

# Safe Drinking Water and Fluoride Monitoring Protocol, 2018

Population and Public Health Division,  
Ministry of Health and Long-Term Care

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## Preamble

The Ontario Public Health Standards: Requirements for Programs, Services, and Accountability (Standards) are published by the Minister of Health and Long-Term Care under the authority of section 7 of the *Health Protection and Promotion Act* (HPPA) to specify the mandatory health programs and services provided by boards of health.<sup>1,2</sup> The Standards identify the minimum expectations for public health programs and services. Boards of health are accountable for implementing the Standards including the protocols and guidelines that are referenced in the Standards. Protocols are program and topic-specific documents incorporated into the Standards which provide direction on how boards of health shall operationalize specific requirement(s) identified within the Standards.

## Purpose

The purpose of this protocol is to provide direction to boards of health on the components of the Safe Water Program for the prevention and reduction of illness related to drinking water which include, but are not limited to:

- Surveillance and inspection of drinking water systems;
- Timely response to drinking water adverse events, reports of water-borne illnesses or outbreaks, and other drinking water-related issues arising from emergencies;
- Education and training of owners/operators of small drinking water systems;
- Informing the public about unsafe drinking-water conditions and providing information to respond appropriately; and
- For boards of health whose jurisdiction includes municipal water systems to which fluoride is added, monitoring community water fluoride levels and taking specific action in accordance with the level of fluoride in the water. It outlines the action(s) required when fluoride levels are below the therapeutic range (TR) of 0.6 to 0.8 ppm. *Note: Exceedances of fluoride above the Maximum Acceptable Concentration (MAC) of 1.5 ppm (mg/L) for all municipal water systems follow the same process for any exceedance of a drinking water quality standard.*

Regulations under the HPPA that are relevant to this protocol include:<sup>2</sup>

- Food Premises Regulation;<sup>3</sup>
- Recreational Camps Regulation;<sup>4</sup>
- Camps in Unorganized Territory Regulation;<sup>5</sup> and
- Small Drinking Water Systems Regulation.<sup>6</sup>

Other legislation and regulations that are relevant to this protocol include:

- *Safe Drinking Water Act, 2002* (SDWA);<sup>7</sup>
- Drinking Water Systems Regulation under the SDWA;<sup>8</sup>
- Drinking Water Testing Services Regulation under the SDWA;<sup>9</sup>
- Ontario Drinking Water Quality Standards Regulation under the SDWA;<sup>10</sup>
- Schools, Private Schools and Child Care Centres Regulation under the SDWA;<sup>11</sup>
- *Ontario Water Resources Act* (OWRA);<sup>12</sup> and
- *Clean Water Act* (CWA).<sup>13</sup>

## Reference to the Standards

This section identifies the standards and requirements to which this protocol relates.

### Effective Public Health Practice

**Requirement 9.** The board of health shall publicly disclose results of all inspections or information in accordance with the *Electronic Cigarettes Protocol, 2018* (or as current); the *Food Safety Protocol, 2018* (or as current); the *Health Hazard Response Protocol, 2018* (or as current); the *Infection Prevention and Control Complaint Protocol, 2018* (or as current); the *Infection Prevention and Control Disclosure Protocol, 2018* (or as current); the *Infection Prevention and Control Protocol, 2018* (or as current); the *Recreational Water Protocol, 2018* (or as current); the *Safe Drinking Water and Fluoride Monitoring Protocol, 2018* (or as current); the *Tanning Beds Protocol, 2018* (or as current); and the *Tobacco Protocol, 2018* (or as current).

### Safe Water

**Requirement 1.** The board of health shall:

- a) Conduct surveillance of:
  - Drinking water systems and associated illnesses, risk factors, and emerging trends;
  - Public beaches and water-borne illnesses associated with recreational water, risk factors, and emerging trends; and
  - Recreational water facilities;
- b) Conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations; and
- c) Use the information obtained to inform safe water programs and services in accordance with the *Infectious Diseases Protocol, 2018* (or as current); the *Population Health Assessment and Surveillance Protocol, 2018* (or as current); the *Recreational Water Protocol, 2018* (or as current); the *Safe Drinking Water and Fluoride Monitoring Protocol, 2018* (or as current); and the *Small Drinking Water Systems Risk Assessment Guideline, 2018* (or as current).

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**Requirement 3.** The board of health shall ensure the availability of education and training for owners/operators of small drinking water systems and recreational water facilities in accordance with the *Operational Approaches for Recreational Water Guideline, 2018* (or as current); the *Recreational Water Protocol, 2018* (or as current); the *Safe Drinking Water and Fluoride Monitoring Protocol, 2018* (or as current); and the *Small Drinking Water Systems Risk Assessment Guideline, 2018* (or as current).

**Requirement 5.** The board of health shall provide all the components of the Safe Water Program in accordance with:

- a) The *Safe Drinking Water and Fluoride Monitoring Protocol, 2018* (or as current) and all applicable statutes and regulations to protect the public from exposure to unsafe drinking water; and
- b) The *Operational Approaches for Recreational Water Guideline, 2018* (or as current) and the *Recreational Water Protocol, 2018* (or as current), to reduce the risks of illness and injuries at public beaches and recreational water facilities.

**Requirement 6.** The board of health shall inform the public about unsafe drinking water conditions and provide the necessary information to respond appropriately in accordance with the *Safe Drinking Water and Fluoride Monitoring Protocol, 2018* (or as current) and the *Small Drinking Water Systems Risk Assessment Guideline, 2018* (or as current).

**Requirement 7.** The board of health shall review drinking water quality reports for its municipal drinking water supplies where fluoride is added in accordance with the *Safe Drinking Water and Fluoride Monitoring Protocol, 2018* (or as current).

**Requirement 8.** The board of health shall ensure 24/7 availability to receive reports of and respond to:

- a) Adverse events related to safe water, such as reports of adverse drinking water of drinking water systems, governed under the *Health Protection and Promotion Act* or the *Safe Drinking Water Act, 2002*;
- b) Reports of water-borne illnesses or outbreaks;
- c) Safe water issues arising from floods, fires, power outages, or other situations that may affect water safety; and
- d) Safe water issues relating to recreational water use including public beaches in accordance with the *Infectious Diseases Protocol, 2018* (or as current); *Operational Approaches for Recreational Water Guideline, 2018* (or as current); the *Recreational Water Protocol, 2018* (or as current); the *Safe Drinking Water and Fluoride Monitoring Protocol, 2018* (or as current); and the *Small Drinking Water Systems Risk Assessment Guideline, 2018* (or as current).

# Operational Roles and Responsibilities

## Inventory

- 1) The board of health shall maintain an inventory or inventories of all drinking water systems in the health unit that are regulated under the HPPA and the SDWA;<sup>2,7</sup> and include in the inventory, at minimum:
  - a) Information to identify the drinking water systems including contact information of the owners/operators of those systems in the event of emergencies or adverse results or observations.
  - b) Municipal systems fluoridated and not-fluoridated, including date when fluoridation commenced and /or when discontinued; and/or if the system receives water from a fluoridated system(s).

## Inspections of Drinking Water Systems

- 2) The board of health shall utilize a risk management approach for addressing water-related public health issues regarding drinking water systems that are required to provide potable water under the HPPA or as required by the medical officer of health.<sup>2</sup>
- 3) The board of health shall inspect drinking water systems regulated under the HPPA.<sup>2</sup> These inspections shall include, at minimum:
  - a) Observations to determine compliance with regulations, where applicable;
  - b) Arrangements for testing water-quality parameters and collection of water samples as deemed necessary; and
  - c) Communication of results or findings of the inspection and requirements or recommendations, if applicable, to the owner/operator of the drinking water system.
- 4) The board of health shall conduct additional inspections of drinking water systems regulated under the HPPA as necessary.<sup>2</sup>

## Inspections of Small Drinking Water Systems

- 5) When conducting a risk assessment of small drinking water systems that meet the criteria of Small Drinking Water Systems Regulation under the HPPA<sup>6</sup> the board of health shall:
  - a) Conduct site visits of small drinking water systems;
  - b) Use the most current version of the ministry-approved risk categorization (RCat) tool in accordance with any ministry instructions relating to that version;
  - c) Assign a risk category of “high,” “moderate,” or “low” for each system\*;

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\*Risk category is determined based on water source, treatment, and distribution criteria. High-risk small drinking water systems may have a significant level of risk and are routinely inspected every two years. Low and moderate risk small drinking water systems may have negligible to moderate risk and are routinely inspected every four years.

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- d) Issue a written directive to the owner of each system outlining the site-specific requirements for the system following an initial risk assessment; and
  - e) Issue a written amendment to a directive to the owner of each system outlining the site-specific requirements for the system following any subsequent inspection of the system.
- 6) The board of health shall issue directives on small drinking water systems in accordance with the most current version of the *Small Drinking Water Systems Risk Assessment Guideline, 2018 (or as current)*.<sup>14</sup>
- 7) Following the initial risk assessment, the board of health shall conduct risk assessments during inspections of small drinking water systems, as outlined in 6 above, based on the following frequencies:
- a) Not less than once every two years for systems categorized as high-risk; and
  - b) Not less than once every four years for systems categorized as moderate or low-risk.
- 8) The board of health shall re-evaluate the requirements outlined in the site-specific directive relating to a small drinking water system during inspections carried out at the frequencies noted 7 above and confirm or update the risk category using RCat. In addition to the above requirement, a review of the risk category may be undertaken when:
- a) The owner/operator requests a re-assessment of the system in writing;
  - b) Water sampling test results or other information indicates a possible change in the operation or the safety of the small drinking water system (e.g., complaints, adverse results, adverse observations, illnesses);
  - c) There is a change in the premises being served by the small drinking water system (e.g., expansion, alteration); or
  - d) A review of an appeal by the medical officer of health changes the requirements outlined in the site-specific directive.
- 9) As part of general inspection responsibilities, the board of health shall:
- a) Notify owners/operators of small drinking water systems in a timely manner following each inspection of: the risk category assigned to their system, the findings arising out of the inspection, recommendations relating to the operation of the system, any issue relating to compliance, and the site-specific directives;
  - b) Inform owners that they may request a review of the risk category assigned to their small drinking water system and/or the contents of the directives in accordance with the Small Drinking Water Systems Regulation under the HPPA;<sup>6</sup>
  - c) Carry out ongoing compliance monitoring of small drinking water systems through the use of the most current version of the Laboratory Results Management Application (LRMA) every three months, at minimum, or more frequently as determined by the medical officer of health; and
  - d) Assess each system's compliance with the Small Drinking Water Systems Regulation under the HPPA.<sup>6</sup>

## Surveillance, Management and Response

### 24/7 On-Call and Response Policy

- 1) The board of health shall have an on-call system on a 24/7 basis for receiving and responding to reports in the health unit related to:
  - a) Suspected or confirmed waterborne illnesses or outbreaks; and
  - b) Complaints, adverse test results, and adverse observations.
- 2) The board of health shall initiate response on drinking water-related complaints and reports within 24 hours of notification to determine the potential public health risk and take appropriate action as required.

### Municipal Drinking Water Systems and Fluoride

- 3) The board of health shall:
  - a) Advise all operators of municipal drinking-water systems of the board of health's responsibility to monitor fluoride levels of municipal drinking water systems that add fluoride to their system. Operators shall also be requested to provide fluoride concentration data (based on a monthly average) to the board of health on a monthly basis.
  - b) Have a procedure in place for receiving and reviewing upon receipt, all reports of fluoride concentrations in municipal drinking water supplies that add fluoride.
  - c) Consult with the operator of the water system and institute a contingency water-monitoring plan if the reported monthly average fluoride levels are below the Therapeutic Range (TR). The monthly average fluoride levels should reflect only those days when fluoride was added to the system. If the drinking water system was down for maintenance, or other reasons, the number of days it was offline should be identified and incorporated into the calculation.
  - d) Implement the following if the fluoride concentration is below 0.6 ppm for more than 90 consecutive days:
    - i) The medical officer of health notifies the board of health and the municipality affected;
    - ii) Determine the need to notify all primary health care providers about the low fluoride concentration and inform the public through the media;
    - iii) Using current scientific evidence and local surveillance data, determine whether segments of the community at high risk for dental decay require fluoride alternatives, and provide or ensure the provision of such alternatives on a temporary basis until the issue is resolved; and
    - iv) Request notification from the operator of the water system when the fluoride concentration is returned to 0.6 to 0.8 ppm, and notify primary health care providers and the public.

## Enforcement Actions and Procedures

- 4) The board of health shall address non-compliance with the HPPA and related regulations and take action where water that is intended for human consumption may not be safe.<sup>2</sup> In the event of an adverse test result (including but not limited to exceedances of an Ontario Drinking Water Quality Standard in the Ontario Drinking Water Quality Standard Regulation, under the *Safe Drinking Water Act*), the respective process for responding to adverse drinking water results shall be followed.<sup>10</sup>

## Liaison with Agencies and Ministries

- 5) The board of health shall:
  - a) Provide information to the Ministry of the Environment and Climate Change and other governmental agencies as requested by the ministry;
  - b) Engage in activities within the community that increase the safety of drinking water and decrease the potential for adverse effects on health (e.g., participate on committees and assist in the identification of vulnerable areas and threats to drinking water systems);
  - c) Collaborate with the local office of the Ministry of the Environment and Climate Change through participation in meetings held at least semi-annually on matters of:
    - i) Existing drinking water systems in the health unit, including specific review of drinking water systems that add fluoride;
    - ii) Applications to issue, amend, suspend, or revoke an approval, permit, or license of a drinking water system; and
    - iii) Regulatory oversight and sharing expertise regarding the inspection of drinking water systems.
  - d) Notify the local office of the Ministry of the Environment and Climate Change, when possible, of any small drinking water system that is expected to change from the authority of a regulation under the HPPA to the authority of the Drinking Water Systems Regulation under the SDWA;<sup>2,8</sup> and
  - e) Participate in local steering groups for the purpose of developing drinking water-related emergency response plans for the control of, or response to, infectious diseases, outbreaks, and other public health hazards. The groups may consist of representatives from organizations including local hospitals, municipalities, and local offices of the Ministry of the Environment and Climate Change.



## Drinking Water Awareness and Education

### Community and Owner/Operator Awareness and Education

- 1) The board of health shall:
  - a) Engage in activities to ensure the sustainability and safety of source water and water supplies through collaboration with stakeholders such as local conservation authorities, community groups and municipalities.
  - b) Increase public awareness and promote the advancement of healthy public policy for safe water supplies related to the effects of climate change such as severe weather events.
  - c) Ensure the availability of information and/or educational material on safe drinking water practices to private citizens and owners/operators of drinking water systems who provide potable water under the HPPA;<sup>2</sup>
  - d) Ensure the availability of information and/or educational material to owners/operators of small drinking water systems regarding:
    - i) Available training programs pertaining to the operation of small drinking water systems;
    - ii) Relevant public health legislation and regulations; and
    - iii) Directive requirements.
  - e) Make available for owners of private water supplies for private/personal use (e.g., private wells, etc.) sample bottles, forms, and information provided by the Public Health Ontario Laboratories to promote water sampling and testing.
  - f) Provide, upon request:
    - i) Assistance in the interpretation of water analysis reports; and
    - ii) Information on potential health effects.

## Public Disclosure of Inspection Results

- 1) The board of health shall publicly disclose a summary report on each routine and complaint based inspection, and drinking water advisories of small drinking water systems. Reports:
  - a) Must be posted on the board of health's website in a location that is easily located by the public within two weeks of the inspection. Reports must be posted for two years for high risk drinking water systems and for four years for all other small drinking water systems. Reports of new and existing drinking water advisories must be posted for the duration of the advisory.
  - b) Can be adapted to match the visual style of the board of health's websites. The board of health is encouraged to integrate the required content areas listed below to existing public disclosure programs.
  - c) Of inspection results must contain:
    - i) The type of premises;
    - ii) The name and address of the premises;
    - iii) The date of inspection;

- iv) The type of inspection (e.g., routine, re-inspection, complaint-based);
  - v) The risk category of the small drinking water system; and
  - vi) Inspection status (e.g., change in risk category, amendments to the site specific directive, in general compliance with Small Drinking Water Systems Regulation under the HPPA, found to have minor infractions, infractions corrected on-site, critical infractions found requires re-inspection).<sup>6</sup>
- d) Of drinking water advisories must contain:
- i) The type of premises;
  - ii) The name and address of the premises;
  - iii) The date the drinking water advisory was issued; and
  - iv) The reason(s) for the drinking water advisory being issued.
- e) Must be revised with relevant additional information and include the date of the follow up action, or a subsequent report may be prepared and posted, where follow up action is required.
- f) Must be compliant with relevant legislation including the *Accessibility for Ontarians with Disabilities Act* (AODA), the *French Language Services Act* (FLSA) (if applicable), the *Municipal Freedom of Information and Protection of Privacy Act* (MFIPPA) and the *Personal Health Information Protection Act* (PHIPA).<sup>15-18</sup>

## Glossary

**Inspection:** A scheduled on-site visit for the purpose of conducting one or all activities that may occur during the visit:

- Observation of system performance for compliance with the Small Drinking Water Systems Regulation under the HPPA;<sup>6</sup>
- Conducting risk assessments and assigning (or re-assigning) a risk category;
- Collecting drinking water samples;
- Identifying upgrades or deficiencies to the SDWS that may affect the risk category; or
- Providing education and supporting information to the SDWS operator.

The inspection may also be referred to as “routine inspection,” “scheduled inspection,” “compliance inspection,” or “mandatory inspection”.

**Re-Assessment:** Any assessment being done for the purposes of follow-up to outstanding items or review of an intervention from a previously conducted risk assessment or re-assessment.

**Re-Inspection:** Means an activity carried out for the purpose of follow-up to outstanding items from a prior inspection or re-inspection.

**Risk Assessment:** An activity to appraise or investigate the operation and performance of a SDWS system that assigns or changes a risk level category.

## References

1. Ontario. Ministry of Health and Long-Term Care. Ontario public health standards: requirements for programs, services, and accountability, 2018. Toronto, ON: Queen's Printer for Ontario; 2018. Available from: [http://www.health.gov.on.ca/en/pro/programs/publichealth/oph\\_standards/default.aspx](http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/default.aspx)
2. *Health Protection and Promotion Act*, RSO 1990, c H.7. Available from: <https://www.ontario.ca/laws/statute/90h07>
3. *Food Premises*, RRO 1990, Reg 562. Available from: <https://www.ontario.ca/laws/regulation/900562>
4. *Recreational Camps*, RRO 1990, Reg 568. Available from: <https://www.ontario.ca/laws/regulation/900568>
5. *Camps in Unorganized Territory*, RRO 1990, Reg 554. Available from: <https://www.ontario.ca/laws/regulation/900554>
6. *Small Drinking Water Systems*, O Reg 319/08. Available from: <https://www.ontario.ca/laws/regulation/080319>
7. *Safe Drinking Water Act, 2002*, SO 2002, c 32. Available from: <https://www.ontario.ca/laws/statute/02s32>
8. *Drinking Water Systems*, O Reg 170/03. Available from: <https://www.ontario.ca/laws/regulation/030170>
9. *Drinking Water Testing Services*, O Reg 248/03. Available from: <https://www.ontario.ca/laws/regulation/030248>
10. *Ontario Drinking Water Quality Standards*, O Reg 169/03. Available from: <https://www.ontario.ca/laws/regulation/030169>
11. *Schools, Private Schools and Child Care Centres*, O Reg 243/07. Available from: <https://www.ontario.ca/laws/regulation/070243>
12. *Ontario Water Resources Act*, RSO 1990, c O.40. Available from: <https://www.ontario.ca/laws/statute/90o40>
13. *Clean Water Act, 2006*, SO 2006, c 22. Available from: <https://www.ontario.ca/laws/statute/06c22>
14. Ontario. Ministry of Health and Long-Term Care. Small drinking water systems risk assessment guideline. Toronto, ON: Queen's Printer for Ontario; 2018. Available from: [http://www.health.gov.on.ca/en/pro/programs/publichealth/oph\\_standards/protocolsguidelines.aspx](http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/protocolsguidelines.aspx)

15. *Accessibility for Ontarians with Disabilities Act, 2005*, SO 2005, c 11. Available from: <https://www.ontario.ca/laws/statute/05a11>
16. *French Language Services Act*, RSO 1990, c F.32. Available from: <https://www.ontario.ca/laws/statute/90f32>
17. *Municipal Freedom of Information and Protection of Privacy Act*, RSO 1990, c M.56. Available from: <https://www.ontario.ca/laws/statute/90m56>
18. *Personal Health Information Protection Act, 2004*, SO 2004, c 3, Sched. A. Available from: <https://www.ontario.ca/laws/statute/04p03>

## Resources

The following resources provide supplementary information and guidance regarding issues related to drinking water systems. This is not an exhaustive list and the documents listed below are subject to change.

Health Canada. Findings and recommendations of the Fluoride Expert Panel (January 2007). Ottawa, ON: Her Majesty the Queen in Right of Canada, represented by the Minister of Health; 2008 [cited 2017 Nov 9]. Available from:

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/findings-recommendations-fluoride-expert-panel-january-2007.html>

Health Canada. Guidelines for Canadian drinking water quality: guideline technical document – Fluoride. Ottawa, ON: Her Majesty the Queen in Right of Canada, represented by the Minister of Health; 2010 [cited 2017 Nov 9]. Available from:

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table-health-canada-2012.html>

