

The Ontario Drinking-Water Systems Regulation
(O.Reg. 170/03)

Guide 2: What are my responsibilities under O.Reg. 170/03?

A Guide for Owners and Operators of Non-Municipal Year-Round Residential Drinking Water Systems

Please Note: The requirements in this Guide may be subject to change given the Ministry's intention to propose technical amendments to O. Reg. 170/03 by the end of June 2005, as outlined in the Ministry's EBR Posting – "Broad Policy Proposal for the Regulation of Drinking Water Systems in Ontario". More information on this proposal can be found on the EBR Registry at: <http://www.ene.gov.on.ca/envregistry/025314ep.htm>

Ontario Ministry of the Environment
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Protecting our environment.



Ontario

This publication is provided for information purposes only.

This guide is the second guide of a four-guide kit designed to assist owners and operators of non-municipal year-round residential drinking water systems to more fully understand their responsibilities in delivering safe, clean drinking water. However, readers are advised against using this document for compliance purposes. Reference should always be made to the text of the Drinking-Water Systems Regulation (O. Reg. 170/03) and the *Safe Drinking Water Act, 2002* to ascertain an owner/operator's specific legal requirements and to determine whether or not a system is in compliance. The Act and its regulations may be obtained from Ontario's e-laws website at

www.e-laws.gov.on.ca.

This Guide is for you if you are an owner or operator of a non-municipal year-round residential drinking water system that serves:

- an apartment building, private subdivision, condominium, townhouse complex, mobile home park or year round cottage development with six or more private residences; or
- a year round trailer park or campground with six or more service connections.

This Guide is NOT for use by:

- designated facilities including children’s camps, health care facilities, a delivery agent care facility, a school or private school, a social care facility, a university, college or institution with authority to grant degrees.

This Guide is designed to be user-friendly.

The right-hand, shaded column summarizes the contents of each section and highlights the basic requirements under the regulation. **You should read this first.** The left-hand side of the page contains the regulatory details needed to meet your regulatory responsibilities, as well as a reference to the appropriate section of the regulation. It is recommended that you refer to the text of the regulation itself for full compliance instructions.

Sources of additional information, including the other guides in this resource package, are also provided.

Remember, this guide is only a summary tool.

To be clear about your specific legal requirements, you must refer to the text of the Drinking-Water Systems Regulation (O.Reg.170/03) and the *Safe Drinking Water Act, 2002*. You can access these at www.ene.gov.on.ca under the section on Water, or by calling our Public Information Centre at 1-800-565-4923.

How Does The Kit Work?

This Kit for Non-Municipal Year-Round Residential Drinking Water Systems contains a number of Guides that, together, are designed to help owners and operators of regulated systems deliver safe, clean drinking water.

The Kit is made up of 4 Guides:

Guide 1: Does the Regulation apply to me?

Guide 2: What are my responsibilities under O. Reg 170/03?

Guide 3: How to Collect Drinking Water Samples

Guide 4: Glossary of Terms

Checklist for owners and operators of regulated non-municipal year-round residential drinking water systems

Step 1: Register Your Drinking Water System

- Where do I register my drinking water system?
- What must I complete and submit to register my system?

Step 2: Select a Licensed Laboratory to Analyze Your Drinking Water Samples

- How do I choose a licensed laboratory for testing my drinking water samples?
- How can I find out if a laboratory is licensed for specific testing?

Step 3: Know and Meet Your Sampling and Testing Requirements

- What procedures must I follow when samples are collected?
- What are my microbiological sampling and testing requirements?
- What are my chemical sampling and testing requirements?
- Also refer to Step 7 to learn the Operational Checks required

Step 4: Provide A “Minimum Level of Treatment”

- What are the minimum treatment requirements?
- What are the requirements for Groundwater Supplies?
 - Primary Disinfection
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 - Filtration and Primary Disinfection
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- Do I need to submit written notice of my intentions?

Step 5: Have an Engineering Evaluation Report Completed and Submit Written Notice to the Ministry of the Environment

- What must my Engineering Evaluation Report cover and who must complete it?
- When is my Engineering Evaluation Report Due?
- When must I submit a written notice to the Ministry?
- When must I submit subsequent Engineering Evaluation Reports?
- What exemptions are available?

Step 6: Have A ‘Certified Operator’ adjust equipment and conduct operational checks

- Who can operate my drinking water system and conduct operational tests?
- Do I need a certified operator to conduct operational water tests?
- How can I access more information on the certification and training requirements for an operator and water quality analyst?

Let’s Get Started.

As an owner/operator of a regulated Non-Municipal Year-Round Residential drinking water system¹, you have an obligation to familiarize yourself with your duties under Ontario’s Drinking-Water Systems Regulation (O. Reg. 170/03) and the other associated regulations and procedures that govern drinking water systems. This guide explains each of the regulatory requirements that apply to you, including:

- Registering your drinking water system
- Selecting a licensed laboratory
- Meeting sampling and testing requirements
- Installing treatment equipment to meet a minimum level of treatment
- Preparing Engineering Evaluation Reports and written notices
- Using certified operators
- Conducting Operational checks
- Notifying authorities of adverse test results and other problems
- Taking corrective action
- Posting warning notices
- Making required information available

Continued...

¹ According to section 1 of the Drinking Water Systems Regulation (O. Reg. 170/03), a “non-municipal year-round residential system” means a non-municipal drinking water system that is a not a seasonal system and serves, (a) a major residential development, or (b) a trailer park or campground that has more than five service connections; a “seasonal system” means a drinking water system that, (a) does not operate for at least 60 consecutive days in every calendar year, or (b) does not operate for at least 60 consecutive days in every period that begins on April 1 in one year and ends on March 31 in the following year.

Step 7: Undertake Operational Checks

- What operational checks must I undertake?
- How do I test for turbidity?
- How do I test for residual chlorine?
- What are my monitoring and reporting requirements?

Step 8: Determine if You Can Apply for Full Relief from Requiring Any Treatment

- Who can apply for full relief from treatment requirements?
- How do I apply?
- Must I consult with the users of my system?
- What exemptions exist for residential systems (under section 5)?

Step 9: Notify Authorities of Adverse Test Results and Other Problems

- What adverse test results and other problems must I report?
- Who must I notify and how must I notify them of these problems?

Step 10: Take Corrective Action

- What corrective actions must I take when adverse test results are received or other problems are observed?

Step 11: Post Warning Notices of Potential Problems

- When is it necessary to post a warning notice?
- Where do I post the warning notice?
- What must the warning notice say and where can I obtain them?

Step 12: Make Information Available to the Public

- What reports and documents must I make available to the public?

Step 13: Prepare and Submit an Annual Report

- How do I prepare my Annual Report?
- When is the first Annual Report due?

Step 14: Retain Required Reports and Documents

- What records must I retain? And for how long?

- Submitting an annual report
- Retaining required records

The guide also clarifies an option that exists in the regulation that can allow you to apply for full relief from treatment requirements. Step 8 will help you determine if you can apply for such relief.

Where do I register my drinking water system?

You must categorize your drinking water system under the Drinking-Water Systems Regulation (O. Reg. 170/03), and register it on the Ministry of the Environment's Drinking Water Information System (DWIS). Registration on this system also gives you the access you will need to make submissions to the Ministry as specified by the provisions of O. Reg. 170/03.

The Drinking Water Information System (DWIS) gathers, in one place, information about municipal and non-municipal drinking water systems across the province. This information will help the province, municipalities, non-municipal systems and licensed laboratories meet our shared commitment to safe, clean drinking water for the people of Ontario.

Once you have finished registration, you will be able to log into DWIS at www.ene.gov.on.ca/environet/DWIS/index.htm.

What must I complete and submit to register my system?

To register, the Drinking Water System owner has to make a submission that includes the completion of:

- A *Drinking Water System Categorization* questionnaire,
- A *Drinking Water System Profile* questionnaire, and
- A *Laboratory Services Notification Form*.

To access the Drinking Water Information System Registration, go to www.ene.gov.on.ca/environet/DWIS/index.htm. Follow the onscreen instructions as you complete the submissions.

The Ministry of the Environment requires electronic submission of information. However, you may be authorized to make paper submissions under special circumstances (e.g. if you do not have internet access). For more information, refer to Guide 1 under 'Registration.'

To speak with someone at the registration desk, call 1-866-793-2588.

Step 1: Register Your Drinking water System

You must register your drinking water system on the Ministry of the Environment's Drinking Water Information System (DWIS). You must complete the *Drinking Water System Categorization*, and *Drinking Water System Profile* questionnaires along with a *Laboratory Services Notification Form*. You can do this one of three ways:

1. To register online, go to the Ministry's homepage at www.ene.gov.on.ca, click on Water, and then click on Drinking Water Information System. Follow the on-screen instructions.
2. To access DWIS and obtain more information, you can also visit your local Government Information Centre. To find a Centre near you, call 1-800-267-8097 toll-free.
3. You may be authorized to make paper submissions under special circumstances (i.e. if you do not have internet access).

Refer to Guide 1 for more details on registration.

How do I choose a licensed laboratory for testing my drinking water samples?

When you send your drinking water samples to a laboratory for analysis, there are a number of conditions you and the laboratory must meet. It is up to you to ensure each of the following:

- The laboratory must be licensed by the Ministry to test for the specific parameter(s) you need analyzed. A licensed laboratory must use accredited testing methods for each parameter it tests. Licensed laboratories are required to meet strict conditions in order to be licensed for the testing of specific parameters by the Ministry of the Environment. Each laboratory is inspected by the Ministry's Specialized Laboratory Inspectors at least twice a year.
- Laboratories may accept your samples but then may need to sub-contract them to an appropriately licensed laboratory. They must have your written permission to do so.
- As of October 1, 2003, if the laboratory performing the analysis is located outside Ontario, then ensure they are on a list of eligible out-of-province laboratories (check with the Ministry of Environment through the Ministry's website at: <http://www.ene.gov.on.ca/envision/water/sdwa/licensedlabs.htm> or by contacting the Ministry's Service Desk at 1-866-494-6663).
- You must submit a written notice to the Ministry of the Environment identifying the licensed laboratory(ies) that will be carrying out the testing before you send your samples to the laboratory(ies) for the first time. Once you have submitted the *Laboratory Services Notification Form*, you do not have to submit it again unless you change a laboratory or you change the testing services provided by a laboratory. Laboratories will assist you with completing this submission to ensure that the correct information is submitted.

Note: It is strongly recommended that owners include a back-up laboratory on their *Laboratory Services Notification Form* in case the primary laboratory encounters unforeseen equipment/testing problems.

- It is the responsibility of the licensed laboratory to ensure that they send a written report to you or the operator of the drinking water system and an electronic report to the Ministry of the Environment of all required test results within 28 days of your drinking water samples being analyzed and the data being approved.

How can I find out if a laboratory is licensed for specific testing?

1. View the list of licensed laboratories on the Ministry's web site: <http://www.ene.gov.on.ca/envision/water/sdwa/licensedlabs.htm> or
2. Contact the Public Information Centre at 1-800-565-4923 or (416) 325-4000, or
3. Contact a laboratory directly and ask them what they are licensed to test for.

Notify the Ministry about the Licensed Laboratories you have selected using DWIS.

You must notify the Ministry of the Environment when you have selected the laboratories that will carry out the analyses of your drinking water samples. Notice must be made using the approved submission - *Laboratory Services Notification Form* - that is to be completed and submitted electronically through DWIS. Access DWIS from www.ene.gov.on.ca, click on Water, and then click on Drinking Water Information System.

Step 2: Select a Licensed Laboratory to Analyze Your Drinking Water Samples

When you send the drinking water samples that are required by the Drinking-Water Systems Regulation to a laboratory for testing, the testing must be carried out by a laboratory that is licensed by the Ministry of the Environment for each specific parameter being tested. While some laboratories may be licensed to test for all the microbiological and chemical parameters required by the Regulation, others may be licensed to test only microbiological parameters and/or only some chemical parameters.

What procedures must I follow when samples are collected?

- Whenever a sample is collected, the person taking the sample must record the date and time the sample was taken, the location where the sample was taken and the sampler's name on the *Laboratory Chain of Custody Form*. (This form can be obtained directly from the Drinking Water Information System or you can obtain a Ministry-inspected Chain-of-Custody Form from the laboratory conducting the tests. The laboratory's form will be customized for the drinking water system and sent to the sampler with the sampling containers.)
- In addition, a licensed laboratory will record the date and time the sample was tested, the results of the tests and the name of the person who conducted the tests
- You must discuss and make contractual agreements with the licensed laboratories that perform the analytical tests for microbiological and chemical parameters. How often the samples have to be collected, and from where, depends on the type of test being performed. Laboratories must provide you with instructions on proper techniques for sample collection, transport storage and preservation, and will supply the appropriate containers.
- You must ensure that samples for microbiological testing are kept between 4 – 10 °C until they are delivered to the laboratory. Do not freeze samples.

What are my microbiological sampling and testing requirements?

How often to collect samples (at a minimum)

- Raw water samples: once a month
- Distribution samples: twice a week if not chlorinating² or chloraminating, or once every week if chlorinating or chloraminating

Specific parameters for testing

- *E. coli* or fecal coliforms
- Total coliforms
- HPC (only in distribution samples)

Where to collect samples

- Raw water samples: raw water source (i.e. lake, river, etc.) and if using groundwater, then from each well.
- Distribution samples: from the distribution system or plumbing

Who performs analysis for parameters

- A laboratory licensed to test the parameter

By what date first samples must have been taken

- June 1, 2003
- Within one week of commencing operation of new system where chlorine

Step 3: Know and Meet Your Sampling and Testing Requirements

Previous drinking water regulations provided for tough monitoring standards and these are continued in the Drinking-Water Systems Regulation (O. Reg. 170/03). The sampling and testing requirements – for bacteria, including *E. coli*, and chemicals, such as PCBs and pesticides – have been designed to reflect the size and population served and the needs of each of the categories of drinking water systems

The collection and transport of drinking water samples could affect the accuracy of your test results!

See Guide 3 of this Resource Package for step-by-step instructions on how to properly collect drinking water samples.

Schedule 11 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers Microbiological Sampling and Testing Requirements.

² If, for a period of 24 consecutive months, the presence of *E. coli*, fecal coliforms, or total coliforms are confirmed in drinking water samples on no more than one occasion (as described in Schedule 1 of the Drinking-Water Quality Standards Regulation O. Reg. 169/03), then the sampling frequency may be reduced to: once every week if not chlorinating or not chloraminating, or once every two weeks if chlorinating or chloraminating. However, if, on any two or more occasions drinking water samples confirm the presence of *E. coli*, fecal coliforms, or total coliforms in a 24-month period (see Schedule 1 of the Drinking-Water Quality Standards Regulation O. Reg. 169/03), then you must immediately return to the original sampling frequency. A written notice of the intention to reduce testing frequencies must also have been given to the Director at least 7 days before the reductions come into effect (refer to the Ministry's Web site at www.ene.gov.on.ca for the approved notice).

is not used.

- Within two weeks of commencing operation of new system where chlorine is used.

Note: If your drinking water system is not in operation for seven days or more, or if for such a period the system supplies water only to the private residences that are occupied by the owner of the system, members of the owner's family, employees or agents of the owner of the system or their families, you are not required to perform microbiological sampling and testing during that period. However, upon restarting your system you must sample and receive the results prior to supplying drinking water to users of the system.

What are my chemical sampling and testing requirements?

How often to collect samples (at a minimum)

It varies depending on the parameter (See Schedule 13)

- All organic and inorganic parameters listed in Schedules 23 and 24 of O. Reg. 170/03: once every 36 months (if raw water supply is from groundwater), or once every 12 months (if raw water supply is from surface water)
- Nitrate and Nitrite: once every 3 months
- Sodium and Fluoride: every 60 months
- Lead: every 12 months
- Trihalomethanes (THMs) (only those systems that chlorinate or chloramine): once every 3 months

Where to collect samples

Point where water enters the distribution system or plumbing, except for:

- Trihalomethanes: the sample must be taken from a point in the distribution system that is likely to have an elevated potential for the formation of THMs
- Lead: the sample must be taken from a remote point in the distribution system that is likely to have an elevated concentration of lead

Who performs analysis for parameters

- A laboratory licensed to test the parameter

By what date first samples must have been taken

- If testing was previously done under Regulations 459/00 or 505/01 or under an OWRA approval or order, within the period of time set by the Regulation after the date of the last sample;
- For new systems that have not done chemical testing described in the previous bullet, within the period of time set by the Regulation or 12 months, whichever is shorter.

Note: If, any chemical test result exceeds half of the Maximum Concentration for the parameter listed in Schedule 2 of the *Ontario Drinking water Quality Standards Regulation* (O. Reg. 169/03), you must increase the frequency of the sampling for that parameter to once every 3 months. If subsequent levels are below half the maximum concentration for 4 consecutive quarters (surface water) or 2 consecutive quarters (groundwater), you may then revert back to the original frequency.

Note: If your drinking water system is not operating for 60 or more consecutive days, or if for such a period the system supplies water only to the private residences that are occupied by the owner of the system, members of the owner's family, employees or agents of the owner of the system or their families, you are not required to perform sampling and testing for trihalomethanes, nitrate and nitrite during that period.

Schedule 13 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers Chemical Sampling and Testing Requirements.

What are the minimum treatment requirements?

As a drinking water system owner, you must treat your water by the date specified in Schedule 2 of the Drinking-Water Systems Regulation (O. Reg. 170/03) for your system's category, unless you APPLY FOR RELIEF (refer to section on relief later in this guide).

What are the requirements for Groundwater Supplies?

• Primary Disinfection

You must ensure that you provide water treatment equipment that is capable of achieving, at all times, at least 99 per cent removal or inactivation of viruses in accordance with the Ministry of the Environment's "Procedure for Disinfection of Drinking Water in Ontario."

What are the requirements for Surface Water (or a GUDI³ Source) Supplies?

• Filtration and Primary Disinfection

You must ensure that you provide water treatment equipment that is capable of achieving, at all times, removal or inactivation of :

- 99 per cent of *Cryptosporidium* oocysts,
- 99.9 per cent of *Giardia* cysts, and
- 99.99 per cent of viruses.

in accordance with the Ministry's "Procedure for Disinfection of Drinking Water in Ontario."

If you are using UV or other non-chlorine-based primary disinfection equipment, you must ensure that the equipment has a feature that causes an alarm to sound in the building where the disinfection equipment is located, at a location where a person is present (if a person is not always present at the building where the disinfection equipment is located), when:

- equipment malfunctions;
- equipment loses power; or
- the disinfection equipment is not providing the appropriate level of disinfection.

If an alarm sounds, a 'certified operator' must be dispatched to take appropriate action and must arrive at the building where the disinfection equipment is located as soon as possible.

• Secondary Disinfection

Water treatment equipment must be capable of:

- secondary disinfection using chlorination or chloramination in accordance with the Ministry's "Procedure for Disinfection of Drinking Water in Ontario"; and
- achieving at all locations within the distribution system a free chlorine residual of 0.2 mg/L (if chlorinating), or a combined chlorine residual of 1.0 mg/L (if chloraminating).

Step 4: Provide A "Minimum Level of Treatment"

You have the flexibility to select any treatment technology that meets the performance-based criteria established in Schedule 2 of the Drinking-Water Systems Regulation (O. Reg. 170/03).

To meet the Regulation's mandatory treatment requirements, you must, at the very least, ensure that:

- wells are constructed and maintained to prevent surface water and other foreign materials from entering them;
- appropriate water treatment equipment is provided;
- water treatment equipment is operating whenever water is being supplied;
- water treatment equipment is operated as outlined in the Ministry's "Procedure for Disinfection of Drinking Water in Ontario";
- water treatment equipment is operated such that it achieves the design capabilities it is required to have;
- water treatment equipment is properly maintained;
- written operating instructions for the water treatment are kept near the equipment;
- adequate supplies of chemicals (or other materials necessary for operating the water treatment equipment) are: (a) clearly marked; (b) kept nearby the equipment; (c) separated from other chemicals and materials that are not used for the water treatment or distribution system;
- replacement parts (for those parts that need to be replaced periodically) are kept nearby; and
- treatment equipment is operated by a 'certified operator.'

³ A groundwater source under the direct influence of surface water, as defined in O. Reg. 170/03. Refer to Guide 1 (Does the Regulation Apply to Me?) for more information.

What are the deadlines for providing treatment equipment?

If your drinking water system was operating before O. Reg. 170/03 came into effect on June 1, 2003, the deadline for providing treatment equipment is:

- July 1, 2006, if your drinking water system obtains water from a surface water source or from a groundwater source
- New systems must meet the treatment requirements immediately upon the commencement of operations.

Note, the compliance dates specified in an existing approval under the *Ontario Water Resources Act* or orders in relation to a requirement to install treatment equipment take precedence over the compliance dates in the Regulation.

Do I need to submit written notice of my intentions?

If you have already notified the Ministry of the Environment of the completion of the Engineering Evaluation Report or submitted an application for relief from the requirements for provision of treatment equipment by December 31, 2005, then you do not need to submit this notice.

Otherwise, you must submit a written notice to the Ministry of the Environment Director on the approved submission by December 31, 2005, that includes one of the following declarations:

1. You intend to comply with the requirements for treatment equipment by the specified deadline (submit using DWIS), OR
2. You intend to make an application for relief from some or all of the requirements for provision of treatment equipment (submit using DWIS).

Notify the Ministry using DWIS.

Written notice of your intent to comply with the treatment requirements or of your intent to apply for relief must be made using the approved notice -- *Notification of Intent to Comply with Treatment Requirements* -- which is to be completed and submitted electronically through DWIS. Access DWIS from www.ene.gov.on.ca, click on Water, and then click on Drinking Water Information System.

Schedule 2 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers minimum levels of treatment for drinking water systems.

What must my Engineering Evaluation Report cover and who must complete it?

The Report must certify that a professional engineer⁴ has visited your drinking water system and include the engineer's opinion that all equipment needed to comply with the treatment requirements (in accordance with Schedule 2 of O. Reg. 170/03) is being provided, as well as all the equipment needed to comply with the operational checks provisions (in Schedules 6 and 8). As a minimum, in order to comply with Schedule 21 of the Regulation, a Report must:

1. specify the category of drinking water system under O. Reg. 170/03;
2. include the opinion of the engineer that all equipment has been provided in compliance with Schedules 2, 6, and 8;
3. set out the engineer's reasons for the opinion, along with the technical and other information he or she relied on in reaching that opinion; and
4. include a maintenance schedule that sets out requirements relating to the frequency at which the equipment must be inspected, tested and replaced.

You must ensure that the professional engineer that prepares the Engineering Evaluation Report has experience in sanitary engineering.

When is my Engineering Evaluation Report due?

If your drinking water system began operating on or after June 1, 2003, you must ensure that a professional engineer submits to you an Engineering Evaluation Report within 30 days of your new drinking water system beginning operation.

If your drinking water system began operating before June 1, 2003, you must ensure that a professional engineer submits to you an Engineering Evaluation Report:

- no later than July 31, 2006 for surface water systems and for groundwater systems.

Do not submit the Engineering Evaluation Report to the Ministry, but keep it on file to be made available upon request.

When must I submit a written notice to the Ministry?

Within seven (7) days after the date the Engineering Evaluation Report is required to be prepared, you must submit a written notice to the Ministry of the Environment Director using the approved notice in DWIS regarding the engineering evaluation report and include a copy of the engineer's opinion regarding your drinking water system's compliance.

Step 5: Have an Engineering Evaluation Report Completed and Submit Written Notice to the Ministry of the Environment

As the owner/operator of a regulated non-municipal year-round residential drinking water system, you must ensure that a professional engineer certifies that the system is in compliance with the regulatory requirements.

The engineer must prepare an Engineering Evaluation Report for you. In turn, you must submit a notice, using DWIS, to the Ministry of the Environment within 7 days of the completion of the report. This certification has to be renewed every five years for surface water systems and every 10 years for groundwater systems.

These requirements replace the need to obtain a certificate of approval under the *Ontario Water Resources Act* approval.

The required *Engineering Evaluation Report* notice is available through DWIS. Access it from www.ene.gov.on.ca, click on Water, and then click on Drinking Water Information System.

⁴ According to section 1 of the Drinking-Water Systems Regulation (O. Reg. 170/03), "professional engineer" means a professional engineer as defined in the *Professional Engineers Act*

Notify the Ministry using DWIS

Written Notice must be made using the approved submission which is to be completed and submitted electronically through DWIS. Access DWIS from www.ene.gov.on.ca, click on Water, and then click on Drinking Water Information System.

- *Notice of Completion of an Engineering Evaluation Report for Existing System*
- *Notice of Completion of an Engineering Evaluation Report for New or Altered Systems*
- *Declaration of Professional Engineer to be Included Within an Engineering Evaluation Report*

When must I submit subsequent Engineering Evaluation Reports?

As a drinking water system owner, you must also ensure that a professional engineer prepares and submits to you Engineering Evaluation Reports not later than:

- five (5) years from the date your last Engineering Evaluation Report was prepared or required to be prepared (the earlier of the two) if your drinking water system obtains water from a surface water source.
- ten (10) years from the date your last Engineering Evaluation Report was prepared or required to be prepared (the earlier of the two) if your drinking water system obtains water from a groundwater source.
- If you alter⁵ your drinking water system (“alteration”, as defined in the *Safe Drinking Water Act*, does not include repairs), then you must ensure that a professional engineer submits to you an Engineering Evaluation Report within 30 days of commencing operation of the altered system.

Notices are also required to be submitted to the Ministry at these times.

What exemptions are available?

- If you have already prepared and submitted to the Ministry of the Environment (MOE) Director an Engineering Evaluation Report under Regulation 505/01, you are exempt from preparing your first Engineering Evaluation Report and submitting a written notice to the MOE Director.
- If you have been granted an approval after August 1, 2000, under section 52 of the *Ontario Water Resources Act* (Certificate of Approval), you are exempt from preparing your first Engineering Evaluation Report and submitting a written notice to the MOE Director.
- However, if you have been granted an approval under *Ontario Water Resources Act* after August 1, 2000, you must have an engineer prepare a statement certifying that she or he has visited the system and that equipment required by Schedules 2, 6 and 8 of the Regulation is being provided (see Schedule 21 for more details). The Regulation provides that the *Ontario Water Resources Act* approval is revoked on the date the owner submits this statement to the Director, which means the drinking water system will no longer be subject to the requirements of the *Ontario Water Resources Act* approval – and will, instead, be regulated by the Drinking-Water Systems Regulation under the *Safe Drinking Water Act*.
- If you have been granted relief, in accordance with schedule 5 of O. Reg. 170/03, by the MOE Director from complying with all requirements to provide treatment equipment you are exempt from preparing an Engineering Evaluation Report and submitting this written notice to the MOE Director.

Schedule 21 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers the preparation of Engineering Evaluation Reports and the submission of the required notices to the Ministry.

⁵ According to section 2 of the *Safe Drinking Water Act*, “alteration” includes the following, in respect of a drinking water system, but excludes repairs to the system: (1) an extension of the system, (2) a replacement of part of the system, (3) a fragmentation of the system, and (4) taking all or part of the system permanently out of service

Who can operate my drinking water system and conduct operational tests?

Section 12 (1) of the *Safe Drinking Water Act* requires that only persons holding a valid operator's certificate can operate a municipal system, or a regulated non-municipal system. Your system is defined as a '**non-municipal year-round residential drinking water system**' and therefore is a regulated non-municipal system that requires a certified operator. Specifically, your drinking water system will require a person who holds a "Limited Groundwater" or "Limited Surface Water" Certificate, depending on the source of your water. Persons holding a Class I-IV Water Treatment Certificate are also qualified to operate your system.

You are required to have a certified operator by the date you are required to have installed new treatment equipment under O. Reg. 170/03. Drinking water systems in **the non-municipal year-round residential category** must install treatment equipment by July 1, 2006 for surface water sources, and groundwater sources.

Since new systems must immediately comply with the treatment requirements, your new system will require having a certified operator immediately as well.

Certification qualifications are specified in O. Reg. 128/04, the Certification of Drinking Water System Operators and Water Quality Analysts Regulation. Additional information can be found in "The Certificate Guide for Operators and Water Quality Analysts of Drinking Water Systems". You can access this guide by going to the Ministry of the Environment web site at www.ene.gov.on.ca, clicking on the Water section and going to Research and Publications.

O. Reg. 170/03 requires that the following duties must be performed by a certified operator in systems such as yours:

- make all adjustments to the water treatment equipment;
- examine, within 72 hours after the tests are conducted, the results of continuous monitoring equipment;
- be promptly dispatched to the drinking water system if alarms sound as a result of equipment malfunction or loss of power or a test result which is above the maximum or below the minimum alarm standards established by the Regulation;
- perform all total chlorine residual, free chlorine residual, turbidity or fluoride testing required; and
- perform regular checks on water treatment equipment to confirm proper functioning.

The qualifications for a "Limited Groundwater" or "Limited Surface Water" Certificate are:

- o Pass the applicable examination
- o Grade 12 or equivalent (Persons who have one month of experience working with water systems between August 1, 2003 and August 1, 2004 require Grade 10 or equivalent.)
- o Complete entry level course (applies only to persons who apply after August 1, 2005)

Step 6: Have A 'Certified Operator' Adjust Equipment and Conduct Operational Checks

Drinking water systems that fall within the non-municipal year-round residential category must have a certified operator as specified under the *Safe Drinking Water Act*.

The Ministry of the Environment filed a new regulation governing the certification of operators on May 14, 2004. The regulation came into effect on August 1, 2004. The regulation is known as the Certification of Drinking-Water System Operators and Water Quality Analysts Regulation or O. Reg. 128/04.

A certified operator is a person who:

- conducts operational checks or adjusts, tests, or evaluates a process that controls the effectiveness or efficiency of a subsystem; and
- adjusts or directs the flow, pressure, or quality of water within the subsystem, if the person works in a distribution subsystem or a distribution and supply subsystem.

Do I need a certified operator to conduct operational water tests?

Testing for the 24 operational parameters listed under subsection 2(1) of the Drinking Water Testing Services Regulation, O. Reg. 248/03 (e.g. testing for chlorine residual, turbidity, alkalinity, pH), can be done by a qualified person. A qualified person includes a certified drinking water operator, and a water quality analyst.

A water quality analyst means a person who holds a water quality analyst's certificate, issued under O. Reg. 128/04. To secure such a certificate a person must meet certain education and experience requirements, and pass an exam. More details about these requirements are included in the Guide referred to below.

How can I access more information on the certification and training requirements for an operator and water quality analyst?

You are encouraged to read the ministry's 'Certification Guide for Operators and Water Quality Analysts of Drinking Water Systems'

The Guide describes in detail the operator and water quality analyst certification program including:

- the responsibilities of an owner with regard to operator and water quality analyst certification
- operating standards that owners are expected to have in place with regard to operators employed in their system
- the qualifications required for different types of operator certificates and the study material that will assist operators to prepare for a certification exam
- the qualification requirements for a water quality analyst certificate
- the annual training that operators and water quality analysts need to take for certificate renewal and the process for renewing a certificate, and
- the fee structure for certificates.

The Guide and application forms are posted on the ministry's web site at www.ene.gov.on.ca in the Water Section, under Research and Publications, as well as the web site of the Ontario Environmental Training Consortium, www.oetc.on.ca. The OETC is the organization that administers the certification program for the ministry. Please contact the OETC at 905-796-2851 for any questions concerning the "Limited" Certificates.

What operational checks must I undertake?

In accordance with Schedule 8 of the Drinking-Water Systems Regulation (O. Reg. 170/03), you must ensure that a certified operator performs a regular operational check to ensure that all water treatment equipment is properly functioning, as specified in the maintenance schedule of the Engineer's Evaluation Report.

You must ensure that a certified operator or water quality analyst collects samples and tests your water for turbidity, and free residual chlorine or combined chlorine residual, if applicable. Operational checks for turbidity and chlorine residual should be conducted on-site.

Whenever a sample is taken, the person taking the sample must record the date and time the sample was taken, the location the sample was taken and the person's name. In addition, the record should include the date and time the sample was tested and the results of the tests (and the name of the person who conducted the test, if this is a different person from the person who took the sample).

Note: You may have a person other than a certified operator or water quality analyst perform operational checks, but only until your treatment deadline comes into effect (July 1, 2006 for both surface water sources and groundwater sources).

How do I test for turbidity?

Surface Water Using Filtration:

If continuous monitoring equipment is required on filtration equipment (i.e. direct filtration, conventional filtration, Diatomaceous Earth Filtration and membrane filtration-see Procedure for Disinfection) to comply with the treatment performance requirements of Schedule 2, you must ensure that sampling and testing for turbidity is conducted by continuous monitoring equipment on each filter effluent line. If continuous monitoring equipment is not required, (if you use slow sand filters or cartridge filters-see Procedure for Disinfection), then you must ensure that a daily water sample is taken on each filter effluent line and tested for turbidity.

Other: At least one sample per month shall be taken and immediately tested for turbidity before the raw water enters the treatment system. When testing for turbidity, a turbidity meter that measures turbidity in Nephelometric Turbidity Units (NTUs) must be used. See Schedule 6 of the Regulation.

How do I test for residual chlorine?

Primary Disinfection – Chlorination:

A sample shall be collected at least once per day and immediately tested for free chlorine residual in the treatment process at the end of contact time as required in the Ministry's "Procedure for Disinfection of Drinking Water in Ontario."

Secondary Disinfection – Chlorinating or Chloramination:

Samples shall be collected from the distribution system, at least once every day and immediately tested for free chlorine residual or combined chlorine residual.

Step 7: Undertake Operational Checks

Please note that every time a water sample is collected for microbiological testing, a measurement of free chlorine residual (where chlorination is provided) or combined chlorine residual (where chloramination is provided) must be conducted at the same time and same location and noted on the *Laboratory Chain of Custody Form*. This measurement of chlorine residual taken with a microbiological sample can satisfy the daily requirement to test for chlorine residual under the Regulation.

Schedule 8 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers operational checks.

What are my monitoring and reporting requirements?

Compliance Calendar for Periodic Monitoring & Reporting Requirements

FREQUENCY	MONITORING WATER QUALITY AND PROPER FUNCTIONING OF EQUIPMENT	PREPARING AND RECEIVING RECORDS/REPORTS	DISTRIBUTING AND RETAINING (ON-FILE) REPORTS/RECORDS
At least once a day	<p>Measure free chlorine residual (if using chlorination) or combined chlorine residual (if using chloramination)</p> <p>Primary Disinfection (Chlorination)</p> <ul style="list-style-type: none"> ◆ Ensure that a water sample is collected and tested immediately for free or combined chlorine residual at <u>least once every day</u> in the treatment process at the end of contact time in accordance with the Ministry’s “<i>Procedure for Disinfection of Drinking Water in Ontario.</i>” (optimum 0.2 mg/L) ◆ If the system uses chloramination, sampling and testing for combined chlorine residual is to be undertaken by continuous monitoring equipment. <p>Secondary Disinfection</p> <ul style="list-style-type: none"> ◆ Ensure that a distribution sample is taken at <u>least once every day</u> and is tested immediately for free chlorine residual (if system provides chlorination optimum 0.2 mg/L) or combined chlorine residual (if the system provides chloramination optimum 1.0 mg/L). <p>(Reg. Schedule 8)</p>	<ul style="list-style-type: none"> ◆ For each sample taken, make a record of the date and time the sample was tested, the name of person who performed the test and the test results and note them on the <i>Laboratory Chain of Custody Form</i> if the test was done on a microbiological sample submitted to a licensed laboratory. <p>(Reg. Schedule 6)</p>	<ul style="list-style-type: none"> ◆ Keep every record made on free chlorine residual or combined chlorine residual tests for at least 5 years. <p>(Reg. Section 13)</p>
<p>Surface Water Using Filtration Continuously, if using continuous monitoring equipment</p> <p>At least once a day if not required to use continuous monitoring equipment</p> <p>Other At least once per month</p>	<p>Measure turbidity</p> <p>Year-Round Residential Surface Water Using Filtration</p> <ul style="list-style-type: none"> ◆ If continuous monitoring equipment is required, ensure the sampling and testing for turbidity is conducted by continuous monitoring equipment on each filter effluent line. ◆ If continuous monitoring is not required, at <u>least one sample per day</u> shall be taken and immediately tested for turbidity on each filter effluent line. <p>Other</p> <ul style="list-style-type: none"> ◆ At <u>least one sample per month</u> must be taken and immediately tested for turbidity before the raw water enters the treatment system. <p>(Reg. Schedule 8)</p>	<ul style="list-style-type: none"> ◆ For each sample, make a record of the date and time the sample was tested, the name of person who performed the test and the test results. <p>(Reg. Schedule 6)</p>	<ul style="list-style-type: none"> ◆ Keep every record made on turbidity tests for at least 5 years. <p>(Reg. Section 13)</p>

Twice a week if not chlorinating or chloraminating Once a week if chlorinating or chloraminating	Test for microbiological parameters in treated water Collect treated samples from the distribution system or plumbing. Send samples to a laboratory licensed to test (i) <i>E. coli</i> or fecal coliforms, (ii) total coliforms, <u>and</u> (iii) HPC. (Reg. Schedule 11)	◆ Receive a report of the analytical results from the laboratory. (Reg. Schedule 6)	◆ Keep every report of analytical results given to you by the laboratory for at least 5 years. (Reg. Section 13)
Frequency specified in maintenance schedule of Engineer's Evaluation Report	Check of Treatment Equipment ◆ Ensure that a certified operator checks all water treatment equipment to confirm that it is functioning properly. (Reg. Schedule 8)	◆ For each equipment check, make a record of the date and time, the name of the person who performed it, and the results. (Reg. Schedule 8)	◆ Keep every record of an Operational Check made for at least 5 years. (Reg. Section 13)
Once a month	Test for coliforms in raw water ◆ Collect raw water samples from the untreated water source; and <u>IF</u> using groundwater, then from each well. ◆ Send samples to a laboratory licensed to test (i) <i>E. coli</i> or fecal coliforms, and (ii) total coliforms. (Reg. Schedule 11)	◆ Receive a report of the analytical results from the laboratory. (Reg. Schedule 6)	◆ Keep every report of analytical results given to you by the laboratory for at least 5 years. (Reg. Section 13)
Every 3 months	Test for nitrate and nitrite and trihalomethanes (only for systems that chlorinate or chloraminate) Collect samples from the point where water enters the distribution system or plumbing (except trihalomethanes [THMs] the sample must be taken from a point in the distribution system that is likely to have an elevated potential for the formation of THMs). Send samples to a licensed laboratory for testing. (Reg. Schedule 13)	◆ Receive a report of the analytical results from the laboratory. (Reg. Schedule 6)	◆ Keep every report of analytical results given to you by the laboratory for at least 15 years. (Reg. Section 13)
Once a year	Test for lead ◆ Collect samples from the point in the distribution system that is likely to have an elevated concentration of lead. Send samples to a licensed laboratory for testing. (Reg. Schedule 13)	◆ Receive a report of the analytical results from the laboratory. (Reg. Schedule 6)	◆ Keep every report of analytical results given to you by the laboratory for at least 15 years. (Reg. Section 13)
Once a year (surface water source) Every 3 years (groundwater source)	Test for all organic and inorganic parameters listed in Schedules 23 and 24 of the Drinking-Water Systems Regulation ◆ Collect samples from the point where water enters the distribution system or plumbing. Send samples to a licensed laboratory for testing. (Reg. Schedule 13)	◆ Receive a report of the analytical results from the laboratory. (Reg. Schedule 6)	◆ Keep every report of analytical results given to you by the laboratory for at least 15 years. (Reg. Section 13)

Every 5 years	<p>Test for sodium and fluoride</p> <p>Collect samples from the point where water enters the distribution system or plumbing. Send samples to a licensed laboratory for testing.</p> <p>Note: Fluoride samples can be collected and tested by a Certified Operator or by a water quality analyst.</p> <p>(Reg. Schedule 13)</p>	<ul style="list-style-type: none"> ◆ Receive a report of the analytical results from the laboratory. (Reg. Schedule 6) 	<ul style="list-style-type: none"> ◆ Keep every report of analytical results given to you by the laboratory for at least 15 years. (Reg. Section 13)
Once a year	<p>Prepare Annual Report</p>	<ul style="list-style-type: none"> ◆ Prepare and submit an annual report using the format provided by the Ministry of the Environment through DWIS. (Reg. Section 11) 	<ul style="list-style-type: none"> ◆ Send annual report to: <ul style="list-style-type: none"> 1. Electronically to the Ministry of the Environment; 2. Every person who requests a copy. ◆ Keep copies of the annual report for at least 5 years. (Reg. Section 13)
<p>Every 5 years (surface water source)</p> <p>Every 10 years (groundwater source)</p>	<p>Prepare an Engineering Evaluation Report and submit a written notice to the Ministry (within 7 days after the engineering evaluation report is required to be prepared).</p> <p>(Reg. Schedule 21)</p>	<ul style="list-style-type: none"> ◆ This written notice must include a copy of an engineer's written opinion that all equipment required for treatment (schedule 2) and operational checks (schedules 6, 8) is being provided and the reasons for the opinion. (Reg. Schedule 21) 	<ul style="list-style-type: none"> ◆ Keep your Engineering Evaluation Report for at least 15 years. (Reg. Section 13)

Who can apply for full relief from treatment requirements?

Owners of a non-municipal year-round residential drinking water system that obtain water from a groundwater source can apply for relief from all treatment requirements (found in Schedule 2 of the Drinking-Water Systems Regulation).

How do I apply?

Drinking water system owners who wish to apply for relief must obtain the services of a professional engineer in order to make the necessary assessments required by the application. The engineer must follow the Ministry of the Environment's "Guide for Applying for Approvals Related to Municipal and Non-Municipal Drinking Water Systems," and must complete the appropriate submissions.

Submissions or activities that are required to be carried out by the engineer as part of an application process include:

- a written statement that confirms that he or she has requested all information related to the drinking water system from the local health unit, has consulted with the local Medical Officer of Health about potential health issues or concerns related to the drinking water system, and has set out in the statement any issues or concerns raised;
- a characterization of the drinking water system's raw water supply that includes a minimum of 24 CONSECUTIVE months microbiological sample history, a statement concluding that there are no significant and rapid shifts in chemical and physical characteristics that indicate surface water influence (that is, pH, turbidity, temperature, nitrate, nitrite, and conductivity), and copies of any other records that show past evidence of surface-water contamination (such as, presence of viruses, chlorophyll a, protozoan cysts, macro-organisms);
- surveys and analyses prepared by or under the supervision of the engineer that deal with the potential risks of microbiological contamination related to each of the following: well construction and well-head protection, the well-head vicinity and recharge zone, and distribution system and plumbing; and
- a proposed management plan prepared by or under the supervision of the engineer that provides guidance for operations related to preventing, reducing and managing microbiological risks⁶

Step 8: Determine if You Can Apply for Full Relief from Requiring Any Treatment

As recommended by Commissioner O'Connor, the Drinking-Water Systems Regulation (O. Reg. 170/03) allows certain owners to apply for an approval from the Ministry of the Environment relieving them of the requirement to provide minimum treatment. This relief is only allowed, however, if the owner is able to demonstrate that the safety of the drinking water provided by the owner's system meets acceptable risk-based standards. This process is not available to owners of drinking water systems that obtain their water from a surface water source, including groundwater systems under the influence of surface water.

Those who wish to go through this process have to make an application that provides a comprehensive range of information based on a risk analysis and management plan.

⁶ A proposed management plan for preventing, reducing and managing microbiological risks should include the following components: (1) operating procedures relating to the maintenance activities at the start of an operating season and relating to routine flushing and disinfecting activities (you must also include written operating procedures relating to increased monitoring activities after adverse weather events such as heavy rainfall or floods); (2) logs relating to samples taken (include location, sample times, signatures, and test results); (3) a protocol for notification (and a contact list) that clearly describes the steps to notify the users of the system, the Ministry of the Environment, and the local Medical Officer of Health upon adverse events and the importance of keeping contact lists up to date; (4) a procedure for corrective action upon adverse events that is consistent with the Ministry procedure entitled, "Procedure For Corrective Action for Systems Not Currently Using Chlorine"; and (5) a procedure for making records, in order to summarize any corrective actions taken, the results of the corrective action, and the resolution of the issues that gave rise to the corrective actions.

Notify the Ministry using DWIS

Notification of your intent to apply for regulatory relief must be made using the approved notice - *Notice of Intent to Apply for Relief from Complying from Treatment Requirements* - which is to be completed and submitted electronically through DWIS. Access DWIS from www.ene.gov.on.ca, click on Water, and then click on Drinking Water Information System.

Schedule 5 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers the application for full relief from all treatment requirements.

Must I consult with the users of my system?

Ensure that the occupants of all private residences served by the system are notified of the application and given reasonable opportunity to make comments. A written summary of those comments and responses must also be prepared before the application for relief is made to the Ministry of the Environment.

What exemptions exist for residential systems (under section 5)?

If you own a non-municipal year-round residential system that obtains all its water from a drinking water system that is subject to O. Reg. 170/03, and that provides secondary disinfection in accordance with the Regulation, and the owner of the system providing the water has agreed in writing to ensure that (1) the secondary disinfection equipment is operated so that at all times and at all locations within your distribution system the required free or combined chlorine residual is maintained (whichever applies), and (2) to sample and test the water in the distribution system of the system that obtains the water as if it were part of the distribution system of the system providing the water, you are exempt from most of the requirements of O. Reg. 170/03. If you do not have such an agreement, certain sampling and monitoring activities of the water in your distribution system still apply to you as the owner of that system. Refer to section 5 of the Regulation for more details about these requirements.

What adverse test results and other problems must I report?

The following adverse test results must be reported immediately to the Ministry of the Environment's Spills Action Centre and the local Medical Officer of Health in accordance with section 18 of the *Safe Drinking Water Act* (SDWA):

- a result that exceeds any of the standards listed in Schedules 1, 2 or 3 of the Ontario Drinking-Water Quality Standards Regulation;
- a result indicating the presence of *Aeromonas* spp., *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Clostridium* spp., or fecal streptococci in a sample of drinking water;
- a result indicating the presence of a pesticide not listed in Schedule 2 of the Ontario Drinking-Water Quality Standards Regulation is detected in a sample of drinking water;
- if chlorination is used, a result indicating that the concentration of free chlorine residual is less than 0.05 mg/L in a distribution sample;
- if chloramination is used, a result indicating that the concentration of combined chlorine residual is less than 0.25 mg/L in a distribution sample;
- a test result exceeding the maximum concentration for a parameter identified under an approval or order as a health-related parameter;
- if filtration is required, a result indicating the turbidity is more than 1.0 NTU in filter effluent; if grab sampling or, if continuously monitoring, more than 1.0 NTU in 2 consecutive filter effluent samples taken 15 minutes apart (report only once per 24 hours);
- a result indicating the sodium concentration exceeds 20 mg/L in a sample of drinking water (report only once per 5 years); or
- a result indicating the fluoride concentration exceeds 1.5 mg/L in a sample of drinking water (report only once per 5 years).

In addition, any observation that indicates that a drinking water system that provides (or is required to provide) disinfection is directing water that has not been properly disinfected to users, must also be reported immediately to the Ministry's Spills Action Centre and the Local Medical Officer of Health, in accordance with section 18 of the SDWA.

Who must I notify and how must I notify them of these problems?

Step 1, Make immediate report (by telephone or in person).

Immediately report the adverse result or other problem to the Ministry's Spills Action Centre (telephone 1-800-268-6060) and the local Medical Officer of Health, by speaking with someone in person or on the telephone.

When you make a report, you must specify the adverse test result or the observation that your drinking water system has not adequately disinfected water directed to users of the system, and the action or appropriate corrective action that is being taken.

Step 2, Deliver written notice.

You must deliver written notice within 24 hours of giving the immediate verbal notice using the approved notice available through DWIS. The written notice must indicate the problem and the appropriate corrective action that is being taken. Send the written notice to:

- the local Medical Officer of Health; and
- the Ministry of the Environment's (MOE) Spills Action Centre (through DWIS).

Step 9: Notify Authorities of Adverse Test Results and Other Problems

The Drinking-Water Systems Regulation (O. Reg. 170/03) continues to require mandatory reporting of adverse test results to both the local Medical Officer of Health and the Ministry of the Environment.

Here is how the notification of an adverse test result works:

- The licensed laboratory identifies an adverse result.
- The licensed laboratory notifies the system owner, the Ministry's Spills Action Centre (SAC), and the local Medical Officer of Health (LMOH).
- The owner notifies SAC and LMOH.

Step 3, Deliver follow-up notice of action taken.

You must deliver follow-up written notice within 7 days of resolving the issue that gave rise to the first notice using the approved notice available through DWIS. The follow-up written notice must summarize the action taken and the results achieved to the local Medical Officer of Health, and the MOE Spills Action Centre.

Use the approved notices available in DWIS

Written notice of any adverse test results or other problems, followed by a second notice detailing the resolution of the problem, must be made using the approved notices, which are to be completed and submitted electronically through DWIS. Access DWIS from www.ene.gov.on.ca, click on Water, and then click on Drinking Water Information System.

- *Written Notice of Adverse Test Results and Other Problems*
- *Notice of Issue Resolution at Drinking Water Systems (AWQI-NR)*

Submit the written notice to the Spills Action Centre by going to the Ministry of the Environment’s website, then accessing DWIS. Log in by entering your user name and password, and select the appropriate notice.

Within 24 hours of giving the required immediate verbal notice of any problem, drinking water system owners must also submit the notice to the local Medical Officer of Health. .

Once the issue is resolved, complete the *Notice of Issue Resolution at Drinking Water Systems*. Submit it to the Ministry through DWIS and submit another copy to the local Medical Officer of Health.

Step 10: Take Corrective Action

In the event that your system experiences an adverse test result or you observe that your system is not properly disinfecting water that is being directed to users, not only must you notify the appropriate authorities (including the Ministry of the Environment and the local Medical Officer of Health), but you must also take corrective action to protect the users of your water. There are different types of corrective actions depending on the type of water quality problem you may find in your samples. Schedule 18 of the Drinking-Water Systems Regulation (O. Reg. 170/03) describes different corrective actions that are required following certain adverse test results or observation of certain problems.

What Corrective Actions Must I Take When Adverse Test Results are Received or Other Problems are Observed? (Schedule 18 of O. Reg. 170/03)

Adverse test result or other problem	Water use	Treatment	Sampling and testing	Consult with ...
Water not disinfected properly has been directed to users	Take steps to notify users to use an alternate source of drinking water or to bring water to a rolling boil for one minute before use.	Restore the disinfection.		Local Medical Officer of Health
If filtration is required, the turbidity in filter effluent is more than 1.0 NTU	Take steps to notify users to use an alternate source of drinking water or to bring water to a rolling boil for one minute before use if problem can not be resolved quickly.	1. Check equipment, backwash or replace filters, and correct any other faulty processes. 2. If resample confirms exceedance, follow manufacturer's servicing recommendations and flush the distribution system and plumbing.		Local Medical Officer of Health
If chlorination is used, free chlorine residual is less than 0.05 mg/L in a distribution sample	Take steps to notify users to use an alternate source of drinking water or to bring water to a rolling boil for one minute before use if problem can not be resolved quickly.	Increase chlorine dose to achieve a 0.2 mg/L residual in the distribution system, and flush the distribution system and plumbing (see note 1, below).	Test to ensure that a 0.2 chlorine residual is achieved.	Local Medical Officer of Health
<i>E. coli</i> or fecal coliform detected from any one sample.	Take steps to notify users to use an alternate source of drinking water or to bring water to a rolling boil for one minute before use.	Increase chlorine dose to achieve a 0.2 mg/L residual in the distribution system, and flush the distribution system and plumbing (see note 1, on next page).	Immediately resample and test (see note 2, on next page). Continue corrective action until <i>E. coli</i> or fecal coliforms are no longer detected in 2 consecutive sets of samples taken 24 to 48 hours apart.	Local Medical Officer of Health
Resample test confirms total coliforms (but not fecal coliforms).	Take steps to notify users to use an alternate source of drinking water or to bring water to a rolling boil for one minute before use.	Increase chlorine dose to achieve a 0.2 mg/L residual in the distribution system, and flush the distribution system and plumbing (see note 1, on next page).	Continue corrective action until total coliforms are no longer detected in 2 consecutive sets of samples taken 24 to 48 hours apart.	Local Medical Officer of Health

Resample test confirms more than 200 Background CFU/100mL (but not fecal coliforms) on a total coliform membrane filter.	Consult with local Medical Officer of Health on water use.	Increase chlorine dose to achieve a 0.2 mg/L residual in the distribution system, and flush the distribution system and plumbing (see note 1, below).	Continue corrective action until less than 200 Background CFUs/100 mL are detected in 2 consecutive sets of samples taken 24 to 48 hours apart.	Local Medical Officer of Health
Resample test confirms more than 500 CFU/mL (but not fecal coliforms) on a heterotrophic plate count (HPC).	Consult with local Medical Officer of Health on water use.	Increase chlorine dose to achieve a 0.2 mg/L residual in the distribution system, and flush the distribution system and plumbing (see note 1, below).	Continue corrective action until less than 500 CFUs/mL are detected in 2 consecutive sets of samples taken 24 to 48 hours apart.	Local Medical Officer of Health
Resample test confirms presence of <i>Aeromonas</i> spp., <i>Pseudomonas aeruginosa</i> , <i>Staphylococcus aureus</i> , <i>Clostridium</i> spp., or fecal <i>streptococci</i> .	Consult with local Medical Officer of Health on water use.	Increase chlorine dose to achieve a 0.2mg/L residual in the distribution system, and flush the distribution system and plumbing (see note 1, below).	Continue corrective action until <i>Aeromonas</i> spp., <i>Pseudomonas aeruginosa</i> , <i>Staphylococcus aureus</i> , <i>Clostridium</i> spp., or fecal <i>streptococci</i> are not detected in 2 consecutive sets of samples taken 24 to 48 hours apart.	Local Medical Officer of Health
Resample test confirms exceedance of a chemical and radiological parameter listed in Schedule 2 or 3 of the <i>Ontario Drinking water Quality Standards Regulation</i> (O. Reg. 169/03)	Consult with local Medical Officer of Health on water use.	Consult with local Medical Officer of Health on further sampling and testing.		Local Medical Officer of Health
Resample test confirms that a pesticide NOT listed in Schedule 2 of the <i>Ontario Drinking water Quality Standards Regulation</i> (O. Reg. 169/03) is detected.	Consult with local Medical Officer of Health on water use.	Consult with local Medical Officer of Health on further sampling and testing.		Local Medical Officer of Health
Resample test confirms exceedance of the maximum concentration for a parameter identified under an approval or order as a health-related parameter	Consult with local Medical Officer of Health on water use.	Consult with local Medical Officer of Health on further sampling and testing.		Local Medical Officer of Health
Resample test confirms a sodium concentration that exceeds 20 mg/L and a report has not been made in the previous 5 years	Consult with local Medical Officer of Health on water use.	Consult with local Medical Officer of Health on further sampling and testing.		Local Medical Officer of Health

Note 1: If you are not currently using chlorine, take the corrective action as outlined in the Ministry’s “Procedure for Corrective Action for Systems Not Currently Using Chlorine” (available on the Ministry’s Web site, www.ene.gov.on.ca).

Note 2: “resample and test” (as defined in O. Reg. 170/03) for a microbiological parameter means that you must immediately collect and transport a set of at least 3 drinking water samples for the parameter, which caused the adverse water quality to your licensed laboratory for analysis. The first sample must be from the same location as the sample that gave rise to the corrective action. The second sample must be from a location that is a significant distance upstream from the location of the adverse result, where reasonably possible, and the third sample must be from a location that is a significant distance downstream from the adverse result, where reasonably possible.

To “resample and test” for a parameter that is not a microbiological parameter means that you must collect and transport a water sample for the parameter which caused the adverse water quality from the same location as the sample that gave rise to the corrective action to your licensed laboratory for analysis.

When is it necessary to post a warning notice?

Under Schedule 19 of the Drinking-Water Systems Regulation (O. Reg. 170/03), you must post a warning notice:

- if you are not presently in compliance with microbiological sampling and testing requirements of Schedule 11;
- if you did not carry out the appropriate corrective action required under Schedule 18; and/or
- if you must, as a corrective action, notify all users to use an alternate source of water or to boil the water for at least one minute before using.

Warning Notices do NOT provide a regulatory exemption from testing and treatment! The warning notices required to be posted in accordance with Schedule 19 are a temporary and additional requirement meant to protect public health, the fundamental objective of this regulation. They do not relieve the owner of any regulatory requirements. The owner must still comply with the requirements of Schedule 11, 12 or 18 as soon as possible despite posting a warning notice.

Where do I post the warning notice?

Post the notice in a prominent location where it is likely to be seen by those using water from the system. If you fail to post a warning notice at your drinking water system, a provincial officer or public health inspector may do so instead.

What must the warning notice say and where can I obtain them?

Warning notices must be in a form provided by or approved by the Director. There are two warning notices available from the Ministry of the Environment for the purposes of posting warning notices of potential problems. The proper notice must be used according to the specific situation described above. You may also wish to indicate where an alternate source of drinking water can be obtained, if applicable.

Use the approved notice(s).

You must post warning notices upon receiving notification of the following adverse test results or adverse conditions: improper disinfection (18-2), turbidity (18-3), chlorine residual (18-4), *Escherichia coli* (18-5), AND if corrective action has not been taken. For copies of “Warning Notice of Non-Compliance of O. Reg. 170/03”, contact the Ministry of the Environment’s Public Information Centre at 1-800-565-4923 or (416) 325-4000.



Step 11: Post Warning Notices of Potential Problems

Owners are required to post a warning notice if you are not currently complying with the microbiological testing regime required by the Drinking-Water Systems Regulation (O. Reg. 170/03) or if you did not carry out the necessary corrective actions for some reason. These warning notices have to be posted in prominent locations to alert users of the system.

For copies of warning notices, contact the Public Information Centre at 1-800-565-4923 or (416) 325-4000.

Warning notices do NOT exempt you from the regulation!

The warning notices referred to on this page are a temporary and additional requirement to protect public health. They do not relieve the drinking water system owner of any regulatory requirements. The owner must still comply with the requirements as soon as possible despite posting a warning notice.

Schedule 19 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers the posting of warning notices.

What reports and documents must I make available to the public?

- Every test result (not older than two years) required by O. Reg. 170/03, or O. Reg. 459/00 or under an approval or order;
- Every approval and order issued (not older than two years) that applies to your drinking water system and that is still in effect, if it was issued after January 1, 2001;
- Every annual report prepared under Section 11 of O. Reg. 170/03 or under O. Reg. 459/00 for the past two years;
- A copy of the Drinking-Water Systems Regulation (O. Reg. 170/03); and
- A copy of every Engineering Evaluation Report for the past two years.

**Step 12:
Make Information
Available to the Public**

Under section 12 of the Drinking-Water Systems Regulation (O. Reg. 170/03), you must make certain reports and documents available on site at each drinking water system, so that interested persons may read them on request, free of charge, during normal business hours.

Section 12 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers the information that must be made available.

How do I prepare my Annual Report?

To make the preparation of this report as easy as possible, the Ministry of the Environment has designed an Annual Report template which **MUST** be used and is available on the Ministry's website through DWIS. The following is a summary of the type of information you will need to complete the Ministry's Annual Report template:

- information on your drinking water system (i.e., name and address of the drinking water system and the name and address of the owner of the drinking water system, the category of the drinking water system, the name of the local Public Health Unit, the population being served, public facilities served, the pumping capacity and a list of the water treatment chemicals used by the system during the period covered by the report);
- information on your drinking water source (groundwater, surface water or groundwater under the direct influence of surface water);
- information on the number of adverse test results during the reporting period for microbiological, chemical, chlorine residual and turbidity;
- summary of microbiological and chemical results;
- information on parameters not required during the reporting period;
- information on additional testing and sampling carried out in accordance with the requirement of an approval or an order;
- description of the corrective actions undertaken under Schedule 18;
- information on major expenses incurred during the period covered by the Annual Report (such as the cost of treatment equipment, instrumentation for measuring chlorine levels, etc.); and
- information on how the Annual Report was shared with drinking water users (for example, a copy of the Annual Report was given to every person who requested it).

Use the approved format available in DWIS.

- Submitting the Annual Report.
- You must use the Ministry's Annual Report Template, which is to be completed and submitted electronically through DWIS. Access DWIS from www.ene.gov.on.ca, click on Water, and then click on Drinking Water Information System.

When is the first Annual Report due?

- If a year-round residential system was required to submit a quarterly report under O. Reg. 459/00, the first report was due February 28, 2004 and should have covered the period from April 1, 2003 to December 31, 2003.
- If a new year-round residential system not subject to O. Reg. 459/00, then the first report was due February 28, 2004 and covered the period from June 1, 2003 to December 31, 2003.

Note, if your drinking water system is connected to and receives all of its drinking water from another drinking water system, the owner of the drinking water system from which the water is obtained must ensure that the owner of the connected drinking water system is given a copy of the Annual Report.

Step 13: Prepare and Submit an Annual Report

In order that the public has access to information on the status of drinking water, an Annual Report on the operation of your drinking water system must be prepared using a prescribed format, made available to the public and submitted to the Ministry of the Environment.

The Annual Report must cover the period from January 1st through to December 31st, and the report must be submitted by February 28th of each year.

The annual report is to be submitted electronically through DWIS.

Section 11 of the Drinking-Water Systems Regulation (O.Reg. 170/03) covers Annuals Reports.

What records must I retain? And for how long?

As a non-municipal year-round residential drinking water system owner, you must keep copies of the following records for at least five years:

- Every record or report of test results for microbiological parameters and operational checks, as required under section 7, Schedules 6-12 or sections 18-5 to 18-9 of Schedule 18 of O. Reg. 170/03.
- Every annual report prepared under Section 11 of O. Reg. 170/03.
- Every record or report related to a test result under an approval or order, unless the record or report relates to an organic or inorganic parameter listed in Schedule 23 or 24 of O. Reg. 170/03 or a parameter listed in Schedule 3 of the Ontario Drinking Water Quality Standards Regulation (O. Reg. 169/03).
- Every record or report of test results for microbiological parameters prepared under section 7, and clause 9(b) of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003.
- Every annual report prepared under section 12 of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003.

As a non-municipal year-round residential drinking water system owner, you must keep copies of the following records for at least 15 years:

- Every record or report of test results for chemical parameters as required by Schedule 13 and 18 of O. Reg. 170/03.
- Every record or report related to a test result under an approval or order if the record or report relates to an organic or inorganic parameter listed in Schedule 23 or 24 of O. Reg. 170/03 or a parameter listed in Schedule 3 of the Ontario Drinking Water Quality Standards Regulation (Reg. 169/03).
- Every Engineering Evaluation Report prepared under Schedule 21 of O. Reg. 170/03.
- Every record or report of test results for chemical parameters prepared under section 7 and clause 9(a) of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003.
- Every report relating to the drinking water system's raw water supply prepared under paragraph 7 of subsection 2(2) (written report concluding that the system's raw water is groundwater under the direct influence of surface water) or subsection 2(3)(a) (written report prepared after August 1, 2000, concluding that the raw water supply is not groundwater under the direct influence of surface water).
- If the owner gave the Director a written statement by a professional engineer under subsection 21-2 (3) of Schedule 21, a copy of the OWRA approval referred to in that section.

Step 14: Retain Required Reports and Documents

Under section 13 of the Drinking-Water Systems Regulation (O. Reg. 170/03), drinking water system owners and laboratories must keep copies of certain reports and documents on file.

If the Ministry of the Environment Director or provincial officer requests your records, you must send them within the period requested.

Section 13 of the Drinking-Water Systems Regulation (O. Reg. 170/03) covers record keeping.

This is the second guide in a four-guide resource package.

The Ontario Ministry of the Environment has prepared a series of guides for regulated non-municipal year-round residential drinking water systems. If you do not have a copy of the relevant guide, please contact the nearest Ministry office for a copy, download an electronic version from the Ministry's website at www.ene.gov.on.ca, or call our Public Information Centre at 1-800-565-4923. See the back page of this guide for other sources of information.

Guide 1, Does the Regulation Apply to Me?

Guide 2, Meeting my responsibilities under O. Reg. 170/03.

- Non-Municipal Year-Round Residential Systems

Guide 3, How to Collect Drinking Water Samples

Guide 4, Glossary of Terms

Note: reference should always be made to the text of the Drinking-Water Systems Regulation (O. Reg. 170/03), the *Safe Drinking Water Act*, 2002, and the other related regulations and procedures to ascertain an owner/operator's specific legal requirements. See back cover for details.

Obtain the Specific Information You Need to Meet Your Regulatory Responsibilities.

The Resource Package for Non-Municipal Year-Round Residential Drinking Water Systems contains a number of components that, together, are designed as a support tool to help owners and operators of regulated systems deliver safe, clean drinking water. Titles in this package will help you:

- determine whether the system you own or operate is regulated under O. Reg. 170/03;
- provide more detailed information on non-municipal year-round residential drinking water systems;
- show you how to collect samples and have them analyzed; and
- provide definitions of key technical and water management terms.

If you do not have a copy of the relevant guide, please contact the nearest Ministry office for a copy, or download an electronic version from the Ministry's website at www.ene.gov.on.ca.

How do I obtain the documents and contact information I need?

<p>How can I obtain a copy of the Drinking-Water Systems Regulation and additional information on my regulatory responsibilities?</p>	<p>Visit the Ministry website at www.ene.gov.on.ca, click on “Water” then scroll down the page and click on “Drinking-Water Systems Regulation – Information Page” (http://www.ene.gov.on.ca/envision/water/sdwa/dwsr.htm). This will take you to a full page of links to key documents, technical updates, laboratory licencing information, legislation and regulations, forms, general information and related documents. Or contact the Ministry’s Public Information Office toll-free at 1-800-565-4923, or at 416-325-4000 in Toronto.</p>
<p>How do I find a licensed laboratory for analyzing my drinking water samples?</p>	<p>Check the Ministry website for a list of laboratories licensed to perform drinking water testing under the <i>Safe Drinking Water Act</i>, available at: http://www.ene.gov.on.ca/envision/water/sdwa/licensedlabs.htm. You can also call the Ministry of the Environment Laboratory Licencing Administrator at 416-235-6370.</p>
<p>How do I contact the Local Medical Officer of Health or the Public Health Unit for my community?</p>	<p>Check the “Blue Pages”, under the heading “Health”, in your local telephone directory for the listing of your public health unit. You can also visit the website of the Ministry of Health and Long-Term Care (MOHLTC) at www.health.gov.on.ca, or call the MOHLTC info-line at 1-800-268-1154, or 416-314-5518 in Toronto.</p>
<p>Where can I find the nearest local or regional office of the Ministry of the Environment?</p>	<p>Check the “Blue Pages”, under the heading “Environment”, in your local telephone directory. You can also visit the Ministry website at www.ene.gov.on.ca and look under the heading “About the Ministry” on the home page. Or contact the Ministry’s Public Information Office toll-free at 1-800-565-4923, or at 416-325-4000 in Toronto.</p>
<p>Where can I find more information on training and certification of system operators?</p>	<p>Contact the Ontario Environmental Training Consortium (OETC) through its website at www.oetc.on.ca, or by telephone at 905-796-2851. For more information, the new Certification of Drinking Water System Operators and Water Quality Analysts Regulation (O. Reg. 128/04) is available at: http://www.e-laws.gov.on.ca/DBLaws/Regs/English/040128_e.htm.</p>