

**Chief Drinking Water
Inspector
Annual Report
2005-2006**

**Ontario Ministry of the Environment
May 2007**

Protecting our environment.



Cette publication est également disponible en français.

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Message from the Chief Drinking Water Inspector

Chief Drinking Water Inspector

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Ontario's Chief Drinking Water
Inspector Jim Smith

As Ontario's Chief Drinking Water Inspector, I am pleased to present my second annual report and to state again this year that Ontarians can be confident that their drinking water is safe and of a very high quality.

In 2005-2006, test results reported by municipal residential drinking water systems showed that 99.84 per cent met Ontario's rigorous, health-based standards. You can have confidence that the drinking water that arrives at your tap is safe, and that appropriate actions are swiftly taken if there are reasons to believe it is not.

Ontario has established a comprehensive safety net to protect our drinking water. This report outlines how the safety net works and describes the latest measures to strengthen it even further.

The Ontario government is committed to pursuing continuous improvement in drinking water protection. Recent initiatives such as the *Clean Water Act, 2006* and introducing a quality management

standard for municipal water systems through a new licensing regime will keep Ontario's drinking water among the best protected in the world.

Public reporting is an important aspect of the safety net. Giving the public transparent access to information provides checks and balances that will hold system owners, operators and regulators accountable for meeting their responsibilities. This annual report is designed to give Ontarians the information they need to make their own judgments on the quality of their water supplies.

As required by the *Safe Drinking Water Act, 2002* (SDWA), this report evaluates the overall performance of Ontario's drinking water systems.

It provides information about municipal residential drinking water systems, which supply water to more than 80 per cent of Ontario residents. It also includes data from non-municipal year-round residential drinking water systems, as well as drinking water systems exclusively serving facilities such as schools, day care centres and nursing homes.

The SDWA also calls for annual reporting on the ministry's inspection program, an area where this year's report takes a major step forward. For the first time, I am publicly releasing ministry ratings that show the inspection results from all municipal residential water systems in 2005-06. These inspection ratings are one of a number of measures used to evaluate drinking water systems.

I'm pleased to report that overall, operational performance of municipal residential drinking water systems is very good. The annual inspection ratings will help track yearly progress toward my goal of 100 per cent compliance for all systems province-wide.

Safe drinking water is essential for human health, and constant vigilance is necessary to safeguard water quality. As of June 2005, the ministry is required to meet its obligations under the Compliance and Enforcement

Regulation, which include conducting mandatory inspections, acting on serious infractions within specified time-lines and providing inspection reports within 45 days. The ministry met its obligations in 2005-06 and I am committed to ensuring that these requirements continue to be met.

You may have obtained this annual report through the Drinking Water Ontario portal, launched in the spring of 2007. This online gateway is a valuable channel for informing the public about the quality of drinking water and the steps taken to protect the health of Ontarians by keeping our drinking water safe.

I remain committed to fostering continuous improvement in Ontario's drinking water systems and I look forward to ongoing partnerships with owners, operators and other stakeholders to meet our shared responsibility to safeguard Ontario's drinking water.

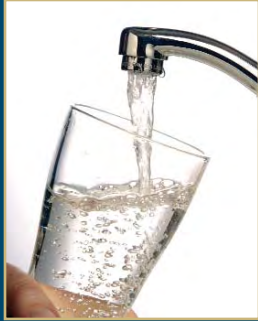
Jim Smith

Chief Drinking Water Inspector

Chief Drinking Water Inspector

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I remain committed to fostering continuous improvement in Ontario's drinking water systems.



The safety net has been put in place so that you can have confidence that the drinking water that arrives at your tap is safe and that appropriate actions are swiftly taken if there are reasons to believe it is not.

A young Ontarian enjoys a tall glass of some of the best protected water in the world.

Introduction

This is the Chief Drinking Water Inspector's second annual report. It covers actions taken and results achieved during the fiscal year from April 1, 2005 to March 31, 2006 to safeguard the health of Ontarians by making the province a world leader in the protection of drinking water.

The position of Chief Drinking Water Inspector was created by the *Safe Drinking Water Act, 2002* (SDWA) with a mandate to ensure that drinking water systems meet stringent health-based standards for protecting drinking water quality. The responsibilities of the position include:

- monitoring the frequency and effectiveness of inspections of drinking water systems and licensed testing laboratories;
- advising on and carrying out regulatory requirements and policies related to inspections;
- developing and implementing training programs for drinking water operators and ministry provincial officers; and
- producing this annual report.

Building on the contents of the 2004-05 annual report, this publication provides in-depth information on the current state of Ontario's drinking water. As required by the SDWA, it reports on the overall performance of drinking water systems in Ontario and the inspection program for drinking water systems.

In the *Report of the Walkerton Inquiry*, Commissioner Dennis O'Connor said drinking water systems should strive "to deliver water with a level of risk that is so negligible that a reasonable and informed person would feel safe drinking it."¹ This annual report is one way Ontario consumers can obtain information on drinking water quality and the measures taken to protect it – allowing them to have confidence in the safety of their drinking water.

What This Report Includes

Tapping In

These text boxes, located throughout the report, provide additional detail on drinking water related topics and highlight key findings.

Ontario's Drinking Water Safety Net

The Ontario government has put in place a comprehensive safety net of measures to protect the water Ontarians drink. This part of the report describes the eight components of the safety net and recent actions in each area.

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What This Report Includes



Tapping in

This annual report provides detailed information on three types of drinking water systems:

- Municipal residential drinking water systems** – municipally-owned systems that serve six or more private residences, as well as systems under contract with a municipality to supply drinking water to six or more private residences
- Drinking water systems serving designated facilities** – such as children's camps, daycare centres, schools or health care facilities
- Non-municipal year-round residential drinking water systems** – privately owned systems serving residential developments such as trailer parks or private subdivisions with six or more sites or houses.

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New This Year

2005-06 Water Quality

This part contains 2005-06 data on the water quality provided by municipal residential drinking water systems, which serve more than 80 per cent of Ontario residents, as well as by systems supplying designated facilities such as schools and health care centres and by non-municipal year-round residential systems.

2005-06 Ministry Inspection Program

To ensure compliance with regulatory requirements, the Ministry of the Environment proactively inspects municipal residential drinking water systems on an annual basis. Licensed water testing laboratories are inspected twice a year. This part provides an overview of the operational performance of these facilities, based on the results of inspections conducted in 2005-06.

Looking Ahead

The ministry is working with the municipal sector and other stakeholders to continuously improve the drinking water safety net. This section sketches key initiatives that are expected to produce results in the coming months.

New This Year

The 2005-06 annual report includes information on the following topics, in addition to those covered in the 2004-05 annual report:

- Inspection ratings for municipal residential drinking water systems;
- Top areas for improvement in laboratory practices;
- 2004-05 and 2005-06 data comparisons; and
- Ministry of the Environment's compliance with the Compliance and Enforcement Regulation (O.Reg. 242/05).



Tapping in

Drinking Water Experts Advise First Nation Community

A team of technical experts from the Ministry of the Environment played a central role in the Ontario government's response to the emergency at the Kashechewan First Nation in fall 2005. Led by Chief Drinking Water Inspector Jim Smith, the group conducted an in-depth assessment of the community's drinking water system, wastewater system and sewage lagoons.

The band council declared a state of emergency that was linked to the presence of bacteria in the community's drinking water. The objective of the ministry team was to make recommendations to the First Nation and the federal government to ensure a reliable local water supply so the evacuees could eventually return to their homes.

Shortly after arrival, the team took samples from the water treatment plant and the distribution system. Water tests performed by the ministry's licensed laboratory found that the local drinking water met all Ontario standards, with no *E. coli* or total coliform bacteria.

In conducting a source to tap assessment, the team asked questions and made observations similar to ones used when the ministry inspects municipal water facilities. While the local water was found to be safe during the on-site visit, the team concluded that various measures were necessary for the Kashechewan system to reliably provide potable water on an ongoing basis.

The team made recommendations for immediate actions ranging from repair or replacement of sewage pumps, to installation of a chlorine analyzer and alarm, to the presence of a trained operator at the treatment plant on a 24/7 basis. Longer-term initiatives were also proposed, such as upgrading the chemical storage and metering equipment and modifying the sewage collection and treatment system to protect the drinking water source.

The team sent its final report to the First Nation on November 10, 2005, two weeks after its arrival on the scene.

2005-06 Highlights

The people of Ontario are entitled to expect safe, high-quality drinking water. Their health depends on it. That is why the Ontario government has established comprehensive safeguards so that Ontarians can have confidence in the safety and quality of tap water across the province.

Key results include:

- 99.84 per cent of drinking water tests reported by municipal residential drinking water systems – which serve more than four in five Ontario residents – met Ontario drinking water standards.
- 99.42 per cent of water quality tests reported by systems serving designated facilities (e.g. nursing homes) met provincial standards.
- 99.45 per cent of water quality tests reported by non-municipal year-round residential drinking water systems met provincial standards.
- The Ministry of the Environment inspected all 706 municipal residential drinking water systems to ensure their plants and facilities were operating in compliance with regulatory requirements. One-third of municipal residential drinking water system inspection ratings achieved 100 per cent, and nine out of 10 achieved 90 per cent or better.
- All licensed drinking water testing laboratories underwent at least two inspections.

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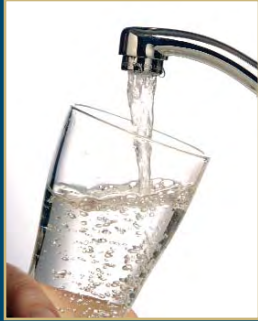
Tapping in

Water Report Card Puts Ontario on Top

In October 2006, the Sierra Legal Defence Fund released *Waterproof 2 – Canada's Drinking Water Report Card*, updating its review of drinking water legislation across the country five years earlier. Overall, the latest report card gives Ontario a grade of A-, the highest in the country, an improvement from a grade of B in 2001. Ontario outranked all other provinces and territories as well as the federal government.

Ontario's move to establish a public right to request a drinking water investigation was cited as one of the most significant advances in drinking water protection in Canada over the past five years. The report also viewed Ontario as the current leader in public reporting on water quality with such measures as annual reports by regulated drinking water systems and the Chief Drinking Water Inspector's Annual Report.

Waterproof 2 concludes: "We only hope that other provinces will follow Ontario's lead without waiting until tragedy strikes."



The purpose of the SDWA is to protect human health and prevent drinking water health hazards through the control and regulation of drinking water systems and drinking water testing.

Laboratory technician testing a water sample as required by Ontario's drinking water regulations.

Ontario's Drinking Water Safety Net

Ontarians have no higher priority than their health. That's why the provincial government has created a strong safety net for drinking water protection – one Ontarians can rely on from source to tap. Ontarians' drinking water is among the best protected drinking water in the world. This part of the annual report explains the eight interwoven components of the safety net and outlines measures to strengthen them in 2005-06.

The eight components of the safety net are:

1. Strong legislation – *Clean Water Act, 2006* and *Safe Drinking Water Act, 2002*
2. Timely, reliable testing
3. Immediate notification and corrective action on adverse water quality incidents
4. Licensing, training and certification
5. Comprehensive inspection program
6. Investigation and enforcement
7. Integrated data acquisition and information management
8. Education and outreach

Safety Net – 1

Strong Legislation – *Clean Water Act, 2006* and *Safe Drinking Water Act, 2002*

The Ontario government has now established a comprehensive framework of laws and regulations to protect the safety and quality of drinking water. Strong legislation has been enacted to

safeguard water quality from the raw water source through treatment, distribution and testing to the consumer's tap. Ontario's leadership means that consumers can have confidence in the water they drink.

Clean Water Act, 2006 to Protect Drinking Water Sources

The first barrier in a multi-barrier system to deliver safe drinking water is the protection of water sources – such as lakes, rivers and aquifers. Keeping source water free of contamination and ensuring it is sustainable is undoubtedly safer and more cost-effective than cleaning up problems after the fact. This is a critical strategy for safeguarding the environment and the health of Ontarians.

The underlying principle in the *Clean Water Act, 2006* is prevention. The Act was introduced by the government in December 2005 and received third reading and royal assent in October 2006.

This legislation makes Ontario a world leader in source water protection.

What Communities Will Do

For the first time, communities will be able to create and carry out a plan to protect the sources of their municipal drinking water. The initial step will be to identify and assess risks to the quality and quantity of drinking water sources. Then these risks will be evaluated to determine which are significant and need immediate action, which require ongoing monitoring, and which pose a low or negligible risk. Decisions will be based on sound science.

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Safety Net Strong Legislation

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**Safety Net
Strong Legislation**

*Communities will
develop source
protection plans to
address the risks and
set out steps to reduce
or eliminate significant
drinking water threats.*

Next, communities will develop source protection plans to address the risks and set out steps to reduce or eliminate significant drinking water threats. Broad consultation will involve municipalities, conservation authorities, property owners, farmers, industry, businesses, community groups, public health officials, First Nations and the public, helping to make the process locally driven.

Once approved, source protection plans will be delivered through existing measures such as land use planning, regulatory requirements, approvals and voluntary initiatives. The Act also provides additional tools for certain activities prescribed by the Province, including the ability to prohibit certain activities that pose a significant risk to drinking water sources and the ability to require a site-specific risk management plan setting out the steps property owners will take. In the long term, communities will stay vigilant through continual monitoring and reporting to measure the effectiveness of the actions taken to protect drinking water sources and ensure protection in the future.

The legislation promotes a shift in attitudes about water resources toward a concept of stewardship and shared responsibility among all stakeholders to secure the integrity of local drinking water sources. This shared commitment will lead to continuous improvement in the effort to safeguard water supplies for present and future generations.

Source Protection Planning Regions

Source protection planning will be based on natural watershed boundaries, and Ontario's 36 conservation authorities

(CAs) will coordinate the process.

In some areas, CAs will be grouped together to form source protection planning regions, with one CA in each region taking an administrative lead. Overall, there will be 19 distinct areas where local committees will be established to lead the source protection planning process.

In areas without a conservation area, mostly in northern Ontario, municipalities or clusters of municipalities may enter into an agreement with the ministry to develop a locally-driven plan that focuses on specific drinking water threats in specific areas.

***Safe Drinking Water Act, 2002 and
Associated Regulations***

The *Safe Drinking Water Act, 2002* (SDWA) brings together legislation and regulations that help safeguard drinking water.

The purpose of the SDWA is to provide for the protection of human health and the prevention of drinking water health hazards through the control and regulation of drinking water systems and drinking water testing. Regulations made under the SDWA spell out detailed requirements regarding drinking water systems, testing services, drinking water quality standards, certification of drinking water system operators and drinking water quality analysts, and compliance and enforcement.

In 2005-06, the government continued to make improvements in the way drinking water is regulated under the SDWA. The changes provide more workable rules without compromising safe drinking water.

New Approach for Non-Residential and Seasonal Residential Systems – O.Reg. 252/05

In May 2005, the government announced its intention to transfer legislative oversight of non-residential and seasonal residential facilities (such as churches, community halls, bed and breakfasts and tourist outfitters) from the Ministry of the Environment to the Ministry of Health and Long-Term Care (MOHLTC) and public health units. The two ministries continue to work together on detailed planning for the proposed transfer of legislative authority.

This alternative approach to regulation was put forward by some owners and operators of these smaller systems, stakeholder associations and the Advisory Council on Drinking Water Quality and Testing Standards. The Minister of the Environment had asked the Council for advice on the appropriateness of requirements under the Drinking-Water Systems Regulation (O.Reg. 170/03) for smaller systems, especially private ones. The Council concluded that these systems did not have the resources, knowledge or skills to comply with the type of regulatory structure set out in the regulation. In the Council's view, these

smaller systems could better implement basic drinking water standards under an alternative approach that addresses their capacities and abilities.

As a first step, effective in June 2005, non-residential and seasonal residential drinking water systems, with the exception of systems serving designated facilities, were removed from O.Reg. 170/03 and became subject to a separate regulation, O.Reg. 252/05. Examples of designated facilities include schools, day cares and nursing homes. They serve groups that may be vulnerable to water-borne disease, such as children, the elderly and those in ill health. Drinking water systems supplying designated facilities remain under the requirements of O.Reg. 170/03.

O.Reg. 252/05 prescribes a basic level of microbiological testing, reporting and corrective action – fundamental requirements that provide strong public health protection while reducing the financial burden on system owners. The intention is that, following the proposed transfer, public health inspectors will perform risk-based, site-specific assessments on each system to determine treatment and testing requirements.

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**Safety Net
Strong Legislation**



Tapping in

Advisory Council on Drinking Water Quality and Testing Standards

Created by the *Safe Drinking Water Act, 2002*, the Advisory Council on Drinking Water Quality and Testing Standards has a mandate to advise the Minister of the Environment on drinking water standards and issues to protect the water Ontarians drink.

The Council held its inaugural meeting in June 2004. Its members reflect a cross-section of academia, industry and municipalities, with expertise in microbiology, toxicology, engineering, utility operations, public health and other drinking water related areas. The members are active in their fields of expertise and bring their current experience to the Council's deliberations.

More information on the Advisory Council is available on its website: <http://www.odwac.gov.on.ca/>

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Safety Net Strong Legislation

In 2005-06 the ministry developed risk-based amendments to O.Reg. 170/03, which took effect in June 2006. The changes safeguard drinking water quality by making the rules clearer and more flexible.

The intended transfer to MOHLTC and public health units requires legislative amendments. In the interim, the Ministry of the Environment continues to oversee these non-residential and seasonal residential systems, including following up on any water quality issues and enforcing legislation and regulations.

Since the government is proposing to transfer the systems regulated by O.Reg. 252/05 to MOHLTC and public health units, this present report does not include data on O.Reg. 252/05 systems.

Amendments Make Drinking Water Regulation More Flexible

The Drinking-Water Systems Regulation (O.Reg. 170/03) applies to systems providing drinking water to more than 80 per cent of Ontarians. It sets out requirements for water treatment, maintenance, operational checks, sampling and testing at drinking water systems, as well as reporting and corrective actions in case of an adverse water quality incident. It applies to municipal residential systems and to private systems that supply drinking water to year-round residences. It also applies to five other categories of drinking water systems that serve designated facilities.

In 2005-06 the ministry developed risk-based amendments to O.Reg. 170/03, which took effect in June 2006. The changes assist drinking water system owners and operating authorities by making the rules clearer and more flexible. Treatment and operating requirements were modified to make them easier to follow, provide more treatment options and reduce costs for smaller systems. These improvements were the result of extensive consultations with drinking water experts and system owners and operators.

Examples of the amendments include:

- More flexibility in the timing of tests for chlorine residual in water distribution systems.
- Clearer and less onerous microbiological testing requirements for systems serving designated facilities, municipal residential systems serving 100 or fewer residences and private systems.
- Less frequent testing for chemicals in municipal residential systems serving 100 or fewer residences and in private systems, creating more workable and affordable rules.



Tapping in

Proposed Realignment of Drinking Water Oversight Responsibilities

It is proposed that the following categories of drinking water systems, regulated by O.Reg. 252/05, are to be transferred to the Ministry of Health and Long-Term Care (provided they do not serve a designated facility):

- small municipal non-residential
- large municipal non-residential
- small non-municipal non-residential
- large non-municipal non-residential

- non-municipal seasonal residential

The following categories of drinking water systems will continue to be regulated under O.Reg. 170/03 by the Ministry of the Environment:

- municipal residential
- non-municipal year-round residential
- drinking water systems serving designated facilities

- Clearer and less onerous requirements for adverse condition notification and corrective action related to chlorine residual in the distribution system.
- Giving municipal residential systems that serve 100 or fewer residences and private year-round residential systems that serve 100 or fewer residences the option of using point-of-entry treatment – with equipment installed where the water enters a building or other premises – as an alternative to centralized treatment.
- Eliminating the requirement for an engineer's report for municipal residential systems, as elements of this report will eventually be captured under a new municipal licensing program that is under development (see the *Safety Net - 4 Licensing, Training and Certification* section for more details on municipal licensing).

Inspections Governed by Regulation

The Compliance and Enforcement Regulation (O.Reg. 242/05) established new rules on how the ministry performs inspections. In 2000 it became provincial policy to inspect all municipal residential drinking water systems at least once a year. Effective June 2005, the new regulation formalized this policy by requiring the ministry to conduct full annual inspections and to ensure that at least one out of every three inspections is unannounced. The regulation also requires full inspection of licensed laboratories at least twice a year, with at least one in every two inspections unannounced.

In addition, the regulation sets consistent standards for the conduct of all required inspections and imposes obligations on the ministry for follow-up in the event of a defined deficiency or other contravention posing a present or potential health or environmental consequence.

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Safety Net Strong Legislation



A water test for chlorine residual.

Tapping in

Holding the Ministry Accountable – Compliance and Enforcement Regulation Requirements

The Ministry of the Environment has the following responsibilities under the Compliance and Enforcement Regulation (O.Reg. 242/05):

Municipal Residential Drinking Water Systems

- Fully inspect all municipal residential drinking water systems annually
- Ensure at least one in every three inspections is unannounced
- Send a report to required persons within 45 days of completing an inspection
- Respond to reported adverse test results or other reported problems
- Take mandatory action within 14 days of finding a deficiency at a municipal residential drinking

water system (or immediately in the case of a present drinking water health hazard)

Licensed Drinking Water Testing Laboratories

- Fully inspect all licensed laboratories at least twice a year
- Ensure at least one in every two inspections is unannounced
- Send a report to the laboratory within 45 days of completing an inspection
- Take mandatory action within 14 days of finding an infraction at a licensed laboratory (or immediately in the case of a present drinking water health hazard)

For more information on the *Safe Drinking Water Act, 2002* and regulations, go to:
<http://www.ene.gov.on.ca/envision/water/sdwa/dwsr.htm>

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Safety Net Timely, Reliable Testing

If the deficiency is at a municipal residential drinking water system, the ministry must take mandatory action within 14 days and must take mandatory action immediately if the deficiency represents an existing drinking water health hazard.

Safety Net – 2 Timely, Reliable Testing

The ongoing monitoring of water quality is key to maintaining vigilance over the safety of drinking water supplies.

Ontario's drinking water is carefully monitored through regular testing against stringent, health-based standards (Ontario Drinking-Water Quality Standards – O.Reg. 169/03).

Mandatory Sampling and Testing

O.Reg. 170/03 under the *Safe Drinking Water Act, 2002* (SDWA) establishes the frequency of sampling and the type of testing required for different categories of drinking water systems. Requirements vary with the size of the population served and whether the water source is groundwater or surface water. Under the SDWA, health-related standards testing is generally conducted by laboratories licensed to perform the specific tests involved, ensuring reliability.

Drinking water tests fall under five broad classifications:

- **Microbiological:** Microbial contamination in drinking water could result in waterborne diseases and immediate health hazards. Since microbiological parameters have the most direct and immediate health impacts, they are required to be tested most frequently.
- **Chemical:** While chemical parameters are potentially toxic, the maximum acceptable concentrations are



Operators view an on-line chlorine residual monitor.

based on exposure over a lifetime for both carcinogenic and non-carcinogenic substances and are far below the levels at which the chemicals are acutely toxic. Testing frequencies for chemical parameters reflect the health risks as well as the likelihood that environmental concentrations of particular parameters will vary over time.

- **Radiological:** A radionuclide is an unstable form of a chemical element that decays, resulting in the emission of nuclear radiation. Some radionuclides occur naturally while others are products of human activities, such as mining or nuclear power generation. Testing for radionuclides may be required by a municipal drinking water system's Certificate of Approval, based on the possible presence of radionuclides at particular locations in concentrations with the potential for human health impacts.
- **Physical:** Physical characteristics may have an indirect impact on health-related matters. Temperature, for example, affects the growth rate of microorganisms.
- **Aesthetic:** Objectives for aesthetic quality help ensure that drinking water is acceptable to consumers.

Taste, colour, and odour are common aesthetic parameters. While most aesthetic factors have no health implications, some do. For example, turbidity or cloudiness, caused by particles suspended in the water, reduces the efficiency of disinfection processes by shielding microorganisms. Aesthetic parameters are regularly tested at drinking water facilities.

Drinking water quality test results provide ongoing evidence of a system's capacity to provide safe drinking water. If contaminant levels in drinking water are above provincial standards, swift and decisive action is taken to protect human health.

More Flexibility in Regulated Test Methods

In addition to having a licence, a laboratory is required to use internationally referenced, validated testing methods for the parameters outlined in the ministry's *Protocol of Accepted Drinking-Water Testing Methods*. In July 2005, the ministry released a method equivalence document – the *Protocol for Acceptance of Alternate Methods* (PAAM).

This document was developed to provide licensed laboratories with flexibility in the use of analytical methods for chemical parameters while maintaining quality analytical standards. Under the new protocol, modified versions of the designated reference methods may be used

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Safety Net Timely, Reliable Testing



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Drinking Water Surveillance Program Supports Standards Development

The ministry's Drinking Water Surveillance Program (DWSP) monitors a wide variety of chemical parameters in drinking water. This program is separate from the sampling and testing conducted by drinking water systems under O.Reg. 170/03. The program focuses on maintaining a database of drinking water quality for use in assessing trends, standards and emerging issues.

The DWSP is a science-based program administered by the ministry's Environmental Sciences and Standards Division. As it has been operational since 1986, it can generate information on water quality trends. The program is not mandatory, but as of September 2006 it included 129 municipal drinking water systems that reach approximately 80 per cent of the population served by municipal water supplies.

The DWSP samples a subset of municipal systems that are representative of different source water characteristics and treatment technologies. It collects information on chemical water quality from source to tap by sampling and testing raw water, treated drinking water and water in the distribution system. Sampling frequency varies from two

to six times per year depending on the variability in quality of the source water. The DWSP also conducts special surveys on emerging contaminants and drinking water issues, such as algal toxins, pharmaceuticals and compounds affecting taste and odour. Samples collected by the DWSP are analyzed at licensed drinking water testing laboratories in the Ministry of the Environment and the Ministry of Labour's Radiation Protection Services section.

The data generated by the DWSP not only support standards development in Ontario, but also support Health Canada in setting national drinking water standards through the Federal/Provincial/Territorial Committee on Drinking Water. Furthermore, raw water data are used by Conservation Ontario for source water protection initiatives.

Although the focus of the DWSP is on non-regulated parameters, data for some regulated parameters are also generated by the comprehensive analytical methods employed. If a parameter is found to exceed the provincial standards, the ministry triggers appropriate follow-up actions to ensure the drinking water is safe.

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Safety Net Immediate Notification and Corrective Action on Adverse Water Quality Incidents



Tapping in

Safety Net Demands Vigilance

The Ministry of the Environment's licensed laboratory has revised its standard operating procedures to prevent a recurrence of the labeling error that led to a Boil Water Advisory (BWA) in Quinte West in July 2006. Treated and raw water samples from the Trenton Water Treatment Plant were inadvertently mislabeled at the laboratory, and the water analyzed was in fact safe.

The BWA was lifted after two days when the error was identified, as there was no justification for the advisory to continue. The results of resampling received the same day, confirmed the safety of the treated drinking water. The ministry took this incident, which disrupted the entire community, very seriously. Vigilance required by the safety net led to the discovery of a weakness in the system, and as a result changes were made to improve the process and reinforce drinking water protection. Despite the labeling error, the second stage of the procedures

undertaken to protect public health functioned well. Those procedures included:

- the ministry's licensed laboratory immediately notifying the local Medical Officer of Health, the system owner and the SAC when test results indicated the drinking water was contaminated (although the results were later found to be from an incorrectly labeled sample bottle);
- the ministry sending a drinking water inspector to the Trenton water plant to ensure corrective actions were being taken; and
- the local health unit taking immediate action by issuing a BWA to protect public health.

The response to this situation showed that the ministry is vigilant not only over the regulated community but also over its own activities, and that Ontario's procedures for dealing with a potential drinking water health hazard are working.

without prior approval. This may be done provided that the licensed laboratory demonstrates and documents that the modified methods produce data equal or superior to data from the reference methods. In addition, the data validation procedures in the PAAM document must be strictly followed.

Safety Net – 3 Immediate Notification and Corrective Action on Adverse Water Quality Incidents

An adverse water quality incident (AWQI) signals a potential health threat and triggers immediate corrective action to protect public health. The term AWQI refers to two situations:

- when a licensed drinking water testing laboratory detects levels of a contaminant in a drinking water sample that exceed a health-related

Ontario Drinking Water Quality Standard; or

- when a drinking water system owner or operator detects any potentially unsafe test results or observes something that indicates that improperly disinfected water is being directed to users of the system at a municipal or regulated private water system.

For example, an AWQI occurs when a test result exceeds a provincial standard in O.Reg. 169/03, such as the one for *E. coli*, or fails to meet an operational parameter, such as turbidity or chlorine residual, in O.Reg. 170/03. AWQIs may also stem from an occurrence that could result in unsafe drinking water reaching consumers, such as the failure of disinfection equipment. When an AWQI takes place, regulations prescribe the corrective actions that must be followed by the drinking water system to protect human health and help safeguard drinking water.

A single adverse water quality incident does not necessarily mean that drinking water is unsafe. Sometimes an AWQI is caused by inadvertent contamination of a sample. Additional tests are always ordered to confirm initial adverse results.

Mandatory Immediate Notification

To ensure that any risk to public health is quickly addressed, licensed laboratories must immediately report an adverse drinking water test result to the system's accredited operating authority, or if no accredited operating authority, the owner of the system, the local Medical Officer of Health and the Ministry of the Environment's Spills Action Centre (SAC). This notification is to be made verbally. Licensed laboratories are also required to provide written notice of the adverse drinking water test to the local Medical Officer of Health and the SAC within 24 hours. As well, the owner of the drinking water system must verbally report an adverse water quality incident immediately to the local Medical Officer

of Health and the SAC, and provide written notice within 24 hours. In cases where written notice is required, it can be given by fax using a prescribed form provided or approved by the ministry.

Corrective Action and Follow-up

The ministry's SAC is open around the clock, seven days a week. Upon receiving an AWQI notification, the ministry works with the local Medical Officer of Health and the system owner and operator to resolve the issue. A Ministry of the Environment drinking water inspector may be dispatched if needed. The owner and operator are required under the regulations to take immediate action to rectify an AWQI – for example, by additional sampling and/or flushing water lines. The local Medical Officer of Health may require the owner and operator to take additional corrective action and, if necessary, may issue a Boil Water Advisory (BWA) or a Drinking Water Advisory (DWA).

Chief Drinking Water Inspector

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Safety Net Immediate Notification and Corrective Action on Adverse Water Quality Incidents

Upon receiving an AWQI notification, the ministry works with the local Medical Officer of Health and the system owner to resolve the issue.



Tapping in

Difference between a Boil Water Advisory and a Drinking Water Advisory

The local Medical Officer of Health in each of Ontario's 36 public health units is responsible for issuing Boil Water Advisories (BWA) and Drinking Water Advisories (DWA) when necessary under the *Health Protection and Promotion Act*.

A BWA is issued when a condition exists with a drinking water supply that may result in a health risk and the condition can be corrected by boiling the water or by disinfection. An example is the presence of bacteria such as *E. coli* in the water supply. Consumers are advised to boil water for at least one minute or to use an alternate supply of drinking water.

A DWA is issued when a condition exists with a drinking water supply that may result in a health risk that cannot be corrected by boiling the water or by disinfection.

An example is the presence of chemical contaminants in the drinking water. In such cases, consumers are advised to use an alternate water supply.

In both cases, the Medical Officer of Health will direct the system owner to inform users of the advisory. The public health unit itself may assist with the communications effort, especially if the system serves a large population. Various methods of informing the public may be deployed, including door-to-door notification, posting notices in public places and using local newspapers and broadcasting outlets.

As of March 31, 2006, there were ongoing BWAs and/or DWAs in place for a minimum of 12 continuous months for seven municipal residential drinking water systems subject to O.Reg. 170/03.

The advisories were issued by the local Medical Officer of Health because of chronic water quality issues with the potential to affect human health. Two of these systems have since been upgraded or replaced and the remaining systems are expected to be upgraded or replaced to meet the operational requirements of the regulation. The ministry continues to work closely with local drinking water partners to protect human health.

For more information on boil water advisories see:

http://www.health.gov.on.ca/english/public/pub/watersafe/watersafe_boiled.html and for contact information for your local public health unit see: http://www.health.gov.on.ca/english/public/contact/phu/phuloc_mn.html

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Safety Net Licensing, Training and Certification

"Ultimately, the safety of drinking water is protected by effective management systems and operating practices, run by skilled and well-trained staff."

*Report of the Walkerton Inquiry,
Part Two – p. 335.*

A BWA is issued when there is:

- no disinfection, or detectable disinfection residual, in the distribution system;
- unacceptable microbiological quality in the treated water;
- epidemiological evidence that suggests drinking water is responsible for a disease outbreak;
- significant deterioration in source water quality; or
- situations where operation of the system would compromise public health.

The system owner or operator must also submit a notice of resolution to the SAC and the local health unit within seven days after the incident has been resolved. The notice summarizes the actions taken and results achieved. Ministry inspectors may do a follow-up site inspection to verify that the appropriate steps have been taken.

Through this process of immediate notification and corrective action, potential threats to the safety of Ontario's drinking water supply are addressed.

Safety Net – 4 Licensing, Training and Certification

Ontario is the first jurisdiction in North America to require that almost all health-related drinking water analysis be done by laboratories licensed to perform specific tests. The capabilities of licensed testing laboratories, drinking water systems and the people who run them are fundamental to the delivery of safe water and the protection of human health. That's why Ontario has established the most stringent requirements for operator training and certification

in North America. To further strengthen the safety net, the ministry is developing a new licensing program for municipal drinking water systems that will mandate a quality management approach in their operations.

Strong Certification and Training Requirements

Municipal residential drinking water systems and non-municipal year-round residential systems are required to have a certified operator. So are non-residential systems, both municipal and non-municipal serving designated facilities as well as those regulated under O.Reg. 252/05 which have treatment equipment that would comply with the requirements of O.Reg. 170/03. The Certification of Drinking-Water System Operators and Water Quality Analysts Regulation (O.Reg. 128/04) strengthened certification and training provisions.

The renewal of operator certificates every three years is conditional on completing a specific number of training hours annually, averaged over the three-year period. Annual training requirements range from 20 to 50 hours, depending on the complexity of the water system. The training must directly relate to the work of a water system operator and includes health-related material on emerging pathogens and new protection measures, as well as content on new technologies. Continuing education will ensure that operators steadily improve their knowledge and skills throughout their careers.

To ensure consistent capabilities across the province, entry-level operators are required to take a ministry-approved course within 16 months of securing their operator-in-training (OIT) certificate. The two-week course complements

the on-the-job training that OITs receive from their employers.

“Grandparented” Operators

“Grandparented” operators are those who received an operator’s licence through a voluntary program, based on experience, prior to the introduction of the certification program in 1993. These operators, at the time, were not required to pass an examination on the operation of drinking water systems.

With the filing of O.Reg. 128/04 in 2004, these operators were required to be recertified through examination by May 14, 2006. In 2001, there were 2,244 grandparented operator certificates. During 2005-06, the number of grandparented operator certificates decreased from 915 to 410 (representing less than 4 per cent of the total number of operator certificates). The decrease was the result of operators successfully passing their examinations or retiring. Since May 14, 2006 there have been no grandparented operators and all operators who hold a certificate have passed the required exams.

Active Certificates

As of March 31, 2006, a total of 7,444 drinking water operators were certified, holding a combined total of 11,382 active certificates. The number of certificates was up 9 per cent from the previous year. See Table 1 for details on the types of certificates issued.

Trained Persons

Small non-residential systems – both municipal and non-municipal – serving designated facilities, as well as non-municipal seasonal residential systems serving designated facilities, are not subject to the certification provisions of the regulation. These systems can be operated by a “trained person” who has completed a ministry-approved course on the operation and routine maintenance of drinking water systems within the previous 36 months. In 2005-06, 1,104 participants took the correspondence course that qualifies for this designation.

Moving Toward the Drinking Water Quality Management Standard and a Municipal Drinking Water Licence

The ministry plans to introduce an owner’s licence for municipal residential drinking water systems that incorporates

Chief Drinking Water Inspector

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Safety Net Licensing, Training and Certification

TABLE 1: Numbers of Certificates for Certified Operators Issued (as of March 31, 2006)

System Type	Numbers of Certificates Issued (cumulative to March 31, 2006)						
	OIT*	Class 1	Class 2	Class 3	Class 4	2005-06 Total	2004-05 Total
Water Treatment: system collects, produces, treats and distributes drinking water	2,539	1,075	611	353	339	4,917	4,827
Water Distribution (includes Water Distribution and Supply): system distributes water only or distributes and treats water only by disinfection	2,985	1,321	1,333	393	263	6,295	5,588
Limited Surface/Ground Water**						170	N/A***
Total Certificates						11,382	10,415

* Operator-in-training certificate

** A Limited System certificate is the minimum requirement for operating the following categories of systems: small municipal residential (groundwater), non-municipal year-round residential, large non-municipal non-residential serving a designated facility, and large municipal non-residential serving a designated facility.

***Not Applicable



Training session for drinking water inspectors.

the concepts of quality management into system operation and management. The ministry and municipal owners and operating authorities are working together in partnership to develop and implement the licensing program.

Quality Management Fundamental

Two of the five prerequisites for obtaining an owner's licence will be linked to the introduction of quality management in drinking water systems: an operational plan and an accredited operating authority.

The ministry engaged the Canadian Standards Association to develop a made-in-Ontario Drinking Water Quality Management Standard in consultation with an advisory group of municipal owners, operators and other stakeholders – including the Consumers Council of Canada and Health Canada. A draft standard was posted on the Environmental Bill of Rights Registry (EBR) in late 2005, revised to reflect feedback and then piloted in six municipalities (London and area, North Middlesex, Peterborough and Napanee in southern Ontario, and Dryden and Machin in northwestern Ontario). The final standard was posted to the EBR on October 30, 2006, and can be accessed using this web link:

<http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MjYwMjE=&statusId=MjYwMjE=&language=en>.

The standard defines roles and responsibilities, outlines management procedures and processes and includes a focus on risk assessment and management of critical control points within the drinking water system. Implementing the standard provides effective tools for municipal owners and operators to think beyond compliance and move towards continuous improvement of management processes.

Under the new licensing program, owners and operators of drinking water systems will jointly prepare and submit an operational plan to the ministry, outlining the processes and procedures in place to meet the requirements of the new standard. The operating authority will then be audited against the standard by a third-party body to obtain accreditation. The ministry plans to phase in submission dates for the operational plans and licence applications.

In late 2005, the Ontario Water Works Association was awarded government funding to design a peer support program that will enable municipalities to help each other meet the new standard, develop operational plans and prepare for licensing. Implementation of the program is pending.

Standard of Care

Given that the safety of drinking water is crucial for public health, Commissioner O'Connor recommended that those who discharge oversight responsibilities for the municipality – such as the municipal council or a committee of council – should be held to a statutory standard of care. These individuals should be

required “to act honestly and in good faith with a view to the protection of the safety of the consumer, and to exercise the care, diligence, and skill that a reasonably prudent person would exercise in comparable circumstances.”

This recommendation will be implemented by section 19 of the *Safe Drinking Water Act, 2002* (SDWA), which awaits proclamation. Commissioner O'Connor observed that having an accredited operating authority would do much to satisfy the owner's standard of care. The ministry is working with stakeholders to develop guidance materials for municipal officials on the standard of care. These practical materials will be provided to municipal officials along with appropriate training as the licensing initiative rolls out.

Laboratory Accreditation and Licensing

The requirement for laboratory licensing – contained in the SDWA – ensures that drinking water test results are reliable and credible. Licensing confirms that laboratories are using valid testing methods that fit the purpose of the SDWA and have policies and procedures in place to meet reporting and record-keeping responsibilities. As of April 1, 2006, there were 57 laboratories licensed by the ministry to offer drinking water testing services for up to five categories of analytical parameters. Table 2 shows laboratory licensing activity since the program began in October 2003.

As a condition of licensing, with very limited exceptions, the ministry requires a laboratory to be fully accredited for

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Safety Net Licensing, Training and Certification



Tapping in

Operators Find Learning Holds Key to Job Success

Clayton Barnes, a drinking water operator at the St. Regis Water Treatment Plant in Akwesasne, was named the 2004 Operator of the Year by the Aboriginal Water and Wastewater Association of Ontario.

He attributes his success to training and peer support. “To qualify at each level and to keep your certification, you must take Ministry of the Environment approved courses and pass tests,” he explained. “There is a lot of help and support. I learn a lot in the courses and from other drinking water operators. It’s a very friendly field.”

Brad Lancaster is a water distribution and supply operator for the City of Stratford. “There is no typical day in this job,” he says. “In fact, things often happen at night. If

there’s a broken water main and a blizzard, it’s still got to be fixed.”

He took Fanshawe College’s certificate program in environmental technology after high school and joined the city upon graduation about four years ago. “It’s a good fit for me,” he says. “I learn every day – from the problems that come up, from training courses and from people who’ve been in this industry for a long time. The more I learn, the more I can help keep our drinking water safe.”

David Thiffault, a crew person in water distribution and supply and wastewater collection in Peel Region, likes to learn and teach. Eager to share his knowledge as a certified water quality analyst, he helped

plan and run a group training program for 10 co-workers in 2005. The aim was to help Peel employees prepare for the Ministry of the Environment’s water distribution and supply certification exam, mandatory for people working in the water industry. Last year, the Ontario Public Works Association presented him with a Management Innovation Award to recognize his commitment to the public works sector and to his co-workers.

“The drinking water industry is growing, getting bigger all the time,” he says. “There are always going to be opportunities to grow with it if you are willing to learn and try new things.”

The main goal of an inspection is to ensure that laboratories are meeting all regulatory requirements as well as any special conditions of their licences.

TABLE 2: Cumulative Number of Laboratories Licensed per Year since October 2003

	October 1, 2003	April 1, 2004	April 1, 2005	April 1, 2006
Licensed laboratories	51	54	57	57
Class of licensure:				
Microbiological	41	41	44	46
Inorganic	28	28	31	29
Physical/other	24	28	28	27
Organic chemistry	21	21	23	20
Radioanalytical	2	3	3	3

the tests it performs. The SDWA designates two bodies to administer an accreditation program for laboratories performing drinking water tests: the Standards Council of Canada (SCC) and the Canadian Association of Environmental Analytical Laboratories (CAEAL). CAEAL performs site assessments and manages the performance evaluation program. The SCC grants laboratory accreditation upon recommendation by CAEAL. Accreditation involves a mandatory site assessment every two years coupled with random surveillance audits, promoting continuous improvement.

The director of the ministry's Laboratory Services Branch issues all Ontario licences for drinking water testing laboratories with one exception – the licence and licence amendments for the ministry's Laboratory Services Branch itself, which are issued by the Chief Drinking Water Inspector to avoid any possible conflict of interest. For the same reason, the Chief Drinking Water Inspector handles all matters affecting the branch's drinking water testing licence – including accreditation changes, performance evaluation sample results, inspection findings and complaints.

Safety Net – 5 Comprehensive Inspection Program

Ontario has one of the world's most comprehensive drinking water inspection programs, providing oversight of the operation of municipal residential drinking water systems and licensed drinking water testing laboratories. Regular inspections assure the public that drinking water systems and laboratories are fulfilling their legislated obligations for the provision of safe drinking water. The Chief Drinking Water Inspector is working with system owners and operators to achieve the goal of 100 per cent compliance by all regulated drinking water systems.

Drinking Water System Inspection Program

The ministry's drinking water system inspectors are highly trained. Rigorous technical training includes both classroom study and job-shadowing of an experienced inspector.

A detailed protocol guides inspections of drinking water systems. It addresses 130 regulatory requirements, creating a comprehensive series of checkpoints from source to tap. The inspector visits

water sources, evaluates the operation of the treatment and distribution systems, reviews water quality monitoring procedures, takes audit samples, confirms staff certification and assesses system management and operational practices. All non-compliance issues are recorded in a written inspection report.

The inspector may also discuss best management practices with operators, in addition to addressing compliance with current legal requirements. This interaction builds mutual trust and encourages continuous improvement in measures to protect the safety of drinking water.

The ministry is legally required to inspect each municipal residential drinking water system annually, with one in every three inspections unannounced. If a municipal system has been fully inspected on three consecutive occasions with no identified deficiencies, the ministry may conduct a focused inspection that examines only key elements. This approach enables the ministry to target inspection resources on higher risk areas and rewards good operational performance by municipal residential drinking water systems. It is ministry policy to conduct no more than two consecutive focused inspections on any one drinking water system.

The ministry takes the past performance of drinking water systems into account in setting the annual inspection schedule and making a decision to conduct an announced or unannounced inspection. The ministry's inspection program always gives priority to higher risk systems.

Actions to Remedy Non-compliance

When a municipal residential drinking water system is found to be out of compliance with regulatory requirements, inspectors may invoke a range of progressively tougher actions. The options include:

- promoting compliance and giving advice for minor violations that do not affect human health;
- issuing a provincial officer order formally requiring corrective action and setting timelines; and
- referring the matter to the ministry's Investigations and Enforcement Branch.

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Safety Net Comprehensive Inspection Program

A detailed protocol guides inspections of drinking water systems. It addresses 130 regulatory requirements, creating a comprehensive series of checkpoints from source to tap.



Members of Ontario's drinking water inspection team.

Chief Drinking Water Inspector

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Safety Net Comprehensive Inspection Program

Inspections are guided by a specialized protocol that targets three distinct areas: health-related regulatory compliance, administrative regulatory compliance and best practices.

Preventative Orders

Inspectors also have the power to issue preventative orders. Preventative orders do not require regulatory non-compliance but are issued to systems to take steps to prevent a possible violation from occurring in the future. These orders can cover a wide range of issues. For example, the system owner or operator could be directed to:

- disconnect or repair anything connected to the system;
- secure lands or places through fences or other means;
- engage contractors to perform required work;
- treat water even though this is not required by regulation; or
- perform additional sampling for a parameter not required by O.Reg. 170/03 where that substance is present.

The ministry follows up on all orders to ensure compliance.

Licensed Laboratory Inspection Program

The ministry is legally required to inspect licensed water testing laboratories at least twice a year. Inspections of laboratories focus on regulatory requirements and critical laboratory management best practices included as conditions of a laboratory's licence.

Inspections are guided by a specialized protocol that targets three distinct areas: health-related regulatory compliance, administrative regulatory compliance and best practices. Each inspection is tailored to the specific tests the laboratory performs.

If non-compliance on a health-related item is found, the inspector immediately documents the occurrence so the ministry can contact the owner of the drinking water system and the local



Tapping in

Compliance Program for Non-Municipal Year-Round Residential Systems and Systems Serving Designated Facilities

Non-municipal year-round residential drinking water systems and systems serving designated facilities are inspected in response to adverse water quality incidents (AWQIs), complaints or public health referrals.

For example, due to the potential health risk, the ministry initiates a priority site visit for AWQIs involving *E. coli*. The ministry also conducts follow-up inspections in certain circumstances, such as the failure of resampling or corrective action to resolve an adverse drinking water event.

The ministry is committed to ensuring full regulatory compliance across the board. In 2005-06 a pilot, proactive inspection program was imple-

mented for non-municipal drinking water systems and those serving designated facilities regulated by O.Reg. 170/03.

The ministry conducted proactive inspections of systems supplying operations like mobile home parks, apartment complexes, children's camps, schools, group homes and nursing homes. Sites were selected for inspection based on an assessment of potential health risk. The experience from the pilot initiative has been used to develop a compliance strategy for the non-municipal sector that is currently being implemented. (See **Looking Ahead** for more information.)



Tapping in

Stratford Drinking Water Advisory Prompts Backflow Prevention Initiative

In March 2005, a Drinking Water Advisory was issued to the residents of the Town of Stratford after a red, foamy substance was discovered in the drinking water system. A ministry inspection confirmed that the cause of the problem was the failure of a backflow prevention device at a car wash.

This incident led the Ministry of the Environment, in collaboration with the Ministry of Municipal Affairs and Housing, to convene a cross-connection control and backflow prevention working group. The Ontario Water Works Association, the Ontario Municipal Waterworks Association, the Ontario

Plumbing Inspectors Association and other stakeholders agreed to participate.

The working group convened shortly after the Stratford event and held a number of meetings. It has reviewed the existing roles and responsibilities of regulatory authorities, drinking water system owners, operators and water users with respect to backflow prevention. It also undertook a scan of best practices in other jurisdictions. The group's advice will help the two ministries develop recommendations to the government that could range from stepped-up outreach and education efforts to new regulatory requirements.

Medical Officer of Health. An order may be issued to bring the laboratory into compliance quickly. Where issues are not health-related, the inspection report indicates the steps the laboratory must take and when. If practices or procedures are unacceptable, the inspector recommends changes to be made by the next inspection.

Safety Net – 6 Investigation and Enforcement

In Ontario, those who put safe drinking water at risk are held accountable for their actions.

The ministry's Investigations and Enforcement Branch (IEB) is responsible for investigating alleged violations of Ontario's environmental protection laws, including the *Safe Drinking Water Act, 2002*. The purpose of an investigation is to gather evidence that may be used to prosecute individuals or corporations

through the courts. Investigations are conducted in a fair and unbiased manner.

The Steps from Investigation to Prosecution

Drinking water investigations usually begin when an inspector or other ministry staff files an incident report and refers an alleged drinking water violation to the IEB. The IEB reviews the report and starts an investigation if warranted. An investigation involves interviewing witnesses and taking statements. In some cases the IEB may obtain cautioned statements from individuals who may be charged, as well as search warrants or other judicial authorizations.

At the conclusion of an investigation, the investigator decides whether charges may be warranted based upon the evidence collected. If the investigator recommends charges, the evidence is

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Safety Net Investigation and Enforcement

*The ministry's
Investigations and
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(IEB) is responsible for
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protection laws,
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Drinking Water Act,
2002.*


Tapping in

Public Can Trigger Drinking Water Investigation

As of June 1, 2005, members of the public can request an investigation of an alleged contravention of the *Safe Drinking Water Act, 2002* or any of its regulations or instruments (e.g. a Certificate of Approval) by any person or entity. This public enforcement right is established by the Compliance and Enforcement Regulation (O.Reg. 242/05). The ministry is required to give reasons if it concludes an investigation is not warranted.

In its *Waterproof 2* report, the Sierra Legal Defence Fund commented that, with regard to public accountability, "Ontario has again set itself apart with the provision of a legal right to request a drinking water investigation." (p. 29)

Under the regulation, the Chief Drinking Water Inspector's Annual Report is to include a summary of the receipt, handling and disposition of applications under this provision. No applications for an investigation were received from the public during 2005-06.

reviewed by Crown counsel. Before making a decision on whether to initiate a prosecution, Crown counsel determines if there is a reasonable prospect of conviction, and if the prosecution is in the public interest.

Drinking Water Convictions

In 2005-06, a total of 33 convictions of drinking water systems regulated under O.Reg. 170/03 and 2 convictions of licensed laboratories resulted in fines totaling \$296,400. More data on convictions and fines appears in Table 3.

Municipal Residential Drinking Water Systems

In the municipal sector, 21 convictions involved a total of 25 municipal residential drinking water systems. This includes two convictions against individual operators. These prosecutions resulted in fines of \$190,000 against system owners and \$11,000 against the two individual operators.

Appendix 4A provides a list of the municipal residential drinking water systems and their owners that were

TABLE 3: Summary of 2005-06 Convictions for Drinking Water Prosecutions by Facility Type and Summary of 2004-05 Convictions*

Type of Facility	2005-06 Total Convictions	Number of Systems/Laboratories	2005-06 Fines	2004-05 Total Convictions	2004-05 Fines
Municipal residential drinking water system**	21	25	\$201,000	14	\$100,504
Non-municipal year-round residential drinking water system	6	6	\$15,200		
Drinking water system serving designated facilities	6	7	\$53,700		
Licensed laboratory	2	2	\$26,500	3	\$30,000
Total	35	40	\$296,400	17	\$130,504

* Does not include drinking water systems regulated under O.Reg. 252/05 that are transferring to the Ministry of Health and Long-Term Care

** Includes two convictions against individual operators with fines totaling \$11,000.

convicted between April 1, 2005 and March 31, 2006 for offences committed during or before this period.

Non-Municipal Year-Round Residential Systems and Systems Serving Designated Facilities

Conviction data for non-municipal year-round residential systems and systems serving designated facilities have been added to the Chief Drinking Water Inspector's Annual Report this year. In 2005-06, a total of 12 convictions were secured against owners and operators of non-municipal year-round residential

systems and systems serving designated facilities, with fines totaling \$68,900.

Six cases involved non-municipal year-round residential systems and six cases involved seven different systems serving designated facilities.

Licensed Laboratories

Two prosecutions against drinking water testing laboratories resulted in convictions, with fines totaling \$26,500. Details on laboratory convictions from April 1, 2005 to March 31, 2006 also appear in Appendix 4B.

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Safety Net Investigation and Enforcement

Conviction data for non-municipal year-round residential systems and systems serving designated facilities have been added to the Chief Drinking Water Inspector's Annual Report this year.



Operator examines the supervisory control data acquisition system (SCADA) screen.

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**Safety Net
Integrated Data
Acquisition and
Information Management**

"...because of the importance of the safety of drinking water to the public at large, the public should be granted external access to information and data about the operation and oversight of the drinking water system."

Part Two – Report of the Walkerton Inquiry, p. 469.



Tapping in

Improving Registration Procedures for Drinking Water Systems

Over the past three years, the ministry's drinking water registration and compliance team has steadily improved its processes and procedures, leading to marked advances in client service. The team has aligned registration requirements with ministry business needs and developed clear, concise registration forms and guidance materials. These changes have helped increase the convenience, accuracy and completeness of registration submissions by water system owners or operators.

A designated e-mail address and a toll-free helpline enable clients to easily obtain assistance from the team when needed.

Processes have also been put in place so inspectors in the field can obtain a fast-track, emergency registration of a system. The registration information is electronically supplied to the Laboratory and Waterworks Inspection System (LWIS), enabling inspectors to issue inspection reports, incident reports and orders without delay.

**Safety Net – 7
Integrated Data Acquisition
and Information Management**

All components of the drinking water safety net are counting on improved access to better-organized information. It is information that enables the ministry and stakeholders to identify health risks, assess compliance, track progress and measure results.

The Ministry of the Environment is implementing an integrated, long-term strategy to make drinking water data accessible to the public and internal staff, as appropriate. This strategy is designed to deliver better information, more information sharing and closer links with ministry partners. Enhanced information resources will contribute to safer water and stronger health protection.

The ministry collects drinking water data in two main databases: the Drinking Water Information System (DWIS) and the Laboratory and Waterworks Inspection System (LWIS). The information in the next two parts of

this annual report – on **Water Quality** and the **Ministry Inspection Program** – is derived from these two databases.

Drinking Water Information System (DWIS)

DWIS maintains profiles of drinking water system owners and operators, and each system's test results. It stores basic information supplied electronically by drinking water systems when they register with the ministry, as well as test results uploaded by licensed laboratories that test drinking water samples. DWIS also electronically captures adverse water quality incident reports and other required submissions. The ministry's drinking water inspectors have access to this data when conducting annual inspections of drinking water systems. DWIS is also used to support compliance and enforcement activities.

In 2005-06, the ministry updated DWIS to prepare for the June 2006 amendments to O.Reg. 170/03 and made operational changes to address issues raised by licensed laboratories. Due to more sophisticated procedures, the ministry

now uses DWIS more effectively to check for compliance with regulatory requirements and flag issues needing attention.

Laboratory and Waterworks Inspection System (LWIS)

LWIS enables inspectors and supervisors to plan, track, document, archive, report and query inspection activities at drinking water facilities and licensed laboratories. The system logs the details on inspections performed and generates inspection reports to document the status of compliance and give feedback to system owners and operators. LWIS stores a record of previous findings that is readily accessible to inspectors when they conduct subsequent inspections or undertake compliance activities.

LWIS is continually upgraded to improve functionality and meet user needs. Enhancements in 2005-06 include:

- the capability to issue provincial officer orders and director's orders;
- an interface with DWIS to give inspectors and supervisors access

to the latest water system registration information through LWIS; and

- the ability to monitor, track and report all ministry responses to adverse water quality incidents.

LWIS has the capacity to track the ministry's adherence to the Compliance and Enforcement Regulation, as inspectors enter data about the steps taken during the inspection process and their timing.

Safety Net – 8 Education and Outreach

Well-informed consumers and knowledgeable stakeholders reinforce drinking water protection. Public reporting is a key aspect of the safety net because access to information enables consumers to see for themselves that Ontario's drinking water is safe. For the drinking water sector, awareness and understanding are the first steps toward compliance with regulatory requirements and partnership with the ministry to ensure safe water.

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Safety Net Education and Outreach

In 2005-06, work proceeded on the new Drinking Water Ontario portal that was launched in spring 2007.



Providing Education and Outreach

Chief Drinking Water Inspector

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**Safety Net
Education and Outreach**

The ministry produces information tools such as guides and fact sheets that explain rules and regulations to owners and operators of drinking water systems and also help to keep the public informed.

Tapping in

Walkerton Clean Water Centre Starts Up

The vision of the Walkerton Clean Water Centre (WCWC) is to create a world-class institute dedicated to safe and secure drinking water for the people of Ontario. It is committed to ensuring that owners, operators and operating authorities of drinking water systems in small, rural and remote communities have access to the training they need.

In December 2005, the WCWC began managing the delivery of two mandatory, ministry-approved courses: the Entry-Level Drinking Water Operator course for operators-in-training, and the Preventing Waterborne Illnesses course, which drinking water operators are required to take every three years to renew their certificates. Both courses are offered in various locations around the province.

The WCWC also administers the Operation of Small Drinking Water Systems correspondence course for non-municipal operators. The WCWC makes training opportunities available to First Nations operators on a cost-recovery basis.

In June 2006, the WCWC significantly boosted its training resources by opening a technology demonstration site in Walkerton. Some 15 companies donated more than \$400,000 in state-of-the-art water treatment equipment to make the new facility possible. The site will enable operators to practice trouble-shooting in a learning environment by starting up and shutting down equipment, responding to adverse water quality incidents and making other adjustments.

The ministry reaches out to the public and stakeholders to inform and educate them about the link between safe drinking water and human health and about the measures in place to protect drinking water supplies. Municipal residential drinking water systems also have a responsibility to make information about their operations publicly accessible, so consumers can feel confident that their health is safe when they drink water.

Drinking Water Ontario Portal

In 2005-06, work proceeded on the new Drinking Water Ontario portal that was launched in the spring of 2007. Accessible through the ministry's website, the portal is an online gateway providing one-window access to an array of drinking water information.

What's more, portal technology allows users to customize the information they receive, so the right information gets to

the right people. For example, consumers can choose to view water quality data, while the regulated community might focus on compliance issues. The bottom line: all users can access the level of information that meets their needs.

An innovative feature on the portal is a drinking water quality map that enables consumers to find information about drinking water systems in their locality with the click of a mouse. There are also links to drinking water quality reports for each system, where available online. As well, the Chief Drinking Water Inspector's Annual Reports for 2004-05 and 2005-06 are accessible through the portal. Drinking Water Ontario puts new web-based technologies and support processes in place, creating a foundation for expanded information content to meet public and stakeholder expectations in later phases.

Outreach Promotes Compliance

The ministry produces information tools such as guides and fact sheets that explain rules and regulations to owners and operators of drinking water systems and also help to keep the public informed. Inspectors and the regulated community receive these background materials to promote a common understanding across the province.

Stakeholders can obtain periodic e-mails about drinking water updates on the ministry website if they enroll through: *drinking.water@ontario.ca*.

In 2005-06, non-residential and non-municipal seasonal residential systems became subject to O.Reg. 252/05 instead

of O.Reg. 170/03. It was a priority to inform the affected systems of the changes in requirements through an advertising campaign, seminars and information materials.

The ministry collaborated with the Walkerton Clean Water Centre to hold a series of regional information sessions for small drinking water systems as part of an outreach campaign on the June 2006 amendments to O.Reg. 170/03. In the past, owners and operators of non-municipal systems have been hard to reach. The regional sessions were designed to meet this challenge and succeeded in attracting more than 500 participants.

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Municipal System Profiles

LePage Subdivision Well Supply System

The LePage Subdivision in the Town of Penetanguishene is located near the shores of Penetanguishene Bay. Its approximately 62 residents are served by a well supply system owned and operated by the town.

The water comes from two deep-drilled groundwater wells. A treatment plant provides disinfection using chlorine. Construction of the wells, plant and distribution system was approved in 1979.

A supervisory control and data acquisition system (SCADA) records the daily chlorine residual in the distribution system, as well as the chlorine residual

in treated drinking water as it leaves the plant.

The system design features a looping system where the water re-enters the pump house at the "end" of the distribution system. This enables the SCADA system to record the daily chlorine residual from the "end" of the distribution system within the pump house.

Consumer water usage is fully metered and monitored through a remote meter-reading system.

As a result, the operator can perform water audits and leak detection surveys on an hourly basis should water trends dictate.

Building Partnerships with the Drinking Water Community

The Chief Drinking Water Inspector actively engages the drinking water community through numerous conferences, events and meetings to build partnerships and discuss ways of working together to keep water safe. Major speaking engagements in 2006 included:

- Ontario Water Works Association/Ontario Municipal Water Works Association Joint Annual Conference & Trade Show;

- the Canadian Conference on the Public's Health and the Law;
- the Ontario Environmental Network: W is for Water; and
- the Annual Ontario First Nations Technical Services Corporation Technical Conference & Trade Show.



Fact sheets, produced by the Education and Outreach Branch of the Ministry of the Environment, to inform the regulated community of their responsibilities under regulations.



Tapping in

Summer Campers Have Fun Learning About Water

It's never too early to start learning about safe drinking water.

A team from the ministry's Education and Outreach Branch was the main attraction on a sweltering July day at the Pickering Village United Church summer day camp. It was the first day of the week-long camp for kids between the ages of four and 14, and the theme was water. The 75 campers were split up into three groups based on age, and the groups were rotated through three water stations.

The first presentation was about water conservation and involved the story of an Ontario boy, Ryan Hreljac, who received the Order of Ontario in 2003. He has been raising funds for clean water related projects in developing countries since the age of six.

At the next water station, the campers saw a demonstration of the filtration process, using readily available and identifiable items like sand and gravel. The kids were even able to build their own filters with these items and anthracite. The campers liked the stickers handed out for being "smooth operators".

A third presentation was on wells, using new aquifer models recently purchased by the branch. Using a dye colour selected by the kids, the models showed how a well can be contaminated and how that can spread to ground and surface water.

The goal behind this fun-filled learning experience was to instill in the children the idea that they can make a difference in helping our environment. If the kids' enthusiasm is any indication, it worked.

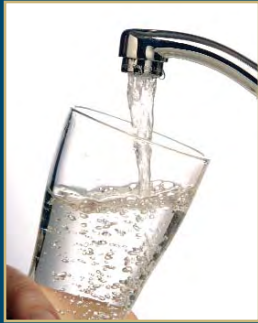
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At these and other events the Chief Drinking Water Inspector stressed that working collaboratively with stakeholders continues to be critical to the ministry's progress in advancing the safe drinking water agenda. He underlined that listening to stakeholders has helped the ministry build a strong yet flexible approach that is responsive to the needs of various types of owners and operators.

Ministry staff also take part in conferences, trade shows, local meetings and other stakeholder activities to discuss and receive feedback on regulatory issues. An ongoing dialogue helps the ministry and stakeholders work in partnership to achieve the shared goal of safe drinking water.

The Chief Drinking Water Inspector's Annual Reports are valuable outreach tools, offering a province-wide perspective on the status of Ontario's drinking water. They are one way of informing system owners and operators of their operational performance and they give consumers access to the information needed to have confidence in the water they drink.



Ontario's drinking water remains both safe and of a very high quality. Consumers can feel confident about the water that comes from their taps.

A lab technician performing drinking water tests.

2005-06 Water Quality

Ontario's drinking water remains both safe and of a very high quality. Consumers can feel confident about the water that comes from their taps. The drinking water safety net is working – and provisions are in place to help safeguard the health of Ontarians from waterborne hazards.

This part of the annual report provides data to support these statements. It reviews the state of certain types of Ontario drinking water systems and provides water quality results. With this information, consumers can reach their own conclusions about the safety of the water they drink.

The presence of *E. coli* bacteria in drinking water is a key indicator of human health risk. In 2005-06, the number of adverse *E. coli* test results reported for municipal residential drinking water systems decreased compared with the previous year. Corrective action was immediately taken in all cases, and upon resampling all but one of the drinking water systems involved were clear of *E. coli*. In this remaining case, further corrective steps were immediately taken and the issue was resolved through actions taken by the ministry inspector, the local Medical Officer of Health and the system owner and operator. The safety net and its interwoven components – including timely, reliable testing and immediate corrective action in the event of an adverse result – are succeeding in protecting the health of Ontarians.

The following sections contain information on the quality of drinking water delivered in 2005-06 by municipal resi-

dential systems, which serve more than 80 per cent of Ontario's population. This part also presents data on the quality of water provided by non-municipal year-round residential systems, and by systems serving designated facilities (e.g. those facilities that serve populations who may be susceptible to drinking water of poor quality). All these drinking water systems are covered by the Drinking-Water Systems Regulation (O.Reg. 170/03).

Drinking Water Standards

Drinking water systems conduct regular sampling and testing of their treated water to ensure it meets provincial standards. To guarantee reliability, most health-related standards testing is performed by licensed laboratories. The licensed laboratories submit all test results to the ministry's Drinking Water Information System database.

Laboratory tests determine if levels of specific contaminants exceed the concentration limits allowed by provincial standards. Exceedances are reported immediately and a follow-up response or corrective action is quickly put in place. Full details are provided earlier in this report in the sections on **Timely, Reliable Testing** and **Immediate Notification and Corrective Action on Adverse Water Quality Incidents in Ontario's Drinking Water Safety Net**.

The standards for drinking water quality in Ontario are prescribed in the Ontario Drinking-Water Quality Standards Regulation (ODWQS) – O.Reg. 169/03.

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Drinking Water Standards

The following sections contain information on the quality of drinking water delivered during 2005-06 by municipal residential systems, which serve more than 80 per cent of Ontario's population.

**Chief Drinking Water
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Drinking Water Standards

It establishes health-based standards for 161 microbiological, chemical and radiological parameters.

Ontario's standards are derived from the Canadian Drinking Water Guidelines developed by the Federal-Provincial-Territorial Committee on Drinking Water. The guidelines are created through a risk-based process that combines evaluation of scientific data with risk management principles. Health Canada conducts human health risk assessments on each of the parameters.

The Ontario government gives the health-based guidelines the force of law by adopting them as regulations. This is done after consultation occurs on the proposed regulatory amendment through the Environmental Bill of Rights Environmental Registry (EBR). Non-health related guidelines may be adopted as aesthetic objectives or operational guidelines, also after consultation on the EBR.

Microbiological Parameters

The Drinking-Water Systems Regulation (O.Reg. 170/03) requires the testing of drinking water samples for microbiological parameters and prescribes the type and frequency of samples to be taken. Distribution samples and raw water samples must be collected for all categories of systems. For large municipal residential systems, treated water samples must also be taken at the point water enters the distribution system.

In 2005-06, the year when the tests reported in this part were conducted, testing was required for total coliforms and for *E. coli* or fecal coliforms. Testing was also required for general bacteria populations expressed as colony counts on a heterotrophic plate count (HPC).

Testing Requirements Changed

Standards for fecal coliform and general bacteria populations were removed by regulatory amendments in June 2006.

E. coli is recognized as a more definitive indicator of fecal contamination and human health risk than is fecal coliform. It is generally accepted that the HPC in isolation should not be used for public health decision-making. While heterotrophic bacteria may grow and persist in distribution systems, their presence in itself does not indicate health risk.

HPC has been retained as a testing parameter for O.Reg. 170/03 systems requiring secondary disinfection, though reporting of adverse results and corrective action are no longer mandatory.

A sudden or unexpected increase in HPC may be an early signal of deteriorating water quality or an operational deficiency.

Stringent Microbial Standards

As bacterial contamination may result in immediate health hazards, Ontario's requirements are stringent. For example, *E. coli* and total coliform must be "non-detectable" in a sample volume of 100 millilitres.

Though only a small subset of microbiological organisms are capable of causing illness, any level of detection triggers corrective action. The presence of coliforms does not necessarily indicate an immediate health hazard, but rather signals that the effectiveness of treatment, specifically the disinfection process, has been compromised. The drinking water operator must report the adverse result, resample and take corrective action and resample. Detection of *E. coli* indicates fecal contamination of water and may also indicate that more harmful strains of *E. coli* (and other

pathogens) are present. Immediate action is necessary because certain *E. coli* strains have the potential to cause serious and even fatal illness, especially in vulnerable populations such as children, the elderly and those with weakened immune systems.

Chemical Parameters

O.Reg. 170/03 also prescribes the testing of drinking water samples for chemical parameters. The testing requirements in the regulation encompass the health-related chemical parameters in the ODWQS. In some cases, sampling and testing for additional parameters and concentration limits are also specified in approvals, orders and other instruments issued by the Ministry of the Environment.

Drinking water quality standards for chemical parameters are set at levels where no adverse effect is observed, with an additional margin of safety applied. Table 4 contains a list of chemicals that are found in some treated water, and their standards.

The frequency and type of testing required varies with such factors as system category, the size of the population served and the water source.

Aesthetic Parameters

Aesthetic parameters may impair the taste, smell or colour of water or interfere with the disinfection process. The ministry has established operational guidelines for aesthetic parameters to ensure efficient treatment and distribution of water. Aesthetic objectives include pH, colour and turbidity. The objectives also cover chemicals such as sodium, iron and manganese.

In general, exceedances of aesthetic objectives do not directly affect the safety of a water supply or pose an immediate health hazard. They can, however, make the water unpalatable and result in consumer complaints. It should be noted that some substances that may be toxic can be adequately addressed as aesthetic objectives if their presence can be detected by odour or taste at concentrations well below the toxicity thresholds.

The aesthetic objective for sodium is 200 mg/L. However, the local Medical Officer of Health must be notified when the sodium concentration in the distribution system exceeds 20 mg/L, so that physicians can be advised to inform patients on sodium-restricted diets.

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Drinking Water Standards

Drinking water quality standards for chemical parameters are set at levels where no adverse effect is observed, with an additional margin of safety applied.

Municipal System Profiles

Munster Hamlet Well Supply System

The Hamlet of Munster is a rural residential community consisting of approximately 440 homes, located in the southwest extremity of the City of Ottawa (in the former Township of Goulbourn).

The city treats and distributes water to approximately 1,350 residential consumers, a public school, a community centre, a church and five commercial enterprises within the hamlet.

Munster is supplied by groundwater from two drilled bedrock wells located along its south-east limit. A consulting firm provided a hydro-geologic assessment of the two wells in June 2002, concluding that they were not susceptible to the direct influence of surface water.

The treatment facility achieves disinfection through chlorination. The disinfected water is transferred to an above-ground storage

reservoir that provides adequate contact time. Three high lift pumps convey water from the reservoir to the distribution system.

The Munster well supply system is designed for automatic operation, with various functions and alarms monitored through a supervisory control data acquisition system (SCADA) instrumentation at the city's Britannia Water Purification Plant.

Table 4: Examples of Health-Related Chemical Drinking Water Quality Standards

Chemical	Standard as per O.Reg. 169/03	
Antimony	0.006 mg/L based on short-term exposure	Rarely detected from natural sources in water. Short-term exposures to high levels can lead to increased blood cholesterol and decreased blood glucose, as well as nausea, vomiting and diarrhea.
Arsenic	0.025 mg/L based on a lifetime of exposure	A known carcinogen that can pose a potential health risk if the level in the water supply exceeds the standard. Most recorded exceedances are one-time events. Can be found naturally in both ground and surface water.
Barium	1.0 mg/L	Commonly found in hard water but seldom at levels above the standard. Small exceedances are not expected to cause human health impacts. Levels higher than 10 mg/L have been linked with high blood pressure.
Benzo[a]pyrene	0.00001 mg/L based on a lifetime of exposure	Formed during the incomplete burning of natural compounds that contain carbon. One-time exceedances are not uncommon and are not expected to threaten human health.
Bromate	0.010 mg/L	May be formed during the disinfection of drinking water using ozone or a combination of ozone and hydrogen peroxide. Intrusion of road salt into surface water sources may also result in the presence of bromate in drinking water. Short-term exceedances at low levels are not likely to lead to adverse health impacts.
Chromium	0.05 mg/L	An essential mineral that is not made by the body and must be obtained from the diet. One form – hexavalent chromium – is toxic at levels exceeding 25 mg/L. It is most commonly produced by industrial processes. Short-term, low level exceedances of hexavalent chromium are not expected to cause human health impacts.
Fluoride	1.5 mg/L	Some areas in Ontario have naturally occurring high levels in drinking water. Where levels exceed 2.4 mg/L, the Ministry of Health and Long-Term Care recommends that the local Medical Officer of Health raise public and professional awareness to control excessive exposure from other sources. May be added to drinking water supplies to control tooth decay, with a recommended level of 0.5 – 0.8 mg/L.
Lead	0.01 mg/L based on a life-time exposure	Typically enters drinking water from corrosion of pipes in older homes or the corrosion of solder in plumbing. All reported exceedances have been short-term. Ingestion should be avoided, particularly by pregnant women and young children, who are most susceptible.
Nitrates: Nitrates, Nitrogen (Nitrate + Nitrite)	Based on a lifetime of exposure: 10 mg/L for nitrate (as nitrogen) 1 mg/L for nitrite (as nitrogen) 10 mg/L nitrate+nitrite (as nitrogen)	Can be present in source water as a result of decaying plant and animal material, contamination by agricultural fertilizers, sewage and naturally occurring soluble nitrogen compounds. Short-term exceedances are not uncommon. In areas where nitrate levels are above the standard, the public is informed of the potential dangers of giving the water to infants.
N-Nitrosodimethylamine (NDMA)	0.000009 mg/L	A by-product when chloramination is used for the disinfection of water. Short-term exceedances are not expected to cause human health impacts.
Selenium	0.01 mg/L	Presence in drinking water can almost always be attributed to natural background. Generally accepted as a required trace element for humans and animals. Short-term exceedances are not expected to cause human health impacts.
Trihalomethanes (THMs)	0.100 mg/L as a running annual average of quarterly samples	By-products of drinking water disinfection through chlorination. Drinking water systems that consistently exceed the standards are required to take corrective action to reduce THM formation. Short-term exceedances of THMs are not expected to result in human health risk.
Uranium	0.020 mg/L	Normally present at low levels in rock, soil and water. Short-term exceedances are not considered to result in human health risks.

Municipal Residential Drinking Water Systems: 2005-06 Results

Municipal residential drinking water systems supply the homes of more than 80 per cent of Ontarians. Others obtain drinking water from either non-municipal year-round residential systems, seasonal residential systems or small private systems serving five homes or fewer (such as private wells).

Under the *Safe Drinking Water Act, 2002*, a municipal drinking water system is a system that is owned by a municipality, a municipal corporation or a municipal service board and obtains or will obtain water under the terms of a contract between the municipality and the owner of the system. In order to be a municipal residential system (large or small categories under O.Reg. 170/03) the system must serve a major residential development – six or more private

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Municipal Residential Drinking Water Systems: 2005-06 Results



Tapping in

Water Treatment Critical to Human Health

Drinking water systems use treatment processes to reduce or eliminate the potential presence of pathogens – organisms that can cause illness – in drinking water. Treatment processes include:

Filtration: removes particles from raw water that may hide or protect pathogens, such as viruses, bacteria and protozoa, and helps ensure that effective primary disinfection can be carried out. Commonly used types of filtration processes include:

- conventional filtration – consisting of chemical coagulation, flocculation and sedimentation followed by rapid sand filtration;
- direct filtration – similar to conventional filtration but without a sedimentation step;
- slow sand filtration – biological flocculation and adsorption on a biological film in the upper layer of the sand filter without chemical addition;
- membrane filtration – where semi-permeable membranes let water through while catching even sub-micron size suspended solids (a filtration alternative increasingly used to remove major pathogens, including protozoa – such as *Giardia lamblia* cysts and *Cryptosporidium* oocysts – bacteria and even some viruses); and
- cartridge and bag filtration – where a micron size mesh of the cartridge or bag strains out larger particles, including protozoa cysts and oocysts (popular as the required filtration step ahead of ultraviolet disinfection in systems using

Groundwater Under Direct Influence of surface water or GUDI).

Primary disinfection: inactivates pathogens before the water is delivered to the distribution system. Effective disinfection is commonly accomplished by chemical means such as chlorination. Ultraviolet (UV) light technology may be chosen as an alternative to chlorine because it does not produce harmful by-products that may have to be removed from the water, and it eliminates the need for storage and handling of chemicals and construction of chlorine contact facilities. Another effective but more complex disinfection option is the use of ozone, which is generated on-site by an electrical discharge through dry air or pure oxygen.

Secondary disinfection: ensures maintenance of a chlorine residual in the distribution system to protect the drinking water from microbial recontamination or bacterial growth.

O.Reg. 170/03 establishes specific requirements for the minimum levels of treatment that must be provided. It identifies the types and capabilities of treatment processes and equipment that can be used to achieve the stringent results required when drinking water is being provided to the public.

Different water sources necessitate different levels of treatment. The requirements for drinking water systems using groundwater as a source are different from those using surface water or GUDI.

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Municipal Residential Drinking Water Systems: 2005-06 Results

During 2005-06, a total of 752,727 chemical, microbiological and radiological tests were conducted on water from municipal residential drinking water systems and the results were entered into the ministry's Drinking Water Information System (DWIS).



Tapping in

Key Findings

- Municipal residential drinking water systems reported more than 752,000 water quality test results
- 99.84 per cent of water quality tests met provincial standards
- Of these:
 - 99.85 per cent of microbiological tests met provincial standards
 - 99.61 per cent of chemical tests met provincial standards
- 30 water quality test results were positive for *E. coli*. Upon resampling, 29 of the resamples were clear and the remaining case was resolved by further corrective action.

residences on one or more properties. Small municipal residential systems serve a major residential development and fewer than 101 private residences, while large municipal residential systems serve more than 100 private residences.

2005-06 Water Quality Summary

Ontario's municipal residential systems are delivering high-quality drinking water. During 2005-06, a total of 752,727 chemical, microbiological and radiological tests were conducted on water from municipal residential drinking water systems and the results were entered into the ministry's Drinking Water Information System (DWIS). Approximately 100,000 fewer tests were reported than in 2004-05 because some parameters are not required to be tested every year.*

All 706 municipal residential drinking water systems in Ontario were inspected in 2005-06. Seven hundred and nineteen municipal residential drinking water

systems submitted water quality results at some point during the year. Some systems were decommissioned or changed categories during the year, accounting for the slight difference between the number of systems inspected and the number submitting data.

Overall, 99.84 per cent of the water quality tests met the provincial standards. Conversely, 0.16 per cent of the water quality tests exceeded the levels permitted by the provincial standards.

An exceedance of standards is an adverse water quality incident (AWQI). It triggers a process of immediate notification and immediate corrective action. Over the longer term, ministry staff discuss ways to prevent AWQIs with system owners or operators during inspections and other meetings. For example, suggestions for improving treatment processes or operator training could be offered. As a matter of practice, the ministry ensures that the local Medical Officer of Health (MOH) is aware of any health-related information about the drinking water system. The ministry then works with the MOH and the system owner and operator to resolve the situation.

Water Quality Assessed by System

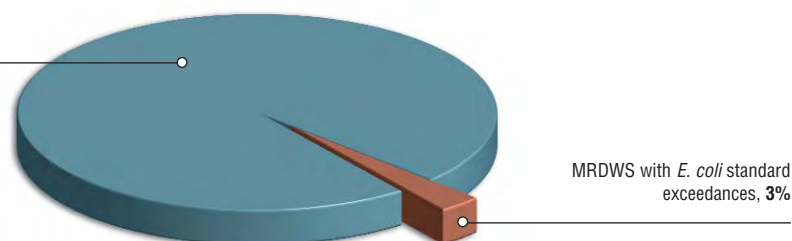
The ministry has assessed the water quality results for the 719 municipal systems that submitted data. These water quality assessments are expressed as the percentage of tests meeting provincial standards.

Table 5 presents a summary of test results from municipal residential drinking water systems, broken down by the parameters tested. The water quality at individual municipal residential drinking water systems may be

* Under O.Reg. 170/03, for small municipal residential systems testing of inorganic and organic health-related parameters in Schedules 23 and 24 is mandatory once every 60 months. For large municipal residential systems, it is once every 36 months for groundwater systems and every 12 months for surface water systems. This varying testing frequency accounts for variations in the number of tests from year to year.

Chart 1: Number of Municipal Residential Drinking Water Systems with *E. coli* Standard Exceedances in 2005-06

MRDWS that did not exceed *E. coli* standards, 97%



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Municipal Residential Drinking Water Systems: 2005-06 Results

found in Appendix 2. The reported number represents a percentage of all the drinking water quality test results done by the listed municipality that met the Ontario Drinking Water Quality Standards. It includes test results of health-related standard parameters only; operational testing data (i.e. chlorine and turbidity) are not included in final water quality results.

Microbiological Parameters

E. coli was detected in 30 samples in the total of 232,575 samples tested for this parameter. Twenty-three systems reported *E. coli* exceedances (3 per cent) and 5 of these systems reported

multiple *E. coli* exceedances. Corrective action was taken immediately in all cases. When resampling was done, 29 of the 30 resamples were clear of *E. coli*. Further action was taken in the other case. The effective response to *E. coli* exceedances demonstrates that the safety net is working. (See Chart 1)

In 2005-06, the results of 99.85 per cent of microbiological water quality tests met provincial standards. Microbiological parameters accounted for 85 per cent of tests where levels exceeded the permitted concentrations (1,054 of 1,241 samples with exceedances).

TABLE 5: Summary of Drinking Water Test Results for All Municipal Residential Drinking Water Systems (MRDWS) from April 1, 2005 to March 31, 2006 and Overall 2004-05 Drinking Water Test Results for MRDWS

Period	April 01, 2005 to March 31, 2006					2004-05
Parameter Name	# of Results	# of Exceedances	# of Drinking Water Systems with Exceedances	% Exceedance	% Meeting Standards	2004-2005 % Meeting Standards
MICROBIOLOGICAL						
<i>E. Coli</i>	232,575	30	23	0.01	99.99	99.97
Fecal Coliform	6,463	2	2	0.03	99.97	99.86
Total Coliform	237,959	675	251	0.28	99.72	99.67
Other Micro*	227,604	347	158	0.15	99.85	99.71
MICROBIOLOGICAL TOTAL	704,601	1,054	320	0.15	99.85	99.78
CHEMICAL	48,118	187	66	0.39	99.61	99.41
RADIOLOGICAL	8	0	0	0.00	100.00	95.65
TOTAL	752,727	1,241	350	0.16	99.84	99.74

* General background bacteria and indicators of deteriorating water quality

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Municipal Residential Drinking Water Systems: 2005-06 Results

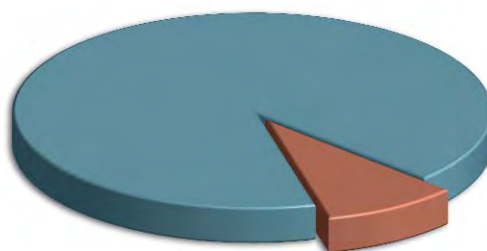
During the year, 320 municipal residential drinking water systems reported microbiological exceedances and 167 of these systems – or about half – reported multiple microbiological exceedances.

Given the potential health hazard, immediate steps are taken to respond to exceedances of *E. coli* and other microbiological parameters. The owner or operator is required by law to take immediate action – such as taking addi-

tional samples or flushing water lines. The ministry may dispatch an inspector to ensure appropriate measures are in place. The local Medical Officer of Health may issue a Boil Water Advisory if necessary. More information may be found in the **Immediate Notification and Corrective Action on Adverse Water Quality Incidents** section in **Ontario's Drinking Water Safety Net**, earlier in this report.

Chart 2: Number of Municipal Residential Drinking Water Systems with Chemical Standard Exceedances in 2005-06

MRDWS that did not exceed standards, 91%



MRDWS with chemical standard exceedances, 9%

Tapping in

Background on THM Exceedances

Trihalomethanes (THMs) are a group of compounds that can form when the chlorine used to disinfect drinking water reacts with naturally occurring organic matter (e.g. decaying leaves and vegetation). THMs are often referred to as disinfection by-products, or DBPs, for this reason.

The use of chlorine in the treatment of drinking water has virtually eliminated waterborne diseases due to its effectiveness in killing or inactivating most microorganisms commonly found in water. The majority of drinking water treatment plants in Canada use some form of chlorine for disinfection. Chlorine is applied to treat the water directly in the treatment plant and a chlorine residual is maintained in the distribution system to prevent the regrowth of bacteria.

The Ontario Drinking Water Quality Standard (ODWQS) for trihalomethanes is expressed as a running average of quarterly samples over one year. When more than one test for trihalomethanes in drinking water is reported in the same quarter, the calculation is based on the highest value. While this approach overestimates the health risk, it quickly identifies drinking water systems with even marginal exceedances. This methodology has been adapted to the 2005-06 data. This methodology was not used in 2004-05 and therefore the two years' data cannot be compared.

In 2005-06, there were 105 exceedances of the ODWQS for trihalomethanes in 41 different municipal residential drinking water systems. There was also one exceedance for

trihalomethanes reported at a non-municipal year-round residential system and no THM exceedances at drinking water systems serving designated facilities.

Occasional exceedances of trihalomethanes do not result in adverse human health impacts. If a drinking water system consistently exceeds the standard, it is required to take corrective action to reduce THM formation. Drinking water systems that marginally exceed the standard can adjust treatment processes in the plant to minimize THM levels without undermining disinfection.

The ODWQS for trihalomethanes is currently 0.100 mg/L. Recently, Ontario consulted on a more stringent ODWQS for THMs of 0.080 mg/L.

TABLE 6: Chemical Standard Exceedances in Municipal Residential Drinking Water Systems 2005-06 and 2004-05

Chemical Parameter	2005-06 Number of Exceedances	2004-05 Number of Exceedances
Antimony	1	0
Arsenic	0	1
Benzo[a]pyrene	0	3
Bromate	5	0
Fluoride	42	53
Lead	13	18
Nitrates	3	19
Nitrites	0	2
Nitrogen; Nitrate+Nitrite	15	31
N-Nitrosodimethylamine (NDMA)	1	0
Selenium	2	0
Trihalomethane	105*	28*
Uranium	0	2
Total	187	157

*The Trihalomethane data is not comparable year to year (see Tapping In box on page 42)

Chemical Parameters

In 2005-06, the results of 99.61 per cent of chemical water quality tests met provincial standards. In all, 66 municipal residential systems reported chemical exceedances (9 per cent). Of these, 46 systems reported multiple exceedances. (See Chart 2)

The proportion of chemical exceedances is lower than reported in 2004-05 because of a data reporting change. Last year, the aesthetic parameter sodium was included in the chemical standard exceedance data. While there is an aesthetic objective for sodium, there is no standard for this chemical. For 2005-06, sodium is being reported separately as an aesthetic objective.

Table 6 provides a breakdown on the number of exceedances reported for various chemical parameters.

Radiological Parameters

In 2005-06, eight radiological tests were conducted in accordance with specific requirements imposed on certain drinking water systems in their Certificate of Approval. The results of all these tests met provincial standards.

Aesthetic Objective – Sodium

Only three of the 850 sodium sample results (0.35 per cent) exceeded the 200 mg/L aesthetic objective. Two municipal residential drinking water systems were involved. However, 34 per cent of sodium test results (289 of 850), although below the 200 mg/L aesthetic objective, were above the 20 mg/L level requiring notification of the local Medical Officer of Health.

Chief Drinking Water Inspector

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Municipal Residential Drinking Water Systems: 2005-06 Results

Only three of the 850 sodium sample results (0.35 per cent) exceeded the 200 mg/L aesthetic objective.

Chief Drinking Water Inspector

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Drinking Water Systems Serving Designated Facilities and Non- Municipal Year-Round Residential Drinking Water Systems: 2005-06 Results

Drinking Water Systems Serving Designated Facilities and Non-Municipal Year- Round Residential Drinking Water Systems: 2005-06 Results

Designated facilities serve people who may be more susceptible to illness from drinking water of poor quality. They include:

■ Schools

- schools, private schools and university or college facilities

■ Social care

- day nurseries as defined in the *Day Nurseries Act* (i.e. receiving six or more children not of common parentage)
- other child and youth care facilities that provide services or are licensed under the *Child and Family Services Act* or *Ministry of Community and Social Services Act* (e.g. child develop-

ment, treatment or welfare services, young offender services, Ontario Early Years Centres, licensed children's residences)

- social care facilities receiving funding from the provincial government under the *Ministry of Community and Social Services Act* or *Developmental Services Act* or *Ontario Disability Support Program Act* (e.g. emergency shelter services, sheltered workshops, employment programs and domestic violence programs)

■ Health care

- nursing homes, hospitals, psychiatric facilities and other health care facilities

■ Children's camps

■ Delivery agent care facilities

- certain hostels
- recreational and resource centre programs receiving funding under the *Day Nurseries Act*



Tapping in

Key Findings

For drinking water systems serving designated facilities:

- Of the 1,279 systems submitting *E. coli* test results, there were 14 exceedances reported at 14 systems
- 99.42 per cent of water quality tests conducted met provincial standards
- Of these:
 - 99.43 per cent of microbiological tests met provincial standards
 - 99.27 per cent of chemical tests met provincial standards

For non-municipal year-round residential drinking water systems:

- Of 297 systems submitting *E. coli* test results, there were 20 exceedances reported at 13 systems
- 99.45 per cent of water quality tests met provincial standards
- Of these:
 - 99.41 per cent of microbiological tests met provincial standards
 - 99.80 per cent of chemical tests met provincial standards

A designated facility may be served by a drinking water system in any of the eight drinking water system categories. However, the water quality results for systems serving designated facilities reported in this section are only for drinking water systems other than municipal residential systems and non-municipal year-round residential systems. Results for the latter two system categories are presented in other sections of this annual report. Table 7 shows the number of drinking water systems serving various types of designated facilities.

This section also reports results for non-municipal year-round residential systems. Private subdivisions, condominium or townhouse complexes, apartment buildings, mobile home parks and year-round cottage developments and trailer parks are examples of the premises served by these drinking water systems.

2005-06 Water Quality Summary: Systems Serving Designated Facilities

In 2005-06, 1,531 systems serving designated facilities, in categories other than municipal residential or non-municipal year-round residential systems, were registered with the ministry. Of these, 1,287 submitted water quality results. The reason for this difference is largely the fact that some drinking water

TABLE 7: Number of Registered Systems Serving Different Types of Designated Facilities (as of March 31, 2006)

Nature of Designated Facility	Number of Systems Serving These Designated Facilities
School*	619
Social Care	455
Health Care	105
Children's Camp	342
Other	10
Total	1,531

*Also includes 2 drinking water systems that serve both a school and health care facility and 2 systems that serve a school and social care facility.

systems were decommissioned, ceased operation or changed categories during the year. In all other cases, the ministry is following up with the system owners or operators to provide education and assistance regarding sampling requirements and coming into compliance with O.Reg. 170/03.

A total of 143,655 chemical and microbiological tests were reported for this group of systems during the year. Overall, 99.42 per cent of the test results met the provincial standards while 0.58 per cent of the tests did not.

Table 8, on page 48, contains a summary of test results for systems serving designated facilities, broken down by parameters tested.

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Drinking Water Systems Serving Designated Facilities and Non-Municipal Year-Round Residential Drinking Water Systems: 2005-06 Results

Chart 3: Number of Drinking Water Systems Serving Designated Facilities with *E. coli* Standard Exceedances in 2005-06

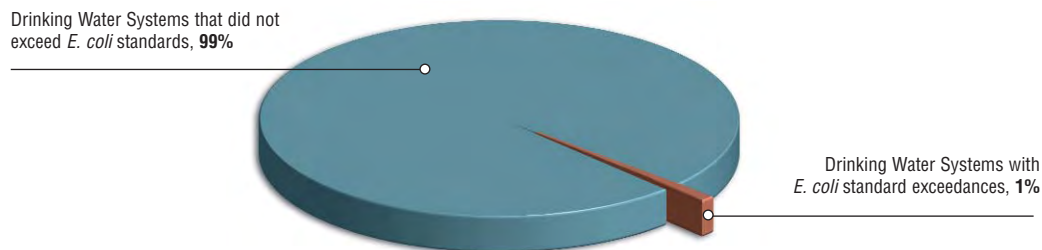
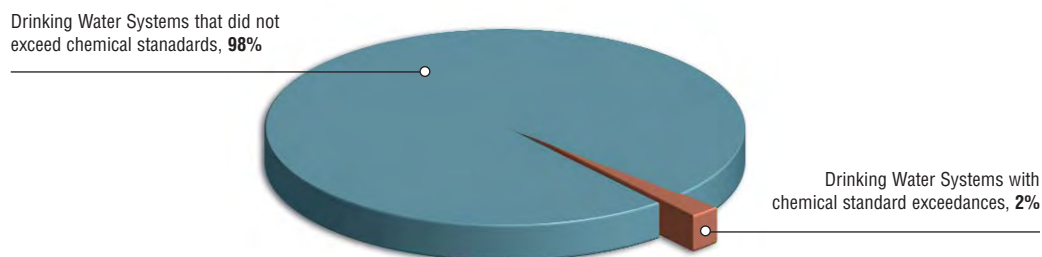


Chart 4: Number of Drinking Water Systems Serving Designated Facilities with Chemical Standard Exceedances in 2005-06



Microbiological Parameters

A total of 395 systems serving designated facilities reported total microbiological exceedances and 165 of these systems (about 40 per cent) reported multiple microbiological exceedances. During the year, 1,279 systems reported *E. coli* test results. Fourteen microbiological exceedances, reported by 14 systems (1 percent), were for *E. coli* (See Chart 3). No systems serving designated facilities reported multiple *E. coli* exceedances. Given the potential health hazard, immediate steps are taken to respond to *E. coli* and other microbiological exceedances, as explained in the **Immediate**

Notification and Corrective Action on Adverse Water Quality Incidents section in Ontario's Drinking Water Safety Net.

During the year, 99.43 per cent of microbiological water quality tests by systems serving designated facilities met provincial standards. Ninety-four per cent of all exceedances recorded by these systems (783 of 830 samples) were for microbiological parameters.

Chemical Parameters

The results of 99.27 per cent of chemical water quality tests for systems serving designated facilities met provincial standards. A total of 859 systems reported chemical test results. Of these, 21

systems (2 per cent) serving designated facilities reported chemical exceedances and nine of these reported multiple exceedances (see Chart 4). Table 8 provides details on chemical exceedances in these systems.

As mentioned above, the aesthetic parameter sodium was included in the 2004-05 chemical standard exceedance data. For 2005-06, sodium is reported separately as an aesthetic objective.

Aesthetic Objective – Sodium

Six of the 79 sodium sample results (7.6 per cent) exceeded the 200 mg/L aesthetic objective and involved five systems. However, 43 per cent of sodium test results (34 of 79), although below the 200 mg/L aesthetic objective, were above the 20 mg/L level requiring notification of the local Medical Officer of Health.

Inspectors view low lift pumps, which are used to pressurize water within the water treatment plant.



2005-06 Water Quality Summary: Non-Municipal Year-Round Residential Drinking Water Systems

In 2005-06, 340 non-municipal year-round residential drinking water systems were registered with the ministry. Of these, 298 submitted water quality results. The reason for this difference is largely the fact that some drinking water systems were decommissioned, ceased operation or changed categories during the year. In all other cases, the ministry is following up with the system owners and operators to provide education and assistance regarding sampling requirements and coming into compliance with O.Reg. 170/03.

Non-municipal year-round residential systems reported a total of 58,418 chemical and microbiological tests. In all, 99.45 per cent of water quality tests met Ontario drinking water standards, while 0.55 per cent did not.

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Drinking Water Systems Serving Designated Facilities and Non- Municipal Year-Round Residential Drinking Water Systems: 2005-06 Results

*In 2005-06, 1,531
systems serving
designated facilities
were registered with
the ministry.*

TABLE 8: Summary of Drinking Water Test Results for Systems Serving Designated Facilities and for Non-Municipal Year-Round Residential Systems 2005-06 with 2004-05 Results

Parameter Name	# of Results	# of Exceedances	# of Drinking Water Systems with Exceedances	% Exceedance	% Meeting Standards 2005-06	% Meeting Standards 2004-05
By Systems Serving Designated Facilities						
MICROBIOLOGICAL						
<i>E. Coli</i>	46,008	14	14	0.03	99.97	99.93
Fecal Coliform	106	-	-	-	100.00	99.35
Total Coliform	46,114	348	233	0.75	99.25	98.95
Other Micro*	44,973	421	221	0.94	99.06	98.46
MICROBIOLOGICAL TOTAL	137,201	783	395	0.57	99.43	99.12
CHEMICAL	6,454	47	21	0.73	99.27	98.58
RADIOLOGICAL	-	-	-	NA	NA	NA
TOTAL	143,655	830	414	0.58	99.42	99.06
By Non-Municipal Year-Round Residential Systems						
MICROBIOLOGICAL						
<i>E. Coli</i>	17,514	20	13	0.11	99.89	99.93
Fecal Coliform	44	-	-	-	100.00	100.00
Total Coliform	17,521	179	83	1.02	98.98	98.80
Other Micro*	16,246	106	50	0.65	99.35	99.57
MICROBIOLOGICAL TOTAL	51,325	305	113	0.59	99.41	99.43
CHEMICAL	7,093	14	11	0.20	99.80	99.28
RADIOLOGICAL	-	-	-	NA	NA	NA
TOTAL	58,418	319	119	0.55	99.45	99.41

Note: This table is a summary of drinking water test results submitted to the ministry's Drinking Water Information System for 1,287 systems serving designated facilities (that include large municipal non-residential systems, large non-municipal non-residential systems, non-municipal seasonal residential systems, small municipal non-residential systems, and small non-municipal non-residential systems) and 298 non-municipal year-round residential systems.

* General background bacteria and indicators of deteriorating water quality

Chart 5: Number of Non-Municipal Year-Round Residential Drinking Water Systems with *E. coli* Standard Exceedances in 2005-06

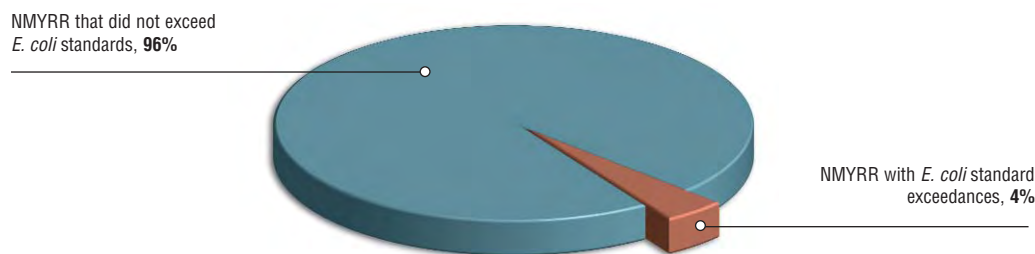


Chart 6: Number of Non-Municipal Year-Round Residential Drinking Water Systems with Chemical Standard Exceedances in 2005-06

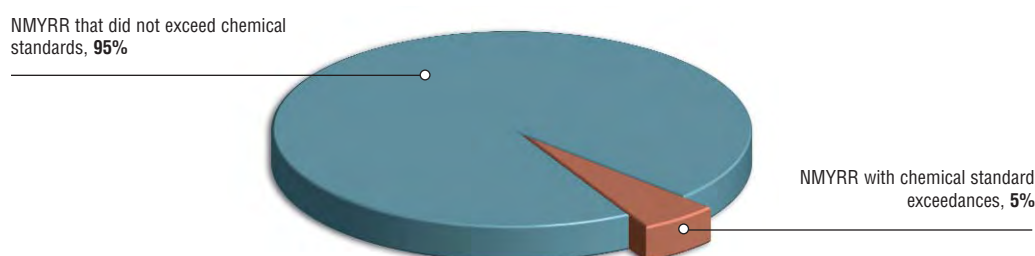


Table 8 contains a summary of tests results for non-municipal year-round residential systems, broken down by parameters tested.

Microbiological Parameters

During the year, 113 non-municipal year-round residential drinking water systems reported microbiological exceedances and 58 of these systems – or about half – reported multiple microbiological exceedances. Two hundred and ninety-seven systems reported *E. coli* test results.

Of these 20 exceedances were for *E. coli*, reported by 13 systems (4 per cent, see Chart 5). Three of these

systems reported multiple *E. coli* exceedances. Given the potential health hazard, immediate steps are taken to respond to *E. coli* and other microbiological exceedances, as explained in the **Immediate Notification and Corrective Action on Adverse Water Quality Incidents** section in **Ontario's Drinking Water Safety Net**.

In tests for microbiological parameters, 99.41 per cent of results in non-municipal year-round residential drinking water systems met provincial standards. Microbiological parameters accounted for 96 per cent of all exceedances (305 of 319 samples) in these systems.

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Drinking Water Systems Serving Designated Facilities and Non-Municipal Year-Round Residential Drinking Water Systems: 2005-06 Results

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Drinking Water Systems Serving Designated Facilities and Non-Municipal Year-Round Residential Drinking Water Systems: 2005-06 Results

In chemical water quality tests, 99.80 per cent of results for non-municipal year-round residential systems met provincial standards.

TABLE 9: Chemical Standard Exceedances in Systems Serving Designated Facilities and Non-Municipal Year-Round Residential Systems (NMYRR) 2005-06 and 2004-05

Chemical Parameter	Systems Serving Designated Facilities		NMYRR	
	2005-2006	2004-2005	2005-2006	2004-2005
Arsenic	1	1	0	1
Barium	0	0	1	6
Chromium	0	1	0	0
Fluoride	0	19	4	2
Lead	2	1	2	0
Nitrates	10	48	1	3
Nitrites	0	6	1	0
Nitrogen; Nitrate+Nitrite	33	45	0	2
Selenium	1	1	0	0
Trihalomethane	0	0	1	4
Uranium	0	2	4	1
Chemical Total	47	124	14	19

Chemical Parameters

In chemical water quality tests, 99.80 per cent of results for non-municipal year-round residential systems met provincial standards. During the year, 229 systems reported chemical test results. Eleven of these systems (5 per cent) reported chemical exceedances and two of these reported multiple exceedances (see Chart 6). Table 9 provides details on chemical standard exceedances.

As mentioned above, the aesthetic parameter sodium was included in the 2004-05 chemical standard exceedance data. For 2005-06, sodium is reported separately as an aesthetic objective.

Aesthetic Objective – Sodium

Three of the 78 sodium sample results (4 per cent) exceeded the 200 mg/L aesthetic objective. Three systems were involved. However, 55 per cent of sodium test results (43 of 78), although below the 200 mg/L aesthetic objective,



An operator working at the motor control panel in a drinking water treatment plant.

were above the 20 mg/L level requiring notification of the local Medical Officer of Health.

Focussing on Continuous Improvement

The ministry is working with drinking water systems that need to improve their water quality results. The drinking water safety net includes measures that respond to the circumstances of smaller systems, especially private ones. For example, the Walkerton Clean Water Centre has a mandate to provide owners and operators of smaller systems with access to training

programs. And requirements for immediate notification of adverse water quality incidents, followed by immediate corrective action, deal quickly with potential health hazards.

The ministry has launched a new compliance strategy for non-municipal year-round residential systems and systems serving designated facilities, one that combines education and outreach with proactive inspections. See the **Looking Ahead** section for the next steps in implementing this strategy to increase compliance in the non-municipal sector.

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Drinking Water Systems Serving Designated Facilities and Non- Municipal Year-Round Residential Drinking Water Systems: 2005-06 Results

The ministry is working with drinking water systems that need to improve their water quality results. The drinking water safety net includes measures that respond to the circumstances of smaller systems, especially private ones.



Tapping in

Local Water System Annual Reports

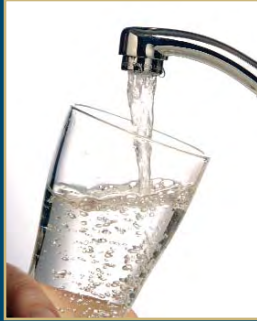
In addition to referring to information released by the ministry, consumers can find details on results for each residential water system in annual reports prepared to fulfill the public reporting requirements of O.Reg. 170/03. Municipal residential drinking water systems and non-municipal year-round residential systems are required to produce these annual reports and make them available by February 28 to cover January to December of the previous year.

In addition to other information, these annual reports include:

- a brief description of the drinking water system, including a list of water treatment chemicals used by the system during the period covered by the report;
- a summary of the results of tests required under the regulation, a Certificate of Approval or a provincial officer order for the period covered by the report; and
- a description of any corrective actions taken in accordance with the regulation during the period covered by the report.

Copies of an annual report must be accessible to the public without charge. If a municipality has more than 10,000 people, the annual report must also be posted on its website. The ministry's Drinking Water Ontario portal contains links to municipal annual reports posted on municipal web sites.

Owners of drinking water systems serving designated facilities (other than municipal residential drinking water systems and non-municipal year-round residential systems) are also obliged to prepare annual reports. A copy must be provided to each designated facility served and the interested authority for each designated facility. These annual reports contain information similar to that found in the annual reports prepared by municipal residential drinking water systems.



The following sections include an explanation of the new inspection rating process used to assess the operational performance of municipal residential drinking water systems.

An inspector and a senior operator checking the pressure of an ammonia feed system at a water treatment plant that provides chloramination for secondary disinfection.

2005-06 Ministry Inspection Program

This part of the annual report presents the results of the ministry's inspections of municipal residential drinking water systems and licensed water testing laboratories in 2005-06. The findings show that these drinking water systems and laboratories are generally well managed and operated, but opportunities for further improvement remain.

In this annual report, for the first time, the ministry is releasing inspection ratings that assess the operational performance of municipal residential drinking water systems. The inspection rating indicates how well the operation of a system complies with regulatory requirements.

Inspections are one component of Ontario's drinking water safety net and inspection ratings are one factor to be considered in evaluating the quality and safety of drinking water. Other factors include: the results of water quality tests, the number and severity of adverse water quality incidents (AWQIs), the effectiveness of corrective action in response to AWQIs, the number and nature of orders issued and the presence of deficiencies. Weighing all these factors, Ontario consumers can have confidence in the ongoing delivery of safe drinking water by their municipal systems.

In this report, the section on **Ontario's Drinking Water Safety Net** describes further safeguards, in addition to inspections, that protect drinking water – such as timely, reliable testing and the process for immediate notification and corrective action in the event of an adverse water quality finding. The **2005-06 Water Quality** section provides the results of drinking water tests confirming that Ontario's drinking water is safe. Looking at both the inspection rating and water quality results gives consumers a broad understanding of how their local drinking water system is doing.

The inspection rating offers a snapshot of a drinking water system's operation at a specific point in time. A low rating does not mean that the drinking water delivered by a municipal residential drinking water system is unsafe. It indicates areas for improvement in the operation of the system to better meet regulatory requirements. The ministry follows up with owners and operators to address areas of non-compliance identified in inspection rating reports. This year's inspection ratings create a baseline for measuring progress toward the goal of 100 per cent compliance province-wide.

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Drinking Water System Inspection Results

Inspections are one component of Ontario's drinking water safety net and inspection ratings are one factor to be considered in evaluating the quality and safety of drinking water.

Chief Drinking Water Inspector

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Drinking Water System Inspection Results

Drinking Water System Inspection Results

More than 80 per cent of Ontario residents obtain their drinking water from municipal residential drinking water systems. Every municipal residential drinking water system is inspected at least once a year, with one in three inspections unannounced. For more detail on inspection requirements, see the **Comprehensive Inspection Program** section in **Ontario's Drinking Water Safety Net**.

The ministry also conducts regular proactive inspections of:

- regulated non-municipal drinking water systems operated by Local Services Boards in unorganized territories (areas without municipal structure) that are categorized as non-municipal year-round residential systems under O.Reg. 170/03, and
- private residential systems operated by municipalities as a result of a ministry order under Section 114 of the *Safe Drinking Water Act, 2002* (SDWA) or Section 62 of the *Ontario Water Resources Act* (OWRA).

During 2005-06, the ministry completed its planned annual inspections of all 706 municipal residential drinking water systems.*

How the Inspection Process Works

The ministry has developed a Drinking Water Inspections Protocol to guide its inspections of municipal residential drinking water systems. The protocol has been in use since November 2002. It requires inspection of source, treatment and distribution components of drinking water systems as well as water

Note:* Eight inspections of Local Services Board systems and three inspections under Section 62 of the *OWRA* were also completed.



Tapping in

Holding the Ministry Accountable – Meeting the Compliance and Enforcement Regulation Requirements

The Ministry of the Environment fulfilled all of its responsibilities under the Compliance and Enforcement Regulation (O.Reg. 242/05) in 2005-06:

Municipal Residential Drinking Water Systems	Licensed Drinking Water Testing Laboratories
■ Inspected all 706 municipal residential drinking water systems in 2005-06	■ Inspected all 57 licensed laboratories twice in 2005-06
■ Inspection report sent to required persons within 45 days of completing an inspection	■ 134 inspections were completed, including 113 unannounced. (CER requires at least one in every two inspections is unannounced)
■ Responded to reported adverse test results or other reported problems	■ All laboratories received a report on their inspection within 45 days of completing the inspection
■ Mandatory action was taken within 14 days of finding a deficiency at a municipal residential drinking water system (or immediately in the case of a present drinking water health hazard)	■ Mandatory action was taken within 14 days of finding an infraction at a licensed laboratory (or immediately in the case of a present drinking water health hazard)

management practices. It is updated as needed to reflect regulatory changes.

The protocol includes a total of 130 possible regulatory questions, grouped into 14 modules, which cover a wide range of issues, from water quality monitoring to administrative procedures. (Details on the 14 modules may be found in Appendix 1.) From this comprehensive list of potential items, the inspector selects those that are relevant to the system being inspected. This choice is based on such factors as the water source, the type of system (e.g. distribution or treatment) and the type of inspection (e.g. focused or detailed).

After visiting the system and completing the on-site component of the inspection, the inspector may contact the owner or operator to clarify information or discuss details. Then the inspector finalizes the inspection report, which highlights areas of non-compliance and actions required to resolve them.

Compliance and Enforcement Requirements Met

Copies of Inspection Report

Under the Compliance and Enforcement Regulation (O.Reg. 242/05), the ministry is required to send a copy of the final inspection report within 45 days of completing all aspects of an inspection of a municipal residential system to:

- the owner of the system;
- the operating authority, if any;
- the local Medical Officer of Health;
- the conservation authority where the system is located or, if none, the appropriate office of the Ministry of Natural Resources; and

- the responsible director in the Ministry of the Environment.

For the 2005-06 inspection year, the ministry fulfilled its obligations under the regulation and all final inspection reports were sent to the required persons within 45 days.

Responding to Findings of Deficiency

The Compliance and Enforcement Regulation also requires the ministry to take mandatory action in response to finding a deficiency during an inspection at a municipal residential drinking water system. A deficiency is prescribed (in O.Reg. 172/03) as a violation of specified provisions of s. 18 of the SDWA and certain provisions of its regulations where, in the Director's opinion, the violation poses a drinking water health hazard.

Mandatory action includes such steps as issuing or amending an order, issuing a summons under the *Provincial Offences Act* and referring the matter to the ministry's Investigations and Enforcement Branch. If the deficiency is at a municipal residential drinking water system, the ministry must take mandatory action within 14 days and must take mandatory action immediately if the deficiency represents an existing drinking water health hazard.

Inspections of municipal drinking water systems during 2005-06 found a total of 14 deficiencies, as defined in O.Reg. 172/03, representing drinking water health hazards. The ministry took mandatory action within 14 days in all cases, in accordance with O.Reg. 242/05.

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Drinking Water System Inspection Results

Going forward, the ministry will generate an inspection rating report following each municipal residential drinking water system inspection, grouping the findings into the 14 modules in the inspection protocol. Each system will be able to track its performance from year to year.



Tapping in

Risk Management in the Ontario Government

The Ontario government and its agencies undertake compliance functions such as inspection, investigation and enforcement to protect the public interest. Using risk management as a tool for setting priorities and managing resources is one way to improve these compliance activities.

Risk management is viewed as a systematic approach to dealing with uncertainty that involves identifying, assessing, understanding, acting on, monitoring and communicating relevant risk issues.

The government established the Inspections, Investigations and Enforcement (II&E) Secretariat to address the specific challenges of managing risk in the context of Ontario's regulatory environment and across a variety of ministry program areas. The work of the II&E Secretariat resulted in the II&E Risk Management Framework that has subsequently been adopted as the definitive risk management tool in the Ontario Public Service.

Making Inspection Results More Transparent

The Chief Drinking Water Inspector is required by the *Safe Drinking Water Act, 2002* to report on the overall performance of drinking water systems in Ontario. The section on **2005-06 Water Quality** reported on the performance of municipal residential drinking water systems in terms of the quality of the drinking water provided. Ministry inspections are designed to assess system performance from a different perspective: they examine how well a system is operated and managed as determined by its compliance with regulatory requirements.

In 2005-06 the ministry developed a method for quantifying the operational performance of municipal residential drinking water systems, based on annual inspection results. This new approach translates inspection findings into an easy-to-understand inspection rating measure, so municipal residential drinking water systems will know how their current operations compare with their past operations. The inspection

rating is one of several elements in the evaluation of a drinking water system.

The ministry's goals are to encourage continuous improvement in the way systems are run, and to make drinking water inspection results more transparent to the public. Prior to the release of this annual report, the 2005-06 inspection ratings were supplied to each municipality.

In his 2004-05 annual report, the Chief Drinking Water Inspector made a commitment to consult with municipalities and other stakeholders on the proposed approach to measuring inspection results. In line with this commitment, the ministry held meetings in summer 2006 with representatives of municipalities and municipal associations in Toronto, Peterborough, Barrie, London, Sudbury, Thunder Bay, Sault Ste. Marie, Dryden and Timmins. These sessions indicated general stakeholder acceptance of the proposed method, with some recommendations for refinements. This feedback was incorporated in the approach now adopted by the ministry.

The ministry's approach to measuring inspection results is risk-based. A team of drinking water specialists in the ministry assessed each of the 130 regulatory questions in the inspection protocol to determine the potential for non-compliance to compromise human health. Each item was assigned a weight reflecting the possible consequences.

The findings in each municipal residential drinking water system's inspection report were then examined. Based on the number of areas of non-compliance, and the potential impact of these areas on human health, an inspection rating was calculated for each municipal system. The better the system's performance on its 2005-06 inspection, the higher the rating. Full compliance

produces a rating of 100 per cent. (See Appendix 1 for a detailed explanation of how inspection ratings are calculated.)

Going forward, the ministry will generate an inspection rating report following each municipal residential drinking water system inspection, grouping the findings into the 14 modules in the inspection protocol. Each system will be able to track its performance from year to year. This process will put a focus on specific areas requiring attention and will encourage continuous improvement. Province-wide, the new measurement tool will be used to monitor progress towards the goal of achieving 100 per cent compliance with the regulatory framework.

Chief Drinking Water Inspector

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Drinking Water System Inspection Results



An inspector checking if a chemical (aluminum sulphate or "alum") pump is supplying the proper dosage.

2005-06 Drinking Water System Inspection Summary

Inspections of municipal residential drinking water systems during 2005-06 produced a total of 712 inspection ratings. Inspections sometimes involve re-inspection or cover systems that may have amalgamated or undergone other organizational changes.

Overview of Inspection Ratings

This annual report releases inspection ratings to the public for the first time. By providing transparent access to this data, this report gives consumers the information they need to gauge the operational performance of their drinking water systems. This data on operational results complements the data on water quality provided in the **2005-06 Water Quality** section of the annual report.

Nearly one third of municipal residential drinking water system inspection ratings (233 out of 712) achieved 100 per cent, as the system operations met all regulatory requirements. Province-wide, 649 out of 712 inspection ratings (91 per

cent) achieved over 90 per cent.

These results show that, overall, municipal residential drinking water systems are well operated and managed, but

opportunities exist to improve performance even more.

For systems that have received a lower rating, the ministry is working with the owners and operators to ensure they understand where they are non-compliant and how important it is to improve continuously. The ministry takes some or all of the following steps to deal with non-compliance:

- provide an inspection rating report to the owner and the operating authority that indicates areas of non-compliance and how to resolve them;
- discuss crucial inspection findings with the owner and operator;
- provide the report to other affected parties, including the local Medical Officer of Health and the conservation authority;
- provide education and outreach on matters not directly related to the safety of drinking water (i.e. administrative non-compliance);
- issue provincial officer orders where corrective measures are needed that require owners and operators to take action;
- refer violations to the Investigations and Enforcement Branch if warranted; and

Tapping in

Key Findings

- All 706 municipal residential drinking water systems were inspected
- 649 out of 712 municipal residential drinking water system inspection ratings achieved over 90% for meeting all regulatory requirements
- Orders were issued to 43 municipal residential drinking water systems to correct non-compliance or prevent a potential health hazard
- Orders were issued to 40 non-municipal year-round residential systems and systems serving designated facilities
- Four Local Services Boards received orders

TABLE 10: Municipal Residential Drinking Water Systems by Inspection Rating Range 2005-06

Inspection Rating Range	Number of Ratings
>95% to 100%	512
>90% to 95%	137
>85% to 90%	33
>80% to 85%	12
>75% to 80%	10
>70% to 75%	7
>65% to 70%	1
Total	712*

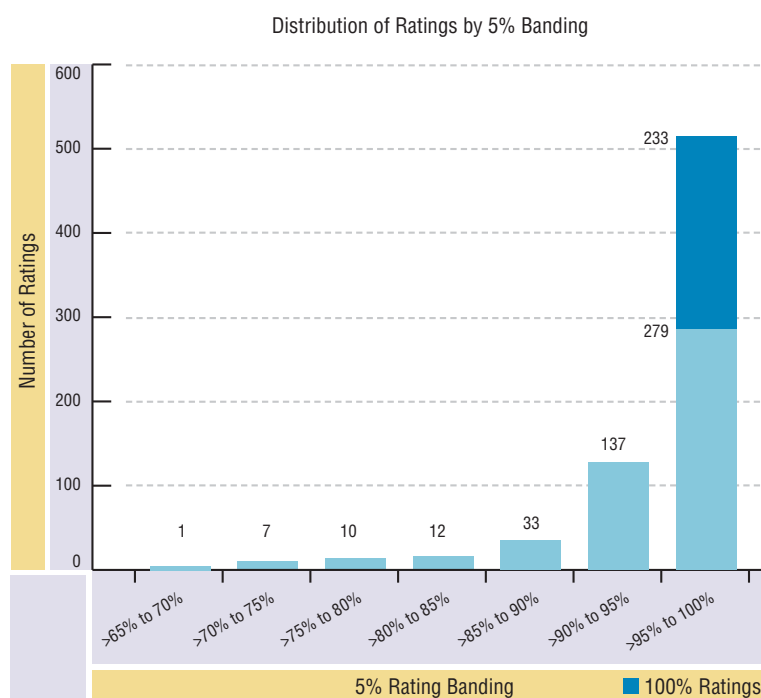
* Some inspections actually included two systems (e.g. where a water treatment plant and distribution system are registered as two systems, but are inspected together as one system). The converse also happens, where one registered system is inspected as two separate systems. These factors resulted in 709 inspections for 706 municipal residential drinking water systems generating 712 ratings.

■ issue a notice of emergency response under the *Safe Drinking Water Act, 2002* (this authority allows the ministry to transfer control of the municipal residential drinking water system to another agency, in the

event that the current owners and operators are unable to provide safe water).

Table 10 and Chart 7 show the distribution of inspection ratings in bands of 5 per cent.

CHART 7: Distribution of Municipal Residential Drinking Water System Inspection Ratings in 5 Per Cent Bands 2005-06



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2005-06 Drinking Water System Inspection Summary

The ministry's eight inspections of drinking water systems in unorganized territories in 2005-06 resulted in four orders to Local Services Boards.

*Overall, 6.1 per cent of
the systems inspected
received orders – about
half the 2004-05 level.*

TABLE 11: Municipal Residential Drinking Water (MRDW) Systems that Received Orders in 2005-06 and 2004-2005

	2005-06	2004-05
Total number of MRDW systems with orders	43*	77
Total number of inspections of MRDW systems	709	729
Percentage of inspected MRDW systems that received orders	6.1%	10.6%

* 12 systems were issued preventative orders (more information can be found in **Ontario's Drinking Water Safety Net – Comprehensive Inspection Program**)

Appendix 2 presents a listing of Ontario's municipal residential drinking water systems indicating:

- the municipality where the drinking water system is located;
- the drinking water system name;
- the inspection rating (in 5 per cent bands) for each system; and
- the percentage of all the drinking water quality tests undertaken by the owners/operators of the listed system that met the Ontario Drinking Water Quality Standards.

By considering the inspection rating in the context of water quality test results, consumers can get a more complete picture of how well their local drinking water system is performing.

For more information on the inspection rating report for their local drinking water systems, consumers can contact their municipalities.

More information is also available on the Drinking Water Ontario portal online at www.ontario.ca/drinkingwater.

Provincial Officer Orders Municipal Residential Drinking Water Systems and Local Services Boards

When a drinking water system receives an order, it does not necessarily mean the water is unsafe to drink. Orders can be issued for situations where no direct health threat exists, but the system is out of compliance with regulatory requirements and corrective action is needed.

As a result of inspections, the ministry issued 39 orders to 43 municipal residential drinking water systems in 2005-06. Overall, 6.1 per cent of the systems inspected received orders – about half the 2004-05 level. Twelve of the orders in 2005-06 were preventative orders, issued to prevent an anticipated incidence of non-compliance with the regulatory framework. See Table 11 for details.

The number of orders issued to municipal drinking water systems has decreased as a climate of increased compliance has been created.

Regulated systems and the ministry have been working toward improving compliance. Close interaction between ministry staff and system owners and operators has led to better compliance, faster resolution of situations and fewer repeat events. Ongoing education and outreach by the ministry has promoted the importance of full compliance with the regulatory provisions of the *Safe Drinking Water Act, 2002*.

The ministry's eight inspections of drinking water systems in unorganized territories in 2005-06 resulted in four orders to Local Services Boards.

See Appendix 3 for details on orders issued to municipal residential drinking water systems and Local Services Boards.

Non-Municipal Year-Round Residential Systems and Systems Serving Designated Facilities

In 2005-06, inspections of non-municipal year-round residential systems and systems serving designated facilities led to 40 orders issued to 40 systems. These systems were proactively inspected by the ministry as part of a non-municipal inspection pilot project that focused on systems with previously identified drinking water issues.

Top Opportunities for Improvement

In reviewing the 2005-06 inspection reports for municipal residential drinking water systems, the ministry has determined the major regulatory areas where improvement is needed. This list is risk-based, reflecting both the number of systems in non-compliance with particular regulatory requirements, and the potential for these areas of non-compliance to compromise the safety of drinking water. The top 10 opportunities for improvement were:

1. The owner has not ensured that all equipment is installed in accordance with the Certificate of Approval*
2. Operations and maintenance manuals do not meet the requirements of the Certificate of Approval*
3. The owner or operator has not complied with all orders or other control documents issued since the previous inspection
4. The drinking water system does not provide the required minimum level of treatment at all times
5. When a well was constructed, the annular space around the casing was not adequately filled with sealing material

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2005-06 Drinking Water System Inspection Summary

6. Not all physical/chemical water quality monitoring requirements prescribed by legislation are being met*
7. The system is not in compliance with the requirement to provide adequate primary disinfection
8. Chlorine residual levels in the distribution system were not at least 0.05 mg/L free or 0.25 mg/L combined
9. The owner did not comply with the requirement to seek changes to the Certificate of Approval where required, when changes were made
10. Not all microbiological water quality monitoring requirements prescribed by legislation are being met.*

The non-compliance rate, across the province, for these issues ranged from 4 per cent to 13 per cent of inspections conducted. Four of the top 10 areas for

improvement in 2005-06 were also in the top 10 in 2004-05, and are indicated by an asterisk (*).

While many systems are already in compliance, these findings identify key operational matters that all systems should review on an ongoing basis. These areas for improvement will be incorporated into operator training programs and the ministry will work with municipalities and operators to deal with them effectively. Where specific systems did not meet these or other requirements, the ministry's drinking water inspectors tracked the owner or operator's response to see that the problem was resolved appropriately and within the required time frame.


Municipal System Profiles

South Chatham-Kent Water Treatment Plant

The South Chatham-Kent Water Treatment Plant, which replaced two earlier systems in May 2003, serves a population of approximately 12,000. The treatment plant and related distribution system are owned by the Municipality of Chatham-Kent.

The plant draws raw water from Lake Erie through one intake pipe. The raw water pumping station also supplies the Chatham Water Treatment Facility located in the City of Chatham.

The South Chatham-Kent plant has an advanced water treatment system with new membrane technology. In addition, granular activated-carbon filters are used seasonally for taste and odour control. The facility uses chlorine gas for disinfection, and provides fluoridation for the prevention of tooth decay. In July 2006, the plant installed new membrane filters that are reported to be less subject to clogging and require less maintenance.



Microbiologist quantifying *Escherichia coli* (*E. coli*) in drinking water.

Licensed Laboratory Inspection Results

Ontario has 57 licensed water testing laboratories. Under the Compliance and Enforcement Regulation (O.Reg. 242/05), the ministry must inspect all licensed laboratories at least twice a year and at least one in every two inspections must be unannounced. The regulation also requires the ministry to provide a report to the laboratory within 45 days of completing an inspection. The ministry provided a report to all licensed laboratories within 45 days of the inspection.

The laboratory inspection protocol focuses on health-related regulatory compliance, administrative compliance and best practices. Each inspection is tailored to the specific tests performed

by the laboratory, with some of the larger facilities employing up to 150 test methods covering more than 900 different parameters.

The main goal of an inspection is to ensure that laboratories are meeting all regulatory requirements as well as any special conditions of their licences. The ministry takes follow-up action to address any areas of non-compliance or unacceptable practices. For more information on laboratory inspections, see the section on **Comprehensive Inspection Program** in Ontario's **Drinking Water Safety Net**.

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Licensed Laboratory Inspection Results

In reviewing the results of planned laboratory inspections, the ministry has determined the leading areas of non-compliance. This assessment is based on the frequency of non-compliance and is not risk-based.

Tapping in

Key Findings

- 134 inspections were completed, including 113 unannounced inspections, at the 57 licensed laboratories
- 15 inspections responded to public complaints or ministry staff concerns

TABLE 12: Summary of Laboratory Inspections in 2005-06 and 2004-05

Inspection Type	2005-06 Inspections Completed	2004-05 Inspections Completed
Unannounced	113	60
Announced (issue resolution)*	5	5
Announced	1	57
Responsive	15	14
Total	134	136

* Laboratory inspector performs in-depth data/document review based on possible non-compliance raised by internal staff observations.

2005-06 Laboratory Inspection Summary

In 2005-06 the ministry completed a total of 134 laboratory inspections. Two unannounced inspections were scheduled for almost all laboratories during 2005-06, nearly doubling the number of unannounced inspections to 113 compared with 60 the year before. Fifteen inspections were carried out in

response to public complaints or concerns raised by ministry staff. See Table 12 for a breakdown of laboratory inspections by category.

No Orders Issued

No laboratory-related orders were issued in 2005-06. In 2004-05, no orders were issued to licensed laboratories but three orders were made against unlicensed water testers.



Tapping in

What a Laboratory Inspection Involves

Ministry inspectors have the authority to enter a laboratory facility to conduct an inspection under Ontario legislation. The inspector may interview personnel, review records, tour the facility, collect samples, take photographs and copy documents. Depending on the purpose of the inspection, the inspector examines some or all of the following:

- Laboratory testing areas
- Sample-reception areas
- Analytical testing equipment
- Records on
 - Analyst training and competency
 - Adverse water quality incidents
 - Drinking Water Information System data transmissions
 - Analytical results
 - Sample storage and temperatures.

After the Inspection

A meeting is held at the end of the inspection. The inspector informs the laboratory of any non-compliance and explains the next steps to be taken. The inspector evaluates every non-compliance situation identified and determines what action is necessary. Options include:

- voluntary abatement measures (correction of minor non-compliance issues within a certain time period)
- mandatory abatement measures (e.g. a provincial officer order to deal with serious non-compliance and/or a referral to the ministry's Investigations and Enforcement Branch).

Top Opportunities for Improvement

In reviewing the results of planned laboratory inspections, the ministry has determined the leading areas of non-compliance. This assessment is based on the frequency of non-compliance.

The leading non-compliance areas include the following:

- documenting the chain of custody form to indicate whether the sample is drinking water



Preparing drinking water samples for analysis.

- maintaining staff training records on:

- reporting of test results
- metals analyses in drinking water or
- reporting of duplicate data

- documenting and maintaining policies and procedures on:

- reporting of test results
- sample holding times or
- calculations required for reporting total trihalomethanes (THMs) in drinking water

- reporting regulated drinking water test results to the ministry through the Drinking Water Information System within 28 days of the test result being authorized

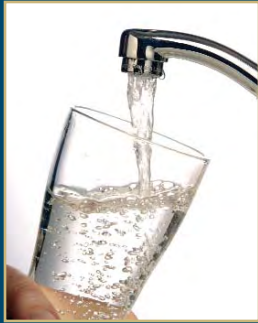
- meeting prescribed drinking water sample holding times

The ministry has followed up with the laboratories involved to ensure these problems are corrected. These are areas that all laboratories should continually monitor.

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2005-06 Laboratory Inspection Summary



*Ontario's drinking
water is safe. Working
together, we will keep it
that way.*

A stream entering Georgian Bay.

Looking Ahead

The Ministry of the Environment continues to work in partnership with stakeholders to strengthen Ontario's drinking water safety net and protect the health of the public.

The ministry anticipates steady improvement in municipal drinking water operations, moving toward the goal of 100 per cent regulatory compliance. In the months ahead, the ministry will be working closely with owners and operators to address the top 10 areas of non-compliance found by inspections in 2005-06. The next annual report will include the second year of inspection ratings, enabling progress to be measured and evaluated.

Development of a licensing program for municipal residential drinking water systems is well under way as the ministry and owners and operators collaborate on this initiative. The final Drinking Water Quality Management Standard, posted on the Environmental Bill of Rights Registry (EBR) in the fall of 2006, represents a fundamental element in this program and will drive continuous improvement in system operation and management.

The ministry is implementing a new strategic approach to compliance for non-municipal year-round residential systems and systems serving designated facilities. The strategy includes a compliance and registration orientation project, begun in summer 2006, with eight two-person ministry teams making site visits to non-municipal drinking water systems over a six-month period. This project has led to a significant increase in system registrations. In 2006-07 the ministry will also conduct a series of proactive, risk-based inspections in the non-municipal sector and take appropriate follow-up action.

The government intends to transfer oversight responsibility for non-residential and seasonal residential drinking water systems not serving designated facilities from the Ministry of the Environment to the Ministry of Health and Long-Term Care and public health units. This transfer will occur if proposed legislative amendments contained in Bill 171, the *Health System Improvements Act, 2006*, are enacted.

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Looking Ahead

In the months ahead, the ministry will be working closely with owners and operators to address the top 10 areas of non-compliance found by inspections in 2005-06.

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Looking Ahead

Safe drinking water is a shared responsibility. The Ministry of the Environment looks forward to ongoing collaboration and partnership with a diverse range of stakeholders to deliver continuous improvement in drinking water systems and protect human health.

With the passage of the *Clean Water Act, 2006*, which awaits proclamation, the pace of source protection activity around Ontario is accelerating. Communities are receiving funding and taking action to identify potential threats to local water sources so they will be able to formulate effective protection measures. Additional details on the process to develop plans will be provided as regulations are drafted; broad consultation will be undertaken to finalize these regulations.

The Drinking Water Ontario portal provides customized access to comprehensive information about drinking water in the province. Consumers can readily obtain the information they need to hold system owners, operators and regulators accountable for the safety and quality of Ontario's drinking water.

Safe drinking water is a shared responsibility. The Ministry of the Environment looks forward to ongoing collaboration and partnership with a diverse range of stakeholders to deliver continuous improvement in drinking water systems and protect human health.

Ontario's drinking water is safe. Working together, we will keep it that way.

The Chief Drinking Water Inspector looks forward to receiving feedback on this report and ideas for future editions, and can be reached at drinking.water@ontario.ca.

Glossary

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Glossary

A	
Annular Space:	the space between the well casing and the wall of the drilled hole, or the space between the well casing and the conductor pipe.

B	
Backflow Preventer:	a mechanical device attached to a water supply pipe to prevent the backflow of water into the water supply system from the service connections.

C	
Certificate of Approval:	a legal instrument which permits the construction or alteration and operation of a drinking water system, or parts thereof. The Ministry issues this document after an engineering review of the proposed facilities and when it is satisfied that the facilities will work as intended and will be able at all times to supply drinking water meeting Ontario Drinking Water Standards and requirements of O.Reg. 170/03.
Chain of Custody Form:	a mandated document requiring completion by both drinking water system owners and licensed laboratories, under the SDWA. This form accompanies the drinking water sample providing an accurate written record used to trace the possession, transfer and custody of a sample from the time of its collection to submission at the laboratory through testing and result reporting to sample disposal.
Chemically Assisted Filtration:	a water treatment process that uses chemicals, such as alum, as a coagulant to bind small particles together into larger particles that are then easily filtered out when the water passes through sand beds or other filters.
Chlorine Residual:	the concentration of chlorine remaining in the water after having been in contact with chlorine for a given amount of time.
Coagulation:	the addition of coagulant chemicals to water to allow for the agglomeration of the small suspended particles into larger particles that can be removed by sedimentation and filtration in the drinking water treatment process.
Colony Counts:	a scientific measure that identifies the number of bacteria, yeast, or moulds that are capable of forming colonies.
Conservation Authority:	local, watershed management agencies that deliver services and programs that protect and manage water and other natural resources in partnership with government, landowners and other organizations (http://conservation-ontario.on.ca/).
Contaminant:	any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of any of them resulting directly or indirectly from human activities that causes or may cause an adverse effect.
Corrective Action:	steps that must be taken following an adverse water quality incident as specified by O.Reg. 170/03, Schedules 17 & 18, or O.Reg. 252/05, Schedule 5 and/or as directed by the local medical officer of health or drinking water inspector, that are necessary to protect human health.
Cross-Connection:	the physical connection of a potable water supply with another water supply of unknown or contaminated quality or such that the potable water could be contaminated or polluted.
Cryptosporidium:	a single-celled protozoan parasite found in the intestinal tract of many animals. If animal waste containing <i>cryptosporidium</i> contaminates drinking water it may cause gastrointestinal disease in humans.

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Glossary

D	
Disinfection:	the destruction or inactivation of pathogenic and other kinds of microorganisms by physical or chemical means.

E	
<i>E. coli (Escherichia coli):</i>	a species of bacteria naturally present in the intestines of humans and animals. If animal or human waste containing <i>E. coli</i> contaminates drinking water it may cause gastrointestinal disease in humans. Most types of <i>E. coli</i> are harmless, but some active strains, especially O157:H7, produce harmful toxins and can cause severe illness.
Exceedance:	violation of a limit for a contaminant as prescribed in the Ontario Drinking-Water Standards regulation (O.Reg. 169/03).

F	
Filtration:	the separation of suspended solid particles from a fluid stream by passage of the fluid through a granular or membrane filter medium that retains most of the solids on or within itself.
Flocculation:	the gathering together of fine particles in water by gentle mixing after the addition of coagulant chemicals to form larger particles that can then be removed by sedimentation and filtration.

G	
<i>Giardia:</i>	a protozoa, usually nonpathogenic, that may be parasitic in the intestines of vertebrates including humans and most domestic animals. If animal waste containing <i>giardia</i> contaminates drinking water it may cause gastrointestinal disease in humans.

H	
Heterotrophic Plate Count (HPC):	HPC is a microbiological test that gives an indication of general bacteria population. HPC results are not an indicator of water safety and, as such, should not be used as an indicator of potential adverse human health effects.

L	
Local Services Board:	a community in areas of Northern Ontario without municipal structure. Local Services Boards are defined and governed by the Northern Services Board Act administered by the Ministry of Northern Development and Mines. The establishment of a Local Services Board may be initiated by a group of 10 or more residents who must be over the age of 18 and Canadian citizens. Drinking water systems run by Local Services Boards are categorized as non-municipal year round residential under O.Reg. 170/03.

M	
Microbiology:	a branch of biology that deals with microorganisms and their effects on other living organisms.
Micron:	a unit of linear measure. It is one millionth of a meter, or one thousandth of a millimeter. The smallest particle that can be distinguished by the naked eye would be about 40 microns across.
Microorganism:	a microscopic organism that cannot be seen without the aid of a microscope, including bacteria, protozoa, fungi, viruses and algae.

Glossary

P	
Pathogen:	an organism that causes disease in another organism.
Permit to Take Water (PTTW):	any person that takes more than 50,000 litres of water per day from any source requires a permit from the Ministry of the Environment under the <i>Ontario Water Resources Act, 1990</i> .
Potable Water:	water that, at a minimum, meets the requirements prescribed in Ontario Drinking-Water Quality Standards (O.Reg. 169/03).
Protozoa:	a very diverse group comprising some 50,000 organisms that consist of one cell. Most of them are able to move on their own. Some are a health concern in drinking water. See <i>Giardia</i> and <i>Cryptosporidium</i> .
Provincial Officer Order:	an order issued by a Ministry of the Environment Provincial Officer to any person that contravenes any act governed by the Ministry of the Environment.

R	
Raw Water:	surface or groundwater that is available as a source of drinking water but has not received any treatment.

S	
Source Water Protection:	action taken to prevent the pollution of drinking water sources, including groundwater, lakes, rivers, and streams. Source water protection involves developing and implementing a plan to manage land uses and potential contaminants.

T	
Total Coliform Bacteria:	a group of waterborne bacteria consisting of three main groups with common characteristics that is used as an indicator of water quality. The presence of total coliform bacteria in water leaving a treatment plant or in any treated water immediately after treatment could indicate inadequate treatment and possible water contamination.
Turbidity:	a visible haze or cloudiness in water caused by the presence of suspended matter, resulting in the scattering and absorption of light. The cloudier the water, the greater the turbidity.

W	
Water Quality:	a term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose, such as drinking.
Waterborne Illness:	a disease transmitted through the ingestion of contaminated water. Water acts as a passive carrier of the infectious agent, chemical or waterborne pathogen.
Watershed:	a region or area bounded peripherally by a divide and draining ultimately to a particular watercourse or body of water.

Categories of Drinking Water Systems

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Categories of Drinking Water Systems

Large Municipal Residential Drinking Water System:	a municipal drinking-water system that serves a major residential development and serves more than 100 private residences.
Small Municipal Residential Drinking Water System:	a municipal drinking-water system that serves a major residential development but serves fewer than 101 private residences.
Non-Municipal Year-Round Residential Drinking Water System:	a non-municipal drinking-water system, other than a non-municipal seasonal residential system, that serves, (a) a major residential development, or (b) a trailer park or campground that has more than five service connections.
Large Municipal Non-Residential Drinking Water System:	a municipal drinking-water system that does not serve a major residential development and is capable of supplying drinking water at a rate of more than 2.9 litres per second.
Small Municipal Non-Residential Drinking Water System:	a municipal drinking-water system that does not serve a major residential development, is not capable of supplying drinking water at a rate of more than 2.9 litres per second and serves a designated facility or public facility.
Large Non-Municipal Non-Residential Drinking Water System:	a non-municipal drinking-water system that is capable of supplying drinking water at a rate of more than 2.9 litres per second and does not serve, (a) a major residential development, or (b) a trailer park or campground that has more than five service connections.
Small Non-Municipal Non-Residential Drinking Water System:	a non-municipal drinking-water system that is not capable of supplying drinking water at a rate of more than 2.9 litres per second, serves a designated facility or public facility and does not serve, (a) a major residential development, or (b) a trailer park or campground that has more than five service connections.
Non-Municipal Seasonal Residential Drinking Water System:	a non-municipal drinking-water system that, (a) serves, (i) a major residential development, or (ii) a trailer park or campground that has more than five service connections, and (b) does not operate to supply water to a development, trailer park or campground referred to in clause (a) for at least 60 consecutive days in, (i) every calendar year, or (ii) every period that begins on April 1 in one year and ends on March 31 in the following year.
Designated Facility:	(a) a children and youth care facility, (a.1) a children's camp, (b) a delivery agent care facility, (c) a health care facility, (d) a school or private school, (e) a social care facility, or (f) a university, a college of applied arts and technology, or an institution with authority to grant degrees.

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Water level control weir in a drinking water treatment plant

Appendix 1: Background on Inspection Ratings

As discussed in the section on the **2005-06 Ministry Inspection Program**, the ministry has introduced a new inspection rating process to measure the operational performance of municipal residential drinking water systems. Designed to quantify the results of the ministry's annual inspections, the inspection ratings are one of several elements the ministry considers in evaluating municipal drinking water systems.

The ministry's inspections are guided by a Drinking Water Inspections Protocol, which includes a total of 130 possible regulatory questions, grouped into 14 modules. From this list, the inspector selects those questions that are relevant to the system under inspection.

Drinking Water System Inspections Protocol 2005-06: 14 Modules

1. Source: The inspector confirms and visually inspects the source or supply of water – including each well or surface water source – to check for potential contamination.

2. Permit to Take Water: The inspector assesses compliance with the water taking limits imposed by the Permit to Take Water (PTTW) required under the *Ontario Water Resources Act*, as well as any special terms and conditions in the PTTW.

3. Capacity Assessment: To verify that the facility is operating within its design capabilities, the inspector confirms that adequate flow measuring devices are installed, and that flow rates are maintained within Certificate of Approval limits.

4. Treatment Processes: The inspector examines treatment processes, operation and maintenance issues and process control. A key aim is to ensure that the required minimum level of treatment is provided at all times.

5. Process Wastewater: The inspector determines if the operator has taken the necessary steps to see that any wastewater discharge is handled and monitored in accordance with the Certificate of Approval and does not harm the environment.

6. Distribution System: The inspector confirms, as far as possible, that the distribution system is continuously delivering potable water to the consumer. This includes checking key components (e.g. reservoirs and storage tanks) for adequate maintenance.

7. Operations Manuals: The inspector examines the system operations manuals to ensure that they include the items required by the Certificate of Approval and the regulations, so that staff have access to the information needed for safe and efficient operation of all system components.

8. Logbooks: The inspector assesses the contents of logbooks and other record-keeping mechanisms where information should be regularly recorded on the results of operational tests and water samples, any abnormal or unusual events, and maintenance of treatment equipment.

9. Contingency and Emergency Planning: The inspector verifies that the system owner has developed and posted a written contingency/emergency plan and has standby equipment available for critical treatment processes where required.

10. Consumer Relations: The inspector checks to see if the owner or operator has a process in place for tracking, investigating and responding to consumer complaints – as may be called for by the Certificate of

Approval – and also determines if documents such as annual reports and water quality results are accessible to the public as required.

11. Certification and Training: The inspector ensures that the water system has been properly classified and that staff possess the required certification to operate a system in that classification.

12. Water Quality Monitoring: The inspector evaluates the water quality monitoring program looking at such key elements as sampling, continuous monitoring, analytical results from operational checks (e.g. chlorine residuals), and licensed laboratory services.

13. Reporting, Notification and Corrective Actions: The inspector determines if the drinking water system has taken the prescribed appropriate action and notified the proper authorities when an adverse water quality incident occurs, and submitted an annual report and other required reports to the ministry on time.

14. Other Inspection Findings: The inspector assesses the status of any non-compliance items discovered in the previous inspection and also notes any non-compliance items found during the current inspection but not noted elsewhere in the report.

Appendix 1: Background on Inspection Ratings continued

How Inspection Ratings Are Calculated

(See Table A-1 – Sample Inspection Rating Calculation)

The ministry's new inspection rating process is risk-based. It reflects the Ontario government's Inspections, Investigations and Enforcement (II&E) Risk Management Framework, which in turn is built on a universally accepted risk assessment method. Risk management is a systematic approach to identifying potential hazards, understanding the likelihood and consequences of the hazards, and taking steps to reduce risk if necessary.

The II&E Risk Management Framework provides a formula for determining risk:

Risk = Likelihood x Consequence

The inspection rating calculation starts with the questions in the inspections protocol. Every question asked during an inspection has a "likelihood" and a "consequence" value.

Table A-1 provides a sample inspection rating calculation for a hypothetical inspection on two questions.

Likelihood

The likelihood of non-compliance occurring is easily determined: it is based on the response to each inspection question. For every question, the response is either "compliance" (YES) or "non-compliance" (NO) (see Table A-1, column 2). A yes answer means the likelihood of non-compliance is 0 per cent (because the inspector has found the system in compliance on this item), while a no answer means the likelihood of non-compliance is 100 per cent (because the inspector has found actual non-compliance). Hence an instance of compliance produces a 0 value for likelihood and an instance of non-compliance results in a value of 1 for likelihood (see Table A-1, column 3).

Consequence

Since not all non-compliance issues are equally important, the ministry assigned a consequence rating to each inspection question. The values range from 1 to 4, with 1 indicating the least consequence and 4 indicating the highest consequence.

The consequence rating (see Table A-1, column 4) quantifies the importance of non-compliance on each question relative to the others. Questions with higher values are those with a potentially more significant impact on drinking water safety. These ratings describe what risk management experts call an "absolute" level of consequence versus a "weighted" level. For example, a value of 4 does not mean that the consequence is four times as severe as a value of 1.

Arriving at the Inspection Rating

To calculate the inspection rating for a water system, the above equation (Risk = Likelihood x Consequence) is applied to each of the questions asked during the inspection. Each negative response is assigned a risk value, based on the consequence rating for the question multiplied by the likelihood of 1 (See Table A-1, column 5). The risk values of all non-compliant answers are totaled.

The maximum risk values (see Table A-1, column 6) for all questions asked during the inspection are also totaled. This is the combined risk value that would result if all questions were answered negatively. It is also based on the consequence ratings.

Next, the sum of the risk values for all noncompliant answers is divided by the sum of the maximum risk values for all questions asked. This results in a percentage that represents the non-compliance rating. This percentage is then subtracted from perfect compliance (100 per cent) to arrive at an inspection rating.

In the example in Table A-1, the risk value of all non-compliant responses is 2 and the maximum risk value of all questions asked is 6. The drinking water system would have a non-compliance rating of 33 per cent and an inspection rating of 67 per cent.

Appendix 1: Background on Inspection Ratings continued

TABLE A-1: Sample Inspection Rating Calculation

1	2	3	4	5	6
Inspection Question	Inspector's Answer	Likelihood (L)	Consequence Rating (C)	Risk Value (LxC)	Maximum Risk Value
Do all operators possess the required certification?	No	1	2	2	2
Are all required microbiological water quality monitoring requirements being met?	Yes	0	4	0	4
Total				2	6
Non-Compliance Rating	2/6 = 33%				
INSPECTION RATING	100% – 33% = 67%				

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Adjala-Tosorontio, the Corporation of the Township of	Colgan Well Supply	>95% to 100%*	99.70%
Adjala-Tosorontio, the Corporation of the Township of	Everett Well Supply	>95% to 100%*	100.00%
Adjala-Tosorontio, the Corporation of the Township of	Hockley Well Supply	>95% to 100%*	100.00%
Adjala-Tosorontio, the Corporation of the Township of	Lisle Well Supply	>95% to 100%	100.00%
Adjala-Tosorontio, the Corporation of the Township of	Loretto Heights Well Supply	>95% to 100%*	99.08%
Adjala-Tosorontio, the Corporation of the Township of	Rosemont Well Supply	>95% to 100%	99.77%
Adjala-Tosorontio, the Corporation of the Township of	Weca Well Supply	>95% to 100%	100.00%
Ajax, Town of	Ajax Water Treatment Plant	>95% to 100%*	100.00%
Alfred and Plantagenet, the Corporation of the Township of	Lefavre Water Treatment Plant	>95% to 100%*	99.39%
Alfred and Plantagenet, the Corporation of the Township of	Plantagenet Water Treatment Plant	>95% to 100%*	99.85%
Alfred and Plantagenet, the Corporation of the Township of	Wendover Water Treatment Plant	>95% to 100%	99.69%
Alnwick/Haldimand, the Corporation of the Township of	Grafton Well Supply	>95% to 100%	99.56%
Amaranth, the Corporation of the Township of	Waldemar Well Supply	>85% to 90%	100.00%
Amherstburg, the Corporation of the Town of	Amherstburg Water Treatment Plant	>95% to 100%	100.00%
Armstrong, the Corporation of the Township of	Earlton Well Supply	>95% to 100%*	100.00%
Arnprior, the Corporation of the Town of	Arnprior Water Treatment Plant	>95% to 100%	100.00%
Arran-Elderslie, the Corporation of the Municipality of	Arran-Elderslie Well Supply	>90% to 95%	100.00%
Arran-Elderslie, the Corporation of the Municipality of	Tara Well Supply	>90% to 95%	99.88%
Ashfield-Colborne-Wawanosh, the Corporation of the Township of	Benmiller Inn Well Supply	>95% to 100%	99.43%
Ashfield-Colborne-Wawanosh, the Corporation of the Township of	Century Heights Subdivision Well Supply	>90% to 95%	100.00%
Ashfield-Colborne-Wawanosh, the Corporation of the Township of	Courtney Subdivision Distribution System	>85% to 90%	100.00%
Ashfield-Colborne-Wawanosh, the Corporation of the Township of	Dungannon Well Supply	>90% to 95%	100.00%
Ashfield-Colborne-Wawanosh, the Corporation of the Township of	Huron Sands Well Supply	>95% to 100%	100.00%
Ashfield-Colborne-Wawanosh, the Corporation of the Township of	Maitlandview Estates Well Supply	>95% to 100%	100.00%
Ashfield-Colborne-Wawanosh, the Corporation of the Township of	South Lucknow Distribution System	>90% to 95%	100.00%
Asphodel Norwood, the Corporation of the Municipality of	Norwood Well Supply	>95% to 100%	99.81%
Asphodel Norwood, the Corporation of the Municipality of	Trentview Estates Development Distribution System	>95% to 100%	100.00%
Assignack, the Corporation of the Township of	Assignack Water Treatment Plant	>95% to 100%	100.00%
Assignack, the Corporation of the Township of	Sunsite Estates Subdivision Water Treatment Plant	>95% to 100%	100.00%
Atikokan, the Corporation of the Township of	Atikokan Water Treatment Plant	>85% to 90%	99.76%
Aurora, the Corporation of the Town of	Aurora Distribution System	>95% to 100%*	99.80%
Aurora, the Corporation of the Town of	Aurora Well Supply	>95% to 100%*	99.79%

For more information on the inspection rating report for their local drinking water systems, consumers can contact their municipalities. More information is also available on the Drinking Water Ontario portal online at www.ontario.ca/drinkingwater.

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Aylmer, the Corporation of the Town of	Aylmer (Elgin AWS) Distribution System	>95% to 100% *	100.00%
Aylmer, the Corporation of the Town of	Aylmer Secondary Distribution System	>95% to 100%	99.82%
Bancroft, Corporation of the Town of	Bancroft Water Treatment Plant	>95% to 100% *	99.92%
Barrie, Corporation of the City of	Barrie Well Supply	>95% to 100%	99.86%
Bayham, the Corporation of the Municipality of	Bayham (Elgin AWS) Distribution System	>95% to 100% *	99.59%
Belleville, the Corporation of the City of	Belleville Water Treatment Plant	>95% to 100% *	100.00%
Belleville, the Corporation of the City of	Point Anne Hamlet Water Treatment Plant	>95% to 100% *	99.77%
Billings, Corporation of the Township of	Kagawong Water Treatment Plant	>95% to 100% *	100.00%
Black River-Matheson, the Corporation of the Township of	Holtyre Well Supply	>95% to 100%	100.00%
Black River-Matheson, the Corporation of the Township of	Matheson Well Supply	>95% to 100% *	99.68%
Black River-Matheson, the Corporation of the Township of	Ramore (Playfair) Well Supply	>95% to 100%	100.00%
Black River-Matheson, the Corporation of the Township of	Val Gagne Well Supply	>90% to 95%	100.00%
Blandford-Blenheim, Township of	Bright Well Supply	>95% to 100%	100.00%
Blandford-Blenheim, Township of	Drumbo Well Supply	>95% to 100% *	100.00%
Blandford-Blenheim, Township of	Plattsville Well Supply	>90% to 95%	99.62%
Blandford-Blenheim, Township of	Princeton Countryside Manor Cistern System	>95% to 100% *	100.00%
Blind River, the Corporation of the Town of	Blind River Well Supply	>90% to 95%	99.11%
Bluewater, the Corporation of the Municipality of	Bluewater Distribution System	>95% to 100% *	100.00%
Bluewater, the Corporation of the Municipality of	Carriage Lane Well Supply	>95% to 100% *	99.58%
Bluewater, the Corporation of the Municipality of	Harbour Lights Development Well Supply	>95% to 100%	100.00%
Bluewater, the Corporation of the Municipality of	Hensall Well Supply	>90% to 95%	99.82%
Bluewater, the Corporation of the Municipality of	Zurich Well Supply	>95% to 100%	99.55%
Bonnechere Valley, the Corporation of the Municipality of	Eganville Water Treatment Plant	>95% to 100% *	99.88%
Bracebridge, Town of	Bracebridge (Kirby Beach) Water Treatment Plant	>95% to 100% *	99.56%
Bradford West Gwillimbury, the Corporation of the Town of	Bradford/Bondhead Well Supply	>80% to 85%	99.74%
Brant, the Corporation of the County of	Airport Well Supply	>85% to 90%	99.89%
Brant, the Corporation of the County of	Cainsville Distribution System	>95% to 100%	100.00%
Brant, the Corporation of the County of	Mount Pleasant (Maple Ave) Well Supply	>90% to 95%	99.88%
Brant, the Corporation of the County of	Paris Well Supply	>90% to 95%	99.94%
Brant, the Corporation of the County of	St. George Well Supply	>95% to 100%	100.00%
Brantford, the Corporation of the City of	Brantford (Holmedale) Water Treatment Plant	>90% to 95%	99.92%
Brighton, the Corporation of the Municipality of	Brighton Well Supply	>90% to 95%	97.84%
Brock, Township of	Beaverton Water Treatment Plant	>90% to 95%	97.43%
Brock, Township of	Cannington Well Supply	>95% to 100%	99.94%
Brock, Township of	Sunderland Well Supply	>95% to 100%	99.91%
Brockton, the Corporation of the Municipality of	Lake Rosalind Well Supply	>95% to 100%	100.00%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Brockton, the Corporation of the Municipality of	Powers Subdivision Well Supply	>90% to 95%	98.29%
Brockton, the Corporation of the Municipality of	Walkerton Well Supply	>95% to 100%	99.78%
Brockville, the Corporation of the City of	Brockville Water Treatment Plant	>95% to 100% *	99.83%
Brooke-Alvinston, the Corporation of the Township of	Alvinston Distribution System	>95% to 100% *	99.75%
Bruce Mines, the Corporation of the Town of	Bruce Mines Water Treatment Plant	>95% to 100%	99.80%
Burk's Falls, the Corporation of the Village of	Burk's Falls Well Supply	>85% to 90%	100.00%
Burlington, City of	Burlington Water Treatment Plant	>95% to 100% *	99.70%
Caledon, Town of	Alton Well Supply	>95% to 100% *	100.00%
Caledon, Town of	Caledon East Well Supply	>95% to 100% *	100.00%
Caledon, Town of	Caledon Village Well Supply	>95% to 100% *	100.00%
Caledon, Town of	Cheltenham-Terra Cotta Well Supply	>95% to 100%	100.00%
Caledon, Town of	Inglewood Well Supply	>95% to 100%	100.00%
Caledon, Town of	Palgrave Well Supply	>95% to 100% *	100.00%
Callander, the Corporation of the Municipality of	Callander Water Treatment Plant	>95% to 100%	100.00%
Cambridge, the Corporation of the City of	Cambridge Well Supply	>80% to 85%	100.00%
Cambridge, the Corporation of the City of	Cambridge Distribution System	>90% to 95%	100.00%
Carleton Place, the Corporation of the Town of	Carleton Place Water Treatment Plant	>95% to 100% *	100.00%
Casselman, the Corporation of the Village of	Casselman Water Treatment Plant	>95% to 100% *	100.00%
Cavan-Millbrook-North Monaghan, the Corporation of the Township of	Millbrook Well Supply	>95% to 100%	99.88%
Central Elgin, the Corporation of the Municipality of	Belmont Well Supply	>95% to 100%	100.00%
Central Elgin, the Corporation of the Municipality of	Central Elgin (Elgin AWS) Distribution System	>95% to 100%	99.89%
Central Elgin, the Corporation of the Municipality of	Elgin Primary Area Water Supply	>95% to 100% *	99.88%
Central Huron, the Corporation of the Municipality of	Auburn Well Supply	>95% to 100%	100.00%
Central Huron, the Corporation of the Municipality of	Clinton Well Supply	>95% to 100%	100.00%
Central Huron, the Corporation of the Municipality of	Kelly Well Supply	>95% to 100%	100.00%
Central Huron, the Corporation of the Municipality of	McClinchey Well Supply	>90% to 95%	99.48%
Central Huron, the Corporation of the Municipality of	S.A.M. Well Supply	>95% to 100% *	100.00%
Central Huron, the Corporation of the Municipality of	Vandewatering Subdivision Well Supply	>95% to 100% *	100.00%
Central Manitoulin, the Corporation of the Township of	Mindemoya Water Treatment Plant	>95% to 100%	100.00%
Centre Wellington, the Corporation of the Township of	Elora Well Supply	>95% to 100%	99.63%
Centre Wellington, the Corporation of the Township of	Fergus Well Supply	>95% to 100%	99.95%
Champlain, the Corporation of the Township of	L'Original Distribution System	>95% to 100% *	100.00%
Champlain, the Corporation of the Township of	Vankleek Hill Distribution System	>95% to 100% *	100.00%
Chapleau, the Corporation of the Township of	Chapleau Water Treatment Plant	>95% to 100% *	99.56%
Chapple, the Corporation of the Township of	Barwick Well Supply	>95% to 100%	99.37%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Charlton and Dack, the Corporation of the Municipality of	Charlton Water Treatment Plant	>95% to 100% *	99.83%
Chatham-Kent, the Corporation of the Municipality of	Bothwell (West Elgin AWS) Distribution System	>95% to 100% *	100.00%
Chatham-Kent, the Corporation of the Municipality of	Chatham Water Treatment Plant	>95% to 100%	99.90%
Chatham-Kent, the Corporation of the Municipality of	Highgate Pure Water Well Supply	>90% to 95%	99.60%
Chatham-Kent, the Corporation of the Municipality of	North Wallaceburg Distribution System	>95% to 100% *	100.00%
Chatham-Kent, the Corporation of the Municipality of	Ridgetown Well Supply	>90% to 95%	99.63%
Chatham-Kent, the Corporation of the Municipality of	South Chatham-Kent Water Treatment Plant	>95% to 100%	99.92%
Chatham-Kent, the Corporation of the Municipality of	Wallaceburg Water Treatment Plant	>95% to 100% *	100.00%
Chatham-Kent, the Corporation of the Municipality of	Wheatley Water Treatment Plant	>95% to 100% *	99.97%
Chatsworth, the Corporation of the Township of	Chatsworth Well Supply	>95% to 100%	100.00%
Chatsworth, the Corporation of the Township of	Walter's Falls Well Supply	>95% to 100%	99.62%
Clarence-Rockland, the Corporation of the City of	Rockland Water Treatment Plant	>95% to 100% *	100.00%
Clarington, Municipality of	Bowmanville Water Treatment Plant	>95% to 100%	99.59%
Clarington, Municipality of	Newcastle Water Treatment Plant	>95% to 100% *	100.00%
Clarington, Municipality of	Orono Well Supply	>95% to 100% *	100.00%
Clearview, the Corporation of the Township of	Buckingham Woods Well Supply	>95% to 100% *	100.00%
Clearview, the Corporation of the Township of	Colling-Woodlands Well Supply	>95% to 100%	99.49%
Clearview, the Corporation of the Township of	Creemore Well Supply	>95% to 100% *	100.00%
Clearview, the Corporation of the Township of	McKean Subdivision Well Supply	>95% to 100%	99.60%
Clearview, the Corporation of the Township of	New Lowell Well Supply	>95% to 100%	100.00%
Clearview, the Corporation of the Township of	Stayner Well Supply	>95% to 100%	99.51%
Cobalt, the Corporation of the Town of	Cobalt Water Treatment Plant	>90% to 95%	99.57%
Cobourg, the Corporation of the Town of	Cobourg Water Treatment Plant	>95% to 100% *	99.91%
Cochrane, the Corporation of the Town of	Cochrane Well Supply	>80% to 85%	100.00%
Collingwood, the Corporation of the Town of, & Public Utilities Commission (Collingwood)	Collingwood (Raymond A. Barker Ultrafiltration Plant) Water Treatment Plant	>85% to 90%	100.00%
Cornwall, the Corporation of the City of	Cornwall Water Treatment Plant	>95% to 100%	99.96%
Cramahe, the Corporation of the Township of	Colborne Well Supply	>95% to 100% *	99.70%
Dawn-Euphemia, the Corporation of the Township of	Dawn-Euphemia Water Distribution System	>90% to 95%	100.00%
Deep River, the Corporation of the	Deep River Water Treatment Plant	>90% to 95%	99.89%
Deseronto, Town of	Deseronto Water Treatment Plant	>95% to 100% *	99.19%
Dryden, the Corporation of the City of	Dryden Water Treatment Plant	>95% to 100%	100.00%
Dubreuilville, the Corporation Township of	Dubreuilville Well Supply	>70% to 75%	100.00%
Dutton-Dunwich, the Corporation of the Municipality of	Dutton-Dunwich (West Elgin AWS) Distribution System	>95% to 100%	100.00%
Ear Falls, the Corporation of the Township of	Ear Falls Water Treatment Plant	>95% to 100%	100.00%
East Garafraxa, the Corporation of the Township of	Marsville Subdivision Well Supply	>90% to 95%	100.00%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
East Gwillimbury, the Corporation of the Town of	Holland Landing Distribution System	>95% to 100% *	100.00%
East Gwillimbury, the Corporation of the Town of	Holland Landing Well Supply	>95% to 100% *	100.00%
East Gwillimbury, the Corporation of the Town of	Mount Albert Distribution System	>95% to 100% *	99.59%
East Gwillimbury, the Corporation of the Town of	Mount Albert Well Supply	>95% to 100% *	100.00%
East Gwillimbury, the Corporation of the Town of	Queensville (York Region) Well Supply	>95% to 100% *	99.81%
East Gwillimbury, the Corporation of the Town of	Queensville Distribution System	>95% to 100% *	100.00%
East Gwillimbury, the Corporation of the Town of	Sharon Distribution System	>95% to 100% *	98.36%
East Luther Grand Valley, the Corporation of the Township of	East Luther Grand Valley Well Supply	>90% to 95%	100.00%
East Zorra-Tavistock, Township of	Hickson-King Subdivision Well Supply	>95% to 100%	100.00%
East Zorra-Tavistock, Township of	Innerkip Well Supply	>95% to 100%	100.00%
East Zorra-Tavistock, Township of	Tavistock Well Supply	>95% to 100%	100.00%
Edwardsburgh-Cardinal, the Corporation of Township of	Cardinal Water Treatment Plant	>95% to 100% *	99.80%
Edwardsburgh-Cardinal, the Corporation of Township of	Edwardsburgh Industrial Park Distribution System	>95% to 100%	100.00%
Elizabethtown-Kitley, the Corporation of the Township of	Elizabethtown-Kitley Distribution System	>95% to 100%	99.62%
Elliot Lake, the Corporation of the City of	Elliot Lake Water Treatment Plant	>95% to 100%	100.00%
Emo, the Corporation of the Township of	Emo Water Treatment Plant	>90% to 95%	100.00%
Englehart, the Corporation of the Town of	Englehart Well Supply	>95% to 100% *	100.00%
Enniskillen, the Corporation of the Township of	Enniskillen Township Distribution System	>90% to 95%	99.88%
Erin, the Corporation of the Town of	Erin Well Supply	>95% to 100% *	100.00%
Erin, the Corporation of the Town of	Hillsburgh Well Supply	>95% to 100% *	99.78%
Espanola, the Corporation of the Town of	Espanola Water Treatment Plant	>95% to 100%	99.88%
Essa, the Corporation of the Township of	Angus Well Supply	>95% to 100%	100.00%
Essa, the Corporation of the Township of	Baxter Well Supply	>95% to 100%	99.30%
Essa, the Corporation of the Township of	Glen Ave (Thornton) Well Supply	>95% to 100%	100.00%
Essex, the Corporation of the Town of	Essex (Union WTP) Distribution System	>95% to 100% *	100.00%
Essex, the Corporation of the Town of	Harrow-Colchester South Water Treatment Plant	>95% to 100% *	99.83%
Fauquier-Strickland, the Corporation of the Township of	Fauquier Water Treatment Plant	>95% to 100%	99.86%
Fort Erie, the Corporation of the Town of	Fort Erie (Rosehill) Water Treatment Plant	>95% to 100% *	100.00%
Fort Erie, the Corporation of the Town of	Fort Erie Distribution System	>95% to 100% *	99.87%
Fort Frances, the Corporation of the Town of	Fort Frances Water Treatment Plant	>95% to 100% *	99.87%
Galway-Cavendish-Harvey, the Corporation of the Township of	Alpine/Pirates Glen Well Supply	>95% to 100%	100.00%
Galway-Cavendish-Harvey, the Corporation of the Township of	Buckhorn Lake Estates Well Supply	>80% to 85%	99.69%
Gananoque, the Corporation of the Separated Town of	James W. King Water Treatment Plant	>95% to 100%	100.00%
Georgian Bay, Township of	Mactier (Beech Avenue) Water Treatment Plant	>95% to 100% *	100.00%
Georgian Bay, Township of	Port Severn Water Treatment Plant	>95% to 100%	100.00%
Georgian Bluffs, the Corporation of the Township of	East Linton and Area Water Treatment Plant	>90% to 95%	100.00%
Georgian Bluffs, the Corporation of the Township of	Oxenden Distribution System	>90% to 95%	99.46%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Georgian Bluffs, the Corporation of the Township of	Pottawatomi Village Well Supply	>90% to 95%	100.00%
Georgian Bluffs, the Corporation of the Township of	Presquile Water Treatment Plant	>90% to 95%	99.64%
Georgian Bluffs, the Corporation of the Township of	Shallow Lake Well Supply	>90% to 95%	99.15%
Georgina, The Corporation of the Town of	Georgina Water Treatment Plant	>95% to 100%	100.00%
Georgina, The Corporation of the Town of	Keswick Water Treatment Plant	>95% to 100% *	100.00%
Georgina, The Corporation of the Town of	Keswick Distribution System	>95% to 100% *	100.00%
Georgina, The Corporation of the Town of	Sutton Distribution System	>95% to 100% *	100.00%
Goderich, the Corporation of the Town of	Goderich Water Treatment Plant	>95% to 100% *	99.64%
Gore Bay, the Corporation of the Town of	Gore Bay Water Treatment Plant	>95% to 100% *	99.83%
Gravenhurst, Town of	Gravenhurst Water Treatment Plant	>95% to 100% *	99.89%
Greater Napanee, the Corporation of the Town of	A.L. Dafoe Water Treatment Plant	>95% to 100% *	100.00%
Greater Napanee, the Corporation of the Town of	Sandhurst Shores Water Treatment Plant	>90% to 95%	100.00%
Greater Sudbury, City of	Bleazard Valley Well Supply	>95% to 100% *	99.92%
Greater Sudbury, City of	Capreol Well Supply	>95% to 100%	99.93%
Greater Sudbury, City of	Dowling Well Supply	>95% to 100% *	100.00%
Greater Sudbury, City of	Falconbridge Well Supply	>95% to 100% *	100.00%
Greater Sudbury, City of	Falconbridge (Sudbury) Distribution System	>95% to 100% *	100.00%
Greater Sudbury, City of	Garson Well Supply	>85% to 90%	99.91%
Greater Sudbury, City of	Levack Well Supply	>95% to 100%	100.00%
Greater Sudbury, City of	Levack (Sudbury) Distribution System	>95% to 100%	100.00%
Greater Sudbury, City of	Onaping Well Supply	>95% to 100%	100.00%
Greater Sudbury, City of	Onaping (Sudbury) Distribution System	>90% to 95%	100.00%
Greater Sudbury, City of	Sudbury (David St.) Water Treatment Plant	>95% to 100%	99.91%
Greater Sudbury, City of	Sudbury (Wahnapeitei) Water Treatment Plant	>90% to 95%	99.84%
Greater Sudbury, City of	Vermillion Distribution System	>95% to 100%	99.77%
Greater Sudbury, City of	Vermillion (Inco) Water Treatment Plant	>80% to 85%	100.00%
Greenstone, the Corporation of the Municipality of	Beardmore Water Treatment Plant	>95% to 100% *	100.00%
Greenstone, the Corporation of the Municipality of	Caramat Water Treatment Plant	>90% to 95%	97.95%
Greenstone, the Corporation of the Municipality of	Geraldton Water Treatment Plant	>95% to 100%	100.00%
Greenstone, the Corporation of the Municipality of	Longlac Water Treatment Plant	>85% to 90%	100.00%
Greenstone, the Corporation of the Municipality of	Nakina Well Supply	>75% to 80%	100.00%
Grey Highlands, Municipality of	Kimberley-Amik-Talisman Well Supply	>95% to 100%	99.84%
Grey Highlands, Municipality of	Markdale Well Supply	>95% to 100%	99.82%
Grimsby, the Corporation of the Town of	Grimsby Distribution System	>95% to 100% *	100.00%
Grimsby, the Corporation of the Town of	Grimsby Water Treatment Plant	>95% to 100% *	100.00%
Guelph, the Corporation of the City of	Guelph Well Supply	>95% to 100% *	100.00%
Guelph/Eramosa, the Corporation of the Township of	Gazer Mooney Subdivision Distribution System	>95% to 100%	100.00%
Guelph/Eramosa, the Corporation of the Township of	Hamilton Drive Well Supply	>95% to 100%	99.88%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Guelph/Eramosa, the Corporation of the Township of	Rockwood Well Supply	>95% to 100%	100.00%
Haldimand, the Corporation of the County of	Caledonia/Cayuga (Hamilton WTP) Distribution System	>95% to 100%	99.91%
Haldimand, the Corporation of the County of	Dunnville Water Treatment Plant	>95% to 100%	100.00%
Haldimand, the Corporation of the County of	Nanticoke and Trunk Main Water Treatment Plant	>95% to 100% *	99.82%
Halton Hills, Town of	Acton Well Supply	>95% to 100% *	100.00%
Halton Hills, Town of	Georgetown Well Supply	>95% to 100% *	99.82%
Hamilton, City of	Carlisle Well Supply	>95% to 100%	99.78%
Hamilton, City of	Freelton Well Supply	>95% to 100%	99.47%
Hamilton, City of	Greensville Well Supply	>95% to 100%	99.57%
Hamilton, City of	Hamilton Water Treatment Plant	>85% to 90%	99.86%
Hamilton, City of	Lynden Well Supply	>80% to 85%	99.73%
Hamilton, the Corporation of the Township of	Camborne Well Supply	>95% to 100%	100.00%
Hamilton, the Corporation of the Township of	Creighton Heights Well Supply	>85% to 90%	99.03%
Hamilton, the Corporation of the Township of	Hamilton Township Water Agreement Distribution System	>95% to 100% *	99.91%
Hanover, the Corporation of the Town of	Hanover Water Treatment Plant	>95% to 100%	100.00%
Havelock-Belmont-Methuen, the Corporation of the Township of	Havelock Well Supply	>95% to 100% *	99.72%
Hawkesbury, the Corporation of the Town of	Hawkesbury Water Treatment Plant	>95% to 100%	99.68%
Hearst, the Corporation of the Town of	Hearst Water Treatment Plant	>90% to 95%	100.00%
Highlands East, the Corporation of the Municipality of	Cardiff Well Supply	>95% to 100% *	99.01%
Highlands East, the Corporation of the Municipality of	Dyno Estates Well Supply	>95% to 100% *	100.00%
Hilton Beach, the Incorporated Village of	Hilton Beach Well Supply	>95% to 100% *	100.00%
Hornepayne, the Corporation of the Township of	Hornepayne Well Supply	>95% to 100%	99.84%
Huntsville, Town of	Huntsville Water Treatment Plant	>95% to 100% *	99.49%
Huntsville, Town of	Port Sydney Well Supply	>80% to 85%	99.81%
Huron East, the Corporation of the Municipality of	Brucefield Well Supply	>95% to 100% *	100.00%
Huron East, the Corporation of the Municipality of	Brussels Well Supply	>95% to 100% *	100.00%
Huron East, the Corporation of the Municipality of	Seaforth Well Supply	>95% to 100% *	99.79%
Huron East, the Corporation of the Municipality of	Vanastra Distribution System	>95% to 100%	100.00%
Huron-Kinloss, the Corporation of the Township of	Huronville Subdivision Distribution System	>75% to 80%	99.69%
Huron-Kinloss, the Corporation of the Township of	Lakeshore Well Supply	>85% to 90%	99.94%
Huron-Kinloss, the Corporation of the Township of	Lucknow Well Supply	>90% to 95%	99.87%
Huron-Kinloss, the Corporation of the Township of	Ripley Well Supply	>90% to 95%	100.00%
Huron-Kinloss, the Corporation of the Township of	Whitechurch Well Supply	>80% to 85%	99.15%
Ignace, the Corporation of the Township of	Ignace Well Supply	>90% to 95%	100.00%
Ingersoll, Town of	Ingersoll Well Supply	>95% to 100%	99.81%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Innisfil, the Corporation of the Town of	Alcona Water Treatment Plant	>95% to 100% *	99.83%
Innisfil, the Corporation of the Town of	Churchill Well Supply	>95% to 100% *	99.27%
Innisfil, the Corporation of the Town of	Cookstown Well Supply	>95% to 100%	99.89%
Innisfil, the Corporation of the Town of	Crossroads Well Supply	>95% to 100% *	100.00%
Innisfil, the Corporation of the Town of	Goldcrest Well Supply	>95% to 100% *	99.71%
Innisfil, the Corporation of the Town of	Golf Haven Well Supply	>90% to 95%	99.19%
Innisfil, the Corporation of the Town of	Innisfil Heights Well Supply	>95% to 100% *	100.00%
Innisfil, the Corporation of the Town of	Stroud Well Supply	>95% to 100%	99.51%
Iroquois Falls, the Corporation of the Town of	Iroquois Falls Well Supply	>90% to 95%	99.66%
Iroquois Falls, the Corporation of the Town of	Monteith Distribution System	>85% to 90%	100.00%
Iroquois Falls, the Corporation of the Town of	Porquis Junction Well Supply	>85% to 90%	100.00%
James, the Corporation of the Township of	Elk Lake Well Supply	>95% to 100% *	100.00%
Johnson, the Corporation of the Township of	Desbarats Water Treatment Plant	>85% to 90%	100.00%
Kapuskasing, the Corporation of the Town of	Kapuskasing Well Supply	>90% to 95%	99.88%
Kawartha Lakes, the Corporation of the City of	Birchpoint Estates Well Supply	>95% to 100%	99.61%
Kawartha Lakes, the Corporation of the City of	Bobcaygeon Water Treatment Plant	>95% to 100%	99.56%
Kawartha Lakes, the Corporation of the City of	Canadiana Shores Well Supply	>95% to 100%	100.00%
Kawartha Lakes, the Corporation of the City of	Fenelon Falls Water Treatment Plant	>95% to 100%	100.00%
Kawartha Lakes, the Corporation of the City of	Highview Acres System (Amalgamated into the Birchpoint Estates Water Treatment Plant)	>95% to 100% *	99.61%
Kawartha Lakes, the Corporation of the City of	Janetville Well Supply	>95% to 100% *	100.00%
Kawartha Lakes, the Corporation of the City of	King's Bay Well Supply	>90% to 95%	99.68%
Kawartha Lakes, the Corporation of the City of	Kinmount Down Town Water Treatment Plant	>95% to 100%	98.63%
Kawartha Lakes, the Corporation of the City of	Kinmount East Hill Well Supply	>95% to 100%	99.87%
Kawartha Lakes, the Corporation of the City of	Lindsay Water Treatment Plant	>95% to 100%	99.54%
Kawartha Lakes, the Corporation of the City of	Manilla Well Supply	>95% to 100%	99.51%
Kawartha Lakes, the Corporation of the City of	Manorview Well Supply	>95% to 100%	100.00%
Kawartha Lakes, the Corporation of the City of	Mariposa Estates Well Supply	>95% to 100% *	98.58%
Kawartha Lakes, the Corporation of the City of	Norland Water Treatment Plant	>90% to 95%	99.26%
Kawartha Lakes, the Corporation of the City of	Oakwood Estates System (Amalgamated into the Lindsay Water Treatment Plant)	>95% to 100% *	99.54%
Kawartha Lakes, the Corporation of the City of	Omeme Well Supply	>90% to 95%	100.00%
Kawartha Lakes, the Corporation of the City of	Pinewood Well Supply	>90% to 95%	100.00%
Kawartha Lakes, the Corporation of the City of	Pleasant Point Well Supply	>95% to 100%	99.60%
Kawartha Lakes, the Corporation of the City of	Sonya Village Subdivision Well Supply	>95% to 100%	100.00%
Kawartha Lakes, the Corporation of the City of	Southview Estates Water Treatment Plant	>95% to 100%	99.87%
Kawartha Lakes, the Corporation of the City of	Sturgeon Point Water Treatment Plant	>90% to 95%	99.62%
Kawartha Lakes, the Corporation of the City of	Sunny Acres System (Amalgamated into the Lindsay Water Treatment Plant)	>95% to 100% *	99.54%
Kawartha Lakes, the Corporation of the City of	Victoria Place Well Supply	>95% to 100% *	99.02%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Kawartha Lakes, the Corporation of the City of	Western Trent/Palmina Well Supply	>95% to 100% *	99.72%
Kawartha Lakes, the Corporation of the City of	Woodfield Well Supply	>95% to 100%	100.00%
Kawartha Lakes, the Corporation of the City of	Woodville Well Supply	>95% to 100%	99.75%
Kenora, the Corporation of the City of	Kenora Area Water Treatment Plant	>90% to 95%	99.76%
Killaloe, Hagarty & Richards, the Corporation of the Township of	Killaloe Well Supply	>90% to 95%	99.82%
Killarney, the Corporation of the Municipality of	Killarney Water Treatment Plant	>95% to 100%	99.00%
Kincardine, the Corporation of the Municipality of	Kincardine Water Treatment Plant	>95% to 100%	99.69%
Kincardine, the Corporation of the Municipality of	Scott's Point Well Supply	>95% to 100% *	98.03%
Kincardine, the Corporation of the Municipality of	Tiverton Well Supply	>70% to 75%	98.55%
Kincardine, the Corporation of the Municipality of	Underwood Well Supply	>95% to 100%	98.16%
King, the Corporation of the Township of	Ansnoerveldt Well Supply	>95% to 100% *	100.00%
King, the Corporation of the Township of	Ansnoerveldt Distribution System	>90% to 95%	100.00%
King, the Corporation of the Township of	King City Well Supply	>95% to 100% *	100.00%
King, the Corporation of the Township of	King City Distribution System	>90% to 95%	100.00%
King, the Corporation of the Township of	Nobleton Well Supply	>95% to 100% *	100.00%
King, the Corporation of the Township of	Nobleton Distribution System	>90% to 95%	100.00%
King, the Corporation of the Township of	Schomberg Well Supply	>95% to 100%	100.00%
King, the Corporation of the Township of	Schomberg Distribution System	>90% to 95%	100.00%
Kingston, City of	Cana Well Supply	>95% to 100%	100.00%
Kingston, City of	Kingston Central Water Treatment Plant	>90% to 95%	99.95%
Kingston, City of	Kingston West Water Treatment Plant	>95% to 100% *	99.91%
Kingsville, the Corporation of the Township of	Kingsville (Union WTP) Distribution System	>95% to 100% *	100.00%
Kingsville, the Corporation of the Township of	Union (Essex County) Area Water Treatment Plant	>95% to 100%	99.62%
Kirkland Lake, the Corporation of the Town of	L.J. Sherratt Water Treatment Plant	>85% to 90%	100.00%
Kitchener, the Corporation of the City of	Kitchener Distribution System	>90% to 95%	99.96%
Kitchener, the Corporation of the City of	Mannheim Water Supply System	>90% to 95%	99.83%
Lakeshore, the Corporation of the Town of	Belle River Water Treatment Plant	>95% to 100%	100.00%
Lakeshore, the Corporation of the Town of	Lakeshore (Tecumseh Water Service Area) Distribution System	>95% to 100% *	100.00%
Lakeshore, the Corporation of the Town of	Lakeshore (Union WTP) Distribution System	>95% to 100% *	100.00%
Lakeshore, the Corporation of the Town of	Lighthouse Cove Distribution System	>95% to 100% *	100.00%
Lakeshore, the Corporation of the Town of	Stoney Point Water Treatment Plant	>95% to 100%	100.00%
Lambton Shores, the Corporation of the Municipality of	Arkona Well Supply	>95% to 100% *	99.83%
Lambton Shores, the Corporation of the Municipality of	East Lambton Shores Water Distribution System	>95% to 100% *	99.69%
Lambton Shores, the Corporation of the Municipality of	Thedford Water Distribution System	>95% to 100% *	100.00%
Lambton Shores, the Corporation of the Municipality of	West Lambton Shores Water Distribution System	>95% to 100% *	100.00%
Larder Lake, the Corporation of the Township of	Larder Lake Well Supply	>90% to 95%	100.00%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
LaSalle, the Corporation of the Town of	Town of LaSalle (Windsor) Distribution System	>90% to 95%	100.00%
Latchford, the Corporation of the Town of	Latchford Water Treatment Plant	>95% to 100%	100.00%
Laurentian Hills, the Corporation of the Town of	Chalk River Water Treatment Plant	>80% to 85%	99.39%
Laurentian Valley, the Township of	Laurentian Valley Distribution System	>95% to 100%	100.00%
Leamington, the Municipality of the Township of	Leamington (Union WTP) Distribution System	>95% to 100% *	99.92%
Leeds and Thousand Islands, the Corporation of the Township of	Lansdowne Well Supply	>95% to 100% *	99.86%
Lincoln, the Corporation of the Town of	Lincoln (Beamsville) (Grimsby WTP) Distribution System	>95% to 100%	99.94%
Lincoln, the Corporation of the Town of	Lincoln (Vineland/Jordan) (Decew WTP) Distribution System	>95% to 100%	100.00%
London, City of	City of London Distribution System	>90% to 95%	99.79%
Loyalist, the Corporation of the Township of	Bath Water Treatment Plant	>95% to 100% *	100.00%
Loyalist, the Corporation of the Township of	Fairfield Water Treatment Plant	>95% to 100%	99.92%
Lucan Biddulph, the Corporation of the Township of	Granton Well (Amalgamated into the Lucan Biddulph Distribution System)	>75% to 80%	100.00%
Lucan Biddulph, the Corporation of the Township of	Lucan Biddulph (L. Huron AWS) Distribution System	>75% to 80%	100.00%
MacDonald, Meredith & Aberdeen Additional, the Corporation of the Township of	Echo Bay Water Treatment Plant	>95% to 100%	99.80%
Machin, the Corporation of Municipality of	Vermilion Bay Water Treatment Plant	>90% to 95%	98.93%
Madawaska Valley, the Township of	Barry's Bay Water Treatment Plant	>95% to 100%	99.42%
Madoc, Township of	Madoc Well Supply	>95% to 100% *	99.76%
Malahide, the Corporation of the Township of	Malahide (Elgin AWS) Distribution System	>85% to 90%	100.00%
Malahide, the Corporation of the Township of	Port Burwell Secondary Distribution System	>90% to 95%	99.85%
Manitouwadge, the Corporation of the Township of,	Manitouwadge Well Supply	>95% to 100%	100.00%
Mapleton, the Corporation of the Municipality of	Drayton Well Supply	>95% to 100% *	99.80%
Marathon, the Corporation of the Town of	Marathon Well Supply	>95% to 100% *	100.00%
Markham, the Town of	Markham Distribution System	>95% to 100%	99.90%
Markstay-Warren, Municipality of	Markstay Distribution System	>95% to 100% *	99.80%
Markstay-Warren, Municipality of	Warren Well Supply	>95% to 100%	100.00%
Marmora & Lake, the Corporation of the Municipality of	Deloro Well Supply	>95% to 100%	100.00%
Marmora & Lake, the Corporation of the Municipality of	Marmora Water Treatment Plant	>95% to 100%	99.01%
Matachewan, the Corporation of the Town of	Matachewan Well Supply	>95% to 100% *	100.00%
Mattawa, the Corporation of the Town of	Mattawa Well Supply	>90% to 95%	100.00%
Mattice-Val Cote, the Corporation of the Township of	Mattice Water Treatment Plant	>95% to 100%	100.00%
McDougall, the Corporation of the Municipality of	Nobel Water Treatment Plant	>95% to 100%	99.51%
McGarry, the Corporation of the Township of	Virginiatown-Kearns Well Supply	>95% to 100% *	99.86%
Meaford, the Corporation of the Municipality of	Leith Distribution System	>95% to 100%	100.00%
Meaford, the Corporation of the Municipality of	Meaford PUC Water Treatment Plant	>95% to 100% *	99.68%
Merrickville-Wolford, the Corporation of the Village of	Merrickville Well Supply	>95% to 100%	99.80%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Michipicoten, the Corporation of the Township of	Michipicoten River Village Well Supply	>95% to 100%	99.75%
Michipicoten, the Corporation of the Township of	Wawa Water Treatment Plant	>95% to 100%	99.86%
Middlesex Centre, the Corporation of the Township of	Birr Well Supply	>95% to 100%	100.00%
Middlesex Centre, the Corporation of the Township of	Delaware Distribution System	>95% to 100%	99.47%
Middlesex Centre, the Corporation of the Township of	Kilworth Heights Subdivision Well Supply	>90% to 95%	100.00%
Middlesex Centre, the Corporation of the Township of	Melrose Well Supply	>95% to 100%	100.00%
Middlesex Centre, the Corporation of the Township of	Middlesex Centre Distribution System	>90% to 95%	99.79%
Midland, the Corporation of the Town of	Midland Well Supply	>90% to 95%	99.77%
Milton, Town of	Campbellville Well Supply	>95% to 100% *	99.85%
Milton, Town of	Milton Well Supply	>95% to 100% *	99.78%
Minden Hills, the Corporation of the Town of	Minden Well Supply	>95% to 100%	99.87%
Minto, the Corporation of the Town of	Clifford Well Supply	>95% to 100%	99.75%
Minto, the Corporation of the Town of	Harriston Well Supply	>95% to 100%	99.90%
Minto, the Corporation of the Town of	Minto Pines Subdivision Well Supply	>95% to 100%	100.00%
Minto, the Corporation of the Town of	Palmerston Well Supply	>95% to 100% *	100.00%
Mississauga, City of	South Peel (Lakeview) Water Treatment Plant	>90% to 95%	99.93%
Mississauga, City of	South Peel (Lorne Park) Water Treatment Plant	>75% to 80%	99.95%
Mississippi Mills, the Corporation of the Town of	Mississippi Mills Well Supply	>70% to 75%	100.00%
Mono, the Corporation of the Town of	Cardinal Woods Subdivision Well Supply	>95% to 100% *	100.00%
Mono, the Corporation of the Town of	Island Lake Well Supply	>95% to 100% *	99.80%
Montague, the Corporation of the Township of	Montague Distribution System	>70% to 75%	99.42%
Moonbeam, the Corporation of the Township of	Moonbeam Well Supply	>95% to 100% *	100.00%
Moosonee, Corporation of the Town of	Moosonee Water Treatment Plant	>95% to 100%	100.00%
Morris-Turnberry, the Corporation of the Municipality of	Jane Street (Belgrave) Well Supply	>95% to 100% *	100.00%
Morris-Turnberry, the Corporation of the Municipality of	McCrae Street (Belgrave) Well Supply	>95% to 100% *	100.00%
Mulmur, the Corporation of the Township of	Mansfield Well Supply	>95% to 100%	100.00%
Mulmur, the Corporation of the Township of	Mansfield Private Well Supply	>95% to 100%	99.57%
Muskoka Lakes, Township of	Bala Water Treatment Plant	>95% to 100% *	100.00%
Muskoka Lakes, Township of	Port Carling (Ferndale Road) Water Treatment Plant	>95% to 100% *	100.00%
Nairn and Hyman, the Corporation of the Township	Nairn Centre Water Treatment Plant	>85% to 90%	100.00%
Nation Municipality, the Corporation of the	Limoges Well Supply	>95% to 100% *	99.38%
Nation Municipality, the Corporation of the	St. Isidore Well Supply	>95% to 100%	99.50%
New Tecumseth, the Corporation of the Town of	Alliston Well Supply	>95% to 100% *	99.54%
New Tecumseth, the Corporation of the Town of	Tottenham Well Supply	>95% to 100% *	99.42%
Newbury, the Corporation of the Village of	Newbury (West Elgin AWS) Distribution System	>85% to 90%	99.69%
Newmarket, the Corporation of the Town of	Newmarket Distribution System	>95% to 100% *	99.92%
Newmarket, the Corporation of the Town of	Newmarket Well Supply	>95% to 100% *	99.83%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Niagara Falls, the City of	Niagara Falls Distribution System	>95% to 100% *	99.68%
Niagara Falls, the City of	Niagara Falls Water Treatment Plant	>95% to 100% *	100.00%
Niagara-on-the-Lake, the Corporation of the Town of	Bevan Heights Distribution System	>90% to 95%	100.00%
Niagara-on-the-Lake, the Corporation of the Town of	Niagara on-the-Lake Distribution System	>95% to 100%	99.71%
Nipigon, the Corporation of the Township of	Nipigon Water Treatment Plant	>95% to 100%	100.00%
Norfolk County, the Corporation of	Courtland Well Supply	>95% to 100%	99.78%
Norfolk County, the Corporation of	Delhi Water Supply System	>95% to 100%	99.24%
Norfolk County, the Corporation of	Port Dover Water Treatment Plant	>95% to 100%	99.89%
Norfolk County, the Corporation of	Port Rowan Water Treatment Plant	>95% to 100% *	99.86%
Norfolk County, the Corporation of	Simcoe Well Supply	>95% to 100% *	99.94%
Norfolk County, the Corporation of	Waterford Well Supply	>95% to 100% *	100.00%
North Bay, the Corporation of the City of	North Bay Water Treatment Plant	>90% to 95%	99.87%
North Dumfries, the Corporation of the Township	Ayr Well Supply	>95% to 100%	100.00%
North Dumfries, the Corporation of the Township	Branchton Distribution System	>95% to 100%	100.00%
North Dumfries, the Corporation of the Township	Branchton Well Supply	>95% to 100%	100.00%
North Dumfries, the Corporation of the Township	Lloyd Brown Distribution System	>95% to 100%	99.41%
North Dumfries, the Corporation of the Township	Roseville Well Supply	>95% to 100%	100.00%
North Dundas, the Township of	Chesterville Well Supply	>95% to 100% *	100.00%
North Dundas, the Township of	Winchester Well Supply	>95% to 100% *	99.85%
North Glengarry, the Corporation of the Township of	Alexandria Water Treatment Plant	>90% to 95%	99.86%
North Glengarry, the Corporation of the Township of	Glen Robertson Well Supply	>80% to 85%	100.00%
North Grenville, the Corporation of the Township of	Kemptville Well Supply	>90% to 95%	99.92%
North Huron, the Corporation of the Township of	Blyth Well Supply	>95% to 100%	100.00%
North Huron, the Corporation of the Township of	Humphrey Subdivision/Belgrave Well Supply	>95% to 100%	99.72%
North Huron, the Corporation of the Township of	Wingham Well Supply	>95% to 100%	99.49%
North Middlesex, the Municipality of	North Middlesex (Lake Huron AWS) Distribution System	>75% to 80%	99.85%
North Perth, Municipality of	Bowman Court Subdivision Well Supply	>90% to 95%	99.23%
North Perth, Municipality of	Gowanstown Subdivision Well Supply	>85% to 90%	100.00%
North Perth, Municipality of	Listowel Well Supply	>90% to 95%	99.63%
North Perth, Municipality of	Smith Subdivision Well Supply	>90% to 95%	100.00%
North Shore, the Corporation of the Township of the	Pronto East Subdivision Water Treatment Plant	>70% to 75%	98.81%
North Shore, the Corporation of the Township of the	Serpent River (the North Shore Twp) Water Treatment Plant	>95% to 100% *	98.65%
North Stormont, the Corporation of the Township of	Crysler Well Supply	>95% to 100% *	99.83%
North Stormont, the Corporation of the Township of	Finch Well Supply	>95% to 100% *	100.00%
North Stormont, the Corporation of the Township of	Moose Creek Well Supply	>95% to 100% *	99.81%
North Eastern Manitoulin & the Islands, the Corporation of the Town of	Little Current Water Treatment Plant	>90% to 95%	100.00%
North Eastern Manitoulin & the Islands, the Corporation of the Town of	Sheguiandah Water Treatment Plant	>85% to 90%	100.00%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Northern Bruce Peninsula, the Corporation of the Municipality of	Lion's Head Water Treatment Plant	>95% to 100%	99.64%
Norwich, Township of	Norwich Well Supply	>95% to 100% *	98.93%
Norwich, Township of	Otterville-Springford Well Supply	>95% to 100% *	100.00%
Norwich, Township of	Springford Well Supply	>95% to 100%	100.00%
Oakville, Town of	Oakville Water Treatment Plant	>95% to 100% *	99.85%
Oil Springs, the Corporation of the Village of	Oil Springs Water Distribution System	>90% to 95%	100.00%
Oliver Paipoonge, the Corporation of the Municipality of	Rosslyn Village Subdivision Well Supply	>95% to 100%	100.00%
Opasatika, Corporation of the Township of	Opasatika Well Supply	>95% to 100%	99.46%
Orangeville, the Corporation of the Town of	Orangeville Well Supply	>90% to 95%	99.94%
Orillia, the Corporation of the City of	Orillia Water Supply System	>95% to 100%	99.90%
Oro-Medonte, the Corporation of the Township of	Canterbury Subdivision Well Supply	>95% to 100% *	100.00%
Oro-Medonte, the Corporation of the Township of	Cedar Brook Subdivision Well Supply	>95% to 100%	99.69%
Oro-Medonte, the Corporation of the Township of	Craighurst Well Supply	>95% to 100%	99.69%
Oro-Medonte, the Corporation of the Township of	Harbourwood Well Supply	>95% to 100%	100.00%
Oro-Medonte, the Corporation of the Township of	Horseshoe Highlands Subdivision Well Supply	>95% to 100% *	100.00%
Oro-Medonte, the Corporation of the Township of	Maplewood Estates Well Supply	>90% to 95%	100.00%
Oro-Medonte, the Corporation of the Township of	Medonte Hills Well Supply	>95% to 100% *	100.00%
Oro-Medonte, the Corporation of the Township of	Robin Crest Well Supply	>95% to 100%	99.69%
Oro-Medonte, the Corporation of the Township of	Shanty Bay Well Supply	>95% to 100%	100.00%
Oro-Medonte, the Corporation of the Township of	Sugar Bush Well Supply	>95% to 100%	100.00%
Oro-Medonte, the Corporation of the Township of	Warminster Well Supply	>95% to 100%	100.00%
Oshawa, City of	Oshawa Water Treatment Plant	>95% to 100%	99.95%
Otonabee-South Monaghan, Corporation of the Township of	Elgeti and Crystal Springs Subdivisions Well Supply	>95% to 100%	99.79%
Otonabee-South Monaghan, Corporation of the Township of	Keene Heights Subdivision Well Supply	>90% to 95%	100.00%
Ottawa, Corporation of the City of	Britannia Water Treatment Plant	>95% to 100%	99.24%
Ottawa, Corporation of the City of	Carp Well Supply	>95% to 100% *	100.00%
Ottawa, Corporation of the City of	Kings Park Well Supply	>95% to 100%	100.00%
Ottawa, Corporation of the City of	Lemieux Island Water Treatment Plant	>95% to 100% *	99.94%
Ottawa, Corporation of the City of	Munster Hamlet Well Supply	>95% to 100% *	100.00%
Ottawa, Corporation of the City of	Vars Well Supply	>95% to 100% *	99.88%
Owen Sound, the Corporation of the City of	Owen Sound (Richard H. Neath) Water Treatment Plant	>90% to 95%	100.00%
Parry Sound, the Corporation of the Town of	Parry Sound Water Treatment Plant	>95% to 100%	99.76%
Pelham, the Corporation of the Town of	Pelham Distribution System	>95% to 100% *	99.56%
Pembroke, the Corporation of the City of	Pembroke Water Treatment Plant	>90% to 95%	99.90%
Penetanguishene, the Corporation of the Town of	Lepage Subdivision (Penetanguishene) Well Supply	>95% to 100%	100.00%
Penetanguishene, the Corporation of the Town of	Payette (Penetanguishene) Well Supply	>95% to 100%	100.00%
Perth East, the Corporation of the Township of	Milverton Well Supply	>95% to 100%	99.84%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Perth East, the Corporation of the Township of	Shakespeare (Miller Ave.) Well Supply	>95% to 100%	100.00%
Perth South, the Corporation of the Township of	Sebringville (Black Creek Estates) Well Supply	>90% to 95%	99.07%
Perth South, the Corporation of the Township of	St. Paul's Well Supply	>95% to 100%	100.00%
Perth, the Corporation of the Town of	Perth Water Treatment Plant	>90% to 95%	99.63%
Petawawa, the Corporation of the Town of	Petawawa Water Treatment Plant	>95% to 100% *	99.91%
Peterborough, City of	Peterborough Water Treatment Plant	>95% to 100%	99.72%
Petrolia, the Corporation of the Town of	Town of Petrolia Bright's Grove Water Treatment Plant	>95% to 100% *	99.91%
Pickle Lake, the Corporation of the Township of	Pickle Lake Well Supply	>95% to 100%	99.77%
Plummer Additional, the Corporation of the Township of	Plummer Additional Booster Pumping Station & Reservoir Distribution System	>95% to 100%	100.00%
Plympton-Wyoming, the Corporation of the Town of	Plympton-Wyoming (Lambton AWS) Distribution System	>95% to 100% *	100.00%
Point Edward, the Corporation of the Village of	Point Edward (Lambton AWS) Distribution System	>95% to 100%	100.00%
Port Colborne, the Corporation of the City of	Port Colborne Distribution System	>95% to 100%	99.74%
Port Colborne, the Corporation of the City of	Port Colborne Water Treatment Plant	>95% to 100% *	99.89%
Port Hope, the Corporation of the Municipality of	Port Hope Water Treatment Plant	>95% to 100% *	99.67%
Powassan, the Corporation of the Municipality of	Powassan Well Supply	>90% to 95%	100.00%
Prescott, the Corporation of the separated Town of	Prescott Water Treatment Plant	>95% to 100% *	100.00%
Prince Edward, the Corporation of the County of	Ameliasburgh Hamlet Water Treatment Plant	>95% to 100%	99.79%
Prince Edward, the Corporation of the County of	Consecon/Carrying Place Distribution System	>90% to 95%	99.21%
Prince Edward, the Corporation of the County of	Fenwood Gardens/Rossmore Distribution System	>95% to 100%	99.51%
Prince Edward, the Corporation of the County of	Peats Point Subdivision Well Supply	>95% to 100%	99.42%
Prince Edward, the Corporation of the County of	Picton Water Treatment Plant	>85% to 90%	99.49%
Prince Edward, the Corporation of the County of	Wellington Water Treatment Plant	>90% to 95%	100.00%
Quinte West, the Corporation of the City of	Batawa Water Treatment Plant	>85% to 90%	99.80%
Quinte West, the Corporation of the City of	Bayside Water Treatment Plant	>90% to 95%	99.84%
Quinte West, the Corporation of the City of	Frankford Water Treatment Plant	>85% to 90%	100.00%
Quinte West, the Corporation of the City of	Trenton Water Treatment Plant	>90% to 95%	100.00%
Quinte West, the Corporation of the City of	Wedgewood Lane Well Supply	>80% to 85%	99.22%
Rainy River, the Corporation of the Town of	Rainy River Water Treatment Plant	>95% to 100%	100.00%
Ramara, the Corporation of the Township of	Bayshore Village Subdivision Well Supply	>90% to 95%	100.00%
Ramara, the Corporation of the Township of	Brechin & Lagoon City Water Treatment Plant	>90% to 95%	100.00%
Ramara, the Corporation of the Township of	Davy Drive Subdivision Well Supply	>95% to 100%	100.00%
Ramara, the Corporation of the Township of	Park Lane Subdivision Well Supply	>90% to 95%	100.00%
Ramara, the Corporation of the Township of	Somerset/Knob Hill Water Distribution System	>95% to 100% *	100.00%
Ramara, the Corporation of the Township of	South Ramara Water Treatment Plant	>95% to 100%	100.00%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Ramara, the Corporation of the Township of	Val Harbour Subdivision Well Supply	>90% to 95%	100.00%
Red Lake, the Municipality of	Golden Ward Water Treatment Plant	>95% to 100% *	99.73%
Red Lake, the Municipality of	Madsen Water Treatment Plant	>95% to 100% *	99.14%
Red Lake, the Municipality of	Red Lake Water Treatment Plant	>95% to 100% *	99.83%
Red Rock, the Corporation of the Township of	Red Rock Water Treatment Plant	>90% to 95%	100.00%
Renfrew, the Corporation of the Town of	Renfrew Water Treatment Plant	>90% to 95%	99.50%
Richmond Hill, the Corporation of the Town of	Richmond Hill Distribution System	>90% to 95%	99.88%
Russell, the Corporation of the Township of	Embrun-Russell-Marionville Well Supply	>95% to 100% *	99.88%
Sables-Spanish Rivers, the Corporation of the Township of	Massey Water Treatment Plant	>95% to 100% *	100.00%
Sarnia, City of	Lambton Area Water Supply System	>95% to 100% *	99.96%
Sarnia, City of	Sarnia (Lambton AWS) Distribution System	>95% to 100% *	99.97%
Saugeen Shores, the Corporation of the Town of	Port Elgin Water Treatment Plant	>90% to 95%	100.00%
Saugeen Shores, the Corporation of the Town of	Southampton Water Treatment Plant	>90% to 95%	100.00%
Sault Ste. Marie, City of	Sault Ste. Marie Water Supply System – Groundwater Supply	>95% to 100% *	100.00%
Sault Ste. Marie, City of	Sault Ste. Marie Water Supply System – Surface Water Supply	>95% to 100% *	100.00%
Schreiber, the Corporation of the Township	Schreiber Water Treatment Plant	>80% to 85%	100.00%
Scugog, Township of	Blackstock Well Supply	>95% to 100% *	99.76%
Scugog, Township of	Greenbank Well Supply	>95% to 100% *	99.84%
Scugog, Township of	Port Perry Well Supply	>85% to 90%	99.85%
Severn, the Corporation of the Township of	Bass Lake Woodlands Well Supply	>95% to 100%	100.00%
Severn, the Corporation of the Township of	Coldwater Well Supply	>95% to 100%	100.00%
Severn, the Corporation of the Township of	Sandcastle Estates Water Treatment Plant	>95% to 100%	100.00%
Severn, the Corporation of the Township of	Severn Estates Well Supply	>95% to 100% *	100.00%
Severn, the Corporation of the Township of	Washago Water Treatment Plant	>95% to 100%	100.00%
Severn, the Corporation of the Township of	West Shore Water Treatment Plant	>90% to 95%	100.00%
Shelburne, the Corporation of the Town of	Shelburne Well Supply	>95% to 100%	100.00%
Sioux Lookout, the Corporation of the Municipality of	Hudson Water Treatment Plant	>95% to 100% *	99.29%
Sioux Lookout, the Corporation of the Municipality of	Sioux Lookout Urban Water Treatment Plant	>95% to 100%	99.86%
Smith-Ennismore-Lakefield, the Corporation of the Township of	Lakefield Water Treatment Plant	>95% to 100%	100.00%
Smith-Ennismore-Lakefield, the Corporation of the Township of	Woodland Acres Subdivision Distribution System	>95% to 100%	99.78%
Smiths Falls, the Corporation of the Separated Town of	Smiths Falls Water Treatment Plant	>95% to 100%	99.62%
Smooth Rock Falls, the Corporation of the Town of	Smooth Rock Falls Water Treatment Plant	>95% to 100% *	100.00%
South Bruce Peninsula, the Corporation of the Town of	Cambridge-Collins Well Supply	>90% to 95%	99.69%
South Bruce Peninsula, the Corporation of the Town of	Fiddlehead Subdivision Well Supply	>90% to 95%	99.01%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
South Bruce Peninsula, the Corporation of the Town of	Forbes Subdivision Well Supply	>90% to 95%	100.00%
South Bruce Peninsula, the Corporation of the Town of	Foreman Well Supply	>90% to 95%	100.00%
South Bruce Peninsula, the Corporation of the Town of	Gremik Subdivision Well Supply	>90% to 95%	100.00%
South Bruce Peninsula, the Corporation of the Town of	Huronwoods Well Supply	>90% to 95%	100.00%
South Bruce Peninsula, the Corporation of the Town of	Robins Well Supply	>90% to 95%	100.00%
South Bruce Peninsula, the Corporation of the Town of	Thomson Subdivision Well Supply	>90% to 95%	100.00%
South Bruce Peninsula, the Corporation of the Town of	Trask Well Supply	>90% to 95%	98.69%
South Bruce Peninsula, the Corporation of the Town of	Warton Water Treatment Plant	>95% to 100% *	100.00%
South Bruce Peninsula, the Corporation of the Town of	Winburk Subdivision Well Supply	>90% to 95%	100.00%
South Bruce, the Corporation of the Municipality of	Mildmay Well Supply	>90% to 95%	99.84%
South Bruce, the Corporation of the Municipality of	Teeswater Well Supply	>90% to 95%	99.50%
South Dundas, the Corporation of the Township of	Iroquois Water Treatment Plant	>95% to 100%	100.00%
South Dundas, the Corporation of the Township of	Morrisburg Water Treatment Plant	>95% to 100%	99.44%
South Glengarry, the Corporation of the Township of	Glen Walter Water Treatment Plant	>95% to 100% *	99.03%
South Glengarry, the Corporation of the Township of	Lancaster Water Treatment Plant	>95% to 100%	99.02%
South Glengarry, the Corporation of the Township of	Redwood Estates Well Supply	>95% to 100%	99.45%
South Huron, the Corporation of the Municipality	Exeter Water Supply System	>95% to 100%	99.60%
South Huron, the Corporation of the Municipality	Huron Park Distribution System	>95% to 100% *	99.66%
South Huron, the Corporation of the Municipality	Lake Huron Primary Area Water Supply	>95% to 100%	99.92%
South Huron, the Corporation of the Municipality	South Huron (Lake Huron AWS) Distribution System	>95% to 100% *	99.78%
South River, the Corporation of the Village of	South River Water Treatment Plant	>85% to 90%	100.00%
South Stormont, the Corporation of the Township of	Ingleside Water Treatment Plant	>95% to 100% *	100.00%
South Stormont, the Corporation of the Township of	Long Sault Water Treatment Plant	>95% to 100%	99.80%
South Stormont, the Corporation of the Township of	Newington Well Supply	>95% to 100%	99.78%
South Stormont, the Corporation of the Township of	St. Andrews/Rosedale Terrace Distribution System	>90% to 95%	100.00%
Southgate, the Corporation of the Township of	Dundalk Well Supply	>95% to 100% *	99.81%
South West Middlesex, the Corporation of the Municipality of	South West Middlesex (West Elgin AWS) Distribution System	>95% to 100% *	99.91%
South-West Oxford, Township of	Beachville-Loweville Subdivision Well Supply	>95% to 100% *	100.00%
South-West Oxford, Township of	Brownsville Well Supply	>95% to 100%	100.00%
South-West Oxford, Township of	Dereham Centre Well Supply	>95% to 100%	100.00%
South-West Oxford, Township of	Mount Elgin Well Supply	>95% to 100%	99.79%
South-West Oxford, Township of	Sweaburg-Oxford Heights Subdivision Well Supply	>95% to 100%	100.00%
Southwold, the Corporation of the Township of	Southwold (Elgin AWS) Distribution System	>95% to 100%	99.81%
Spanish, the Corporation of the Town of	Spanish Well Supply	>85% to 90%	100.00%
Springwater, the Corporation of the Township of	Anten Mills Well Supply	>95% to 100%	99.01%
Springwater, the Corporation of the Township of	Del Trend Subdivision Well Supply	>95% to 100% *	100.00%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Springwater, the Corporation of the Township of	Elmvale Well Supply	>95% to 100%	99.88%
Springwater, the Corporation of the Township of	Hillsdale Well Supply	>95% to 100%	99.84%
Springwater, the Corporation of the Township of	Midhurst Well Supply	>95% to 100%	99.63%
Springwater, the Corporation of the Township of	Minesing Well Supply	>95% to 100%	99.32%
Springwater, the Corporation of the Township of	Snow Valley Highlands Well Supply	>90% to 95%	99.83%
Springwater, the Corporation of the Township of	Snow Valley Subdivision Well Supply	>95% to 100%	100.00%
Springwater, the Corporation of the Township of	Sunnidale Road Well Supply	>95% to 100%	97.53%
Springwater, the Corporation of the Township of	Vespra Downs Subdivision Well Supply	>90% to 95%	100.00%
St. Catharines, the Corporation of the City of	St. Catharines (Decew) Water Treatment Plant	>90% to 95%	100.00%
St. Catharines, the Corporation of the City of	St. Catharines Distribution System	>90% to 95%	99.76%
St. Clair, the Corporation of the Township of	St. Clair Township (Lambton AWS) Distribution System	>95% to 100%	99.93%
St. Joseph, the Corporation of the Township of	Richards Landing Well Supply	>95% to 100% *	99.59%
St. Marys, the Corporation of the separated Town of	St. Marys Well Supply	>90% to 95%	99.91%
St. Thomas, the Corporation of the City of	St. Thomas (Elgin AWS) Distribution System	>95% to 100% *	99.93%
Stirling-Rawdon, the Corporation of the Township of	Stirling Well Supply	>95% to 100% *	99.42%
Stratford, the Corporation of the City of	Stratford Well Supply	>95% to 100%	99.45%
Strathroy-Caradoc, the Corporation of the Township of	Mount Brydges Well Supply	>95% to 100%	100.00%
Strathroy-Caradoc, the Corporation of the Township of	Strathroy Well Supply	>95% to 100%	99.75%
Tay, the Corporation of the Township of	Bay Berry Estates Well Supply	>90% to 95%	100.00%
Tay, the Corporation of the Township of	Midland Bay Woods Water Treatment Plant	>95% to 100%	99.52%
Tay, the Corporation of the Township of	Rope Subdivision Water Treatment Plant	>95% to 100%	100.00%
Tay, the Corporation of the Township of	Victoria Harbour Water Treatment Plant	>90% to 95%	98.97%
Tay, the Corporation of the Township of	Waubaushe Water Treatment Plant	>95% to 100%	98.95%
Tecumseh, the Corporation of the Town of	Tecumseh Water Treatment Plant	>90% to 95%	100.00%
Tecumseh, the Corporation of the Town of	Tecumseh (Windsor Twp) Distribution System	>95% to 100% *	99.81%
Tehkummah, the Corporation of the Township of	South Baymouth Water Treatment Plant	>95% to 100% *	99.58%
Temagami, the Corporation of the Municipality of	Temagami North Water Treatment Plant	>95% to 100%	99.65%
Temagami, the Corporation of the Municipality of	Temagami South Water Treatment Plant	>95% to 100%	99.42%
Temiskaming Shores, the City of	Dymond Well Supply	>85% to 90%	99.87%
Temiskaming Shores, the City of	Haileybury (Lake Timiskaming) Water Treatment Plant	>95% to 100%	100.00%
Temiskaming Shores, the City of	New Liskeard Well Supply	>85% to 90%	100.00%
Terrace Bay, the Corporation of the Township of, Kimberly-Clark of Canada Ltd	Terrace Bay Water Treatment Plant	>90% to 95%	100.00%
Thames Centre, the Corporation of the Municipality of	Dorchester Well Supply	>95% to 100%	100.00%
Thames Centre, the Corporation of the Municipality of	Thorndale Well Supply	>90% to 95%	99.75%
The Blue Mountains, Corporation of the Town of	Thornbury Water Treatment Plant	>95% to 100%	99.82%
Thessalon, the Corporation of the Town of	Thessalon Water Treatment Plant	>90% to 95%	100.00%
Thorold, the Corporation of the City of	Thorold (Port Robinson Area) Distribution System	>95% to 100% *	99.46%

Appendix 2: Municipal Residential Drinking Water System 2005-06 Inspection Ratings and Water Quality Results (Percentage of Tests Meeting Standards) Drinking Water Systems with an asterisk achieved a 100% inspection rating.

Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Thorold, the Corporation of the City of	Thorold (South End of Thorold) Distribution System	>95% to 100% *	100.00%
Thorold, the Corporation of the City of	Thorold Distribution System	>95% to 100% *	99.92%
Thunder Bay, the Corporation of the City of	Thunder Bay (Bare Point Road) Water Treatment Plant	>95% to 100%	99.93%
Thunder Bay, the Corporation of the City of	Thunder Bay (Loch Lomond) Water Treatment Plant	>95% to 100%	99.80%
Tillsonburg, Town of	Tillsonburg Well Supply	>90% to 95%	99.91%
Timmins, the Corporation of the City of	Timmins (Mattagami) Water Treatment Plant	>95% to 100%	99.96%
Timmins, the Corporation of the City of	Timmins (Shaw Twp) Well Supply	>90% to 95%	100.00%
Tiny, the Corporation of the Township of	Bluewater Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Cook's Lake Well Supply	>90% to 95%	99.67%
Tiny, the Corporation of the Township of	Georgian Bay Estates Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Georgian Highlands Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Georgian Sands Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	LaFontaine Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	LeFaive Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Pennorth Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Perkinsfield Well Supply	>95% to 100%	99.85%
Tiny, the Corporation of the Township of	Rayko Water System Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Sand Castle Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Sawlog Bay Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Tee Pee Point Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Thunder Bay Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Vanier Woods Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Whip-Poor-Will II Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Woodland Beach Well Supply	>95% to 100%	100.00%
Tiny, the Corporation of the Township of	Wyevale Well Supply	>95% to 100%	100.00%
Toronto, City of	F. J. Horgan Water Treatment Plant	>90% to 95%	99.97%
Toronto, City of	Toronto (Island) Water Treatment Plant	>65% to 70%	99.99%
Toronto, City of	Toronto (R.L.Clark) Water Treatment Plant	>75% to 80%	99.91%
Toronto, City of	Toronto (R.C.Harris) Water Treatment Plant	>75% to 80%	99.88%
Toronto, City of	Toronto (R.C.Harris) Water Treatment Plant – Toronto Distribution System	>70% to 75%	99.88%
Trent Hills, the Corporation of the Municipality of	Campbellford Water Treatment Plant	>95% to 100%	99.81%
Trent Hills, the Corporation of the Municipality of	Hastings Water Treatment Plant	>95% to 100%	99.82%
Trent Hills, the Corporation of the Municipality of	Warkworth Water Treatment Plant	>95% to 100% *	100.00%
Tweed, the Corporation of the Municipality of	Tweed Well Supply	>85% to 90%	100.00%
Uxbridge, Township of	Uxbridge Well Supply	>95% to 100% *	99.84%

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Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Val Rita-Harty, the Corporation of the Township of	Val Rita Well Supply	>95% to 100% *	100.00%
Vaughan, the Corporation of the City of	Kleinburg Well Supply	>95% to 100% *	100.00%
Vaughan, the Corporation of the City of	Kleinburg Distribution System	>85% to 90%	100.00%
Vaughan, the Corporation of the City of	Vaughan (Toronto Water) Distribution System	>85% to 90%	99.84%
Vaughan, the Corporation of the City of	York Distribution System	>95% to 100%	100.00%
Warwick, the Corporation of the Township of	Warwick (Lambton AWS) Distribution System	>95% to 100% *	100.00%
Wasaga Beach, the Corporation of the Town of	Wasaga Beach Well Supply	>95% to 100%	100.00%
Waterloo, City of	Elmira Distribution System	>90% to 95%	100.00%
Waterloo, City of	Kitchener Well Supply	>70% to 75%	99.94%
Waterloo, City of	Maryhill Village Heights Well Supply	>95% to 100%	100.00%
Waterloo, City of	Waterloo Distribution System	>95% to 100%	99.82%
Waterloo, City of	Waterloo Well Supply	>90% to 95%	99.95%
Welland, the Corporation of the City of	Welland Distribution System	>95% to 100%	99.76%
Welland, the Corporation of the City of	Welland Water Treatment Plant	>90% to 95%	100.00%
Wellesley, the Corporation of the Township of	Heidelberg (Wellesley) Distribution System	>95% to 100% *	100.00%
Wellesley, the Corporation of the Township of	Linwood Distribution System	>95% to 100%	99.63%
Wellesley, the Corporation of the Township of	Linwood Well Supply	>95% to 100%	100.00%
Wellesley, the Corporation of the Township of	St. Clements Well Supply	>95% to 100%	100.00%
Wellesley, the Corporation of the Township of	Wellesley Well Supply	>95% to 100% *	100.00%
Wellington North, the Corporation of the Township of	Arthur Well Supply	>95% to 100%	99.47%
Wellington North, the Corporation of the Township of	Mount Forest Well Supply	>95% to 100%	99.27%
West Elgin, the Corporation of the Municipality of,	West Elgin Water Treatment Plant	>90% to 95%	99.93%
West Grey, the Corporation of the Township of	Durham Well Supply	>95% to 100%	99.79%
West Grey, the Corporation of the Township of	Neustadt Well Supply	>95% to 100%	99.71%
West Lincoln, the Corporation of the Township of	Smithville (Grimsby Twp) Distribution System	>95% to 100%	99.88%
West Nipissing, the Corporation of the Municipality of	Sturgeon Falls Water Treatment Plant	>95% to 100%	99.71%
West Nipissing, the Corporation of the Municipality of	Verner Water Treatment Plant	>95% to 100%	100.00%
West Perth, the Corporation of the Municipality of	Mitchell Well Supply	>95% to 100%	100.00%
Westport, the Corporation of the Village of	Westport Well Supply	>90% to 95%	99.78%
Whitby, Town of	Whitby Water Treatment Plant	>95% to 100%	99.96%
Whitchurch-Stouffville, the Corporation of the Town of	Ballantrae/Musselman's Well Supply	>95% to 100% *	100.00%
Whitchurch-Stouffville, the Corporation of the Town of	Ballantrae-Musselman Lake Distribution System	>95% to 100% *	100.00%
Whitchurch-Stouffville, the Corporation of the Town of	Stouffville Distribution System	>95% to 100% *	99.90%
Whitchurch-Stouffville, the Corporation of the Town of	Stouffville Well Supply	>95% to 100% *	100.00%
White River, the Corporation of the Township of	White River Well Supply	>75% to 80%	100.00%
Whitewater Region, the Township of	Beachburg Well Supply	>90% to 95%	100.00%
Whitewater Region, the Township of	Cobden Water Treatment Plant	>95% to 100%	100.00%
Whitewater Region, the Township of	Haley Well Supply	>90% to 95%	100.00%

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Municipal Location (Municipality where the Drinking Water System is located)	Drinking Water System Name	Inspection Rating (5% Bands)	Water Quality (% of Tests Meeting Standards)
Wilmot, the Corporation of the Township of	Foxboro Well Supply	>95% to 100% *	100.00%
Wilmot, the Corporation of the Township of	Mannheim Village Well Supply	>90% to 95%	100.00%
Wilmot, the Corporation of the Township of	Mannheim Village Distribution System	>95% to 100% *	99.71%
Wilmot, the Corporation of the Township of	New Dundee Well Supply	>95% to 100% *	100.00%
Wilmot, the Corporation of the Township of	New Dundee Distribution System	>95% to 100% *	100.00%
Wilmot, the Corporation of the Township of	New Hamburg-Baden Well Supply	>95% to 100% *	100.00%
Wilmot, the Corporation of the Township of	New Hamburg-Baden Distribution System	>95% to 100% *	100.00%
Wilmot, the Corporation of the Township of	Shingletown Well Supply	>85% to 90%	100.00%
Wilmot, the Corporation of the Township of	Shingletown Distribution System	>95% to 100% *	100.00%
Wilmot, the Corporation of the Township of	St. Agatha Well Supply	>95% to 100% *	100.00%
Wilmot, the Corporation of the Township of	St. Agatha Distribution System	>95% to 100% *	100.00%
Wilmot, the Corporation of the Township of	St. Agatha/Sarasas Well Supply	>95% to 100%	100.00%
Wilmot, the Corporation of the Township of	St. Agatha/Swartzentruber Well Supply	>95% to 100%	100.00%
Windsor, the Corporation of the City of	Windsor Water Treatment Plant	>95% to 100% *	99.99%
Woodstock, City of	Woodstock Well Supply	>90% to 95%	99.79%
Woolwich, the Corporation of the Township of	Breslau (Elroy Acres) Distribution System	>95% to 100% *	100.00%
Woolwich, the Corporation of the Township of	Conestogo Golf Distribution System	>95% to 100% *	100.00%
Woolwich, the Corporation of the Township of	Conestogo Golf Well Supply	>85% to 90%	100.00%
Woolwich, the Corporation of the Township of	Conestogo Plains Distribution System	>95% to 100% *	100.00%
Woolwich, the Corporation of the Township of	Conestogo Plains Well Supply	>90% to 95%	100.00%
Woolwich, the Corporation of the Township of	Heidelberg Well Supply	>75% to 80%	99.65%
Woolwich, the Corporation of the Township of	Heidelberg (Woolwich Twp) Distribution System	>95% to 100% *	99.72%
Woolwich, the Corporation of the Township of	Maryhill Distribution System	>95% to 100%	99.68%
Woolwich, the Corporation of the Township of	Maryhill Village Heights Distribution System	>95% to 100% *	100.00%
Woolwich, the Corporation of the Township of	Maryhill Well Supply	>95% to 100%	100.00%
Woolwich, the Corporation of the Township of	St. Jacobs/Elmira Distribution System	>95% to 100%	99.87%
Woolwich, the Corporation of the Township of	West Montrose Distribution System	>95% to 100% *	100.00%
Woolwich, the Corporation of the Township of	West Montrose Well Supply	>90% to 95%	100.00%
Zorra, Township of	Embro Well Supply	>95% to 100%	100.00%
Zorra, Township of	Lakeside Well Supply	>95% to 100%	100.00%
Zorra, Township of	Thamesford Well Supply	>95% to 100%	98.89%

Appendix 3-A: Summary of Municipal Residential Drinking Water Systems Receiving Contravention Orders in 2005-06

Drinking Water System Owner	Drinking Water System Name	Date Order Issued	Order Synopsis
Atikokan, the Corporation of the Township of	Atikokan Water Treatment Plant	January 19, 2006	■ Ensure functionality of standby chlorination ■ Calibrate and maintain laboratory equipment ■ Ensure that operations manual is available
Burk's Falls, the Corporation of the Village of	Burk's Falls Well Supply	November 23, 2005	■ Calibrate and record the calibration of on-line water quality analyzers ■ Ensure operators have ready access to continuous monitoring results ■ Establish responsible parties to achieve compliance with the continuous monitoring requirements ■ Establish a procedure to review data in order to determine that sufficient primary disinfection is achieved in the treatment
Cochrane, the Corporation of the Town of	Cochrane Well Supply	April 25, 2006	■ Create and implement procedure for logbook record keeping ■ Update 2005 Annual Report ■ Create and implement procedure on data retrieval and review for free chlorine analyzer ■ Ensure public information binder has all required information ■ Record times of water taking ■ Ensure all required documents are included in the operations and maintenance manual
Cornwall, the Corporation of the City of	Cornwall Water Treatment Plant	April 11, 2006	■ Provide record of last three years of operator training ■ Present schedule for next two years of operator training ■ Explain to Provincial Officer how required training records are to be administered and monitored ■ Identify to Provincial Officer people who will be designated to administer and file training records
Dubreuilville, the Corporation of the Township of	Dubreuilville Well Supply	April 3, 2006	■ Ensure that operators-in-training are not operators-in-charge ■ Operators must have applicable certificates ■ Designate an overall responsible operator for the distribution subsystem with a water distribution subsystem, Class 1 certificate ■ If the overall responsible operator is unable to act, designate an overall responsible operator who holds a certificate for a water distribution subsystem, Class 1 ■ Ensure all required information is recorded in the logbooks ■ Operators making entries in logbooks must identify themselves ■ Take all steps necessary to ensure that all analyzers are properly evaluated, maintained and calibrated
Galway-Cavendish-Harvey, the Corporation of the Township of	Buckhorn Lake Estates Well Supply	March 27, 2006	■ Maintain appropriate UV dosage ■ Validate UV system with third party
Greenstone, the Corporation of the Municipality of	Nakina Well Supply	November 23, 2005	■ Complete operations manual ■ Calibrate turbidity analyzer per manufacturer's instructions ■ Check and calibrate all analyzers according to manufacturer's timelines or according to self schedule
Hawkesbury, the Corporation of the Town of	Hawkesbury Water Treatment Plant	December 9, 2005	■ Monitor sludge in sludge detention tank, or develop plan to monitor storm sewer discharge ■ Inspect discharges to creek weekly ■ Develop and implement plan to resolve wastewater discharge problem ■ Develop and implement plan to ensure operators receive annual training required

Appendix 3-A: Summary of Municipal Residential Drinking Water Systems Receiving Contravention Orders in 2005-06 continued

Drinking Water System Owner	Drinking Water System Name	Date Order Issued	Order Synopsis
Inco Ontario Division Limited	Vermillion (Inco) Water Treatment Plant	March 6, 2006	- Expand logbook to provide space for low flow condition reasons to Meatbird Creek - Update operations manual to include equipment specifications - Update logbook to include shift times - Update logbook to provide space for operators to enter information required by OR 128/04 s.27(5) - Operators must be instructed to log equipment status at end of shift - Provide contingency plan for power outages - Provide reasons for turbidity analyzer failure and detail actions to prevent the reoccurrence. - Provide contingency procedure to deal with continuous analyzer equipment malfunctions - Provide summary of cause for high chlorine levels and solution; evaluate effectiveness of chlorine analyzer - Summarize steps taken to prevent high turbidity in filter effluent; train operators on reporting requirements and logbook entries
Iroquois Falls, the Corporation of the Town of	Monteith Distribution System	October 31, 2005	- Ensure an appropriately trained operator is designated as the Overall Responsible Operator for the distribution system - Ensure that all required documents are made available free of charge at a location accessible to the public - Ensure that the classification certificate for the distribution system is conspicuously displayed - Create and implement a contingency/emergency plan for the distribution system according to the requirements of the Certificate of Approval - Create an Operations and Maintenance Manual for the Monteith Distribution System according to the requirements of the Certificate of Approval
Iroquois Falls, the Corporation of the Town of	Porquis Junction Well Supply	November 30, 2005	- Designate Overall Responsible Operator (ORO) with an appropriate level of training, an alternative "stand-by" ORO must also be designated - Produce operations manual according to requirements of the Certificate of Approval
Kawartha Lakes, the Corporation of the City of	Woodville Well Supply	December 22, 2005	Submit plan to ensure that water treatment is in operation whenever water is being supplied
Kincardine, the Corporation of the Municipality of	Tiverton Well Supply	July 7, 2005	- Install flowmeters capable of measuring and recording flowrates - Provide a report detailing plan to resolve capacity problems - Develop emergency plan for fire fighting or other high water demand - Develop contingency plan for periods of overall responsible operator absence - Equip air vents on reservoirs and storage with screens - Calibrate all analyzers that have not been calibrated - Develop and implement alarm response record
King, the Corporation of the Township of	Ansnoerveldt Distribution System King City Distribution System Nobleton Distribution System Schomberg Distribution System	October 5, 2005	Designate an overall responsible operator for each subsystem – an operator who holds an appropriate certificate
Kingston, City of	Kingston Central Water Treatment Plant	November 25, 2005	Provide plan ensuring that fluoridation provided by James Street Booster Station is not less than 0.50 mg/L and not more than 0.80 mg/L

Appendix 3-A: Summary of Municipal Residential Drinking Water Systems Receiving Contravention Orders in 2005-06 continued

Drinking Water System Owner	Drinking Water System Name	Date Order Issued	Order Synopsis
Kirkland Lake, the Corporation of the Town of	L.J. Sherratt Water Treatment Plant	October 11, 2005	■ Provide monthly copy of Water Distribution Summary. Provide reports retroactively to August 17, 2005 ■ Provide documentation of all actions taken when chlorine residual was less than 0.05 mg/L at the Chaput Hughes Standpipe ■ Notify MOE's Spills Action Centre and the Medical Officer of Health whenever the chlorine residual is less than 0.05 mg/L at the at the Chaput Hughes Standpipe, unless it is due to equipment error ■ Produce Operations Manual according to Certificate of Approval requirements ■ Create and implement standard operating procedure for logbook and record keeping ■ Prepare 2004 Summary Report
Malahide, the Corporation of the Township of	Malahide (Elgin AWS) Distribution System	March 24, 2006	■ Ensure that for every test and sample, a record is made of the date, time, location and name of the person who performed the test or sample ■ Ensure lead samples are collected at the appropriate locations and frequency ■ Maintained records of the amount of time each Operator works as an Operator in Charge
McDougall, the Corporation of the Municipality of	Nobel Water Treatment Plant	January 17, 2006	■ Operators must undergo training review of reporting requirements in OR 170/03 and the Certificate of Approval
Mississippi Mills, the Corporation of the Town of	Mississippi Mills Well Supply	November 15, 2005	■ Write procedure for reporting and correcting low chlorine and other miscellaneous adverse water quality events ■ Write procedure for flushing hydrants and chlorine residual sampling during flushing periods ■ Provide plan for operator training of adverse water quality reporting, corrective action, flushing water mains and proper use of colourimeters
Northeastern Manitoulin & the Islands, the Corporation of the Town of	Little Current Water Treatment Plant	April 6, 2006	■ Install continuous monitoring equipment on each filter effluent line ■ Confirms that continuous monitoring equipment on each filter effluent line has been installed, or provide plan for completion ■ Sample filter effluent for turbidity at least once a day until the continuous monitoring equipment is installed ■ Take corrective actions if turbidity is greater than 0.75 NTU
Northeastern Manitoulin & the Islands, the Corporation of the Town of	Sheguiandah Water Treatment Plant	March 31, 2006	■ Complete work that will make drinking water system treatment meet the requirements of OR 170/03 ■ Confirm that work is complete or submit report on progress and schedule for completion ■ Ensure that a minimum free chlorine residual of 0.20 mg/L is maintained throughout the distribution system
Ramara, the Corporation of the Township of	Brechin & Lagoon City Water Treatment Plant	January 4, 2006	■ Complete operations and maintenance manual ■ Develop and maintain up-to-date drawings ■ Ensure that free chlorine monitoring is performed at the right location
Schreiber, the Corporation of the Township of	Schreiber Water Treatment Plant	October 13, 2005	■ Flow measuring devices must be checked and calibrated at least once every year ■ Maintain operations manual for all parts of the drinking water system ■ Record all required information in operating logs ■ Operators must be unambiguously identified in logbooks
South River, the Corporation of the Village of	South River Water Treatment Plant	August 16, 2005	■ Install standby metering equipment as per the Certificate of Approval ■ Contract engineer to prepare plan for installation of equipment that will satisfy Certificate of Approval wastewater quality requirements; must submit application for approval of works to MOE ■ Address pressure fluctuations that create potential water discolouration and low chlorine residuals; keep public informed on status of situation and provide instructions for discolouration events

Appendix 3-A: Summary of Municipal Residential Drinking Water Systems Receiving Contravention Orders in 2005-06 continued

Drinking Water System Owner	Drinking Water System Name	Date Order Issued	Order Synopsis
Temiskaming Shores, the City of	New Liskeard Well Supply	April 18, 2006	■ Ensure flow rates do not exceed rated capacity in Certificate of Approval ■ Install sufficient flow measuring devices to measure water flow into and out of treatment system ■ Assess compliance with Permit to Take Water, create plan to address permit exceedances
Vaughan, the Corporation of the City of	Kleinburg Distribution System Vaughan (Toronto Water) Distribution System	March 10, 2006	■ Revoke the designation of the overall responsible operator for the Vaughan Distribution System and the Kleinburg Distribution System ■ Designate a (new) operator holding the appropriate license as overall responsible operator for the Vaughan Distribution System ■ Designate a (new) operator holding the appropriate license as overall responsible operator for the Kleinburg Distribution System
White River, the Corporation of the Township of	White River Well Supply	May 15, 2006	■ Maintain and calibrate continuous chlorine analyzer; implement program to ensure that this work continues to be done ■ Maintain and calibrate continuous turbidity analyzer; implement program to ensure that this work continues to be done ■ Maintain and calibrate handheld turbidity analyzer; implement program to ensure that this work continues to be done ■ Ensure that the well pumps automatically shut down when the continuous chlorine analyzer stops working ■ Ensure that all of the required information is recorded in the log ■ Operators must be unambiguously identified in the logs ■ Operations manual must meet the requirements of the Certificate of Approval ■ Prepare an operations and maintenance manual for the standby diesel generator as required by Certificate of Approval ■ Calibrate flow measuring devices that have not been already been checked and calibrated as required by the Certificate of Approval

Appendix 3-B: Summary of Local Service Board Drinking Water Systems Receiving Orders in 2005-06

Location	Drinking Water System Name	Date Order Issued	Order Synopsis
Sudbury District – Foleyet	Foleyet Water Treatment Plant	January 24, 2006	■ Ensure that test results generated by water quality analyzers are examined within 72 hours after the tests are conducted in accordance with Ontario Regulation 170/03 Schedule 6, Section 6-5(1)3
Nipissing District – Thorne	Thorne Water Treatment Plant	January 25, 2006	■ Ensure a program is established for the quarterly inspection and testing of alarms associated with on-line water quality analyzers to ensure said alarms are functioning in accordance with Schedule 6-5 of O.Reg. 170/03
Kenora District – Redditt	Redditt Water Treatment Plant	April 7, 2006	■ Submit at least two distribution samples each week to a licensed lab
Cochrane District – Moose Factory	Moose Factory LSB Distribution System	December 23, 2005	■ Establish a sampling plan ■ Address other administrative matters

Appendix 3-C: Summary of Municipal Residential Drinking Water Systems Receiving Preventative Orders in 2005-06

Location	Drinking Water System Name	Date Order Issued	Order Synopsis
Georgian Bluffs, the Corporation of the Township of	Shallow Lake Well Supply	March 24, 2006	Trihalomethane sample results exceeded the Ontario Drinking Water Standards. ■ Prepare plan to address this, including a schedule for implementation of preferred treatment options ■ Treatment options shall meet the requirements of the SDWA
Guelph, the Corporation of the City of	Guelph Well Supply	February 24, 2006	Due to a legal strike position, the City of Guelph may submit the following within 30 days of strike resolution: ■ Prepare Annual Report ■ Prepare Summary Report
Guelph/Eramosa, the Corporation of the Township of	Gazer Mooney Subdivision Distribution System	February 28, 2006	Due to a legal strike position, the City of Guelph may submit the following within 30 days of strike resolution: ■ Prepare Annual Report ■ Prepare Summary Report
Kawartha Lakes, the Corporation of the City of	Norland Water Treatment Plant	November 18, 2005	■ Discontinue turbidity adverse water quality reporting, checks, sampling and testing until further notice ■ Increase the turbidity analyzer alarm to a higher threshold
Kinmount Water System Association (Kawartha Lakes, the Corporation of the City of)	Kinmount Downtown Water Treatment Plant	October 5, 2005	■ Discontinue turbidity adverse water quality reporting, checks, sampling and testing until further notice ■ Increase the turbidity analyzer alarm to a higher threshold
		January 26, 2006	■ Discontinue turbidity adverse water quality reporting, checks, sampling and testing until further notice ■ Increase the turbidity analyzer alarm to a higher threshold
Mulmur, the Corporation of the Township of	Mansfield Well Supply Mansfield Private Well Supply	September 2, 2005	■ Coordinate upgrading of chlorination equipment with Boil Water Advisory issuance ■ Submit a copy of the Boil Water Advisory to the Provincial Officer ■ Ensure grab samples are taken of water entering the distribution system ■ Relief granted from continuous analyzer monitoring
Opasatika, Corporation of the Township of	Opasatika Well Supply	December 12, 2005	Trihalomethane sample results exceeded the Ontario Drinking Water Standards. ■ Hire consultant to investigate cause and obtain recommendations for mitigation
Ramara, the Corporation of the Township of	Val Harbour Subdivision Well Supply	August 11, 2005	Recent assessment and sample results from a source well are inconsistent with its current classification. ■ Hire consultant to assess Production Well #1
South Dundas, the Corporation of the Township of	Morrisburg Water Treatment Plant	December 13, 2005	Due to a delay in the commissioning of a new filtration plant: ■ Ensure drinking water system is operational ■ Maintain free chlorine residual of 0.2 mg/L in the distribution system ■ Prepare monthly report on Cryptosporidium and Giardia analysis, summarizing microbiological testing conducted, daily minimum free chlorine concentrations and progress of new membrane filtration plant
Springwater, the Corporation of the Township of	Snow Valley Subdivision Well Supply	October 20, 2005	There are discrepancies in readings from multiple instruments. ■ Evaluate free chlorine analyzers to determine why results from both are different ■ Prepare a report detailing the results of the evaluation
Tay, the Corporation of the Township of	Waubashene Water Treatment Plant	January 11, 2006	■ Document procedures for the collection of drinking water samples, procedures for corrective action following notification of an adverse water quality result and state potential causes for sampling/labeling errors

Appendix 4-A: Municipal Residential Drinking Water System Convictions – April 1, 2005 to March 31, 2006

Owner of Drinking Water System	System Name	Synopsis	Sworn Date	Conviction Date	Fine
Arnprior, The Corporation of the Town of	Arnprior Water Treatment Plant	Failed to take samples from the distribution system to be analyzed for microbiological parameters.	July 18, 2005	February 10, 2006	\$8,000
Atikokan, The Corporation of the Township of	Atikokan Water Treatment Plant	Failed to ensure that responsibility for the overall operation of the facility was placed with an operator who holds a license that is applicable for that type of facility.	June 23, 2005	February 24, 2006	\$6,000
Deep River, The Corporation of the Town of	Deep River Water Treatment Plant	Failed to collect and analyze samples of process wastewater treatment facilities effluent at point of discharge and failed to ensure the calibration of flow metering devices.	July 4, 2005	October 17, 2005	\$7,500
Durham, The Regional Municipality of	Blackstock Well Supply	Failed to carry out analysis for inorganic parameters and failed to take samples from some wells in the drinking-water system.	August 25, 2005	March 27, 2006	\$23,000
Durham, The Regional Municipality of	Whitby Water Treatment Plant	Failed to ensure drinking water equipment is in operation whenever water is obtained or supplied.	February 2, 2006	March 27, 2006	\$10,000
Ear Falls and the Ontario Clean Water Agency (operator), The Corporation of the Township of	Ear Falls Water Treatment Plant	Township of Ear Falls – Failed to report an adverse result. OCWA – Failed to ensure that a treated water sample was taken at least once every week and tested for general bacteria population.	June 23, 2005	November 25, 2005	\$8,000
Hearst, The Corporation of the Town of	Hearst Water Treatment Plant	Failed to ensure system operators held applicable licenses.	January 28, 2005	June 14, 2005	\$1,000
Hornepayne, The Corporation of the Township of	Hornepayne Well Supply	Failed to install flow measuring devices as required.	June 23, 2005	January 11, 2006	\$3,000
Kapuskasing, The Corporation of the Town of	Kapuskasing Well Supply	Failed to operate water treatment equipment such that the combined chlorine residual was never less than 0.25 mg/L at all times and at all locations within the distribution system and failed to report adverse results.	January 28, 2005	September 7, 2005	\$6,000
Kincardine, The Corporation of the Municipality of	Kincardine Water Treatment Plant	Failed to sample and test distribution system chlorine residual.	August 29, 2005	January 13, 2006	\$8,000
New Tecumseth-Alliston, The Corporation of the Town of	Alliston Well Supply	Failed to immediately notify the ministry of adverse water quality and failed to ensure minimum hours of annual training for water works operators.	June 16, 2004	April 4, 2005	\$11,500
Oliver Paipoonge and 2017376 Ontario Limited c.o.b. as Water Quality Services (operator), The Corporation of the Municipality of	Rosslyn Village Subdivision Well Supply	Failed to ensure that a distribution system sample was taken every day and tested immediately for free chlorine residual.	December 9, 2004	April 1, 2005	\$7,000
Perth East, The Corporation of the Township of	Milverton Well Supply	Failed to ensure that a distribution system sample was taken daily and immediately tested for free chlorine residual and failed to maintain a free chlorine residual of 0.2 mg/L throughout the distribution system.	January 11, 2006	January 13, 2006	\$20,000
Perth East, The Corporation of the Township of	Milverton Well Supply	Failed to report adverse free chlorine residuals and failed to have the required operations manual in place.	May 19, 2005	January 13, 2006	\$17,000
Petrolia, The Corporation of the Town of	Town of Petrolia Bright's Grove Water Treatment Plant (formerly Petrolia Water Treatment Plant)	Failed to comply with a Provincial Officer Order.	May 25, 2005	July 21, 2005	\$5,000

Appendix 4-A: Municipal Residential Drinking Water System Convictions – April 1, 2005 to March 31, 2006 continued

Owner of Drinking Water System	System Name	Synopsis	Sworn Date	Conviction Date	Fine
Schreiber, The Corporation of the Township of	Schreiber Water Treatment Plant	Failed to ensure that every operator employed in the facility was given at least 40 hours of training every year and failed to install, maintain and operate a flow-measuring device.	June 23, 2005	November 4, 2005	\$2,500
Springwater, The Corporation of the Township of	Midhurst Well Supply	Failed to ensure that water sampling and analysis was carried out in accordance with Regulation 459/00.	February 8, 2005	July 4, 2005	\$5,000
Temiscaming Shores formerly the Town of New Liskeard, The Corporation of the City of	New Liskeard Well Supply	Failed to notify the ministry of adverse water quality, failed to ensure that system operators received required training, failed to sample and non-compliance with an order.	October 25, 2004	November 29, 2005	\$20,000
Tiny, The Corporation of the Township of	Bluewater Well Supply Georgian Highlands Well Supply Pennorth Well Supply Tee Pee Point Well Supply Thunder Bay Well Supply LaFontaine Well Supply	Failed to sample for nitrite in treated drinking water and failed to comply with a Provincial Officer Order.	July 20, 2004	April 4, 2005	\$21,500
Total					\$190,000
In addition, in 2005-06, two individuals were convicted and fined a total of \$11,000 for drinking-water violations at municipal drinking-water systems. One individual operator was convicted of a violation under the <i>Safe Drinking Water Act, 2002</i> and fined \$10,000 for operating a municipal drinking-water system without a valid drinking-water system operator certificate and including false information in a document. One individual operator was convicted for a violation under the <i>Ontario Water Resources Act</i> and fined \$1,000 for providing false information.					

Appendix 4-B: Licensed Drinking Water Testing Laboratory Convictions – April 1, 2005 to March 31, 2006

Facility Owner	Incident Summary	Sworn Date	Conviction Date	Fine
SGS Lakefield Research Limited	Failed to provide an immediate notice of an adverse drinking water test.	June 27, 2005	October 17, 2005	\$4,000
Fennell Ave. Public Health Lab; Ministry of Health and Long Term Care	Failed to submit a report on the results of the water sample analysis to the Director at the same time as the report was sent to the owner.	June 2, 2004	November 29, 2005	\$22,500
			Total	\$26,500

Notes:

[illegible]



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