

# Small Drinking Water Systems: Source Water

## Working Together to Safeguard our Health

### What is the importance of source water for your small drinking water system (SDWS)?

Did you know that effective December 1, 2008, the Ministry of Health and Long-Term Care (MOHLTC) has oversight of small drinking water systems (SDWS) in Ontario? The MOHLTC has prepared a brochure – *An Introduction to Operating a Small Drinking Water System* to help you to become familiar with the changes to Ontario's drinking water legislation. Reading this brochure is a good beginning.

Under the *Health Protection and Promotion Act*, Ontario Regulation 318/08 (Transitional – Small Drinking Water Systems) and Ontario Regulation 319/08 (Small Drinking Water Systems) as an owner or operator of a small drinking water system (SDWS), you are required to provide users with safe drinking water at all times. The ongoing quality of the water you provide to your users is heavily dependent on the type of your source water supply and the operational process of your SDWS.

To find out more about the regulatory requirements for your SDWS, contact the local public health unit to consult with a public health inspector (PHI), obtain fact sheets or other SDWS information.

### What you need to know about the source water you choose

The simplest way to protect the quality of the drinking water provided by your SDWS is to apply a multi-barrier approach. The first step in the multi-barrier approach is the choice and protection of the source water. There are three basic types of source water commonly used by a SDWS.

These are:

#### 1. Secure ground water systems

- A secure ground water system would be a well system that is designed and maintained in accordance with Ontario Regulation 903;
- Important considerations are that the well is a safe distance from any pollution source, has a water-tight casing to over 6 meters in depth and is otherwise protected from surface water contamination.

#### 2. Non-secure ground water systems

- A non-secure groundwater system would be a well or other groundwater collection system that is not a safe distance from pollution sources or is not designed or constructed to prevent contamination by surface water.

### 3. Surface water systems

° A surface water system is any system that draws water from surface water or a system that may be contaminated by surface water.

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## PROTECT the Water Source(s)

Protect the source(s) of the drinking water from contamination and overuse to support the provision of safe, clean drinking water. Preventing drinking water contamination at the source can be accomplished by identifying contaminants of concern and reducing or eliminating them.

Factors that affect source water quality:

- Rainfall and snow melt
- Ground slope towards well
- Natural chemical content in soil or rock
- Wildlife activity
- Agricultural runoff
- Pets, farm animal or wildlife activity
- Private sewage disposal systems
- Mining, industrial discharges
- Wastewater discharges
- Chemical spills or releases
- Combined sewer overflows.

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## Source water protection for secure groundwater

A secure ground water system without treatment may be capable of providing safe water. If no treatment is provided, ensuring safety of the water is limited to source water protection and routine surveillance activities.

Ensure that the well is constructed and maintained in such a manner as to prevent possible contamination from entering the well.

- ° Ensure that potential sources of contamination (e.g., septic systems, manure storage or chemical usage) are kept safely away from the well.
- ° Routinely check on the construction of the well and ensure the well is maintained in a safe and sanitary manner.
- ° Conduct additional sampling and testing if there is a possible threat to the quality of the well water.

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## Source water protection for non-secure groundwater

A non-secure groundwater source will require disinfection, at a minimum, to be used for drinking water. This type of water supply has a greater potential of becoming contaminated. The treatment equipment must be checked and maintained to ensure proper operation.

- ° Ensure that the well is constructed and maintained in a manner that prevents contamination that would require filtration.

- Ensure that the well is protected from any potential source of contamination (e.g., septic systems, manure storage or chemical usage).
- Ensure that the treatment system is always operating in such a manner as to provide safe water.
- Conduct additional sampling and testing where there is a possible threat to the quality of the well water.
- Maintain a level of surveillance of the source water, surrounding area and treatment system suitable to the complexity of the system by scheduling frequent sampling, testing and routine maintenance checks.

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## Source water protection for surface water

A surface water system (which may also include a groundwater system that is contaminated by surface water) requires both filtration - to physically remove microbes that are not killed by disinfection - and disinfection to kill bacteria and viruses.

- Ensure that the treatment system is capable of providing the level of treatment necessary to properly remove and disinfect microorganisms.
- Ensure that potential contamination that could overburden the treatment system does not enter the drinking water intake.
- Ensure that the treatment system is always operating in such a manner as to provide safe water.
- Conduct additional sampling and testing if there is a possible threat to the quality of the well water.

- Maintain a level of surveillance on the source water, surrounding area and treatment system suitable to the complexity of the system by scheduling frequent sampling, testing and routine maintenance checks.

The information above provides basic treatment information and should be considered in conjunction with advice from your local public health inspector or any directive issued for your SDWS.

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## Sampling and testing

To determine the ongoing quality of your drinking water, SDWS owners and operators should

- Take routine water samples and test regularly for the presence of total coliforms and E. coli bacteria at a licensed lab.
- Perform routine maintenance checks to verify proper operation of your treatment system (i.e., such as daily monitoring of free available chlorine and turbidity levels).

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## Where can I find additional information?

### Please remember...

This fact sheet is only a summary of your responsibilities as the owner or operator of a SDWS and is not a substitute for legal advice. For a more complete understanding of your legal responsibilities as an owner or operator, refer to Ontario Regulation 318/08 and Ontario Regulation 319/08 or any directives issued on your system.

In addition, you should become familiar with the procedure documents produced to help you efficiently operate a SDWS:



- Procedure for Disinfection of Drinking Water in Ontario.
- Procedure for Corrective Action for Small Drinking Water Systems that are Not Currently Using Chlorine.

For general information about well water safety, ask your health unit staff for a copy of:

- Keeping Your Well Water Safe to Drink: An information kit to help you care for your well.

### **You may also find additional information on the following Ontario ministry websites:**

Acts and Regulations:

**[www.e-laws.gov.on.ca/index.html](http://www.e-laws.gov.on.ca/index.html)**

Ministry of Health and Long-Term Care (MOHLTC):

**[www.health.gov.on.ca](http://www.health.gov.on.ca)**

- Current list of local public health units:

**[www.health.gov.on.ca/english/public/contact/phu/phuloc\\_mn.html](http://www.health.gov.on.ca/english/public/contact/phu/phuloc_mn.html)**

Ministry of the Environment (MOE):

**[www.ene.gov.on.ca/en/index.php](http://www.ene.gov.on.ca/en/index.php)**

- Current list of licensed private laboratories:

**[www.ene.gov.on.ca/en/water/sdwa/licensedlabs.php](http://www.ene.gov.on.ca/en/water/sdwa/licensedlabs.php)**

Ministry of Agriculture, Food and Rural Affairs (OMAFRA):

**[www.omafra.gov.on.ca/english/](http://www.omafra.gov.on.ca/english/)**

