

Protecting our Drinking Water Sources



What is the Credit Valley, Toronto and Region & Central Lake Ontario (CTC) Source Protection Region?

The Ministry of the Environment and Climate Change has organized Source Protection Areas (SPAs) using conservation authority boundaries. Conservation Authority areas are organized by watershed (areas where surface water flows in one direction). Justice O'Connor recommended this watershed-based approach to protect drinking water during the Walkerton Inquiry. In many cases, such as in the CTC, many SPAs are grouped to make one Source Protection Region (SPR). There are 19 SPRs in Ontario.

The CTC region covers three conservation authorities: Credit Valley, Toronto and Region and Central Lake Ontario Ontario. A 21 person committee (plus chair) was responsible for developing Source Protection Plans for these areas. The Plans sets out policies and programs to eliminate or manage significant threats to the water supply as well as reducing the opportunity for low and moderate threats to become significant.



Who is the CTC Source Protection Committee?

The Source Protection Committee is a group of local representatives comprised of:

- Farmers • Municipalities • Residents • Energy Sector • Environmental Groups
- Golf Course Industry • Aggregate Industry • Petroleum Industry

The Source Protection Committee has been established with responsibilities under the *Clean Water Act* to lead the development of Assessment Reports and Source Protection Plans.



What is a Source Protection Plan?

As mandated by the *Clean Water Act, 2006*, Source Protection Plans must contain policies, at a minimum, to reduce or eliminate significant threats on the landscape. These significant threat policies must be complied with. Policies must address both existing threats as well as future threats.

Source Protection Plans contain policies, that, when implemented will manage or prohibit the significant threat activities so they cannot pollute or use up the drinking water.

The Source Protection Committee has used a number of different approaches to achieve this:

- prescribed instruments (other provincial approvals such as Certificates of Approval);
- requiring risk management plans (negotiated with individual businesses);
- restricted land use;
- prohibition of activities;
- education and outreach; or
- combination of the above tools



What is an Assessment Report?

An Assessment Report is a technical document that provides the scientific information which is used to develop Source Protection Plans. There are three Assessment Reports for the CTC Source Protection Region: one for each watershed and they:

- give an overview of each watershed;
- provide a water budget;
- identify the vulnerable areas near the wells and intakes;
- identify the types and number of significant threats to water quality near wells and intakes; and
- identify areas that could have low, moderate or significant threats.

Assessment Reports: the Scientific Foundation of Source Water Protection

Assessing threats to Drinking Water involves 3 main steps.

- 1) Identify and map vulnerable areas
- 2) Identify threats
- 3) Calculate threat levels

Step 1: Identify and map vulnerable areas

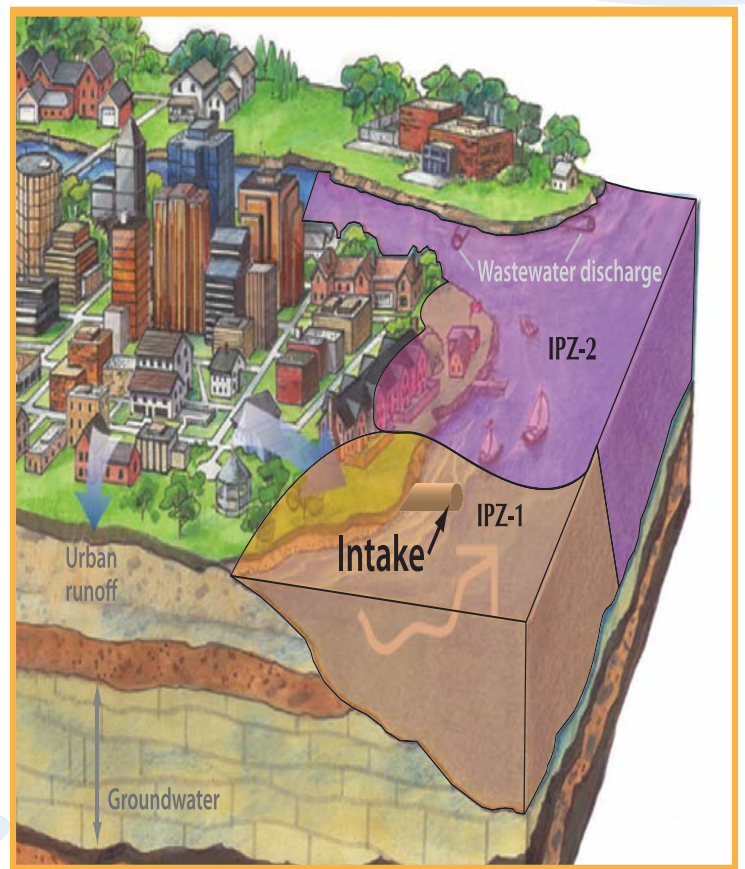
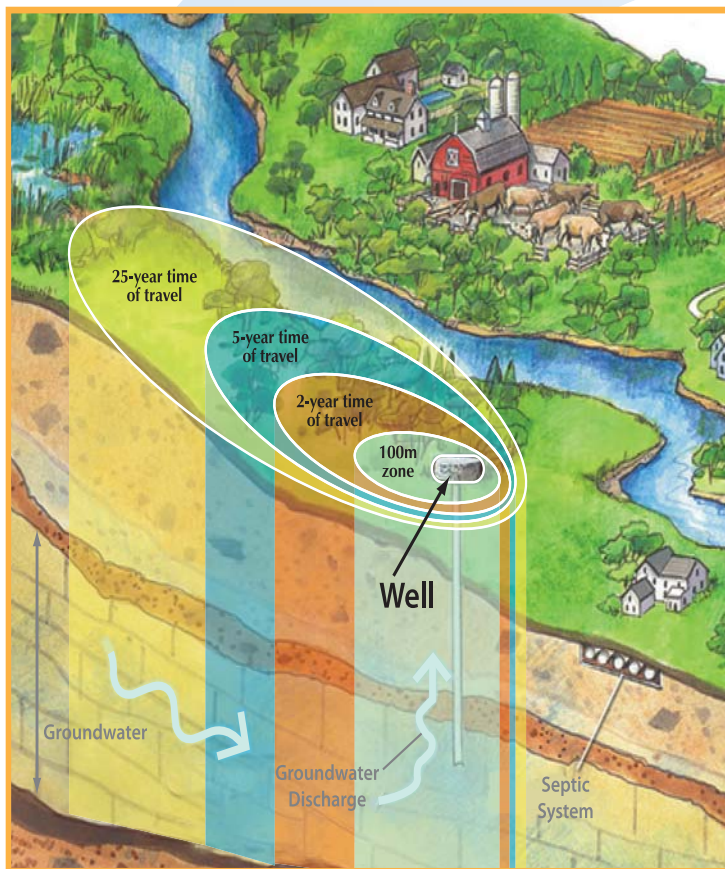
There are four types of vulnerable areas that need to be delineated:

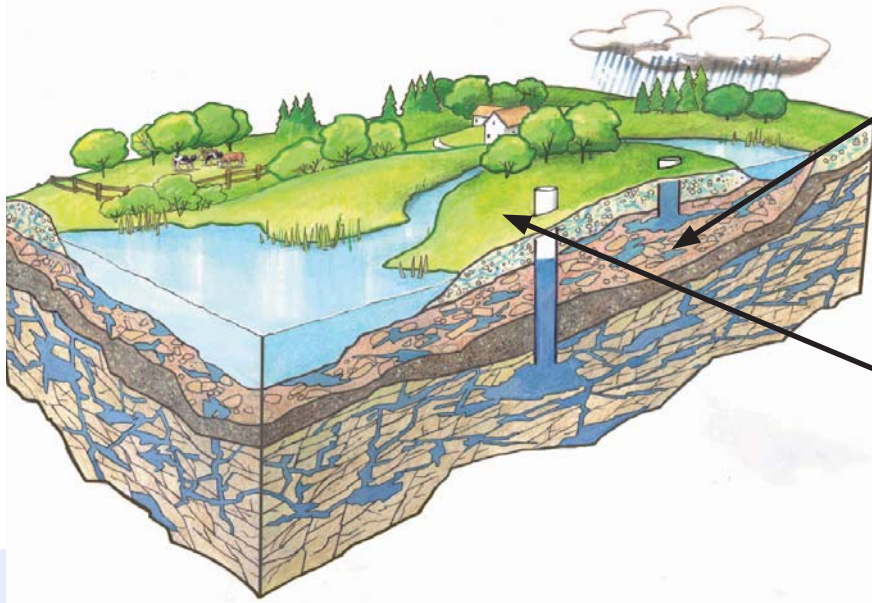
1. Wellhead Protection Areas (WHPAs):

Areas where water travels through the ground to a municipal well

2. Intake Protection Zones (IPZs):

Areas around municipal surface water intakes





3. Highly Vulnerable Aquifers (HVAs): areas that are more susceptible to contamination moving from the surface into the groundwater

4. Significant Groundwater Recharge Areas (SGRAs): areas where larger amounts of water go into the ground instead of flowing directly into creeks, rivers or lakes.

Step 2: Determine where threats may exist

There are a number of different types of threat activities that can affect drinking water quality and quantity under the *Clean Water Act, 2006 (CWA)*:

<ul style="list-style-type: none"> • Sewage systems (including septic) • Waste disposal sites • Agricultural and non-agricultural source material applied to land, stored, handled or managed • Commercial fertilizer applied, handled or stored • Pesticides applied to land, handled or stored • Road salt applied, handled or stored • Pesticides applied to land, handled or stored • Road salt applied, handled or stored 	<ul style="list-style-type: none"> • Snow stored • Fuel handled or stored • The handling and storage of a dense non-aqueous phase liquid (DNAPL) • Organic solvents handled or stored • Chemicals used in the de-icing of aircraft • An activity that takes water and doesn't return it • An activity that reduces the recharge of an aquifer • Livestock grazing, pasturing, outdoor confinement areas and farm-animal yards
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Step 3: Calculate threat levels



Hazardous material in an area of high vulnerability
 = High level of risk
 (significant drinking water threats)



Hazardous material in an area of low vulnerability
 = Low level of risk
 (low or no threat to drinking water)

Calculating Vulnerability...

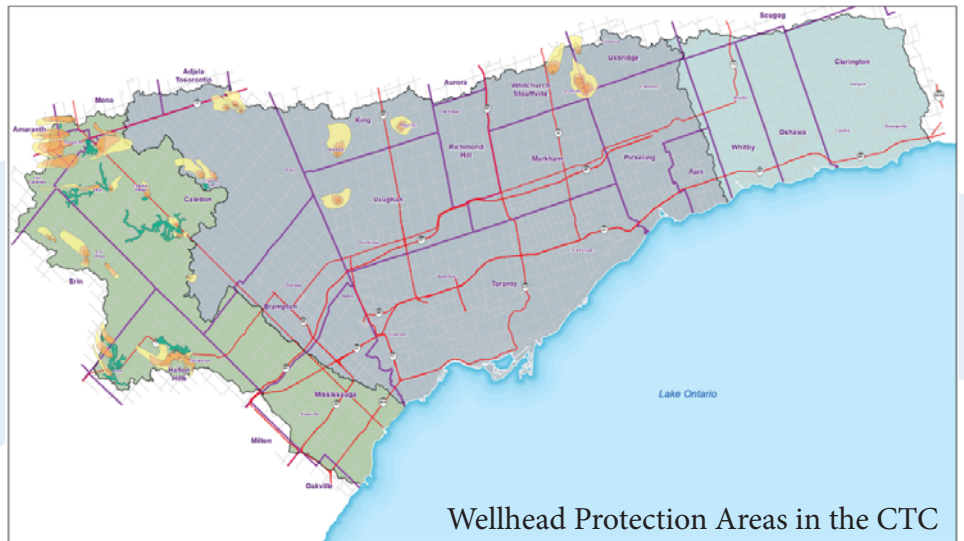
Vulnerability describes how easily a drinking water source can become polluted.

...in Drinking Water Wells

Wellhead Protection Areas

Wells draw water from underground areas called aquifers where water fills cracks in bedrock or spaces between grains of sand, gravel or dirt.

Aquifers are replenished when water from rain and melting snow soaks into the ground. Sometimes, this water carries pollutants. It can take years, or even decades, for water to reach a well. The speed depends on the characteristics of the soil and bedrock in the area.



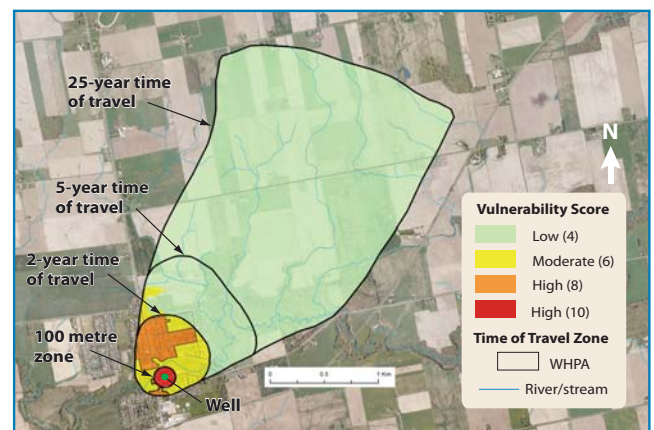
Measuring groundwater vulnerability

To determine the vulnerability score for a well, the consultants had to answer two questions:

- 1) How quickly does water move horizontally through the aquifer to the well? The information was used to draw Wellhead Protection Areas (WHPA) around each well. WHPAs are divided into rings called Time of Travel Zones. The innermost zone is a 100-metre circle. The other zones are set at times of travel of 2 years, 5 years and 25 years.
- 2) How quickly does water move vertically from the surface down to the aquifer? This is called “intrinsic vulnerability.”

The answers to the two questions are combined to come up with vulnerability scores on a 10-point scale for all the land within the Wellhead Protection Area for each municipal well.

This score lets us know where there needs to be increased protection from threats.



In the CTC Source Protection Region two types of water sources are used for drinking water:

...in Surface Water Intakes

Intake Protection Zones

River and lake intakes can be contaminated when pollutants are spilled into the water or on nearby land and make their way to the intake.

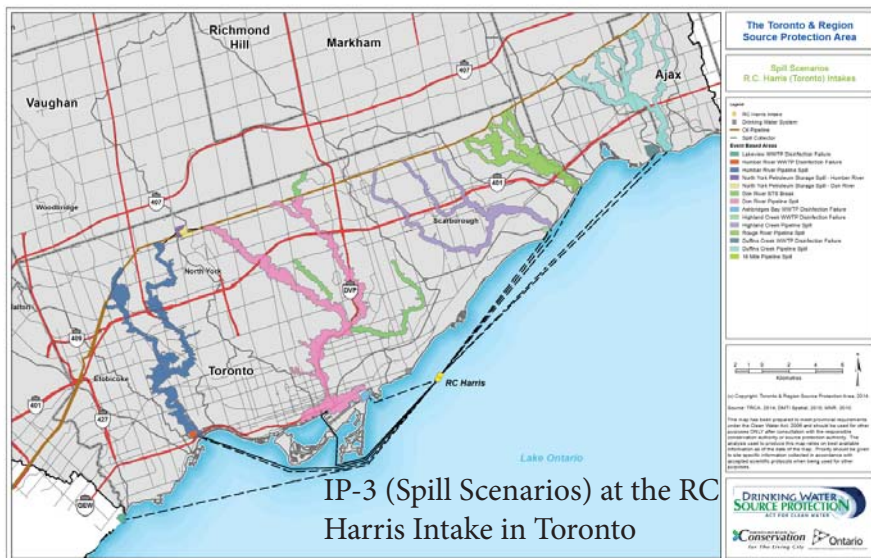
Intake Protection Zones (IPZ) map areas where pollutants may get to an intake too quickly for operators of the municipal water treatment plant to shut down the intake before the pollutant reaches it.



Intake Protection Zones in the CTC

Measuring surface water vulnerability

Studies were done to determine how water moves in the area around each intake. For all of the Lake Ontario intakes, the movement of water is affected by currents and winds. This work also identified streams, municipal storm sewers and rural drains that enter Lake Ontario and may impact the source water. Intake Protection Zones were drawn around the intakes and assigned vulnerability scores based on an area factor (on a 10-point scale) multiplied by the source factor (for Great Lakes sources this ranges between 0.5 and 0.7):



IP-3 (Spill Scenarios) at the RC Harris Intake in Toronto

- IPZ-1: Is a one-kilometre circle around the intake and has vulnerability scores that range between 5 and 7.
- IPZ-2: Is the area where water can reach the intake within two hours. Vulnerability scores range between 3.5 to 6.3.
- IPZ-3: Spills and extreme storm events are modelled to assess if specific activities could have an impact on water quality regardless of the amount of time it takes to reach the intake.

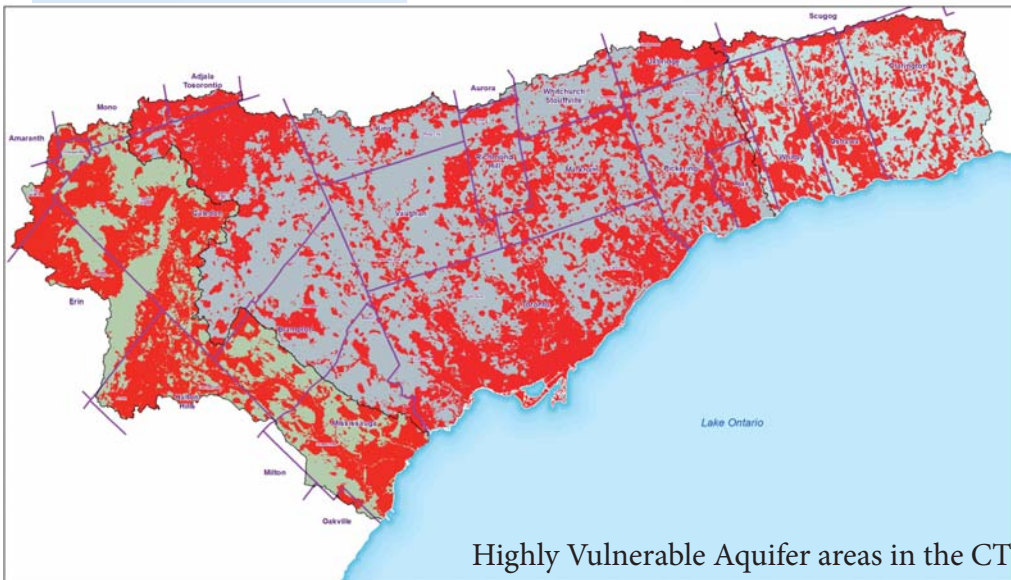
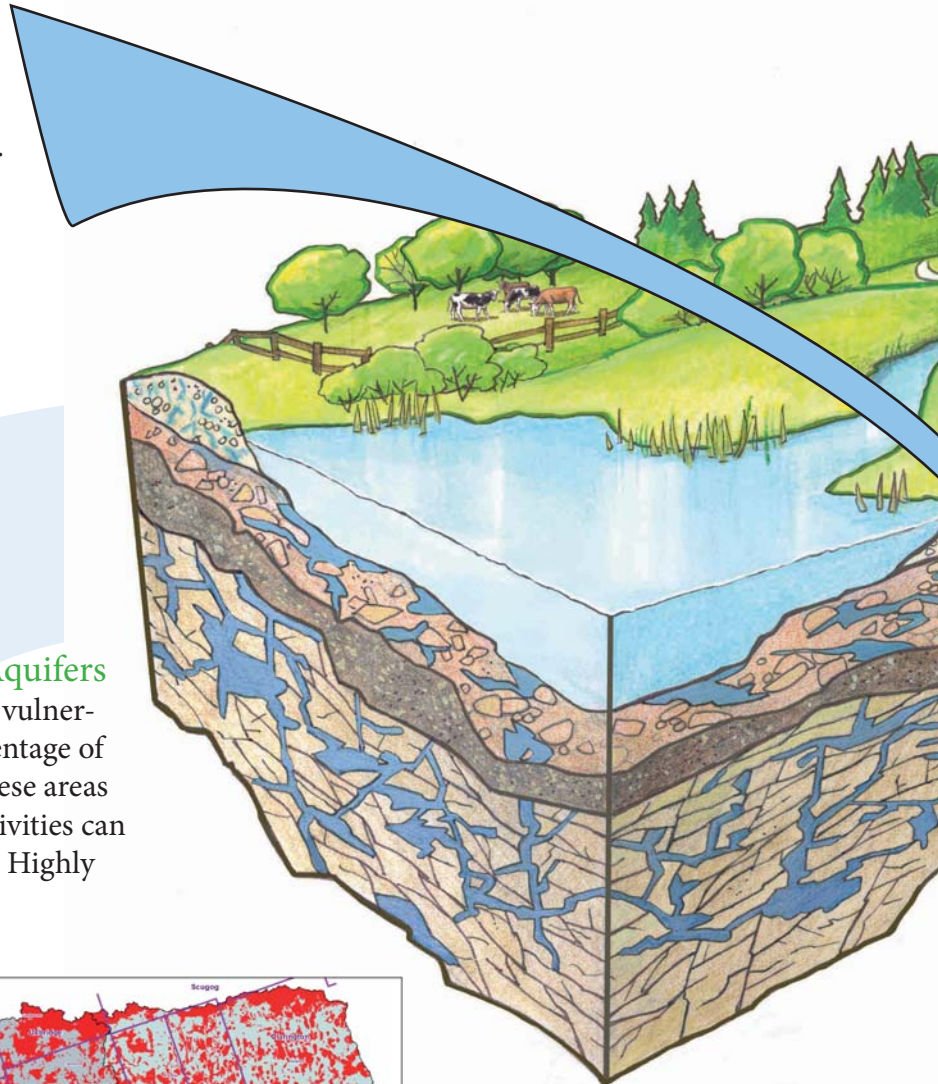
Other Vulnerable Areas

Highly Vulnerable Aquifers

Highly Vulnerable Aquifers (HVAs) are aquifers that are more susceptible to contamination. In general, a Highly Vulnerable Aquifer will consist of granular aquifer materials (e.g. sand and/or gravel) or fractured rock that has a high permeability and is near the ground surface.

Threat Levels within Highly Vulnerable Aquifers

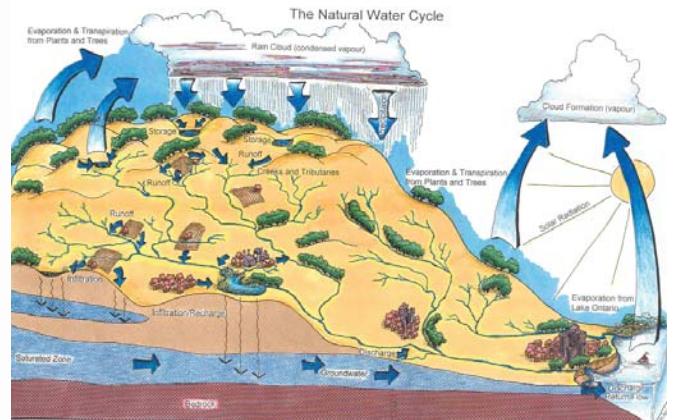
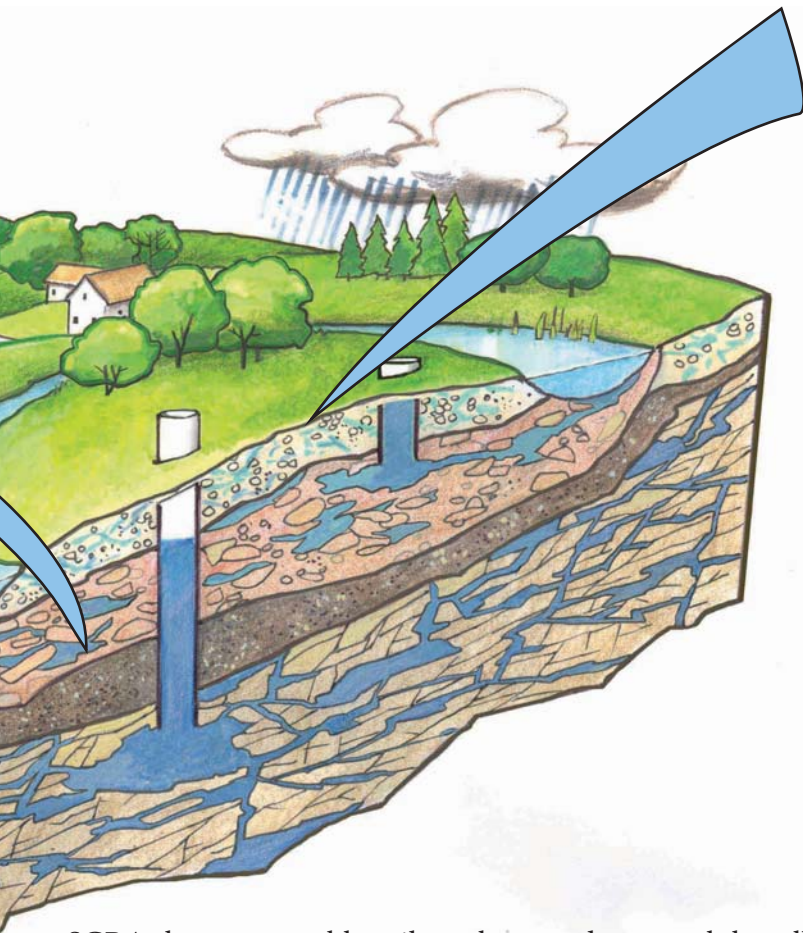
Highly Vulnerable Aquifers have a groundwater vulnerability score of 6. HVAs exist under a large percentage of the CTC Source Protection Region. Not all of these areas are used for drinking water purposes. Threat activities can be Moderate or Low (but not Significant) within Highly Vulnerable Aquifers.



Highly Vulnerable Aquifer areas in the CTC

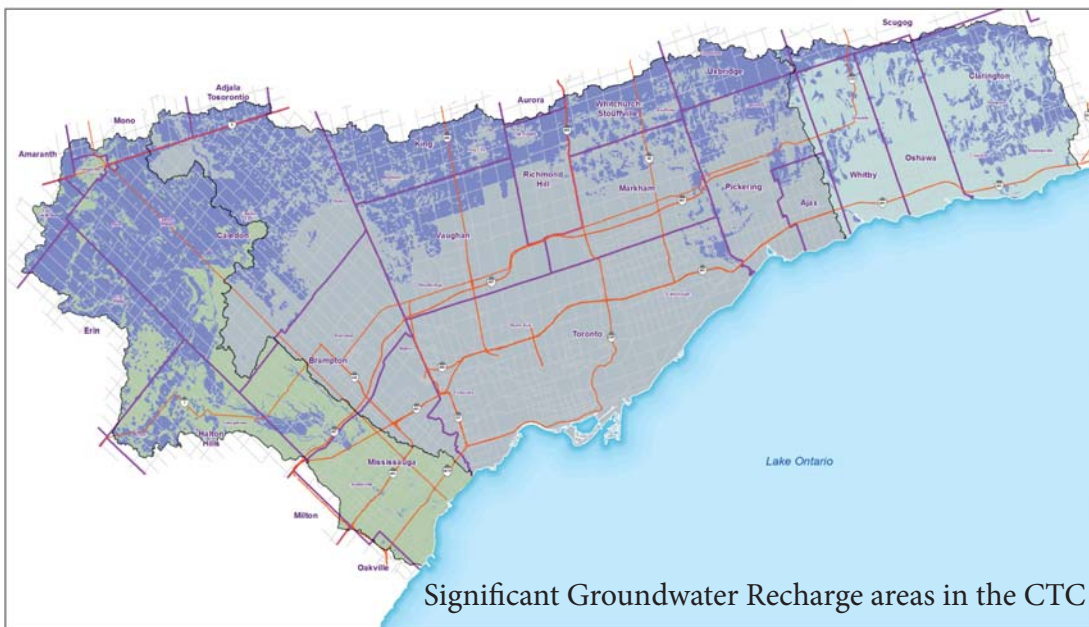
Significant Groundwater Recharge Areas

Significant Groundwater Recharge Areas (SGRAs) are locations where larger amounts of water on the surface seep into the ground to replenish an aquifer that is used for municipal or other drinking water supplies. This recharge is also important as a source of cold water discharge into streams that sensitive ecosystems depend on.



SGRAs have permeable soils such as sand or gravel that allow the water to soak easily into the ground. Recharge areas tend to be areas that are characterized by permeable soils, such as sand or gravel that allow the water to seep easily into the ground and flow to an aquifer. Under the *Clean Water Act, 2006*, a recharge area is considered

significant when it helps maintain the water level in an aquifer that supplies drinking water (including private wells), and has higher than average recharge across the Source Protection Area.



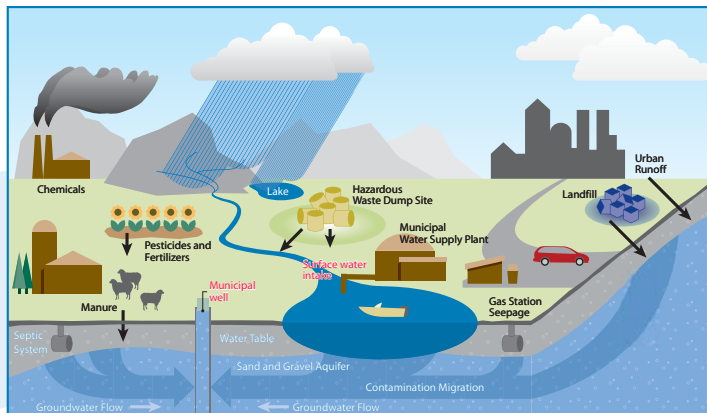
Identifying Threats to Drinking Water in the Vulnerable Areas

What are threats?

Consultants have studied the areas around municipal wells and intakes to identify the human activities that could threaten municipal water supplies.

There are two categories of threats – chemicals and pathogens:

- Chemical threats include things like solvents, fuels, fertilizers, pesticides and similar products. They can be found in factories, storage depots, gasoline stations, farms or other places. DNAPLs (Dense Non-Aqueous Phase Liquids) are a group of chemicals that are particularly hazardous when they get into groundwater.



- A pathogen is a dangerous bacteria, virus or other organism found in human or animal waste. Human pathogens can be found in septic systems, and animal pathogens can be found in manure.

What activities are drinking water threats?

There are a number of different types of threats to drinking water quality and quantity under the Clean Water Act, 2006 (CWA). They are:

- | | |
|--|---|
| <ul style="list-style-type: none"> • Sewage systems (including septic) • Waste disposal sites • Agricultural and non-agricultural source material applied to land, stored, handled or managed • Commercial fertilizer applied, handled or stored • Pesticides applied to land, handled or stored • Road salt applied, handled or stored • Pesticides applied to land, handled or stored • Road salt applied, handled or stored | <ul style="list-style-type: none"> • Snow stored • Fuel handled or stored • The handling and storage of a dense non-aqueous phase liquid (DNAPL) • Organic solvents handled or stored • Chemicals used in the de-icing of aircraft • An activity that takes water and doesn't return it • An activity that reduces the recharge of an aquifer • Livestock grazing, pasturing, outdoor confinement areas and farm-animal yards |
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Hazard ratings

Not all threats are equal. The danger posed by particular chemicals or pathogens depends on several factors including the amount, its toxicity and how it behaves in the environment. The Ministry of the Environment and Climate Change has identified many materials that could contaminate water. It has assigned a hazard rating to each using a 10-point scale based on the nature of the material, how much is present, and how it is used or stored.

Calculating Threat Levels

There are many potential threats to drinking water in our urban and rural areas, but the level of risk they pose depends on the nature of the threat and its location. The *Clean Water Act* requires the elimination of threats that pose the greatest risk to municipal drinking water. The level of risk they pose depends on the nature of the threat and its relative location to a municipal water system. These are called significant threats. To decide which threats are significant, the Ministry of the Environment and Climate Change has developed a methodology which is outlined in the Technical Rules (Nov, 2009) to calculate a risk score based on:

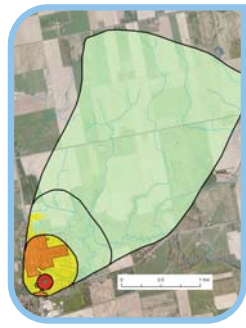
- the hazard rating of the threat, on a 10-point scale
- the vulnerability of the water source, on a 10-point scale

How are possible threats identified?

Technical experts have used a variety of means to identify the possible location of potential threats. They have examined documents such as publicly available industrial databases, municipal land use databases, windshield surveys and satellite imagery. They were also directed to make some assumptions, such as that a rural home would have a septic system and fuel tank. At this point threats have not been field verified and may not actually exist within the vulnerable areas discussed.

The location of properties containing potential significant threats are not identified in the Assessment Report. The report only identifies the number and type of threats in the wellhead and intake protection areas.

Risk Score Calculation



X



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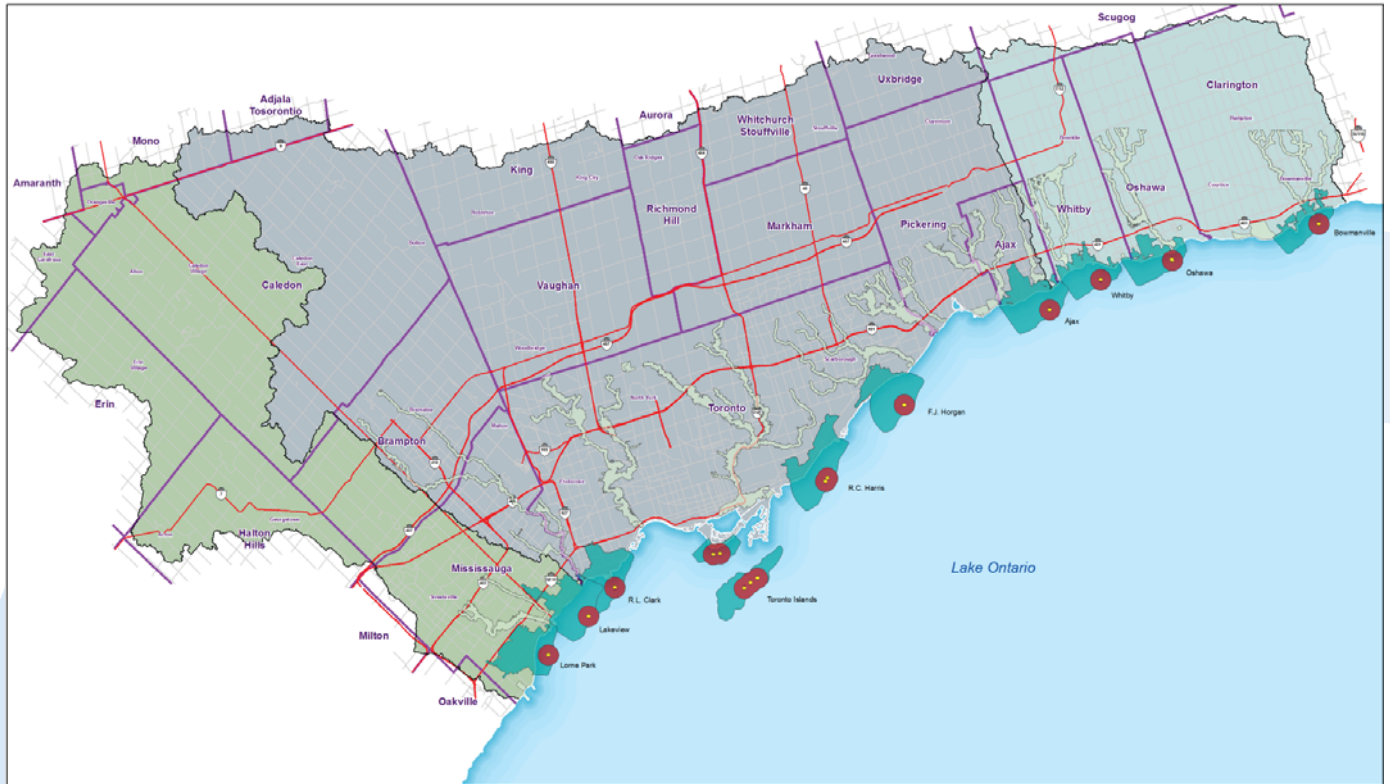
If risk score is greater than 80, then risk is 'significant'

- Depth of aquifer
- Composition of the soil above the aquifer

- Likelihood of release
- Volume
- Mobility
- Toxicity

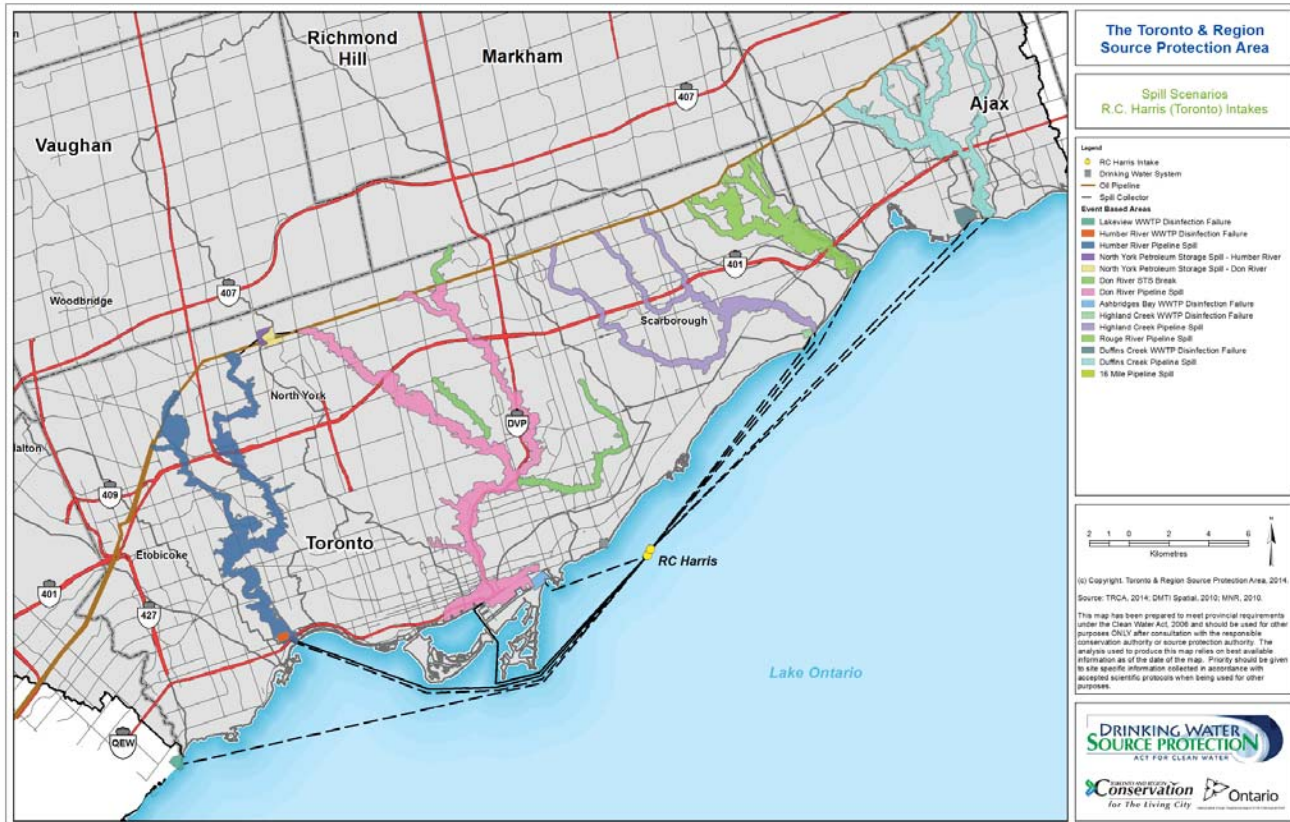
Lake Ontario

Lake Ontario is the single biggest source of drinking water in the CTC. Because it is not vulnerable to the same kinds of threats that can impact groundwater, the science and policies that apply to the drinking water supplies that come from the lake were approached differently than from the rest of the supplies in the CTC. As described on page 7 of this magazine, Intake Protection Zones were delineated around intakes on the lake



Approximately seven million people depend on drinking water from municipal water treatment plants located on Lake Ontario within the CTC. It is important that Lake Ontario continues to be a source of high quality, sustainable water. Additional technical work is required in the future to fully assess potential threats to this source. Additional policies may also be required if new threats are identified.

Initial work to assess threats used spill scenario modelling to see if chemical or pathogen releases (spills) might impact the drinking water intakes for the lake. Spills were modelled from release locations right on the lake (like a tritium spill) as well up the tributaries that drain into the lake (such as an oil pipeline rupture). The zone delineated by the spill is called the Event Based Area, and that is where the Source Protection Plan policies apply. They can be found in the CTC Source Protection Plan with id: "LO"



Above is the map that shows all the potential spills that, through the modelling showed an impact to the water quality at the R.C. Harris Intake in the Toronto Area.

In the CTC Source Protection Plan it is generally the Province, primarily through Specified Action policies, that have been tasked to implement the Lake Ontario policies.

Issue Contributing Areas

What are Issue Contributing Areas?

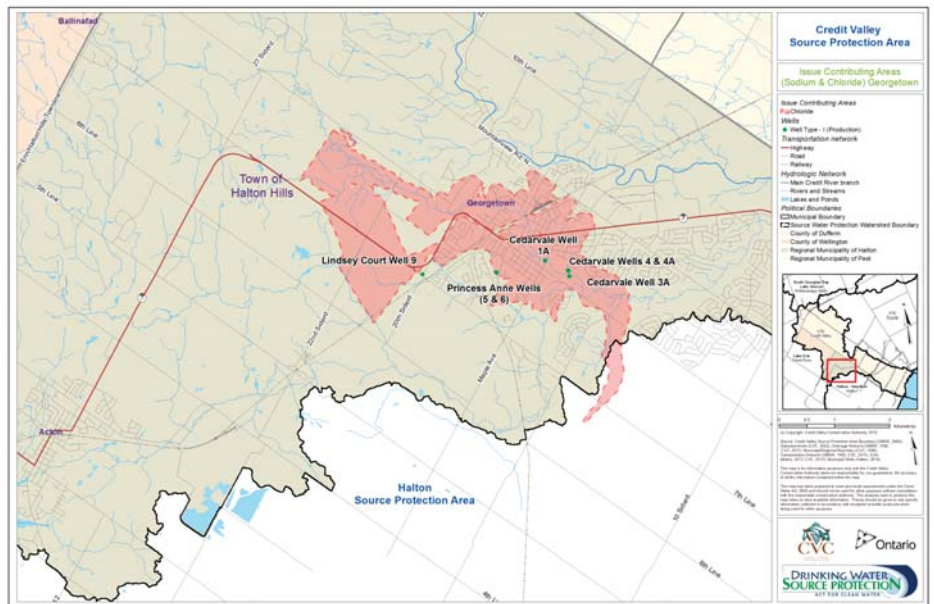
When the water coming from a well (before treatment) shows an increasing trend of a contaminant, this is called an Issue. The water is/may still be safe to drink, but because the level of the contaminant is rising, the *Clean Water Act, 2006* compels the Source Protection Committee to determine the cause and create policies to manage or prohibit it. Issues can be chemical or pathogenic in nature, but always start from a threat activity occurring in or near the well.

Assessment Reports defines Issue Contributing Areas (ICA) based on data collected from wells, where increasing levels of a contaminant(s) that could exceed the safe standard levels. Contaminants in Issue Contributing Areas are identified on maps as the area within the black dash line. Each ICA map identifies the Issue as: sodium and chloride, nitrates or pathogens.

How is an Issue different than a threat?

Issue Contributing Areas (ICA) are caused by threats and have demonstrated that they pose a risk to the water quality of a well. Threats identify where activities have a potential to contaminate a drinking water source. However, threats that have been identified do not necessarily indicate an Issue Contributing Area.

For example, a sodium and chloride Issue in the drinking water might be traced to the application of road salt, which would make that a threat in an Issue Contributing Area. However, outside of an ICA, where there is no sodium Issue, the application of road salt still may be considered a threat because the salt is in one of the other vulnerable areas and one day could impact the well.



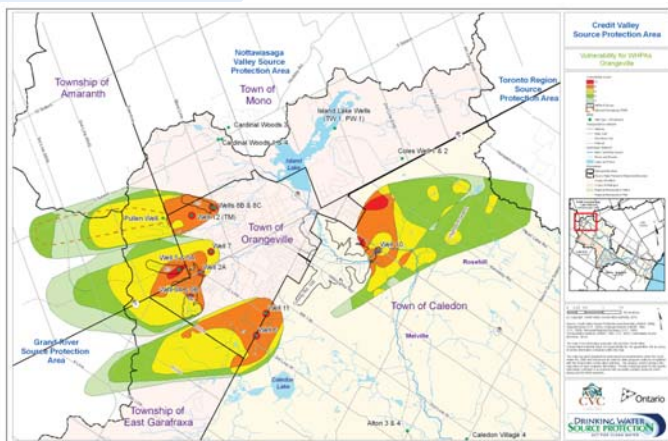
Issue Contributing Area for Chloride in Georgetown

How is an Issue Contributing Area different from a Wellhead Protection Area?

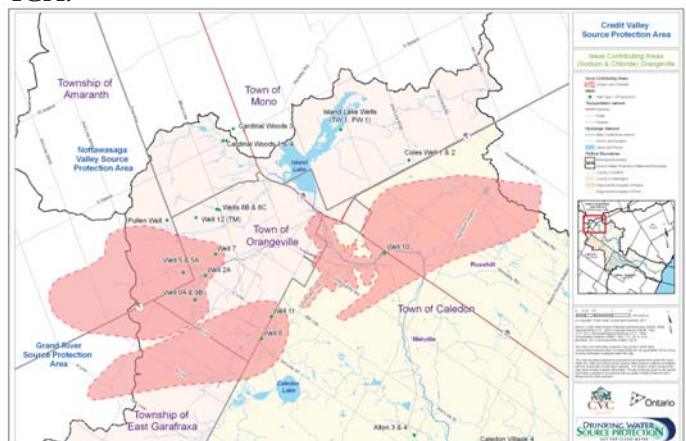
Issue Contributing Areas are typically larger areas where policy will apply than Wellhead Protection Areas. The main difference is the effect of a threat in each of the areas and how that threat should be managed or prohibited.

In Wellhead Protection Areas, activity **X** may be considered a Significant threat in an area of high vulnerability (red or orange on the map below), and therefore is subject to Plan policies, but the same activity may not be Significant in an area of lower vulnerability (yellow and green, below) and may not fall under Plan policies

However, if activity **X** is contributing to the Issue identified at the well, the vulnerability score does not matter: whether activity **X** contributing in large or small amounts, or is immediately next to or far away from the well head, it is considered a Significant threat in the Issue Contributing Area. A Significant threat in an Issue Contributing Area is either managed or prohibited – consistently – within that ICA.



*WHPAs for Orangeville:
Significant threats can only occur in areas of high vulnerability, by virtue of the vulnerability score and the hazard rating (see page 13 for information)*



*Issue Contributing Areas for Orangeville:
Significant threats can occur anywhere in the pink area, but **only** for activities contributing Sodium and Chloride to the water, since that is the parameter of concern*

How do we find the source of the Issue?

Depending on the kind of Issue, the identified threat(s) may provide a precise description of the cause of the Issue, while another threat covers a range of activities that could be the cause. For example, threat 12, which is the application of road salt provides a concise description of the cause, while threat 21 (Livestock) includes a range of different ways that can be the cause.

As soon as an Issue is identified, the SPC is required to determine where the Issue is coming from. Some of the sources of Issues have been identified and others are still undergoing study. More information will be included in future Updated Assessment Reports.

Water Quantity matters too!

Making sure we have enough water

Source Water Protection is not just about water quality – we have to make sure that we have enough water supply to ensure that we will have drinking water for years to come. The CTC Source Protection Committee is tasked with determining areas where there may be water quantity stresses.

These studies are called “Water Budgets”, and like a household budget, water budgets measure the amount of water that is entering, stored within, and leaving a watershed.

Water Budgets

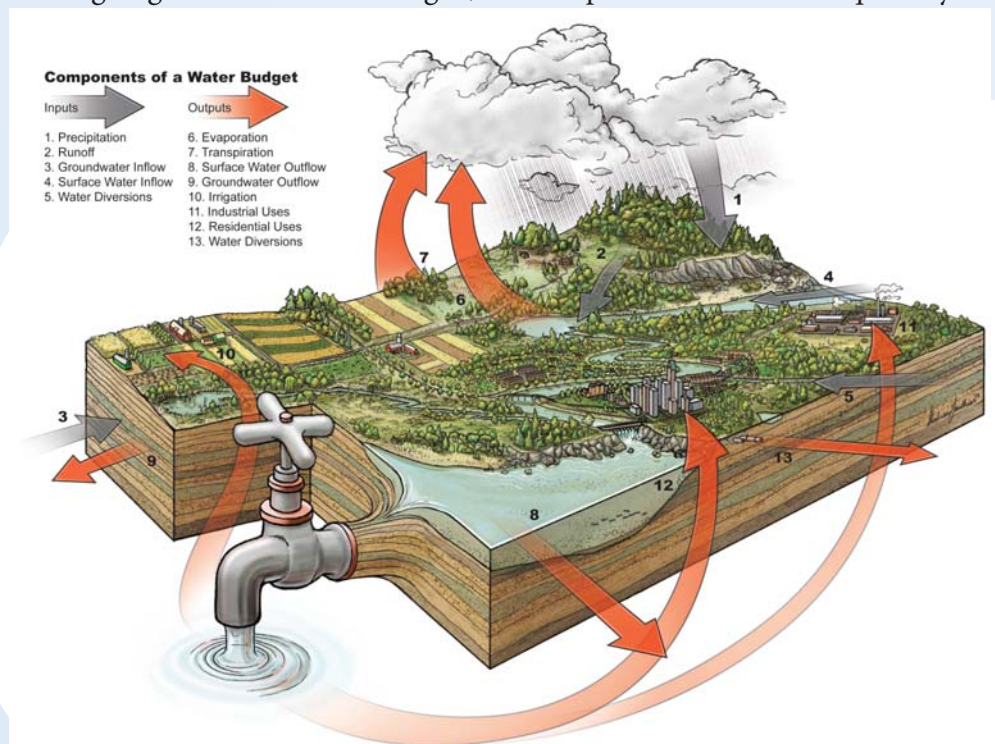
All watersheds within the CTC Source Protection Region have undergone a Tier 1 and Tier 2 Water Budget to determine where there might be stresses. When the results of these studies show stresses, they proceed onto the next level of analysis, a Tier 3 Water Budget.

There are three areas within the CTC Source Protection Region that have shown the potential for water stress. These areas have undergone, or are undergoing a “Tier 3 Water Budget”, an in depth look at the water quantity. These areas are:

- Dufferin County,
- Halton Hills, and
- York Region.

The Tier 3 Water Budget studies:

- The flow of surface and groundwater systems;
- How water enters and leaves a watershed;
- How much water is stored within the watershed;
- How much water is available for human consumption; and
- How much water is required for natural heritage systems (ie. aquatic life and wetlands)



Within the Source Water Protection process, the Water Budget acts as a screening mechanism to understand the supplies of water and the impacts of taking water within that watershed.

Tier 3 Water Budget Results

The results of a Tier 3 Water Budget define a Wellhead Protection Area “Q” (WHPA-Q) where the demand to consume water and the ability to supply and store groundwater are under stress.

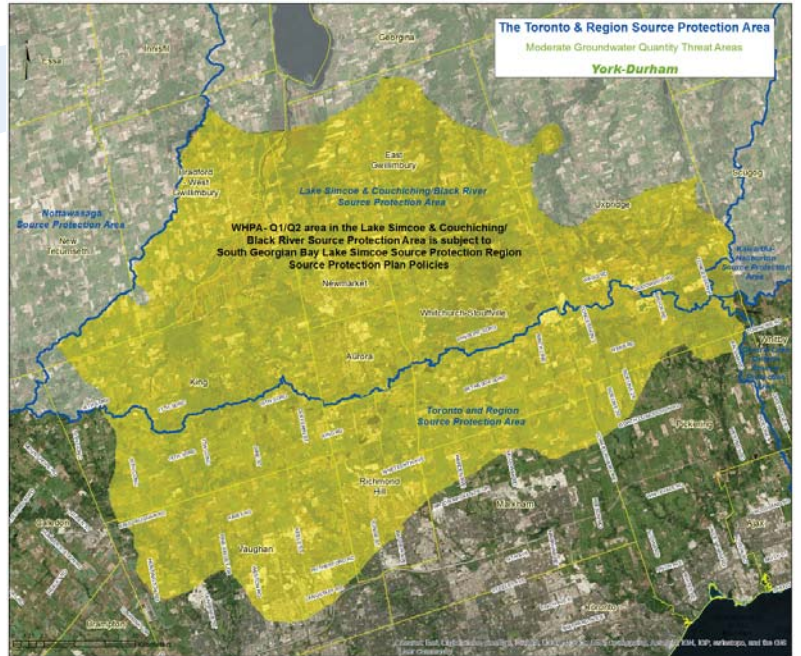
Threats to Water Quantity

The results of the Tier 3 Water Budget defines the area that is vulnerable to water quantity threats. The two following Water Quantity threats are established by the Ministry of the Environment:

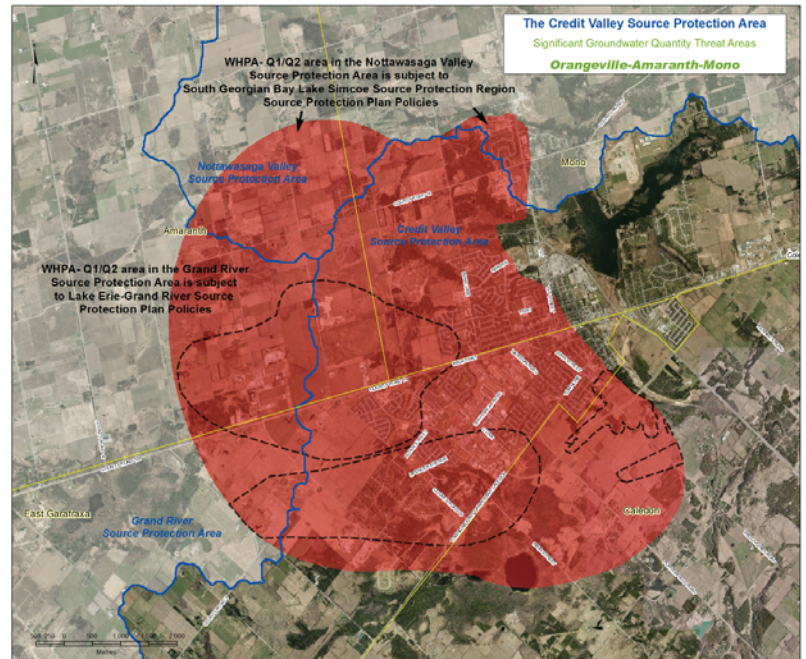
- Threat # 19: An Activity that takes water from an aquifer or surface water body without returning it to the same body. (Examples include: municipal and private wells, along with industrial uses in agriculture, business and aggregate operations.)
- Threat # 20: Activity that reduces the recharge of an aquifer. (Examples of this threat activity include land use developments, such as residential subdivisions, employment areas, or any land conversions to an impervious surface such as paved parking lots.)

The CTC Source Protection Committee’s Water Quantity policies

The Source Protection Committee’s policies that address water quantity threat #19 are labeled “DEM” for Demand, and threat #20 are labeled “REC” for Recharge. These policies apply within the WHPA-Q to those residents, landowners and businesses that are carrying out these two threats.



Moderate Risk WHPA-Q in York/Durham



Significant Risk WHPA-Q in Dufferin County

What does this mean for you:

The Source Protection Plan

The goal of a Source Protection Plan (SPP) is to manage or eliminate existing activities that are, or could become, significant threats. Property owners, where possible, may be able to manage significant threats to reduce the risk and allow the activity to continue.

A Source Protection Plan sets out policies to:

- safeguard human health;
- ensure adequate safe, clean water is available;
- protect current and future sources of municipal drinking water from significant threats.



The Source Water Protection Toolkit

The Source Protection Committee had a variety of policy tools available to use to develop Source Protection Plan policies, including specific prescribed instruments and land use planning powers under specific provincial legislation (described below). The *Clean Water Act, 2006* also introduces new powers that can be used in a SPP which would be implemented by the municipalities responsible for supplying drinking water. These are known as 'Part IV Powers' and these authorities allow specific activities to be regulated (prohibited or managed) in areas where these activities are, or could be, a significant drinking water threat. The SPC can also choose 'softer' tools such as Education and Outreach programs alone or in combination with other tools. Where existing legislation is available to address a threat, the Source Protection Committee chose to use tools based on the existing legislation to avoid duplication or conflict. The Source Protection Committee also chose in many cases to develop new policies/programs to complement the existing controls.

Risk Management Plans

Protective or safety measures can reduce the risk posed by a significant threat. For example, a business or farm that stores chemicals or fuel could develop a spill response program or install stronger storage containers.

Measures such as these could be included in a risk management plan negotiated by the landowner and a designated Risk Management Official from the municipality or other agency. The agreement would affect the current owner, as well as future owners, as long as the activity continues.

Prohibition

A Source Protection Plan could prohibit certain activities in vulnerable areas to prevent new significant threats from developing. For existing significant threats, this tool would only be used where other tools can't do the job of reducing the risk.

Restricted Land Uses

Restrictions could be placed on land in vulnerable areas to limit the establishment or expansion of activities that could create a significant threat in the future. The restrictions would help municipalities decide what types of development to allow and which could not take place.

Land Use Planning

Municipalities use zoning bylaws and official plans to direct new development to appropriate areas. These planning documents could be changed to prohibit or restrict new development in highly vulnerable areas that would create new significant threats. For example, a municipality might ban new waste disposal sites near municipal wells, or chemical storage facilities near a lake intake.

Prescribed Instruments

A “prescribed instrument” is a permit or other legal document issued by the provincial government allowing an activity to take place. These instruments are:

<ul style="list-style-type: none">• Permits under the Pesticides Act• Licences under the Aggregate Resources Act• Nutrient Management Plans under the Nutrient Management Act	<ul style="list-style-type: none">• Certificates of Approval for sewage systems under the Ontario Water Resources Act• Approvals under the Environmental Protection Act• Safe Drinking Water Act
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These instruments usually contain terms to protect human health and the environment. A Source Protection Plan could require additional terms for permits and licences issued for activities that are, or could be, significant drinking water threats.

Incentive programs

Financial incentives could be offered to landowners to address significant threats on their property.

Education and outreach

Educational programs could show landowners how to manage a significant threat on their property.

Other approaches

Some other possible tools that could be included in a Source Protection Plan include stewardship programs, promotion of best management practices, pilot programs to investigate new approaches to protecting water, and research initiatives.

How to Read the CTC Plan

The policies in this SPP have been written to achieve the objectives identified in the General Regulation under the CWA. These objectives are as follows:

1. To protect existing and future drinking water sources in the SPA.
2. To ensure that, for every area identified in an Assessment Report as an area where an activity is, or would be, a significant drinking water threat:
 - the activity never becomes a significant drinking water threat,
 - if the activity is occurring when the SPP takes effect, the activity ceases to be a significant drinking water threat.

The policies are organized by threat activity and identified with a unique alpha-numeric code, e.g. FER for fertilizer policies and sequential number 1, 2 etc. There may be more than one policy for a threat activity.

Each threat activity section begins with a brief description of the threat, and a summary of where the threat is significant based on the vulnerable area and vulnerability score.

Included in the description of the threat are specific circumstance numbers which refer to the Ministry of the Environment and Climate Change's Tables of Drinking Water Threats. In order to determine whether a specific threat activity is subject to a policy, you may need to consult the Tables of Drinking Water Threats available on the CTC website at www.ctcswp.ca to determine if the activity meets the specific circumstances or contact municipal or source protection authority staff to help. If the activity is taking place in an Issue Contributing Area, and is releasing one of the chemicals identified as an issue in the Tables of Drinking Water Threats, the activity is a significant drinking water threat, if it is listed in the Tables of Drinking Water Threats as either significant, moderate or low threat.

Following the description of the threat activity is a table listing the threat policies applicable to that threat.

All policies are for significant threats, unless noted specifically in the policy.

On the next page is a key to reading the policy table using one of the fertilizer policies

Table 9-1 provides key: in this case "G" = must comply (under section 57 of the Clean Water Act and "H" = must comply (under section 58 of the Clean Water Act)

Full Policy Text
Read entire policy - parts 1) and 2)
Preamble applies to ALL parts of policy

Unique Reference id - "FER" = commercial fertilizer policy

Table 10-1 of the plan has full text of timeline policies

These policies also apply to this same threat and work together to protect source water

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
FER-3	Handling and Storage of Commercial Fertilizer	RMO	G	<p>Part IV, s.57, s.58</p> <p>For farms and other lands, where the handling and storage of commercial fertilizer to land is, or would be, a significant drinking water threat (excluding incidental quantities for personal use), the following actions shall be taken:</p> <p>1) The handling and storage of commercial fertilizer is designated for the purpose of s.57 under the Clean Water Act, and is therefore prohibited where the threat would be significant in the following area:</p> <ul style="list-style-type: none"> • WHPA-A (future). <p>2) The handling and storage of commercial fertilizer to land is designated for the purpose of s.58 under the Clean Water Act, requiring risk management plans where the threat is, or would be, significant in any of the following areas:</p> <ul style="list-style-type: none"> • WHPA-A (existing); or • WHPA-B (VS = 10) (existing, future); or • WHPA-E (VS = 10) (existing, future); or • the remainder of an Issue Contributing Area for Nitrates (existing, future). <p>Without limiting other requirements, risk management plans shall include conditions to require storage of quantities over 2,500 kg to be within a covered structure.</p>	See Maps 1.1 - 1.21	<p>Future: Immediately (T-5)</p> <p>Future: Immediately (T-7) Existing: 1 year/ 5 years (T-6)</p>	<p>GEN-1</p> <p>GEN-2</p>	<p>MON-2</p> <p>MON-2</p>

Policies apply only in specific areas

Who is responsible to implement policy

To which activity does the policy apply

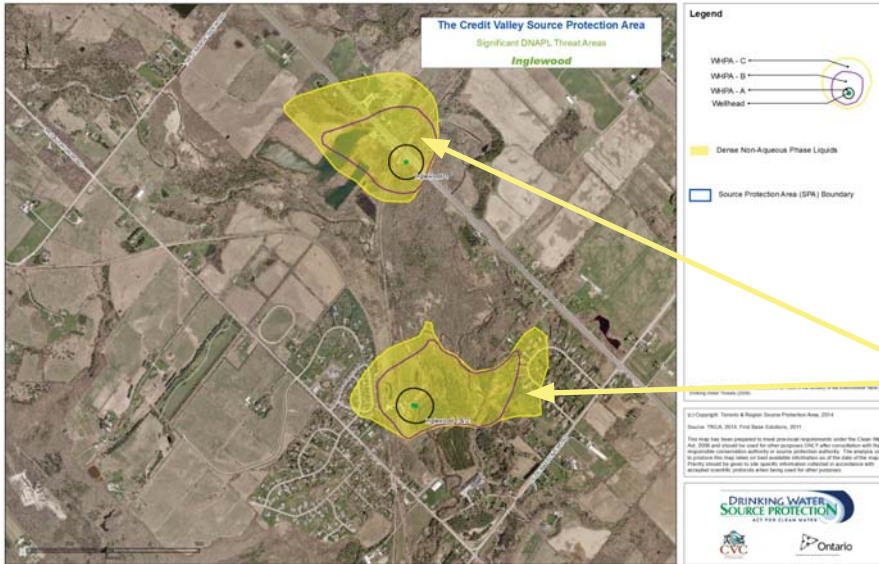
S. 10.14 of the plan lists monitoring requirements for implementing body to report on progress

How to read the maps in the Plan

Building on the science of the Assessment Reports, the maps in the CTC Source Protection Plan show the vulnerable areas where there can be significant threats and policies can apply.

Wellhead areas with the highest score (10) are subject to the most stringent policies in the plan since the areas are the most vulnerable to contamination

Wellhead areas with a score of 8 are also considered very vulnerable, and a number of policies apply in these areas



Each water system has a separate map that shows where DNAPL threats can be significant.

DNAPLs are chemicals of particular concern (they sink in the groundwater and can contaminate the water very quickly), and are threats out to the boundary of the WHPA-C, irrespective of score. In the CTC Source Protection Plan, the policies that apply here are labelled “DNAP”



The Credit Valley Source Protection Area
 Significant Groundwater Quality Threat Areas
Inglewood

Legend




- WHPA - C
- WHPA - B
- WHPA - A
- Wellhead

- WHPA areas with Vulnerability Score = 10
- WHPA areas with Vulnerability Score = 8
- Issue Contributing Area (ICA) Pathogen
- Source Protection Area (SPA) Boundary

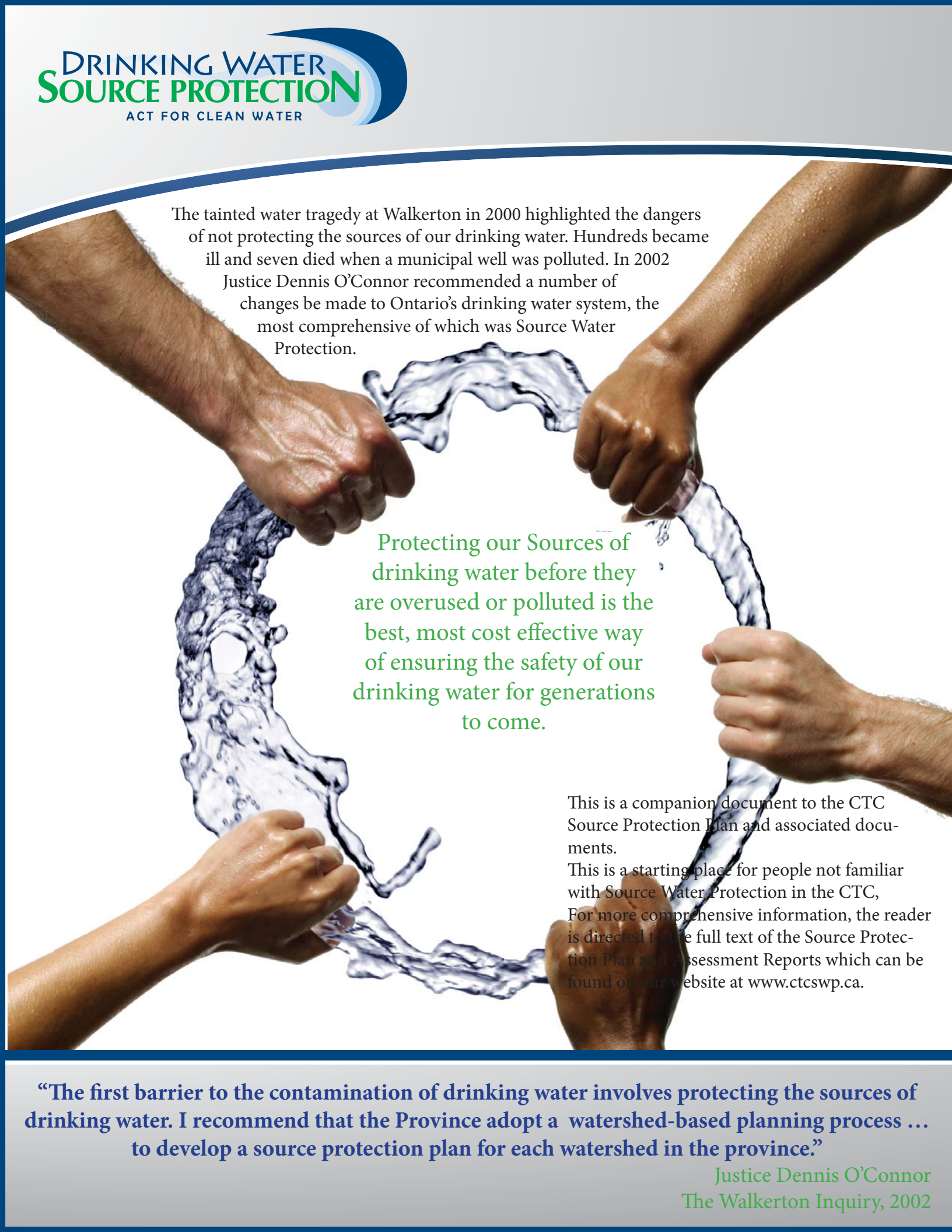
Reference: Prescribed threat circumstances as listed in the Ministry of the Environment Table of Drinking Water Threats (2009)

(c) Copyright: Toronto & Region Source Protection Area, 2014.
 Source: TRCA, 2014, First Base Solutions, 2011.

This map has been prepared to meet provincial requirements under the Clean Water Act, 2006 and should be used for other purposes ONLY after consultation with the responsible conservation authority or source protection authority. The analysis used to produce this map relies on best available information as of the date of the map. Priority should be given to site specific information collected in accordance with accepted scientific protocols when being used for other purposes.

Dotted lines on the maps indicates there is an “Issue” associated with the water at the well (see pgs 14-15). In the case of this wellhead, the Issue is for Pathogens, therefore any activity in the dotted area that might contribute to the pathogen is considered a significant threat.
 Note: not all wellheads have “Issue Contributing Areas”



The tainted water tragedy at Walkerton in 2000 highlighted the dangers of not protecting the sources of our drinking water. Hundreds became ill and seven died when a municipal well was polluted. In 2002 Justice Dennis O'Connor recommended a number of changes be made to Ontario's drinking water system, the most comprehensive of which was Source Water Protection.

Protecting our Sources of drinking water before they are overused or polluted is the best, most cost effective way of ensuring the safety of our drinking water for generations to come.

This is a companion document to the CTC Source Protection Plan and associated documents.

This is a starting place for people not familiar with Source Water Protection in the CTC. For more comprehensive information, the reader is directed to the full text of the Source Protection Plan and Assessment Reports which can be found on our website at www.ctcswp.ca.

“The first barrier to the contamination of drinking water involves protecting the sources of drinking water. I recommend that the Province adopt a watershed-based planning process ... to develop a source protection plan for each watershed in the province.”

Justice Dennis O'Connor
The Walkerton Inquiry, 2002