Clean Water Act*.

This policy will ensure that source water protection is considered in the nutrient management strategies and/or plans for existing farms where the application and/or storage of agricultural source material occurs. These policies were supported by the Ministry of Agriculture, Food and Rural Affairs during pre-consultation.

#### **7.5.2.4 Restricted Land Uses**

Applicable policies:	7.2.5-CW	7.3.4-CW	7.4.5-CW
	7.2.6-CW	7.3.5-CW	7.4.6-CW

The Restricted Land Use policies are made under section 59 of the *Clean Water Act*. This tool is used to flag specific land uses in a given area that are or may be associated with the activities that are prohibited under section 57 of the *Clean Water Act* or that require a risk management plan under section 58 of the *Clean Water Act*. Before making an application under the *Planning Act* or the Ontario Building Code, the proponent would need to receive confirmation from the risk management official that (a) the proposed activity is not prohibited nor requires a risk management plan, or (b) a risk management plan is required, in which case they would need to negotiate and agree to a plan.

#### **7.5.3 Management of Activities that are Moderate or Low Drinking Water Threats through Land Use Planning and Prescribed Instruments**

Moderate and low drinking water threats will be managed in the intake protection zones where the activity is a common occurrence, or it has the potential to become established based on the land uses permitted by the municipality, local development patterns, and the physical characteristics of the area. Minimum thresholds are associated with these threats in most cases (e.g., handling and storage of more than 2,500 litres of liquid fuel).

The activities listed in the policies below may be moderate or low drinking water threats in the specified intake protection zones. They are generally associated with permitted land uses in these areas. At the community roundtables, local stakeholders raised concerns about the potential impact of many of these activities on their drinking water (e.g., marinas and large industry adjacent to surface water intakes).

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future. These activities will be managed using municipal land use planning or through prescribed instruments where applicable.

#### **7.5.3.1 Land Use Planning**

Applicable policies:	7.2.9-HR	7.3.11-HR	7.5.3-NB	7.7.2-HR
	7.2.10-NB	7.4.9-HR	7.5.4-HR	7.7.3-NB
	7.2.11-HR	7.4.10-NB	7.6.2-HR	7.7.4-HR
	7.3.9-HR	7.4.11-HR	7.6.3-NB	7.8.2-HR
	7.3.10-NB	7.5.2-HR	7.6.4-HR	7.8.3-NB

During the pre-consultation process, the Ministry of Municipal Affairs and Housing was supportive of the policies that required disclosure reports as part of a complete application under the *Planning Act* (e.g., policy 7.2.9-HR). The Township of South Frontenac was also supportive of these policies. Loyalist Township noted that these policies can easily be incorporated into its planning approvals process. The City of Kingston Legal Department confirmed that there may be circumstances under which activities can be regulated by municipalities under the *Planning Act*.

The Source Protection Authority could work with municipalities to develop guidance material for the contents of the proposed disclosure report.

### **7.5.3.2 Prescribed Instruments**

Applicable policies:    7.9.2-HR                      7.9.10-HR                      7.9.15-NB  
   7.9.4-HR                      7.9.12-HR

During the pre-consultation process, the Ministry of the Environment indicated that it does consider the potential impact to the environment when issuing approvals under the *Environmental Protection Act* and the *Ontario Water Resources Act*. In the future, it will review options for how it can more directly identify the source protection information available for a specific approval application and transparently demonstrate how the information would be incorporated into its decision-making.

Policies 7.9.10-HR and 7.9.12-HR will ensure that source water protection is considered in the nutrient management strategies and/or plans for existing farms where the application and/or storage of agricultural source material occur. These policies were supported by the Ministry of Agriculture, Food and Rural Affairs during the pre-consultation process.

Policy 7.9.15-NB relates to licensing under Ontario Regulation 664/98, which is not a prescribed instrument under the *Clean Water Act*, however, it is the most appropriate method of addressing the drinking water threat associated with caged aquaculture. The Ministry of Natural Resources did not raise concerns about the original wording of this policy during pre-consultation.

### **7.5.4 On-site Sewage Systems**

Applicable policies:    7.2.14-NB                      7.3.13-NB                      7.4.14-NB  
   7.2.15-NB                      7.3.14-NB                      7.4.15-NB

The Ontario Building Code provides municipalities with a legislative framework to ensure that failed and improperly functioning on-site sewage systems (e.g., septic systems) do not continue to release untreated or poorly treated sewage to groundwater and surface water. The draft Source

Protection Plan encourages the municipalities for the Sydenham, Brockville and James W. King Intake Protection Zones to establish discretionary on-site sewage system maintenance inspection programs for these areas.

The discharge from on-site sewage systems is or would be a moderate drinking water threat in these intake protection zones.

An education and outreach program is important to the successful implementation of any program. Therefore the on-site sewage system maintenance inspection programs described above must be complemented with an awareness campaign to assist landowners to understand the proper operation and maintenance of their on-site sewage systems, and to inform them of the benefits of well-maintained systems.

KFL&A Public Health and the Leeds, Grenville, Lanark and District Health Unit indicated during pre-consultation that they should likely coordinate the inspection programs with municipalities since the health units are generally involved with existing septic maintenance inspection programs. They also indicated that they should be involved in developing the corresponding educational material.

### **7.5.5 Stormwater Management Retrofits**

Applicable policies:	7.2.16-NB	7.4.16-NB	7.6.6-NB	7.8.5-NB
	7.3.15-NB	7.5.6-NB	7.7.6-NB	

Stormwater means runoff from rainwater, roofs, snowmelt and the ground surface. This water picks up pollutants such as sand, oil, fertilizer and bacteria as it flows over the ground and carries them to streams and lakes. This runoff can pose a moderate threat to drinking water that has a surface water source.

Only a small portion of stormwater from established urban areas is treated or adequately managed, meaning that it flows directly from the streets and gutters into local waterbodies. There are ways to control this runoff in order to avoid flooding and erosion in watercourses, allow for groundwater recharge, provide sediment control, limit nutrient and bacteria loading and reduce the impact of changes on the aquatic environment. The Source Protection Committee recognizes that it is costly to retrofit existing situations to provide stormwater management, and encourages the development of local strategies to effectively address this drinking water threat over the long term as the need arises.

### **7.5.6 Sewage Infrastructure**

Applicable policy: 7.5.7-NB

The City of Kingston has an adopted pollution control plan and a sewage infrastructure master plan which contain numerous recommendations that would help protect the quality of Kingston's source of drinking water. The goals of the Sewage Infrastructure Master Plan for the City of Kingston Urban Area (September 2010) include virtual elimination of combined sewer overflows, maximizing the effectiveness of existing sewer system, providing adequate capacity for growth, prioritizing projects, and providing information to stakeholders. The continued implementation of the master plan would be effective and appropriate for protecting the City's source of drinking water from the risk associated with discharge from combined sewers.

### **7.5.7 Parks and Recreation**

Applicable policy: 7.2.17-NB

There are three municipal sports fields adjacent to the water treatment plant in Sydenham IPZ-1, on which commercial fertilizer may be applied. Runoff containing fertilizer can pose a moderate threat to Sydenham's drinking water. Too much fertilizer (phosphorus in particular) can result in eutrophication and algae blooms which lead to bad-tasting and bad-smelling water.

It is a best practice to maintain a buffer between sports fields and nearby waterbodies so that runoff from the fields is managed before it reaches the waterbody. There will be a cost to Township to prepare a plan and ensure that its private contractors follow it, but action may pay for itself in reduced fertilizer cost.

### **7.5.8 Lakeshore Capacity Assessment**

Applicable policy: 7.2.18-NB

There are many activities that occur around Sydenham Lake that have the potential to affect its water quality. Discharge from septic systems poses a moderate threat to Sydenham's drinking water. Runoff from agricultural activities can pose a significant threat.

A lakeshore capacity assessment can provide the Township of South Frontenac with an accurate and quantitative linkage between the level of shoreline development and the level of phosphorus in the lake. It can be used to predict the impacts of development on water quality. Implementation of the results of an assessment requires collaboration between various stakeholders including the municipality and residents.

This policy has its origin from the community roundtable held in Sydenham in 2011. The lakeshore capacity assessment would require a significant financial and possibly staffing investment on the part of the Township of South Frontenac, as acknowledged in its pre-consultation comments. The project would likely qualify for funding programs such as those offered by the Trillium Foundation.

### **7.5.9 Improvements for Local Transport Pathways and Watercourses**

Applicable policy: 7.7.7-NB

Although it is not possible to have significant drinking water threats in the Bath Intake Protection Zone, Loyalist Township is encouraged to work with property owners in the IPZ to manage the risk associated with existing activities to better protect the community's source of drinking water. These activities include the application, handling and storage of agricultural source material, non-agricultural source material, commercial fertilizer and pesticides, and the outdoor confinement of livestock.

During the pre-consultation process, Loyalist Township observed that it may be difficult to complete the activities identified in these policies, and that their success would be dependent on the cooperation of property owners.

### **7.5.10 Provincial Emergency and Spill Response**

Applicable policies: 7.9.7-NB 7.9.8-NB 7.9.16-NB

The emergency and spill response policies were prepared in accordance with either subsection 26(1)(v) or 26(6) of Ontario Regulation 287/07.

A discharge or spill associated with any of the prescribed drinking water quality threats, including the transportation of certain substances which is a local threat, can be a significant, moderate or low threat depending on the vulnerable area and circumstance. It is important that agencies that respond to these situations have up-to-date information and procedures that would help improve local response to a spill.

Hauled sewage from the islands and waterfront properties along the St. Lawrence River is transported over the Brockville and James W. King (Gananoque) intakes and through the associated Intake Protection Zones to local marinas or private docks for road transport. This activity also occurs in the Sydenham Intake Protection Zone. As such this activity is a risk to these drinking water sources. The Ministry of the Environment acknowledged policy 7.9.7-NB during pre-consultation and indicated that it would consider it further as the Source Protection Plan is developed.

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There are a number of industries in or near the intake protection zones on Lake Ontario that discharge treated water into this vast source of drinking water. Industry is commended for the protection programs that have been implemented to protect water quality, and is encouraged to continue this work. The intent of policy 7.9.8-NB is to ensure that these industries, as well as the agencies that respond to these situations, have up-to-date information and procedures that would help improve local response to a spill.

The Ministry of Transportation acknowledged policy 7.9.16-NB during pre-consultation and indicated that it would consider it further as the Source Protection Plan is developed. This policy relates to the Ministry's Wolfe Island Ferry.

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