



2021–2022 Chief Drinking Water Inspector annual report

Learn about the performance of our regulated drinking water systems and laboratories, drinking water test results and enforcement activities and programs.

Message from the Chief Drinking Water Inspector

I am pleased to present the 2021–22 Chief Drinking Water Inspector's Annual Report and acknowledge the contributions of our many partners who work to keep drinking water safe in Ontario.

This year marks the 50th anniversary of the Ministry of the Environment, Conservation and Parks and the 20th anniversary of one of the pivotal moments of the ministry's journey: the enactment of the *Safe Drinking Water Act, 2002*, which transformed Ontario's approach to drinking water protection by implementing a multi-barrier framework designed to safeguard drinking water.

The provision of safe drinking water and protection of human health remain a priority for the Ontario government. This year's report continues to demonstrate that Ontario has high-quality drinking water as a result of the continual efforts of our many partners and stakeholders alongside our ministry and the Ministry of Health.

Ontario will continue to take steps to understand and mitigate risks to drinking water, such as cybersecurity threats, so that you can continue to have confidence every time you fill your glass.

In this report you will find information on the performance of Ontario's regulated drinking water systems and laboratories, a summary of drinking water test results, and the ministry's inspection and enforcement activities. The Drinking Water Quality and Enforcement page of the Open Data Catalogue provides more detailed

information on these items for 2021–22.

I would also like to thank my colleague Dr. Kieran Moore, Chief Medical Officer of Health, for providing this report's updates on the performance of small drinking water systems regulated by the Ministry of Health.

Together with our many partners, we will continue our efforts to maintain the sustainability and safety of Ontario's water sources and drinking water for generations to come.

Steven Carrasco

Chief Drinking Water Inspector

Ministry of the Environment, Conservation and Parks

Message from the Chief Medical Officer of Health

For any community, anywhere — fresh, clean water is a fundamental part of life. Here in the province of Ontario, we are blessed with a natural abundance of fresh water, and we honour this good fortune by maintaining very high standards for drinking water quality.

No matter where you live, from Pickle Lake to Toronto, Vankleek Hill to Kenora — everyone in Ontario expects their drinking water to be safe, and for around 10,000 businesses and communities in Ontario, that clean water is delivered with the help of small drinking water systems.

Helping keep these systems operating safely is the Small Drinking Water Systems Program. This program is administered by local boards of health and overseen by the Ministry of Health and includes inspections and risk assessments of all small drinking water systems in Ontario, providing tailored, site-specific plans to help uphold the high standards for water quality Ontarians expect.

In releasing the 2021–2022 program results, I am pleased to report that 98% of test results met these high standards. I am also happy to report that despite a slight increase in the total number of adverse water quality incidents from a year ago, we are still seeing a strong 38% decrease from 2012–13, when the Small Drinking Water Systems Program began.

This means that Ontarians are benefitting every day from the Small Drinking Water Systems Program, and the commitment and collaboration between the local boards of health and our drinking water partners. The positive results outlined in this report are representative of those efforts.

Kieran Moore

Chief Medical Officer of Health
Ministry of Health

2021–2022 at-a-glance

Statistics

In 2021–2022:

- 99.9% of the more than half a million drinking water test results from municipal residential drinking water systems met Ontario's drinking water quality standards.
- 99.6% of more than 40,000 results from non-municipal year-round residential systems met the standards.
- 99.7% of almost 60,000 results from systems serving designated facilities (such as child care centres and long-term care homes) met the standards.
- 94% of the over 30,000 test results met Ontario's standard for lead in drinking water at schools and child care centres. When looking at flushed samples only, this number increases to 96%.
- Staff at licensed laboratories analyzed and reported over a million drinking water test results.
- All municipal residential drinking water systems and licensed laboratories received a compliance rating above 80%.
- 7,756 operators were certified to run drinking water systems and 1,976 operator certificates were renewed.
- 223 sets of Municipal Drinking Water Licences and Drinking Water Works Permits were renewed.

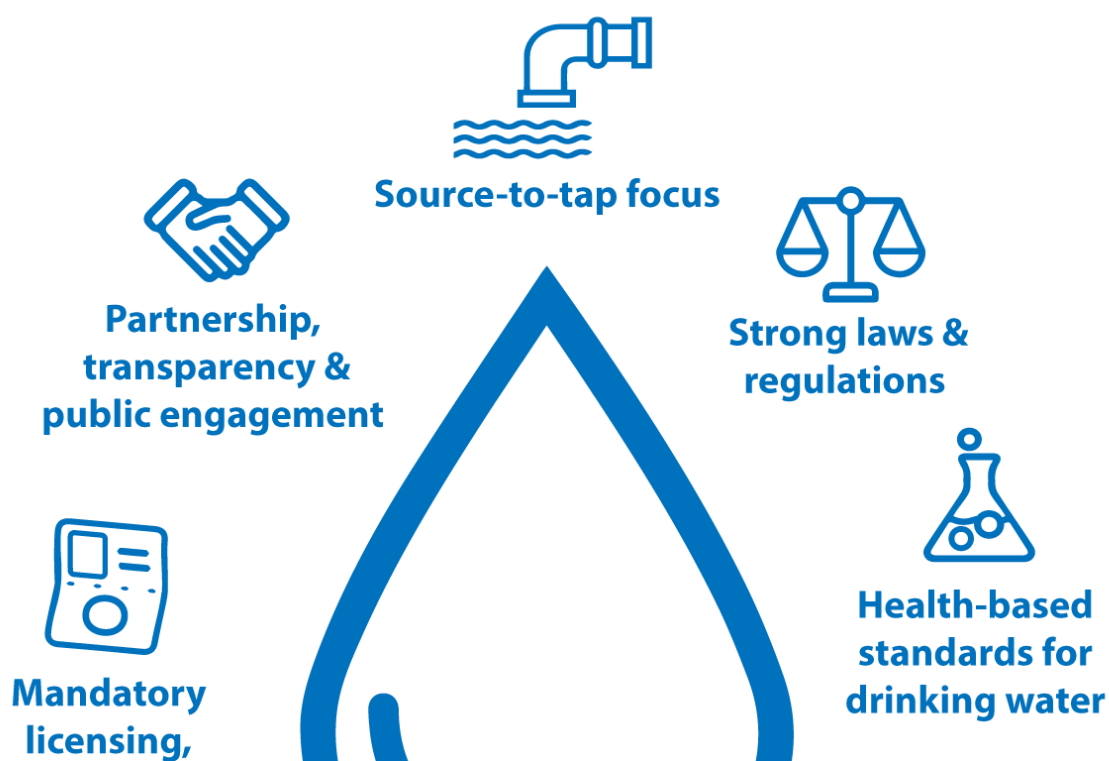
Enhancements to drinking water protection

Ontario continues to take action to remain a leader in drinking water protection. The following actions were undertaken by the ministry as we strive for continuous improvement:

- updated the requirements of municipal risk assessments so that owners of municipal residential drinking water systems must explicitly consider cybersecurity threats
- released the Best Practices for Source Water Protection (<https://www.ontario.ca/document/best-practices-source-water-protection>)

The ministry is proud to note that Aziz Ahmed, a manager in our Environmental Assessment and Permissions Division, was presented with the 2021 George Warren Fuller Award. This award is presented to an American Water Works Association (AWWA) section member for their distinguished service to the water supply field in commemoration of their sound engineering skill, brilliant diplomatic talent, and constructive leadership.

Drinking water protection framework



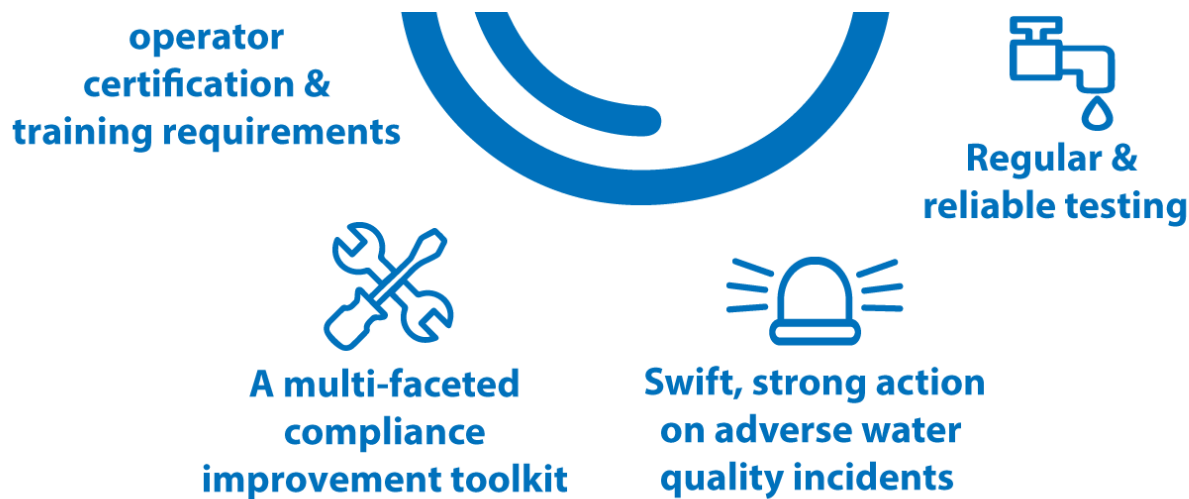


Figure 1: Drinking water protection framework

The eight components of the framework consist of:

- source-to-tap focus
- strong laws and regulations
- health-based standards for drinking water
- regular and reliable testing
- swift, strong action on adverse water quality incidents
- a multi-faceted compliance improvement toolkit
- mandatory licensing, operator certification and training requirements
- partnership, transparency and public engagement

All the components work together to protect Ontario's drinking water.

The drinking water protection framework works to keep drinking water safe through multiple protective barriers and checks and balances. Examples of these include:

- source protection plans
- strong legislation
- stringent health-based drinking water quality standards
- frequent operational checks and water monitoring
- duplicative reporting
- highly trained and licensed operators with continuing education requirements

- highly trained and licensed operators with continuing education requirements
- regular inspections of drinking water systems and licensed laboratories
- partnership, transparency and public engagement

The continued success of the drinking water protection framework is the result of continuous collaboration between our many partners, including municipalities, system owners and/or operators, local health units, laboratories, the Walkerton Clean Water Centre and stakeholder associations. The framework comprises multiple checks and balances to safeguard Ontario's drinking water. These oversight measures mean there are precautions in place at every step of the process to prevent or address risks to the quality of our drinking water.

A key component of the framework is the mandatory licensing of municipal residential drinking water systems in Ontario. As part of their licensing requirements, these systems must be managed by an operating authority accredited against the requirements of the Drinking Water Quality Management Standard. Accreditation is issued by a third-party organization designated as an accreditation body in accordance with section 22 of the *Safe Drinking Water Act, 2002*.

Accreditation to the requirements of the Drinking Water Quality Management Standard helps owners and operating authorities improve their system's performance. The Drinking Water Quality Management Standard outlines the requirements that operating authorities must meet when developing, documenting, and implementing management procedures for their system. It also helps municipal officials meet their responsibilities under the standard of care provisions of the *Safe Drinking Water Act, 2002* (<https://www.ontario.ca/laws/statute/02s32>) .

Laboratories licensed to test drinking water must also be accredited against the requirements of ISO/IEC 17025 (<https://www.iso.org/ISO-IEC-17025-testing-and-calibration-laboratories.html>) . This international accreditation standard provides formal recognition that laboratories are competent, impartial and generate valid results. If a laboratory is accredited to perform specific tests under ISO/IEC 17025, it can apply for a licence to test drinking water for specific parameters. The accreditation process includes assessing a laboratory, witnessing and reviewing test procedures, evaluating the laboratory's Quality Management System and technical records, and Proficiency Testing.

Update on ministry actions to protect drinking water

Cybersecurity

In the past year, there has been growing concern about cybersecurity threats targeting municipal infrastructure, including drinking water systems. These threats could result in loss of data and compromise the ability of municipal utilities to provide clean and safe drinking water. To address this, the Ministry of the Environment, Conservation and Parks requires cybersecurity threats to be effectively evaluated and mitigated for all municipal residential drinking water systems in Ontario.

To help ensure that municipalities and those who operate municipal drinking water systems are aware of the importance of cybersecurity, the ministry now requires them to specifically consider cyber-attacks as part of their Drinking Water Quality Management Standard Risk Assessment. This risk assessment must be conducted by all owners of municipal residential drinking water systems as part of satisfying their Drinking Water Quality Management Standard requirements. The Ontario Cyber Security Learning Portal (<https://cybersecurityontario.ca/>) can be used to help system operators undertake risk assessments, as it provides guidance, tools and training for the public and private sectors.

Source protection

Protecting sources of drinking water is one part of Ontario's strategy to help ensure drinking water safety, sustainable water use and water security for future generations. Ontario has developed resources (<https://www.ontario.ca/document/best-practices-source-water-protection>) to help communities and landowners protect water sources and drinking water systems that are not included in a source protection plan and aren't regulated by the *Clean Water Act, 2006* (<https://www.ontario.ca/laws/statute/06c22>). Ontario encourages the owners of these drinking water systems to use these best practices to proactively consider whether actions are needed to protect their drinking water source, including assessing whether their drinking water source is vulnerable to contamination and other risk factors, and taking action to address those risks.

Moving forward

The government and our partners continue to work together to improve drinking water protection and compliance. The ministry is also continuing to modernize our

...the protection and compliance ministry is also continuing to implement various programs and keep pace with current information and technology. Current initiatives include:

Procedure for corrective action for systems not currently using chlorine

The ministry is working on updates to refresh the *Procedure for Corrective Action for Systems not currently using Chlorine*. This procedure must be followed by owners and operators, when applicable to their drinking water system, as it is part of Schedule 18: Corrective Action of *Ontario Regulation 170/03*, which prescribes corrective actions for adverse water quality incidents in specified categories of drinking water systems. Specifically, the procedure sets out the steps that owners and operators must take to address adverse microbiological test results from drinking water systems that use a method other than chlorine to disinfect the water. The proposed updates to the procedure were posted for public comment on the Environmental Registry of Ontario (<https://ero.ontario.ca/notice/019-6234>) (ERO) on December 6th, 2022.

Drinking water performance

The Ministry of the Environment, Conservation and Parks regulates the various kinds of drinking water systems and related activities set out in the *Safe Drinking Water Act, 2002*, including:

- municipal residential drinking water systems that are owned by municipalities and supply drinking water to homes and businesses
- non-municipal year-round residential drinking water systems that are privately owned and supply drinking water all year to people's homes in places such as trailer parks, apartments, and condominium and townhouse developments where there are six or more private residences. This also includes drinking water systems owned by local services boards, which are volunteer organizations that are set up in rural areas where there is no municipal structure
- public and privately owned systems serving designated facilities that have their own source of water and provide drinking water to facilities such as children's camps, schools, health care centres and senior care homes
- licensed laboratories that perform testing of drinking water
- certification and training for water operators and water quality analysts in

Ontario

The ministry has a comprehensive compliance program, which includes inspecting drinking water systems and laboratories, managing drinking water related incidents such as adverse water quality incidents, and outreach and education measures.

Inspections of drinking water systems focus on water source, treatment, and distribution components as well as management practices. Inspections of laboratories focus on chain of custody (the path of a sample from the time it is collected to when it is accepted by the laboratory), reporting, sample handling, subcontracting and management practices.

In cases where an inspection identifies a problem, the inspector works with system or laboratory owners to bring them into compliance. For more serious instances of non-compliance, the inspector may issue an order or refer the matter to the ministry's Environmental Investigations and Enforcement Branch for potential investigation.

The decision to refer non-compliant behaviour for investigation depends on a number of criteria, including:

- the potential impact of the non-compliance to the health of the users of the system
- the compliance history of the inspected system owner and/or operator
- how cooperative the owner/operator is
- what steps the owner and/or operator has taken or is taking to resolve the issue

The *Compliance and Enforcement Regulation* (<https://www.ontario.ca/laws/regulation/050242>) (Ontario Regulation 242/05 made under the *Safe Drinking Water Act, 2002* (<https://www.ontario.ca/laws/statute/02s32>)) also requires that the ministry take mandatory action (for example, issue an order or refer the matter for potential investigation) when a violation may compromise the safety of the drinking water. This is further detailed in the Compliance and Enforcement section below.

Regular monitoring and sampling at drinking water systems is required so that water quality issues are quickly identified and addressed. When a sample exceeds an Ontario Drinking Water Quality Standard or there is an observation of improperly treated drinking water, the laboratory and/or system owner must report the issue to the ministry and the local medical officer of health.

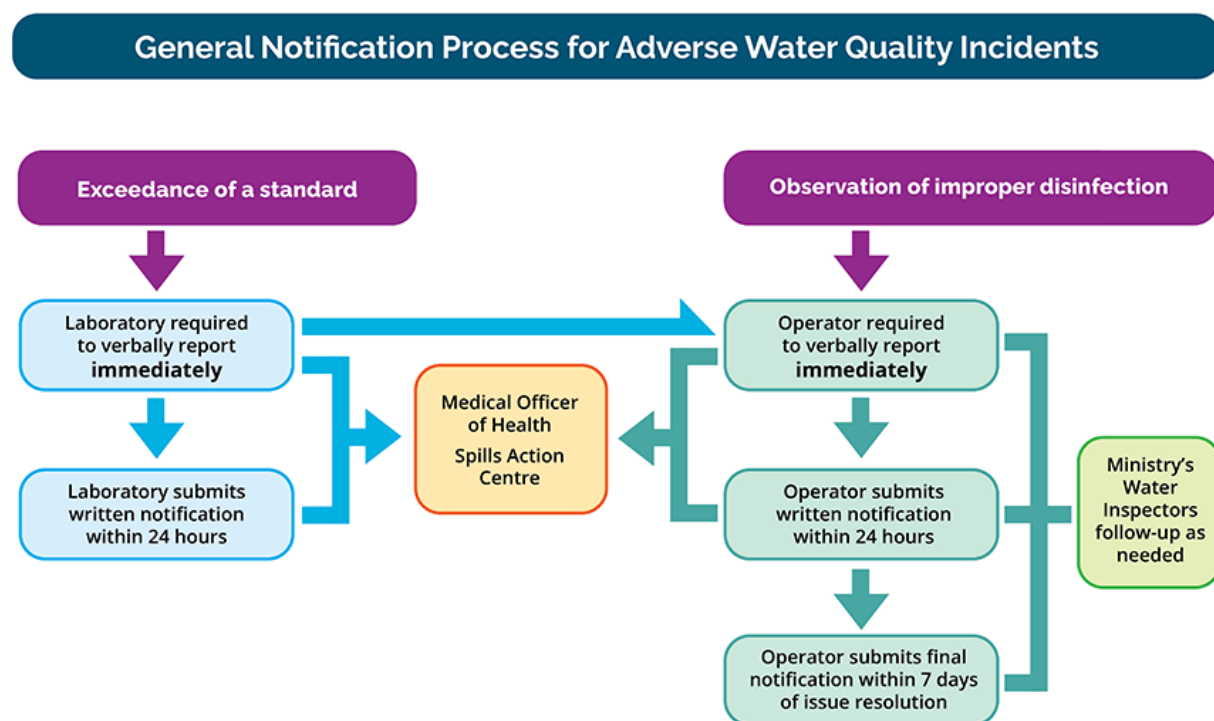


Figure 2 outlines the process that must be followed when an adverse test result or observation occurs

General notification process for adverse water quality incidents

Exceedance of a standard

The following reports are submitted to Spills Action Centre and local medical officer of health:

- laboratory verbally reports immediately
- operator verbally reports immediately
- laboratory submits written notification within 24 hours to the Spills Action Centre and local medical officer of health
- operator written notification within 24 hours to the Spills Action Centre and local medical officer of health

Observation of improper disinfection:

- operator required to verbally report immediately to the Spills Action Centre and local medical officer of health
- operator submits written notification within 24 hours to the Spills Action Centre and local medical officer of health

- operator submits final notification within 7 days of issue resolution
- ministry's water inspectors follow-up as needed

It is important to note that the report of an adverse test or operational issue (for example, low chlorine or improper disinfection) does not necessarily mean that the drinking water is unsafe, but it does mean that the owner and operator need to investigate what may have caused the adverse result or operational issue and take all steps necessary to resolve it.

The ministry also follows up on lead exceedances and works with operators of schools and child care centres, as well as the local medical officer of health, to resolve issues. When a test result exceeds the standard for lead, facility operators must report the exceedance to the ministry, the local medical officer of health and the Ministry of Education. If a result from a flushed sample fails to meet the standard, owners and operators must take immediate action to make the tap or fountain inaccessible to children by disconnecting or bagging it until the problem is fixed. Other corrective actions can include increased flushing, replacing the fixture, or installing a filter or other device that is certified for lead reduction. Operators must also follow any other directions issued by their local medical officer of health.

The following section outlines the performance of our regulated drinking water systems and laboratories, drinking water test results, and enforcement activities and programs. The performance results show that Ontario's drinking water systems continue to be well-operated, and our water is still among the best protected in the world. More detailed information on the following data is available on the Ontario Data Catalogue (<https://data.ontario.ca/dataset/drinking-water-quality-and-enforcement>).

Table 1: Number of drinking water systems and laboratories regulated by the Ministry of the Environment, Conservation and Parks in 2021–2022

Category	Number of drinking water systems and laboratories
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	laboratories
Municipal residential drinking water systems	652
Non-municipal year-round residential drinking water systems (for example, year-round trailer parks)	462
Systems serving designated facilities (for example, a school on its own well supply)	1,402
Licensed laboratories	51

Table 2: Summary of drinking water test results for system types in 2021–2022

Category	Number of tests results	Microbiological adverse test results	Chemical and radiological adverse test results	Percentage of tests results
Municipal residential systems	519,393	536	177	9%
Non-municipal year-round residential systems	43,130	96	70	9%

round residential systems				
Systems serving designated facilities	62,976	107	59	9

The consistent result of 99% for all three system categories demonstrates that regulated drinking water continues to remain very safe in Ontario. The year-over-year^[1] variation in the number of test results that met the standard is very minor, for all drinking water system categories. (Figure 3).

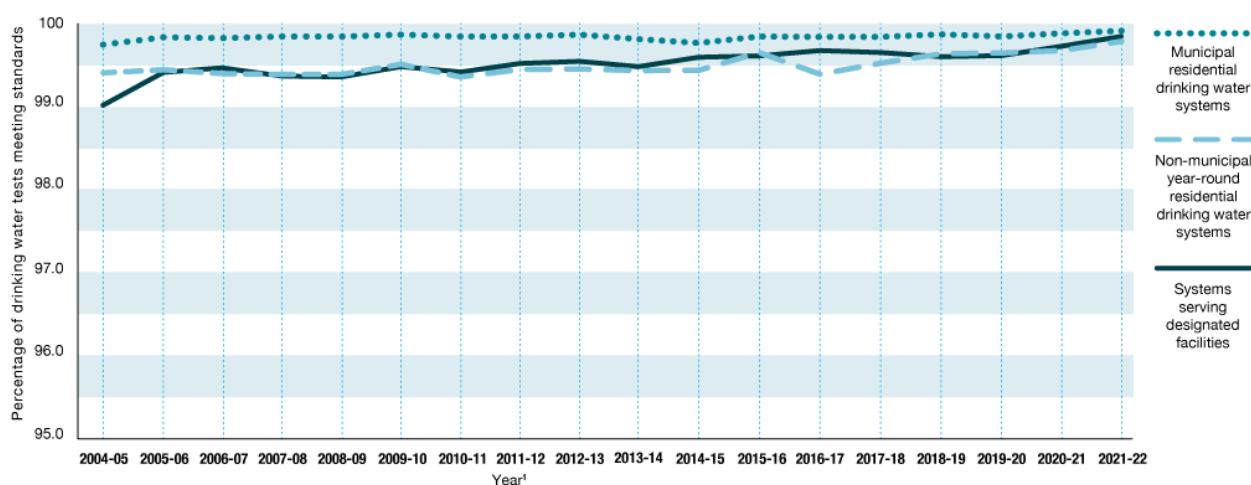


Figure 3: Trends in percentage of drinking water tests meeting Ontario Drinking Water Quality Standards, by system type

A chart showing trends in the percentage of drinking water tests that met standards for municipal residential drinking water systems, non-municipal year-round residential drinking water systems and systems serving designated facilities over 16 years. The trend is consistent for all three system categories, showing that over 99% of drinking water test results since 2004–2005 have met standards.

For municipal residential drinking water systems, the percentage of drinking water test results that met the standards ranged from 99.74% in 2004–2005 to 99.8% in 2021–2022.

For non-municipal year-round drinking water systems, the percentage of drinking water test results that met the standards ranged from 99.41% in 2004–2005 to 99.62% in 2021–2022.

For systems serving designated facilities, the percentage of drinking water test results that met the standards ranged from 99.06% in 2004–2005 to 99.74% in 2021–2022.

Table 3: Summary of adverse water quality incidents for system types in 2021–2022

Category	Number of adverse water quality incidents	Number of systems reportings
Municipal residential systems	1,121	313
Non-municipal year-round residential systems	413	177
Systems serving designated facilities	429	303

Table 4: Lead test results for schools, private schools, and child care centres in 2021–2022

Sample type	Total number of	Number of test results	Number of lead exceedances	Percentage of test results
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	results	meeting Ontario's Drinking Water Quality Standard for lead	(of total number of results)	meeting Ontario's Drinking Water Quality Standard for lead
Lead — Flushed	15,765	15,178	587	96.28%
Lead — Standing	16,007	14,562	1,445	90.97%
Lead — Total for standing and flushed samples	31,772	29,740	2,032	93.60%

Table 5: Community lead testing — lead plumbing tests results 2021–2022

Category	Number of test results	Percentage meeting the drinking water standard for lead
Municipal residential drinking water systems	2,548	87.36%
Non-municipal year-	897	98.89%

**round residential
drinking water systems****Table 6: Number of inspections conducted in
2021–2022**

Category	Number of inspections
Municipal residential drinking water systems	652
Non- municipal year-round residential drinking water systems	74
Systems serving designated facilities	112
Schools and child care centres (lead)	327

Licensed laboratories	102
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Table 7: Number of compliance outreach activities in 2021–2022

Category	Number of sent year-at-a-glance reports^[2]
Non-municipal year-round residential drinking water systems	215
Systems serving designated facilities	672

Table 8: Drinking water fixture inventories as of August 2022

Category	Number of facilities	Percentage of drinking water fixture inventories submitted	Number of sent year-at-a-glance reports^[3]
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Schools and child care centres	11,019	94%	79%

Inspection ratings

The ministry assigns a rating to each inspection conducted at a municipal residential drinking water system or licensed laboratory. A risk-based inspection rating is calculated based on the number of areas where non-compliance is identified during an inspection of a system or laboratory, and the significance of those administrative, environmental and/or health consequences.

In 2021–2022:

- 78% of municipal residential drinking water systems received a 100% rating
- 100% of municipal residential drinking water systems received an inspection rating above 80%
- 76% of laboratories received a 100% rating in at least one of their inspections
- 56% of laboratories received a 100% in both inspections
- 100% of laboratory inspections received ratings above 85%

An inspection rating of less than 100% does not indicate that drinking water is unsafe. It identifies areas where changes may need to be made to improve the operation of a drinking water system or laboratory. In these situations, the ministry uses a range of compliance tools to help ensure that the owners address specific areas requiring attention.

Common instances of non-compliance for drinking water systems included failing to:

- ensure that continuous monitoring equipment is performing and recording tests correctly
- properly operate treatment equipment (for example, using the correct dosage of chlorine, confirming that filters are performing as expected)

chlorine, confirming that titers are performing properly)

- ensure persons operating the drinking water system possess the proper designation and training
- ensure reporting requirements for adverse water quality incidents are met
- collect microbiological samples at the proper frequency and correct location

Common instances of non-compliance for licensed laboratories included failing to ensure:

- documentation and record-keeping contain sufficient detail
 - policies and procedures are up to date
 - that laboratory personnel are conducting drinking water testing according to the licensed test method
 - that adverse results are reported, and that the reports include all the required information
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Deficiencies, infractions and orders

Deficiencies and infractions

The *Compliance and Enforcement regulation* requires that the ministry undertake mandatory action for deficiencies at municipal residential drinking water systems and infractions at laboratories. Mandatory action may consist of various measures, such as issuing an order or referring non-compliant behaviour for investigation.

A 'deficiency' in this context means a violation of specified provisions of the *Safe Drinking Water Act, 2002* (<https://www.ontario.ca/laws/statute/02s32>) and its regulations that poses a drinking water health hazard. For example, water treatment equipment that is not operated according to provincial requirements may impact the quality of drinking water and adversely affect the health of those using the system. In the context of the Compliance and Enforcement regulation, an 'infraction' means a violation of specified provisions of the *Safe Drinking Water Act, 2002* and its regulations in respect of a licensed laboratory. For example, a laboratory's failure to report an adverse test result to the owner of a drinking water system could result in the system owner not taking corrective action.

In 2021–2022, out of the 652 municipal residential drinking water systems inspected, the ministry identified 10 deficiencies at 4 different systems.

None of the deficiencies/infractions identified presented an immediate drinking water health hazard.

At the first system, the deficiency consisted of failing to operate the treatment equipment in a manner that achieved the design capabilities required under *Ontario Regulation 170/03* (<https://www.ontario.ca/laws/regulation/030170>). The issue was referred for investigation.

At the second system, two deficiencies were identified as the owner did not correctly monitor filtered water turbidity and there were no records to confirm adequate primary disinfection. The owner was issued an order.

At the third system, three deficiencies were identified as the owner did not correctly monitor filtered water turbidity, have records to confirm adequate primary disinfection, and record continuous monitoring data in the required format. The owner was issued an order.

At the fourth system, four deficiencies were identified as the owner failed to detect a low combined chlorine residual adverse result and as result did not perform the required verbal and written notifications. The issues were referred for investigation.

There were also four infractions identified at four licensed laboratories. Two were tied to late adverse reporting and two to testing parameters without a licence. The four owners were issued orders.

The following orders were issued in 2021–2022 (including those issued as a result of a deficiency/infraction):

Municipal residential drinking water systems

One owner was issued two orders for two separate municipal residential drinking water systems for different contraventions. The orders required:

- The development of a procedure outlining the evaluation of treatment and monitoring equipment, including instrument calibration and how operators record values from continuous monitoring equipment. In addition, the order

required training for all operators on the procedure.

- The establishment of procedures to ensure all adverse events are recognized and reported in accordance with Ontario Regulation 170/03 and that operators review and understand the procedure.
- The owner has complied with both orders.

Non-municipal year-round residential drinking water systems

Three orders were issued to two owners of non-municipal year-round residential drinking water systems. One of these owners was issued two orders for the same system. The orders required:

- The designation of an overall responsible operator with the proper level of operator certification; creation of a sampling plan and schedule to be provided to the designated provincial officer; and a quarterly report to be provided to the owner and provincial officer within 15 days of the end of each calendar quarter.
- The provision of specific records and documentation for the drinking water system, in their original format to the provincial officer.
- The retention of a certified operator or an operating authority to operate the drinking water system along with proof of a written contract between the owner and the Certified Operator or Operating Authority; the provision of written notices door-to-door to remind users of the system of the advisory in effect for the system and monthly thereafter until the advisory is rescinded; and the provision of an alternate supply of drinking water for the users of the drinking water system.
- Both owners have complied with their orders, and the owner of one of the systems continues to submit required quarterly reports at this time.

Systems serving designated facilities

Two orders were issued to owners of systems serving designated facilities. The orders required:

- The creation and submission of a sampling plan to ensure all sampling requirements are met and the creation of a maintenance plan that the operator will follow.
- The retention of the services of a qualified person to examine and assess the

system and the preparation of a plan that addresses the elimination of total coliform and bacteria within the plumbing of the site.

- Both owners complied with the orders.

Licensed laboratories

Four orders were issued to the owners of four separate licensed laboratories.

- One provincial officer's order was reviewed at the request of the laboratory and amended to a director's order. The director's order required the laboratory to:
 - stop testing drinking water for turbidity until licensing or authorization is obtained and not to report any results for turbidity tests that have already been conducted
 - advise client(s) that their reported result(s) in respect of turbidity were analysed using an unlicensed test method
 - conduct a root cause analysis to identify deficiencies in the laboratory's process of handling and routing drinking water samples for turbidity
 - conduct a review of all drinking water samples analyzed for one month at the laboratory to verify that all samples were analyzed in accordance with their drinking water testing licence.
- One order required the laboratory to conduct a root cause analysis to determine why there was a delay between the testing and reporting of results that caused the late reporting of the four adverse results.
- One order required the laboratory to conduct a root cause analysis to determine why a sample was logged as a non-drinking water sample and why a non-drinking water chain of custody was accepted.
- One order required the laboratory to review the laboratory's quality management system regarding the identification, processing, and immediate reporting of adverse results and to identify deficiencies and implement corrective actions, including staff training.
- All owners have complied with the orders.

Convictions

In 2021–2022, owners and/or operators of eight systems that supplied drinking water

to municipal and non-municipal residential systems were convicted and fined, for a combined total of \$81,300.

These convictions for offenses under the *Safe Drinking Water Act* were as follows:

Municipal residential drinking water systems

- An owner and an operator of a system were jointly charged. The owner was convicted of one count of failing to ensure that the drinking water system was operated by persons with the proper training and expertise for their operating functions. The operator was convicted of one count of operating a regulated municipal residential drinking water system without a valid operator's certificate. The owner was also convicted of one count of carrying out an alteration to a municipal drinking water system without an approval under a drinking water works permit.
- One operating authority was convicted of one count of failing to ensure the arrival of a qualified person to examine test results as soon as possible following the receipt of low chlorine alarms from continuous monitoring equipment on multiple occasions.
- One operator was convicted of one count of providing false or misleading information on a Chain of Custody form by recording sample results for chlorine readings that the operator did not take.
- One operator was convicted of four counts of providing false or misleading on several Chain of Custody forms by recording samples that the operator did not take.
- One operator was convicted of one count of including false or misleading information on a chlorine residual sample log sheet.

Non-municipal year-round residential systems

- One operating authority was convicted on one count of failing to ensure that the drinking water system is operated by persons having the training or expertise for their operating function required by the regulations.
- One operating authority was convicted on two counts of failing to collect required monthly samples on two separate instances. They were also convicted on one count of failing to report an adverse drinking water turbidity test result to the

ministry.

- An owner and an operator of a system were jointly charged. The owner was convicted of one count of failing to ensure that the drinking water system was operated by persons with the proper training and expertise for their operating functions. The operator was convicted of one count of operating a regulated non-municipal drinking water system without a valid operator's certificate.

Compliance and enforcement regulation

The Compliance and Enforcement regulation outlines the requirements the ministry's compliance program must meet. The ministry fulfilled its requirements in 2021- 2022. Requirements met included:

- completing an inspection at all 652 municipal residential drinking water systems in the province
- conducting every third inspection of municipal residential drinking water systems unannounced (in 2021–2022, 254 inspections were unannounced and 402 were announced)
- completing two inspections at each of the 51 licensed laboratories
- conducting at least one of the two inspections conducted at each licensed laboratory unannounced
- issuing all inspection reports for municipal residential drinking water systems and licensed laboratories within 45 days of the completion of the inspection
- taking mandatory action within 14 days of finding a deficiency at a municipal residential drinking water system or an infraction at a licensed laboratory

In addition to setting requirements for inspection and compliance activities, the Compliance and Enforcement regulation also provides the public with the right to request an investigation of an alleged contravention of the *Safe Drinking Water Act, 2002* or any of its regulations. In 2021–2022, there were no requests for investigation.

Information on drinking water quality, inspections, orders and convictions data is available on the Ontario Data Catalogue (<https://data.ontario.ca/en/dataset/drinking-water-quality-and-enforcement>) .

2021–2022 highlights of Ontario's small drinking water system results

Across Ontario, thousands of businesses and other community sites use a small drinking water system to supply drinking water to the public. These places may not have access to a municipal drinking water supply and are most often located in semi-rural and remote communities.

These small drinking water systems, which are regulated under the *Health Protection and Promotion Act* (<https://www.ontario.ca/laws/statute/90h07>) and one of its regulations, *Ontario Regulation 319/08 (Small Drinking Water Systems)* (<https://www.ontario.ca/laws/regulation/080319>), provide drinking water in restaurants, medical offices, places of worship and community centres, resorts, rental cabins, motels, lodges, bed and breakfasts, campgrounds, and other public settings.

The Small Drinking Water Systems Program is a unique and innovative program overseen by the Ministry of Health and administered by local boards of health. Public health inspectors conduct inspections and risk assessments of all small drinking water systems in Ontario, and provide owner/operators with a tailored, site-specific plan to help keep drinking water safe. This customized approach has reduced unnecessary burden on small drinking water system owner/operators without compromising provincial drinking water standards.

Owners and operators of small drinking water systems are responsible for protecting the drinking water that they provide to the public. They are also responsible for meeting Ontario's regulatory requirements, including regular drinking water sampling and testing, and maintaining up-to-date records.

2021–22 at a glance:

- Over the past nine years, we have seen increasingly positive results including a steady decline in the proportion of high-risk systems (9.13% in 2021–22 down from 16.65% in 2012–13). The total number of systems is relatively stable from year to year. It fluctuates up and down only slightly.
 - Risk category is determined based on water source, treatment, and distribution criteria. High-risk small drinking water systems may have a significant level of risk and are routinely inspected every two years. Low and moderate risk small drinking water systems may have negligible to moderate risk levels and are routinely inspected every four years.

- Public health inspectors often work with the operator to address potential risks, which, when corrected, may result in a lower assigned category of risk.
 - As of March 31, 2022, over three quarters (78.85%) of small drinking water systems are categorized as low risk and a total of 90.87% of systems are categorized as low and moderate risk, and subject to regular re-assessment every four years.
 - The remaining systems, categorized as high risk, are re-assessed every two years.
- 98.08% of 88,662 drinking water samples submitted from small drinking water systems during the reporting year have consistently met Ontario drinking water quality standards as set out in *Ontario Regulation 169/03* (<https://www.ontario.ca/laws/regulation/r03169>). The results identified as not meeting the standards represent 1,706 test results, of which 1,542 were microbiological exceedances and 155 were chemical/inorganic/radiological exceedances and 9 were organic exceedances. Public health inspectors work with the system owners and operators to bring their systems into compliance.
 - As of March 31, 2022, 25,400^[4] risk assessments have been completed for the approximately 10,000 small drinking water systems. The risk assessment is used by the public health inspector to develop the directive for the system which is a site-specific plan for the operator. The directive may include requirements regarding:
 - the frequency and location of sampling
 - water samples to be taken and tested for biological, chemical, radiological, or other potential contamination
 - operational tests such as checking disinfection levels and conducting turbidity tests
 - operator training
 - record-keeping
 - installation of treatment equipment
 - posting and maintaining warning signs
- Through the Ministry of Health's Small Drinking Water System Program, public health units provide information to small drinking water system owners and

Health units provide information to small drinking water system owners and operators on:

- how to protect their drinking water at the source by identifying possible contaminants
- how and when to test their water
- treatment options and maintenance of treatment equipment, where necessary
- when and how to notify the public, whether it is a poor water sample test result or equipment that is not working properly
- what actions need to be taken to mitigate the problem

In the event of an adverse test result, the laboratory involved will notify both the owner/operator of the small drinking water system and the local public health unit for immediate response to the incident. Details of the adverse water quality incident will also be tracked by the public health unit in the Drinking Water Advisory Reporting System.

Adverse water quality incidents can result from an observation (for example, an observation of treatment malfunction) or adverse test result (i.e., water sample does not meet drinking water standards under *Ontario Regulation 169/03* (<https://www.ontario.ca/laws/regulation/030169>)).

- Since 2013–2014, a significant downward trend in both total adverse water quality incidents and the number of systems that reported an adverse water quality incident has occurred, with some fluctuations:
 - In the past year, a slight increase was seen in the total number of adverse water quality incidents (up from 831 in 2020–2021 to 907 in 2021–22) and the number of small drinking water systems that reported an adverse water quality incident (up from 646 in 2020–21 to 694 in 2021–22).^[5]
 - Overall, the total number of incidents in 2021–22 is still down 40.21%; and 42.93% fewer systems reported an adverse water quality incident compared to 2013–2014 data, at 1,517 adverse water quality incidents for 1,216 systems.

The small drinking water system adverse water quality incident data demonstrates the success of the Small Drinking Water System Program. Adverse incidents are now being systematically captured and appropriate action can now be taken and tracked

to help protect drinking water users.

Reductions in adverse water quality incidents in small drinking water systems have occurred over time since the start of the program, as owners/operators have complied with sampling requirements in accordance with their directives and have instituted improvements in their drinking water systems.

Note, the Ministry of Health is not aware of any reported illnesses related to these incidents. This may in part be because, through the Small Drinking Water System Program, operators now know when and how to notify users that their drinking water may not be safe to drink and are working with public health units to take appropriate corrective actions to mitigate any potential problems.

Conclusion

Ontario continues to successfully provide safe drinking water thanks to the dedicated people and communities working together to help ensure Ontario's drinking water is of the highest quality. Our ministry and partner ministries, municipalities, private system owners and operators, the Walkerton Clean Water Centre, local Public Health Units, licensed laboratories, academic institutions, non-governmental organizations, and the public all play a critical role in drinking water protection.

We remain committed to moving forward with initiatives and actions to protect our water sources and drinking water. Ontarians can take pride in knowing that our strong monitoring, reporting and enforcement activities and programs have helped Ontario's drinking water to remain protected.

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Footnotes

- [1] ^ There were slight variations in the methods used to tabulate the percentages year-over-year due to regulatory changes and different counting methods.

measures.

- [2] ^ A tailored report, which summarized available ministry data, including drinking water system profile information, sampling information and a list of adverse water quality incidents reported for their system.
- [3] ^ The ministry is following up with owners of schools and child care centres of the remaining inventories to determine whether they met the requirement to sample all fixtures.
- [4] ^ The reported number of risk assessments will change as new systems come into use/change in use, and routine re-inspections and risk assessments are completed. Risk categories may also fluctuate (for example, if recommended improvements are taken to reduce the system's risk). Similarly, a system may require reassessment to determine if the risk level has changed (for example, if the water source or system integrity is affected by adverse weather events or system modifications).
- [5] ^ An adverse test result does not necessarily mean that users are at risk of becoming ill. When an adverse water quality incident is detected, the small drinking water system owner/operator is required to notify the local medical officer of health and to follow up with any action that may be required. The public health unit will perform a risk analysis and determine if the water poses a risk to health if consumed or used and may take additional action as required to inform and protect the public. Response to an adverse water quality incident may include issuing a drinking water advisory that will notify potential users if the water is safe to use and drink or if it requires boiling to render it safe for use. The public health unit may also provide the owners and/or operators of a drinking water system with necessary corrective action(s) to be taken on the affected drinking water system to address the risk.