

Response to Standard Exceedances of Lead in Drinking Water Supplies under O.Reg.170/03

**Public Health Division
Ministry of Health and Long-Term Care
December 2008**

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This guidance document is intended to support boards of health in responding to instances of exceedance of the provincial lead standard in drinking water supplies regulated under O. Reg. 170/03 (Drinking Water Systems) and the Safe Drinking Water Act, 2002 (SDWA). This document is not intended to provide legal advice or to be a substitute for the professional judgment of medical officers of health or local board of health staff. Board of health staff should consult with legal counsel as appropriate before responding to instances of exceedance of the provincial lead standard.

1. Purpose

The purpose of this document is to provide guidance to assist local public health units in responding to instances of exceedance of the provincial lead standard in drinking water supplies under O. Reg. 170/03 Drinking Water Systems and the *Safe Drinking Water Act, 2002 (SDWA)*. The information specifically pertains to samples collected from plumbing as part of a community sampling program, and not samples collected in the distribution system or those required under O. Reg. 243/07, Schools, Private Schools and Day Nurseries.

This document is meant to be a guide only. To be clear about any specific role that is played by local medical officers of health, including any responsibilities that may flow from such roles, you must refer to O. Reg. 170/03 (Drinking Water Systems) and the *Safe Drinking Water Act, 2002* under which that Regulation was made. If you have any legal questions in regard to the interpretation or application of the Regulation or Act you should consult a lawyer.

2. Background

The community lead testing program was introduced into legislation by the Ministry of the Environment (MOE) in 2007. The program requires municipal and non-municipal owners and operating authorities of drinking water systems to collect samples throughout their communities to establish a baseline understanding of the drinking water quality. This data will assist owners and operators in making informed decisions about potential water quality adjustments that may be necessary to maintain lead levels at the consumers' taps at or below acceptable standards. The MOE is working closely with municipalities and non-municipal owners and operating authorities to monitor the effectiveness of local Corrosion Control Programs for large municipal residential drinking water systems.

Under O. Reg. 170/03, municipalities and non-municipal owners and operating authorities are required to collect samples from plumbing that serves different types of premises, including single-family homes, multi-unit residential buildings, commercial properties, industrial properties, designated facilities and other public facilities. Additional information about the program is available at <http://www.ontario.ca/drinkingwater/180526.pdf>

The regulation further requires in Schedule 15.1-10 that, where there is a lead exceedance, *“the owner of the drinking-water system and the operating authority for the system shall take such steps as are directed by the medical officer of health,¹ including, if directed by the medical officer of health, providing information to occupants of the premises served by the plumbing from which the sample was taken*

¹ Where a direction is issued under O. Reg. 170/03, by a medical officer of health to an owner/operator or an operating authority, and that direction is not carried out, the medical officer of health should discuss possible enforcement options with the local office of the Ministry of the Environment.

that is in addition to the information provided under paragraph 3 of subsection 15.1-9 (1)".

Based on a risk assessment approach, actions by public health staff would likely be influenced by a number of factors including:

- the type of premises involved,
- the risk factors of occupants or users of the premises, and
- an analysis of the particular test results.

In developing this document a number of recommendations and communication strategies were considered for various scenarios. This information is presented in Appendix A to D and should be used to guide public health actions.

3. Those at Greatest Risk

Lead exposure is of particular concern for children under the age of six and pregnant women. Younger children are still developing and are therefore more sensitive to the neurological blood effects of lead. As well, children in general absorb lead more easily than adults. Particular recommendations are made for formula-fed infants because the water used to make the formula can contribute 40 – 60% of an infant's lead intake; drinking water in older children and adults is estimated to only contribute approximately 10% of total lead intake. Pregnant women are also at risk because they can pass lead in their blood to their fetus during pregnancy. Lead levels for pregnant women should be kept as low as possible.

4. Interpreting Test Results

For purposes of managing these events effectively, it is important to understand the difference between an adverse test result and a standard exceedance. The following information is available on the MOE website and has been included in this document for clarification.

4.1. Adverse Test Result : Distribution Samples

For samples taken from the **distribution system** under the community lead sampling program, section 18 of the SDWA and schedules 16, 17 and 18 of O. Reg. 170/03 apply to any test result. If the test result exceeds a standard of Schedule 2 of O. Reg. 169/03 Ontario Drinking Water Quality Standards, it is treated as an adverse test result. That is, if a licensed laboratory reports any adverse test result, in accordance with section 18 of the SDWA and schedule 16 of O. Reg. 170/03, the owner/operating authority must report these results immediately to the MOE Spills Action Centre (SAC) and the medical officer of health and take appropriate corrective action as specified under schedules 17 and 18. The licensed lab is required to report adverse results to SAC, the local

medical officer of health and drinking water system owner/operating authority immediately after test results are authorized for release.

4.2. Standard Exceedance: Plumbing Samples

For samples being taken from the **plumbing** under schedule 15.1 of O. Reg. 170/03, sections 18 of the SDWA and schedules 16, 17 and 18 of O. Reg. 170/03 do not apply to any test results, and therefore results are not called or considered to be adverse test results.

Rather, schedule 15.1 sets out the obligations for the owner/operator when a laboratory reports that a test result from the plumbing sample exceeds a standard (i.e. a “standard exceedance”) of schedule 2 of O. Reg. 169/03 (Ontario Drinking Water Quality Standards), including lead. These obligations require the owner/operating authority to:

- Give a copy of the laboratory report to the medical officer of health within 24 hours of receiving it. The owner/operator does not have to give a copy of the laboratory report to SAC as the laboratory is responsible for doing this. Also, unlike adverse test results, there is no requirement for the owner/operating authority to immediately notify the medical officer of health or the Spills Action Centre.
- Take whatever action is directed by the medical officer of health including providing information to the occupants of the premises served by the plumbing from which the sample was taken.
- Within seven days of receiving the laboratory report, give a copy of the report to the occupant of the premises and include an explanation of the result, as well as any information that was received from the medical officer of health.

5. Proposed Recommendations

The proposed recommendations that follow are included in Appendices A through D, which describe various scenarios that may be encountered by public health unit staff

5.1. Flushing Plumbing as a Regular Practice

Where lead is suspected to be present recommend that cold water tap be flushed for five minutes every morning before use or any time water has not been used for longer than six hours to ensure that all cold water plumbing pipes are filled with water from the public water supply system or from the well.

This recommendation represents a standard practice for drawing fresh water from the service lines where lead is suspected. This practice reduces the likelihood of using stagnant water in the plumbing that may contain high levels of lead. The variation in the time for flushing is relative to the length of the

service connection between the home/facility and the water main. Activities such as taking showers and doing laundry in the morning will help draw fresh water into the home/facility and will reduce flushing time significantly.

5.2. Use of Alternate Water Supplies

Children under six years of age and pregnant women should use an alternate drinking water supply, such as bottled water.

In situations where children under six and pregnant women are users of the water supply that has lead levels that exceed 10ug/L, an alternate water supply, such as bottled water, should be recommended. This approach is consistent with the report entitled, *Expert Advice on Public Health Response to Lead Exceedances in Drinking Water in Schools, Private Schools and Day Nurseries*.

5.3. Providing Public Health Information

Public health unit staff provides information regarding health risks to be accompanied with test results.

Public health unit staff are encouraged to develop or adopt key messages to accompany test results for the homeowners or facility occupants that show exceeded levels of the lead standard. Standard operating procedures for distributing this information should be developed with the operating authority (i.e. public works staff), who are responsible for collecting the samples, on a community wide basis. The operating procedures should include agreement on reporting arrangements, and a process for responding to inquiries. Sample letters provided to operating authorities for reporting test results by MOE in December 2007 should be used or adapted for use in local communities.

5.4. Use of Filters

Residents, facility occupants may consider installing tap/faucet mounted filters or filters installed into plumbing that are certified NSF/ANSI-53 for lead removal.

Tap/faucet mounted filters or filters installed into plumbing can be an effective means of reducing lead levels in drinking water and may be a practical alternative to bottled water or other alternate water supply. Taps or faucets not used for drinking water or food preparation may not warrant the installation of filters. Users should be advised that regular maintenance and replacement of cartridges must be done in accordance with the manufacturer's instructions.

5.5. Re-sampling and Targeted Flushing

Re-sampling and targeted flushing is not recommended unless such actions are deemed to be necessary to validate initial test results or to assist in identifying specific sources of lead.

In most of the scenarios described in the attached appendices, re-sampling and targeted flushing to reduce lead levels is not recommended. However, the local medical officer of health might consider re-sampling and/or targeted flushing be carried out where these activities will assist in identifying specific sources of lead or to validate test results that are suspect.

It is recommended that targeted flushing to reduce lead levels in facilities other than schools, daycares and private schools only be considered on a case by case basis. Consultation with MOE staff is strongly recommended where targeted flushing activities are being considered as a means of reducing lead in the drinking water.

5.6. Assessment of Plumbing

Public health unit staff may recommend that resident or facility owners carry out a plumbing assessment of the building by engaging the services of a plumber or other water quality professional.

The Canadian Mortgage and Housing Corporation and Health Canada provide useful information to assist home and business owners to identify lead pipes, lead based solder, and other contributing factors that may lead to elevated levels of lead from plumbing. Although replacement of indoor plumbing or plumbing components may be cost prohibitive, the information may encourage behaviours that reduce consuming drinking water with elevated lead levels (i.e. regular flushing of plumbing in the morning, etc.)

5.7. Replacement of Service Lines

Public health unit staff may recommend, where lead service lines exist, home and facility owners should investigate possible financing options that may be available through their local municipality to replace the privately owned portion of the service line.

Many municipalities have lead service line replacement programs where homeowners replace their portion of the lead service line at the same time as the municipality. Under these programs cost savings may be realized by the homeowner. Many more municipalities are introducing these types of arrangements as a long term strategy to replace lead service lines in the community. Public health unit staff should work closely with municipal representatives and non-municipal owners and operating authorities and be aware of areas in the community with lead service lines.

5.8. Reports to Individual Home or Facility Occupants

All test results are reported to home or facility occupants within 7 days by the operating authority.

O. Reg. 170/03 requires that the home or facility occupant be provided with a copy of the test results within 7 days by the operating authority. Test results that do not exceed the lead standard under O. Reg. 169/03 are not reported to the medical officer of health.

5.9. Communicating Exceedances of the Lead Standard to Occupants of a Multi-Unit Rental Building

Public Health Unit staff should direct drinking water system owner/operating authority to provide notification of the exceedance to the building owner, in addition to providing the test result to the individual occupant.

Where communication of the exceedance is deemed to be warranted to the rest of the building users, public health unit staff should encourage building owners and operating authorities to provide appropriate information to occupants as quickly as possible. Options could include posting the information in all common areas of the building, individual notices to each resident or other means of communication deemed to be effective in the particular circumstance. A more comprehensive level of communication should be considered where tenants are likely to include children under six years old and pregnant women.

Where a property owner (landlord) is not the drinking water system owner/operator, the rental property owner is not entitled to test results from samples collected from individual units. The medical officer of health may direct the owner/operating authority to provide information to other occupants of the premises served by the plumbing from which the sample was taken.

5.10. Neighbourhood (Block/Street) Advisories

Where multiple sample results in a neighbourhood exceed the lead standard and are associated with other risk factors such as facilities built before 1950, existing lead service lines, etc. a precautionary advisory may be considered by the medical officer of health.

The local medical officer of health may choose to provide precautionary advice to residents and users in a particular neighbourhood based on multiple test results exceeding the provincial standard for lead, age of buildings, lead service lines known to exist or at risk populations. Communication strategies may include media releases, information on the public health website, fact sheets and community forums to effectively target residents and users in

specific geographical areas with lead exceedances. Pre-consultation with the municipality and MOE is recommended.

6. Conclusion

The information contained in this document is intended to provide assistance to public health unit staff in responding to exceedances of lead in drinking water supplies from community sampling programs. Regular communication and consultation with MOE staff is recommended to address local issues that may not be addressed in this document.

Appendix A – Response Strategies for Single Family Homes

Test Result	Recommendations	Communications	Re- Sampling and Flushing
10 ug/L or less	Recommend cold water tap be flushed for five minutes any time water has not been used for longer than six hours in areas where lead is suspected to be present .	Not applicable.	Not applicable.
More than 10 ug/L	<p>Recommend cold water tap be flushed for five minutes any time water has not been used for longer than six hours.</p> <p>Do not use water from the hot water tap for drinking or cooking.</p> <p>Do not boil tap water to try to remove lead. Lead cannot be removed from water by heating it.</p> <p>Tap water is safe for bathing, showering, brushing teeth, washing dishes, and clothes even if homes have a lead service pipe and cannot be removed.</p> <p>Children under six years of age and pregnant women should use an alternate water supply, such as bottled water.</p> <p>Residents may consider installing tap/faucet mounted filters or filters installed into plumbing that are certified NSF/ANSI-53 for lead removal.</p> <p>Building owner may wish to carry out plumbing assessment by plumber of other water quality professional.</p> <p>Where lead service lines exist, home and facility owners should investigate possible financing options that may be available through their local municipality to replace the privately owned portion of the service line.</p>	<p>Test results are reported to homeowner within 7 days by operating authority.</p> <p>Public health unit staff provides information regarding health risks to be accompanied with test results.</p> <p>Where multiple sample results in a neighbourhood exceed the lead standard and are associated with other risk factors such as facilities built before 1950, existing lead service lines, etc. a precautionary advisory may be considered by the medical officer of health.</p>	<p>Re-sampling and targeted flushing is not recommended unless such actions are deemed to be necessary to validate initial test results or to assist in identifying specific sources of lead.</p>

Appendix B – Response Strategies for Multi-Unit Rental Dwellings

Test Result	Recommendations	Communications	Re- Sampling and Flushing
10 ug/L or less	Recommend cold water tap be flushed for five minutes any time water has not been used for longer than six hours in areas where lead is suspected to be present .	Not applicable.	Not applicable.
More than 10 ug/L Trigger level	<p>Recommend cold water tap be flushed for five minutes any time water has not been used for longer than six hours.</p> <p>Children under six years of age, pregnant women should use alternate water (i.e.: bottled water).</p> <p>Tenants may consider installing tap/faucet mounted filters or filters installed into plumbing that are certified NSF/ANSI-53 for lead removal.</p> <p>Building owner may wish to carry out plumbing assessment by plumber or other water quality professional.</p> <p>Where lead service lines exist, home and facility owners should investigate possible financing options that may be available through their local municipality to replace the privately owned portion of the service line.</p>	<p>Test results are reported to the individual tenant within 7 days by operating authority. Building owner/operator should be advised of the lead exceedance, without disclosing the individual unit by the operating authority.</p> <p>Public health unit staff provides information regarding health risks to be accompanied with test results.</p> <p>Public health unit staff should work with owner of the building and operating authority to communicate exceedance of standard for lead to remaining residents in the building. Options could include posting the information in all common areas of the building, individual notices to each resident or other means of communication deemed to be effective in the particular circumstance.</p>	<p>Re-sampling and targeted flushing is not recommended unless such actions are deemed to be necessary to validate initial test results or to assist in identifying specific sources of lead.</p>

Appendix C– Response Strategies for Designated Facilities for Children (other than those covered by O.Reg.243/07)

Test Results	Recommendations	Communications	Re- Sampling and Flushing
10 ug/L or less	Recommend cold water tap be flushed for five minutes any time water has not been used for longer than six hours in areas where lead is suspected to be present .	Not applicable.	Not applicable.
More than 10 ug/L	<p>Recommend cold water tap be flushed for five minutes any time water has not been used for longer than six hours.</p> <p>Alternate water (bottled water) should be used for drinking, preparing infant formula and reconstituting beverages. Only cold water should be used for food preparation.</p> <p>Owner/operator may consider installing tap/faucet mounted filters or filters installed into plumbing that are certified NSF/ANSI-53 for lead removal.</p> <p>Take drinking water fountains out of service unless fitted with filters.</p> <p>Owners/operators may wish to carry out plumbing assessment of their facilities by a plumber or other water quality professional.</p> <p>Where lead service lines exist, home and facility owners should investigate possible financing options that may be available through their local municipality to replace the privately owned portion of the service line.</p>	<p>Test results are reported to owner operator within 7 days by operating authority.</p> <p>Public health unit staff provide information regarding health risks to be accompanied with test results.</p> <p>Public health unit staff should direct owner of the facility to communicate exceedance of standard for lead to parents or custodians of children using the facility. Options could include posting the information in all common areas of the building, individual notices to each parent or custodian or other means of communication deemed to be sufficient in the particular circumstance.</p> <p>Where multiple sample results in a neighbourhood exceed the lead standard and are associated with other risk factors such as facilities built before 1950, existing lead service lines, etc. a precautionary advisory may be considered by the medical officer of health.</p>	<p>Re-sampling and targeted flushing is not recommended unless such actions are deemed to be necessary to validate initial test results or to assist in identifying specific sources of lead.</p>

Appendix D– Response Strategies for Public Facilities and Health Care Facilities

Test Result	Recommendations	Communications	Re- Sampling and Flushing
10 ug/L or less	Recommend cold water tap be flushed for five minutes any time water has not been used for longer than six hours in areas where lead is suspected to be present .	Not applicable.	Not applicable.
More than 10 ug/L	<p>Recommend cold water tap be flushed for five minutes every morning before use or any time water has not been used for longer than six hours.</p> <p>Refer to Expert Advice on Public Health Response to Lead Exceedances in Drinking Water in Schools, Private Schools and Day Nurseries where children use <u>public facilities</u> and water use conditions are similar (i.e.: activities at recreational centre) .</p> <p>Owner/operator may consider installing tap/faucet mounted filters or filters installed into plumbing that are certified NSF/ANSI-53 for lead removal. This recommendation applies to all taps/faucets that may be used for drinking purposes or food preparation and may not be appropriate for taps/faucets in many areas of hospitals, nursing homes, such as patient bathrooms.</p> <p>Owners/operators may wish to carry out plumbing assessment of their facilities by a plumber or other water quality professional.</p> <p>Where lead service lines exist, home and facility owners should investigate possible financing options that may be available through their local municipality to replace the privately owned portion of the service line.</p>	<p>Test results are reported to facility owner/operator within 7 days by operating authority.</p> <p>Public health unit staff provide information regarding health risks to be accompanied with test results.</p> <p>Additional communication strategies should be considered for public facilities where children under the age of six or pregnant women are frequent users.</p> <p>Public health unit staff provide information regarding health risks to be accompanied with test results targeting pregnant women and custodian of children 6 years of age and younger..</p> <p>Where multiple sample results in a neighborhood exceed the lead standard and are associated with other risk factors such as facilities built before 1950, existing lead service lines, etc. a precautionary advisory may be considered by the medical officer of health.</p>	<p>Re-sampling and targeted flushing is not recommended unless such actions are deemed to be necessary to validate initial test results or to assist in identifying specific sources of lead.</p>