

A guide for operators and owners of drinking water systems that serve designated facilities

Understand your responsibilities to provide safe drinking water at certain facilities that serve children, students, the elderly and patients.

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A: Introduction

This guide outlines the responsibilities for operators and owners of drinking water systems serving designated facilities.

Designated facilities provide water to people who may be more susceptible to becoming ill, especially children, the elderly, and patients.

B: Does this guide apply to my drinking water system?

Answer these two questions:

1. Does your drinking water system serve a designated facility?

“Designated facility” is a defined term under *Ontario Regulation 170/03 (O. Reg. 170/03)*. These facilities include:

- child care centres
- children and youth care facilities (e.g., child development, treatment or welfare services; young offender services; Ontario Early Years Centres; licensed children's residences)
- children's camps
- emergency shelters or long-term housing funded under the Community Homelessness Prevention Initiative
- hospitals, psychiatric facilities, long-term care homes, cancer centres, homes for special care, seniors' residences, clinics, and other health care facilities
- schools, private schools and university/college facilities
- social care facilities receiving funding from the Ontario government (e.g., group living or intensive support residence, emergency shelter, sheltered workshops, employment programs, places that provide community participation services for people with developmental disabilities, violence against women programs and places funded under the Aboriginal Healing and Wellness Strategy).

If you answered yes to question 1, go to question 2. If you answered no to question 1, this guide does not apply to you.

2. Is your system excluded?

This guide **does not** apply if your drinking water system:

- is a municipal residential drinking water system
- is a non-municipal residential drinking water system that is connected to and obtains all of its water from a municipal residential drinking water system or another system that meets the testing and treatment requirements of *O. Reg. 170/03*
- is a non-municipal year-round residential drinking water system (i.e., a privately owned system that supplies water year-round to six or more private residences or six or more service connections in a trailer park or campground) with its own source of raw water supply (refer to “A guide for owners and operators of non-municipal year-round residential drinking water systems”).

If you are still unsure if this guide applies to you, consult *O. Reg. 170/03* or call the Registration Help Desk at 1-866-793-2588 or email waterforms@ontario.ca.

C: Summary of requirements

Check that you have completed each of the steps in Table 1 to meet your drinking water system's requirements.

Table 1: Your drinking water system requirements

Requirement	Details
Registration	I registered with the Ministry of the Environment and Climate Change. I provide any changes to the system's registration information to the ministry within 10 days.
Microbiological sampling/testing of raw water	I collect samples every month from each well prior to any form of treatment and submit them to a licensed laboratory (<i>E. coli</i> and total coliforms only). These are only required for systems with a source that is ground water or Groundwater Under Direct Influence of surface water (GUDI).
Microbiological sampling/testing of the drinking water in the distribution system or plumbing	I collect and submit samples once a month to a licensed laboratory for testing (unless I have an exemption from treatment).

Requirement	Details
	<ul style="list-style-type: none"> • Testing for <i>E. coli</i> and total coliforms is required for all systems. • Heterotrophic plate count (HPC) must also be tested if the distribution system is required to have secondary disinfection (chlorine residual).
Chemical sampling/testing	<p>I collect the following samples from the point where treated water enters the distribution system (see Figure 2):</p> <ul style="list-style-type: none"> • At least once every 60 months for all organic and inorganic parameters listed in Schedules 23 and 24 of <i>O. Reg. 170/03</i> • At least once every 60 months for sodium and fluoride • At least once every three months for nitrate and nitrite <p>I follow the sampling requirements for <i>O. Reg 243/07</i>.</p>
Systems receiving transported water	<p>For systems that receive transported water, I ensure the storage container that receives the water, (e.g., a cistern) is constructed and maintained to prevent contamination.</p>
Water treatment	<p>I ensure that treatment equipment is installed and operated in accordance with the regulation.</p>
Operational checks	<p>I ensure a trained person or certified operator carries out routine maintenance and operational checks and monitors for chlorine residual and turbidity (if required for my system).</p>
Day-to-day operation	<p>I ensure that the people working on my system or collecting samples have the required certifications.</p>
Engineering evaluation reports	<p>I confirm that a licensed engineering practitioner has prepared a report on</p>

Requirement	Details
	<p>treatment equipment that includes a:</p> <ul style="list-style-type: none"> • maintenance schedule and • statement confirming all equipment is being installed in accordance with the regulation. <p>If alterations are made to the system, I ensure a new engineering evaluation report is prepared.</p>
Record-keeping	<p>For every required sample and operational test I keep a record of the:</p> <ul style="list-style-type: none"> • date • time • location • name of the person conducting the test • result of the test
Annual reports	<p>I prepare an annual report every year.</p> <p>The report includes treatment chemicals used, any reports made to the ministry, test results, corrective actions, and major expenses.</p> <p>I send a copy to each designated facility my system serves and the interested authority for each system.</p>
Retaining reports and records	<p>I make the documents below available free-of-charge during normal business hours at a location accessible to the public:</p> <ul style="list-style-type: none"> • test results • any approvals and orders for my system • annual reports • Engineering Evaluation Report • a copy of <i>O. Reg. 170/03</i>

Requirement	Details
	I keep these documents available for a minimum of two years. I keep other required documents regarding chemical sampling and corrective actions for a minimum of two, six or 15 years, depending on the type of document, as per the regulation.
Adverse test results and other problems	I report immediately adverse test results (e.g., low chlorine residual, UV issues and other problems related to improper disinfection) to authorities and take corrective action.

D: Getting started

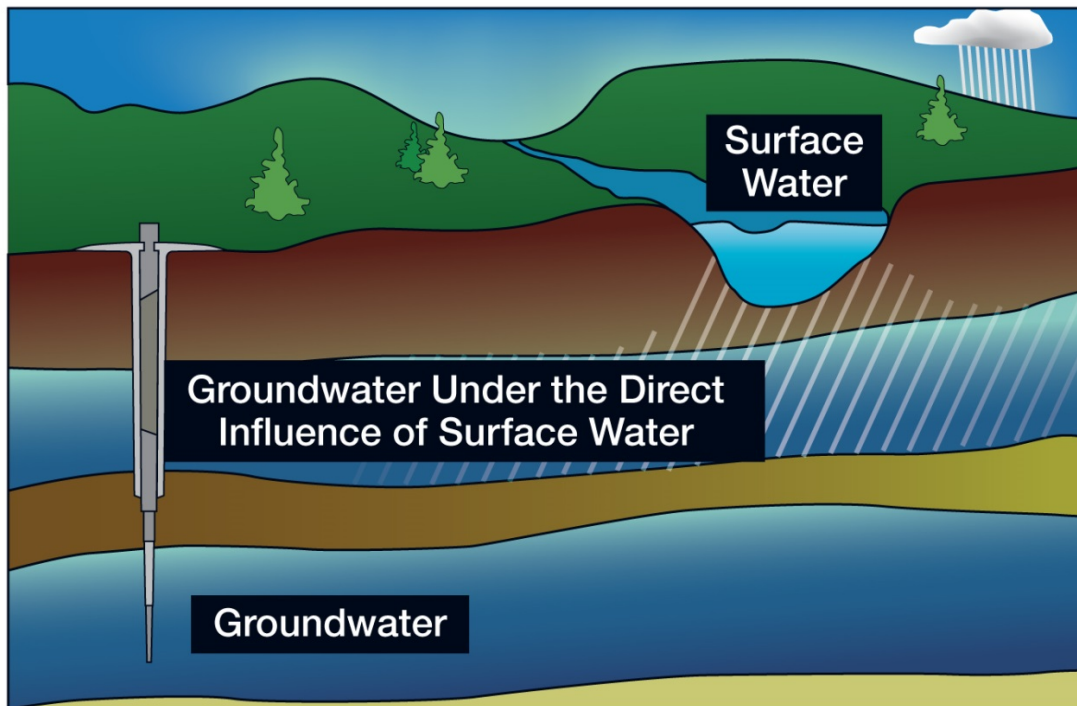
Determine your drinking water source

It is important to know the source of your water so you can apply the correct requirements. Sources of drinking water are:

1. Ground water – from secure wells
2. Ground water under direct influence of surface water (or GUDI) – refers to a well which may be subject to surface water contamination
3. Surface water – such as lakes, rivers and streams
4. Transported water – treated water brought in from other regulated systems and stored on site, e.g., cisterns

Figure 1 shows different types of drinking water sources.

Figure 1: Drinking water sources



Register your drinking water system

- Register your drinking water system with the ministry within 30 days of beginning operations. To register, complete the Drinking Water System Profile Information form.
- Email it to waterforms@ontario.ca or fax it to 416-314-8716.
- You will be sent a letter with your drinking water system number (DWS#) and category. Use this DWS# when filling out ministry and laboratory forms. Use your category to confirm what you are required to do.

Important!

- If you make any changes to your drinking water system or contact information, you must submit an updated Drinking Water System Profile Information form within 10 days of the change.
- Questions about registration? Call the Registration Help Desk at 1-866-793-2588 or send an email to waterforms@ontario.ca.

Select a licensed laboratory

- Regulated drinking water systems must have their water tested on a routine basis.
- Contact a licensed laboratory to arrange for testing of your water samples.

Important!

- Be sure to ask the laboratory if they are appropriately licensed by the ministry for the specific testing you need. Some larger laboratories may be licensed for all required tests while others may only be licensed to test for specific microbiological parameters.
- Before sending your samples to a licensed laboratory for the first time, you must submit a Laboratory Services Notification form to the ministry. This form lets the ministry know which licensed laboratory(ies) you have hired and the specific testing they do.
- If you change which laboratory you use, you must let the ministry know by submitting an updated Laboratory Services Notification form. If you don't, the ministry will not consider your test results and it may appear you are not meeting your legal requirements.

Tip:

- Provide the name of a back-up licensed microbiological laboratory on your Laboratory Services Notification form in case the primary laboratory encounters equipment or testing problems. By doing so, you save yourself some time by not having to fill out an updated Laboratory Services Notification form should you need to use your back-up laboratory.

Install treatment equipment for your system

You must ensure all treatment equipment is installed in accordance with *O. Reg. 170/03* prior to operating. Treatment processes must also be in accordance with the ministry's Procedure for Disinfection of Drinking Water in Ontario.

You need to consult with a licensed engineering practitioner about the different types of treatment technologies available to meet your specific requirements. Your licensed engineering practitioner will advise you on the most appropriate technology for your system and prepare an Engineering Evaluation Report (EER).

Treatment basics

Appendix 1 has a basic summary of treatment processes that will reduce or eliminate the potential for the presence of pathogens (organisms that can cause illness) in your drinking water. Different water sources necessitate different levels of treatment.

Storage of Transported Water

If your system receives transported water, you must ensure the storage container (e.g., a cistern) is constructed and maintained in a manner that prevents surface water and other foreign materials from coming into contact with the treated water. More information for systems with cisterns is available in *Providing Safe Drinking Water to Cisterns at Non-Residential Drinking Water Systems Serving Designated Facilities*.

Have an Engineering Evaluation Report (EER) prepared for your system

To have an EER prepared for your system, you must retain a licensed engineering practitioner with experience in sanitary engineering related to drinking water systems.

1. Find a licensed engineering practitioner

You may search for a licensed engineering practitioner through:

- the Professional Engineers Ontario website or at 1-800-339-3716
- the Consulting Engineers of Ontario website or at 416-620-1400

A licensed engineering practitioner is a person who is:

- fully licensed to practice engineering in Ontario or
- allowed to practice engineering within a limited scope, including writing an EER or
- a temporary license holder who has been licensed from another jurisdiction and is in Ontario to practice engineering for a specific period of time.

2. Have the practitioner assess your system

The licensed engineering practitioner will assess your system to determine the proper treatment needed to comply with the law. According to the *O. Reg. 260/08 Performance Standards under the Professional Engineers Act*, engineers must consider specific requirements when preparing an EER, such as:

- identifying the type of drinking water system
- identifying source water information

- including site plan and treatment diagrams, equipment manuals and equipment maintenance and inspection schedules
- delivering the report in a timely manner

3. Have the practitioner prepare the EER

The EER must state:

- that the practitioner, or a person under their supervision, has visited your drinking water system
- in the practitioner's opinion, all equipment needed to comply with treatment requirements and with operational checks is being provided
- reasons for the practitioner's opinion
- the specific drinking water system category
- a maintenance schedule for equipment to be inspected, tested and replaced

If you believe an EER issued on or after July 1, 2014, does not meet the performance standards you may make a complaint via the Professional Engineers Ontario website.

Systems that receive water that is already treated from another supplier may not be required to obtain an EER. Exempt systems include those that:

- receive all their water as transported water
- are connected to another regulated system (e.g. a municipal water supply that treats water in accordance with the requirements of O. Reg. 170/03) and do not re-chlorinate

An EER must be completed and submitted to you within 30 days after a new system begins operation or an alteration is completed on an existing system.

4. Submit EER Notice

You must submit written notice to the ministry within seven days of the day the EER is required using a Notice of Completion of an Engineering Evaluation Report. You must also give notice of any changes since the previous EER.

Tip:

Do not submit the actual EER to the ministry, just the notice.

The notice can be submitted via email to waterforms@ontario.ca. Keep the EER on file and make sure it is available upon request.

You must also submit the written notice to the interested authority for the designated facility. The interested authority is usually the Ontario government ministry to which the designated facility is responsible, e.g., the Ministry of Health

and Long-Term Care if it is a hospital. This rule does not apply to private schools, children's camps or seniors' residences.

If you require assistance with EER requirements, please call 1-866-793-2588 during normal business hours.

Ensure a certified operator or trained person operates your system

Day-to-day operation of your system must be carried out by a person who holds appropriate certifications. See the table below to find the minimum requirements a person must fulfill in order to operate your system:

Table 2: Requirements to operate a system

Type of System (all non-municipal systems that serve designated facilities)	Minimum requirement to operate system
Large non-municipal non-residential	Limited Systems Operator
Small non-municipal non-residential	Trained Person
Non-municipal seasonal residential	Trained Person

In addition, a supervised person can test for chlorine residual and turbidity for the systems listed in Table 2.

Learn more about drinking water operations: training and certification.

E: Taking care of your drinking water system

Take drinking water samples for testing

Licensed laboratories must provide you with sample containers and instructions on how to collect, transport, and store samples taken from your drinking water system. Ensure you follow the lab instructions carefully.

Pay close attention to instructions on what temperature to keep your samples. For example, some samples may need to be kept in a cooler with ice packs when transporting them, but cannot be frozen.

See Appendix 2 for more information on sampling and testing.

Ensure required maintenance and operational checks are carried out

Proper day-to-day operation of your drinking water system is vital to protecting the health of the people who use it. The owner is responsible for confirming required operational checks are completed by a trained person or a certified operator, as applicable.

Required maintenance and operational checks are determined by the type of drinking water treatment installed in your system and are typically specified in:

- *O. Reg. 170/03*
- your Engineering Evaluation Report (EER)

Important!

- It is a legal requirement to complete the required maintenance and operational checks found in **both** *O. Reg. 170/03* and your EER.

Operational test basics

Table 3 provides a summary of the operational tests you must carry out on your system to comply with the regulations.

Table 3: Operational tests

Operational test	Additional details
Monitor raw water turbidity (only required for large non-residential systems that have a ground water supply)	<ul style="list-style-type: none">• A turbidity sample must be taken and tested every month from each well from a location before the raw water enters the treatment system.
Monitor filter effluent turbidity	<ul style="list-style-type: none">• For systems that require filtration you must take a turbidity sample from each filter effluent line.• Not needed if your system has continuous monitoring equipment.
Test turbidity	<ul style="list-style-type: none">• Use a turbidity meter that measures in Nephelometric Turbidity Units (NTUs).
Monitor primary disinfection	<ul style="list-style-type: none">• When chlorination is used for primary disinfection and continuous monitoring is not used, daily free chlorine

Operational test	Additional details
	<p>residual tests are required at a minimum.</p> <ul style="list-style-type: none"> • Samples must be taken from the location where the required contact time has just been completed in accordance with the ministry's Procedure for Disinfection of Drinking Water in Ontario.
Monitor secondary disinfection	<ul style="list-style-type: none"> • If you are required to provide secondary disinfection, you must conduct at least two samples per week for chlorine residual in the distribution system at least 48 hours apart. • Samples should be taken randomly throughout the distribution system.
Test chlorine residual	<ul style="list-style-type: none"> • Use an electronic direct readout colourimetric or amperometric chlorine analyzer, or another device that a licensed engineering practitioner considers equivalent. • If you are using continuous monitoring equipment, ensure that requirements of <i>Section 6-5 of O. Reg. 170/03</i> are met.

Tip:

- See the ministry fact sheet, *Tips for Maintenance of Small Drinking Water Systems*, for more details.
- If you use a UV unit for disinfection, see *Using ultraviolet (UV) disinfection on drinking water systems*.
- Ensure you follow the manufacturer's instructions for properly calibrating and cleaning your chlorine and turbidity kits.

Notify authorities of adverse test results and other problems

Adverse test results may indicate the drinking water your system supplies is unsafe. Results that exceed any of the Ontario Drinking Water Quality Standards as well as other problems identified through testing could give rise to an adverse test result.

You may be informed about an adverse test result from:

- your licensed laboratory or
- a test result of a sample taken on-site (e.g., low chlorine residual) or

- if you observe that your drinking water system is providing water to users that has not been disinfected according to the ministry's Procedure for Disinfection of Drinking Water in Ontario (e.g. UV failure).

What to do if you have an adverse test result

First: Make an immediate report

Immediately report the adverse test result or other problem to all of the following:

- your local medical officer of health or a person at the local public health unit, by speaking with someone in person or on the telephone.
- the ministry's Spills Action Centre (telephone 1-800-268-6060); the Spills Action Centre is open 24 hours/day and 365 days/year.
- a responsible individual at each designated facility served by your system, by speaking in person or on the telephone if the responsible individual is someone other than yourself.

Important!

- You must speak to someone in person or on the phone. Leaving a voicemail does not fulfill your requirement to make an immediate report.

Tip:

- Make contact information for the ministry's Spills Action Centre and your local medical officer of health easily accessible to anyone who may need it. Use this Drinking Water Contact List template to help.

Second: Deliver written notice

- Within 24 hours of giving the verbal notice, use the Notice of Adverse Test Results and Other Problems form to provide written notice to all of the following:
 - the local medical officer of health by fax or in person
 - the ministry's Spills Action Centre by fax at 1-800-268-6061
 - the operator of a designated facility by fax or in person if that operator is someone other than yourself
 - the interested authority for the designated facility by fax.
- The above documents may be emailed if the recipient acknowledges the email.

Third: Deliver follow-up notice of corrective action taken

- Once you resolve the issue that gave rise to the adverse test result or other problem, you must complete and submit Section 2(B) Notice of Issue Resolution, on the same Notice of Adverse Test Results and Other Problems form.

- The follow-up written notice must summarize the corrective action taken and the results achieved.
- Send the notice to all of the following:
 - the local medical officer of health and the ministry's Spills Action Centre within seven days of resolving the issue.
 - the interested authority for the designated facility within 30 days.

Take corrective action if needed

- You must follow the proper set of corrective actions for a specified adverse result or problem, outlined in *Schedule 18 of O. Reg. 170/03* or *Section 7 of O. Reg. 243/07*, as applicable. Corrective actions set out in *O. Reg. 170/03* are summarized in Table 4.
- In all cases, you must consult with the local medical officer of health and take any additional steps that the local medical officer of health directs you to take.
- For adverse test results for lead samples from plumbing, the local medical officer of health will direct what steps must be taken by owners and operators, and what information should be provided to occupants at the location where the adverse test result occurred on how to reduce any potential health risks.
- You can also contact your local Ministry of the Environment and Climate Change office for further advice on any adverse test results.

Important!

- For systems not currently using chlorine, take the corrective actions in the ministry's Procedure for Corrective Action for Systems Not Currently Using Chlorine if you have adverse microbiological results.
- For systems providing chlorination, please refer to *O. Reg. 170/03, Schedule 18* for further details on specific corrective actions to be taken.

Table 4 provides the steps to take if you have an adverse test result.

Table 4: Steps to take if your system has an adverse test result

Adverse test result or other problem	First step	Second step	Third step
<i>E. coli</i> are detected in a test result from a drinking water sample.	Immediately notify users to use an alternate source of drinking water or, if no alternate source is available, bring	Immediately resample and test. Immediately increase the chlorine dose and flush the	Maintain the free chlorine residual or combined chlorine concentration in affected parts of the system and continue to resample and test until <i>E. coli</i> is no

Adverse test result or other problem	First step	Second step	Third step
	water to a rapid boil for at least one minute before use.	distribution system and plumbing to ensure that: <ul style="list-style-type: none"> • a free chlorine residual of at least 0.2 mg/L is achieved at all points in the affected parts of the distribution system and plumbing, if the system provides chlorination and not chloramination, or • a combined chlorine residual of at least 1.0 mg/L is achieved at all points in the affected parts of the distribution system and plumbing, if the system provides chloramination. 	longer detected in two consecutive sets of samples taken 24 to 48 hours apart, or as otherwise directed by the local medical officer of health.
Total coliforms are detected in a test result from a drinking water sample.	Resample and test as soon as reasonably possible	If resample confirms total coliforms, immediately increase the chlorine dose and flush the distribution system and plumbing to ensure that: <ul style="list-style-type: none"> • a free chlorine residual of at least 0.2 mg/L is achieved at all points in the 	Maintain the free chlorine residual concentration in affected parts of the system. Continue to resample and test until total coliforms are no longer detected in two consecutive sets of samples taken 24 to 48 hours apart, or as otherwise directed by the medical officer of health.

Adverse test result or other problem	First step	Second step	Third step
		<p>affected parts of the distribution system and plumbing, if the system provides chlorination and not chloramination, or</p> <ul style="list-style-type: none"> • a combined chlorine residual of at least 1.0 mg/L is achieved at all points in the affected parts of the distribution system and plumbing, if the system provides chloramination. 	
<p>If secondary disinfection is required, free chlorine residual is less than 0.05 mg/L for systems that provide chlorination, or combined chlorine residual is less than 0.25 mg/L for systems that provide chloramination.</p>	<p>Immediately flush the distribution system and any plumbing, and restore secondary disinfection to ensure:</p> <ul style="list-style-type: none"> • free chlorine residual level of at least 0.05 mg/L is quickly achieved at all points in the affected parts of the distribution system and plumbing, if the system provides chlorination and not chloramination, or 	<p>If 0.05 mg/L of free chlorine residual cannot be quickly achieved at all points in the affected parts, immediately take all reasonable steps to notify users to use an alternate source of drinking water or, if no alternate source is available, to bring water to a rapid boil for at least one minute before use.</p>	<p>N/a</p>

Adverse test result or other problem	First step	Second step	Third step
	<ul style="list-style-type: none"> a combined chlorine residual of at least 0.25 mg/L if the system provides chloramination 		
Sodium concentration that exceeds 20 mg/L and a report of an adverse test result has not been made in the previous 57 months.	Resample and test as soon as reasonably possible	If resample confirms exceedance, consult with the local medical officer of health on further actions.	N/a
Water not disinfected properly is provided to users.	Immediately restore the disinfection, if possible, before notifying users.	Immediately take all reasonable steps to notify all users to use an alternate source of drinking water or, if no alternate source is available, bring water to a rapid boil for at least one minute before use.	N/a
If filtration is required, the turbidity in filter effluent is more than 1.0 NTU.	<p>Immediately check the turbidity monitoring equipment and correct any problems identified. If no problems are identified:</p> <ul style="list-style-type: none"> immediately backwash the nearest filter upstream of the sample location, or 	Immediately after the first step, resample and test. If resample confirms exceedance, immediately take all reasonable steps to notify users to use an alternate source of drinking water or, if no alternate source is available, bring water to a rapid boil for at least one minute before use.	Follow the manufacturer's recommendations for servicing the filtration equipment upstream of the location, and flush the distribution system and plumbing.

Adverse test result or other problem	First step	Second step	Third step
	<ul style="list-style-type: none"> • immediately replace the filter cartridges or filter elements of the nearest filtration equipment upstream of that location, and • immediately review other upstream operational processes and correct any faulty processes identified. 		
<p>Exceedance of a chemical or radiological parameter listed in Schedule 2 or 3 of the <i>Ontario Drinking Water Quality Standards Regulation (O. Reg. 169/03)</i>, other than trihalomethanes.</p> <p>Presence of a pesticide over 100 ng/L as reported by the licensed laboratory.</p>	<p>Resample and test as soon as reasonably possible.</p>	<p>Consult with the local medical officer of health and take any steps directed by them, if the resample confirms:</p> <ul style="list-style-type: none"> • an exceedance of a chemical or radiological parameter based on the standard in Schedule 2 or 3 of the Ontario Drinking Water Quality Standards, or • that a pesticide over 100 ng/L has been detected. 	<p>N/a</p>

How to resample and test

For a microbiological parameter

You must immediately collect and transport a set of at least three drinking water samples for the parameter which caused the adverse test result to your licensed laboratory for analysis.

1. One resample must be from the same location as the adverse sample.
2. One resample must be from a location that is a significant distance upstream from the location of the adverse sample, where reasonably possible.
3. One resample must be from a location that is a significant distance downstream from the adverse sample, where reasonably possible.

For a parameter that is not a microbiological parameter

- Collect and transport a water sample for the parameter that produced the adverse test result to your licensed laboratory.
 - The sample must be taken from the same location as the adverse sample.
-

Post warning notices

You must post warning notices approved by the Ministry of the Environment and Climate Change if you:

- are required to notify users to use an alternate source of drinking water or if no alternate source is available, to bring water to a rapid boil for at least one minute before use or
- are not currently meeting your sampling requirements or
- have not yet carried out required corrective actions.

How to get approved warning notices

- Call the Registration Help Desk at 1-866-793-2588 or your local ministry district office.

Tip:

- Until your warning notices have arrived, you can post any sign that states: "Public Notice: Do not drink this water" as an interim measure.

Where to post warning notices

- Warning notices must be posted in prominent locations where they are likely to be seen by people using water from the system.

- Warning notices must also be posted at every entrance to every building or structure that is part of a designated facility.
- If you do not own or operate the designated facility, you do not have to post notices in the designated facility as above, but you must ensure that the operator of the facility is provided with:
 - sufficient copies of the warning notices and
 - instructions to post the warning notices as above.
- If you fail to post a warning notice at your drinking water system, a provincial officer, public health inspector or an officer or agent of the interested authority may do so instead.

Important!

- **Warning notices do not provide an exemption from testing or corrective action!** Warning notices are a temporary requirement meant to protect users of the system in the short term. The owner must still comply with testing and corrective action requirements as soon as possible, despite posting the warning notices.

Prepare an annual report and retain records

Prepare an annual report

- You must prepare an annual report each year and give a copy to each designated facility your drinking water system serves, and if applicable, to each interested authority. You do not have to give a report to the interested authority for a designated facility that is a private school, children's camp or seniors' residence.
- For most systems, the annual report must cover the period from April 1 of the previous year to March 31 of the current year and must be prepared by May 31 of every year. Different deadlines may apply to some systems. Consult *Section 11 of O. Reg. 170/03* for more information.
- The annual report must include:
 - a description of the drinking water system
 - a summary of any adverse test result notices
 - a summary of all tests and their results
 - a summary of any corrective actions undertaken
 - a description of any major expenses for the system.

Retain records and reports

Keeping good records and reports is a vital step in demonstrating you are meeting Ontario regulations. Too often, drinking water system owners are found in violation of the law for poor record-keeping practices.

Table 5 provides a short summary of the key records and reports you must keep, for how long and where. For a complete list, review *Section 12 and 13, O. Reg. 170/03*.

Table 5: Key records and reports

Keep records and reports related to	How long to keep (minimum)
<ul style="list-style-type: none"> • Required test results • Operational test results • Maintenance • Adverse microbiological test results 	2 years
<ul style="list-style-type: none"> • Any lead, nitrate, nitrite, trihalomethane and haloacetic acid test results • Annual reports 	6 years
<ul style="list-style-type: none"> • Inorganic, organic, sodium and fluoride test results • Any engineering evaluation reports (EERs). Keep at a location where the reports can conveniently be viewed by an inspector • Any professional engineer or hydrogeologist reports related to the source of a system's raw water supply • Any Ontario Water Resources Act approval issued after August 1, 2000 	15 years

You must make a copy of these documents available free of charge to the public upon request at the facility during normal business hours:

- A copy of *O. Reg. 170/03*
- The following documents, if they are two years old or less:
 - Test results that are required under *O. Reg. 170/03* or by an approval or order,
 - All orders or approvals related to your system
 - Engineering evaluation reports
 - Annual reports

Tip:

- “Test results” include both the request for testing (your Chain of Custody forms) and the results you get back from the laboratory (your Certificate of Analysis).
 - Where continuous monitoring equipment is used, only the daily minimum, maximum and mean results need to be available.
 - Learn more about taking a drinking water sample for testing.
-

F: Inspection and enforcement

A water inspector will inspect your system to ensure you are meeting your regulatory requirements to help protect the people who are drinking from your system. In order to be ready for an inspection, keep your records, policies and procedures organized and available. This will keep the inspection time to a minimum.

Drinking water quality and enforcement results are published on Ontario’s Open Data Catalogue.

Remember, this guide is not legal advice.

Nor is it a substitute for reading the legislation or regulations, which are subject to change. To be clear about your specific obligations, refer to the current version of the *Safe Drinking Water Act, 2002* and relevant regulations, including the *Drinking Water Systems Regulation (O. Reg. 170/03)* and *Schools, Private Schools and Child Care Centres (O. Reg. 243/07)*. If you are unable to access these online call our Registration Help Desk at 1-866-793-2588. If you have legal questions about the regulations or legislation, you should consult a lawyer.

G: Who can I contact for more information?

If you would like more information related to drinking water, please visit Ontario.ca or contact your local inspector or the Registration Help Desk at 1-866-793-2588 or send an email to waterforms@ontario.ca. You can also sign up for drinking water updates by sending an email to drinking.water@ontario.ca and requesting to be added to the mailing list.

Glossary

Chloramination: combined chlorine residual disinfection where the combined chlorine residual is predominately in the form of monochloramine; (“chloramination”).

Chlorination: addition of chlorine to disinfect drinking water.

Chlorine residual: the amount of chlorine that can still be measured after it has reacted with impurities present in water after a certain period of time. Systems receiving chlorinated water measure free chlorine residual.

Continuous monitoring equipment/analyzer: a device that automatically tests for a specific parameter in water with at least the minimum required frequency.

Cryptosporidium oocysts: a type of parasite known to cause illness in humans.

Distribution system: part of the drinking water system in the form of a pipe or network of pipes used to convey treated water from the point of primary disinfection to consumers.

E. coli: bacteria found in animal and human waste. Most *E. coli* are harmless; however, some can cause severe illness and even death.

Giardia cysts: a water-borne parasite that infects the small intestine.

GUDI: short form for “groundwater under direct influence” of surface water and refers to a well which may be subject to surface water contamination.

Heterotrophic plate count (HPC): a measure of organisms, such as bacteria in water, which gives an indication of overall water quality in drinking water systems.

Microbiological: referring to small forms of life such as viruses and bacteria.

Nephelometric Turbidity Units (NTUs): indicate the amount of turbidity through a measurement of scattered light through a water sample.

Nitrates and nitrites: chemical substances found in nature (e.g., soil and foods). Excessive concentrations in drinking water can be hazardous to health, especially for infants and pregnant women.

Parameter: a substance that is sampled and tested.

Raw water: source water prior to treatment.

Total coliforms: bacteria found in animal and human waste as well as plants and soil. Their presence in drinking water can possibly indicate the water was not treated properly and is unsafe to drink.

Trihalomethanes (THMs)/Haloacetic acids (HAAs): a group of chemicals that can form when chlorine is added to water. These can harm people’s health if a high level is consumed over a long period of time.

Turbidity: “cloudiness” caused by particles in water such as soil. The cloudier the water, the greater the turbidity. It is measured in nephelometric turbidity units (NTUs).

Virus: an infectious agent that can only replicate inside another living being.

Appendix 1: Treatment methods

Filtration of raw water removes particles that may hide or protect pathogens such as viruses, bacteria and protozoa, and helps ensure effective primary disinfection can be carried out.

Primary disinfection inactivates/removes pathogens before water is delivered to the public. Depending on the raw water source’s quality, this usually is accomplished by:

- filtration and chlorine or
- filtration and ultraviolet (UV) light
- filtration, UV light and chlorine or
- chlorine only

See the following table for treatment requirements based on your source of water.

Table 6: Treatment requirements depending on the source of your water

Water Source	Treatment Requirements
Ground water	<ul style="list-style-type: none"> • Treatment equipment must achieve primary disinfection at all times • Must remove or inactivate at least 99 per cent of viruses in accordance with the Procedure for Disinfection of Drinking Water in Ontario
Surface water or GUDI	<ul style="list-style-type: none"> • Treatment equipment must achieve primary disinfection at all times • Must remove or inactivate 99 percent of <i>Cryptosporidium</i> oocysts, 99.9 per cent of <i>Giardia</i> cysts, and 99.99 per cent of viruses in accordance with the Procedure for Disinfection of Drinking Water in Ontario

Secondary disinfection introduces and maintains a disinfectant residual (generally a chlorine residual) in your lines to protect drinking water from microbiological recontamination or bacterial regrowth.

- Secondary disinfection is needed when water is transmitted from the point of primary disinfection to various buildings or structures within your facility through underground piping.
- An alternative to providing secondary disinfection is to install point-of-entry (POE) treatment units (e.g., UV units) that are connected to the plumbing of every building or other structure that is part of a designated facility served by the system. *Schedule 3 of O. Reg. 170/03* provides a detailed explanation of POE system requirements that may allow you to be exempt from secondary disinfection.

Appendix 2: Sampling and testing

Whenever a sample is collected, the person taking the sample must record the following both on the Chain of Custody form supplied by your lab and for your own records: date, time, location where it was taken, sampler's name, and chlorine residual.

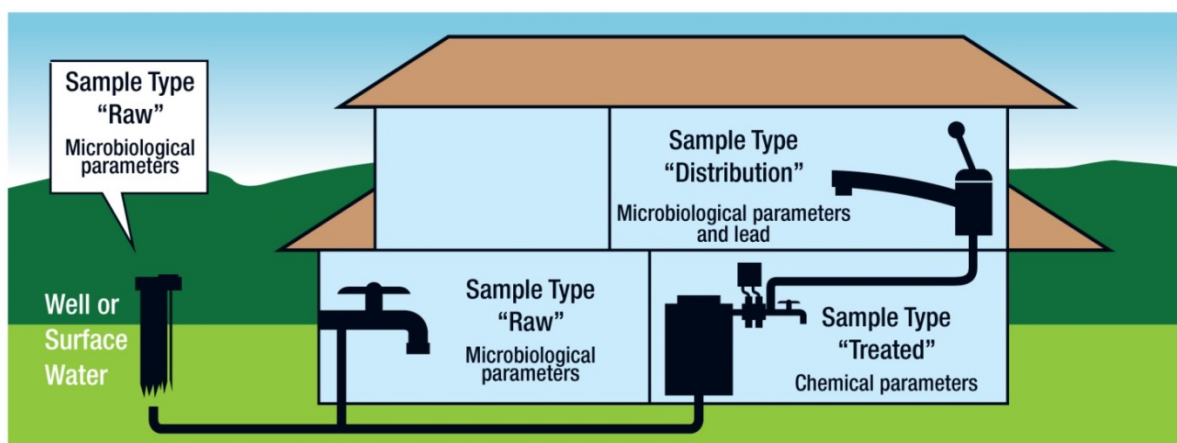
The laboratory's Chain of Custody form will be customized for your drinking water system and sent with the sampling containers. Once the samples are submitted to the licensed laboratory, lab staff will record details of the samples (e.g., date/time the samples were received, analysis and testing details, final test results, etc.).

Tip:

- Find more information about completing a Chain of Custody form
- Ask a local water inspector for available tools to help you keep track and record your required sampling. Customized templates for different categories of designated facilities are available for your use.
- If your drinking water system supplies only a school, private school, or child care centre, you are only subject to lead testing requirements in *Ontario Regulation 243/07, Schools, Private Schools and Child Care Centres (O. Reg. 243/07)*. Refer to the web page for schools, private schools and child care centres on flushing and testing for lead.

O. Reg. 170/03 has requirements for sampling of raw, treated, and distribution system water. Figure 2 shows the location of where you would take raw, treated and distribution samples.

Figure 2: Example of sampling locations



When microbiological sampling should start

- Existing systems should already be sampling their water
- New systems must begin sampling as soon as they start operating and as soon as the Laboratory Services Notification form is submitted to the ministry
- If you have stopped operating your system for seven or more days, you must submit samples to your licensed laboratory and receive the results prior to supplying drinking water to users once you start your system back up

You must send raw and distribution system water to be tested for microbiological sampling. Table 7 shows how frequently these samples must be taken.

Table 7: Microbiological sampling and testing requirements

Samples	Frequency
Raw water samples for ground water and GUDI	<ul style="list-style-type: none"> • At least once a month (at least 20 and not more than 40 days apart) from each well, prior to any treatment
Raw water samples for surface water	<ul style="list-style-type: none"> • None required
Raw water samples for transported water	<ul style="list-style-type: none"> • None required • You must ensure the storage container that receives the water (e.g., a cistern) is constructed and maintained in a manner that prevents surface water and other foreign materials from coming into contact with treated drinking water.
Distribution samples (drinking water taken from distribution or plumbing fixtures such as taps)	<ul style="list-style-type: none"> • At least once a month (at least 20 and not more than 40 days apart) if the system provides treatment or • At least once every two weeks if you have an exemption from treatment; and • If your system is a non-municipal seasonal residential system serving more than 100 service connections, an additional distribution sample must be taken for every 100 service connections.
Distribution samples for point-of-entry (POE) treatment samples	<ul style="list-style-type: none"> • You must take these samples on a rotating basis • A sample must be taken downstream of every POE treatment unit the system supplies, at least once every 24 months.

Important!

If your drinking water system is using chlorine, then you must also sample and test for chlorine residual using the appropriate analyzer to monitor disinfection at the same time and location your microbiological distribution samples are taken. You need to be an operator, trained person or supervised person to take a chlorine residual. You must record the chlorine residual value clearly on the Chain of Custody form provided by your licensed laboratory. In the event there is a microbiological adverse test result, you and the laboratory are required to tell the ministry and the local medical officer of health what chlorine level was recorded on the form.

What licensed laboratories test your microbiological samples for

They test for the following bacteria:

- *E. coli*
- Total coliforms
- Heterotrophic plate count (HPC) - only for distribution samples and if the distribution system is required to have secondary disinfection

When you do not have to take microbiological samples

If your system is:

- **a non-residential** drinking water system and
- not operating for seven days in a row or more and
- not supplying water to any open designated or public facility

then you do not have to take microbiological samples for the period of time your system is not operating.

If your system is:

- **a seasonal** residential system and
- not operating for seven days in a row or more and not supplying water to any of the users listed below:
 - any open designated or public facility
 - six or more private residences
 - any trailer park or campground with six or more service connections

then you do not have to take microbiological samples for the period of time your system is not operating.

When chemical sampling should start

New systems must start sampling within 12 months after beginning to operate, although nitrate and nitrite need to be done by the third month of operation. Table 8 sets out the chemical sampling requirements.

Note: You are not required to perform any sampling or testing for nitrate and nitrite during a period of 60 or more consecutive days when the system:

- is not operating or

- is not supplying water to any open designated or public facility.

Table 8: Chemical sampling and testing requirements

Samples	Frequency	Where to sample
<ul style="list-style-type: none"> • All organic and inorganic parameters listed in <i>Schedules 23 and 24 of O. Reg. 170/03</i> • Sodium and fluoride 	<ul style="list-style-type: none"> • At least once every 60 months (not more than 90 days before or after the date of the last sample taken five years prior) 	<ul style="list-style-type: none"> • A point where water enters the distribution system or plumbing connected to the drinking water system. i.e., treated as per Figure 2
<ul style="list-style-type: none"> • Nitrate and nitrite 	<ul style="list-style-type: none"> • At least once every three months (at least 60 and not more than 120 days apart) 	<ul style="list-style-type: none"> • A point where water enters the distribution system or plumbing connected to the drinking water system. i.e., treated as per Figure 2
<ul style="list-style-type: none"> • Lead 	<ul style="list-style-type: none"> • At least once every 12 months (not more than 30 days before or after the date of the last sample taken one year prior) • The frequency is reduced to once every 36 months if in the most recent 24 month period no results exceeded the standard for lead. • If there is an adverse result, the sampling frequency returns to once every 12 months. 	<ul style="list-style-type: none"> • From a location that is most likely to have higher lead levels (e.g., the oldest pipes).