

Frequently Asked Questions: Community Lead Testing Program O. Reg. 170/03

Below is a list of Frequently Asked Questions regarding implementation of the community lead testing program that have been raised by owners and operating authorities of drinking water systems.

These FAQs are not meant to be a comprehensive description of the community lead testing program. For more information go to **Drinking Water Ontario** www.ontario.ca/drinkingwater or contact the ministry's Public Information Centre at **1-800-565-4923**.

To be clear about your specific requirements, you must refer to the text of the Drinking Water Systems Regulation (O. Reg. 170/03) and the Safe Drinking Water Act, 2002 (SDWA). You can access these at www.e-laws.gov.on.ca or by calling the Public Information Centre at **1-800-565-4923**. If you have any legal questions about the application or interpretation of the regulation or legislation, you should consult a lawyer.

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Section A: Plumbing Sampling Protocol

Q1: How do we determine the population served? Is it based on the number of people or the number of service connections?

A1: Schedule 15.1 of the regulation outlines sampling requirements based on “population served” (i.e. the base residential population) by the drinking water system, not on the number of service connections.

The “population served” only includes the number of people served by the drinking water system and are connected to the distribution system through direct plumbing.

You may wish to survey your customers or check Statistics Canada census data to determine the size of the population your system serves. This will help you meet the requirement to keep your population profile current and verify how numbers were determined.

If there is an agreement to deliver water from the donor system to another receiver system, the “population served” must include the population of both the donor and recipient systems.

Q2: How do we determine the population served if the winter population differs from the summer population, for example in mobile home parks?

A2: Under O. Reg.170/03, the population for community lead testing is the residential population that is served by the drinking water system on a permanent basis. Permanent residents that are not actually on-site throughout the full year are still considered in the population served number, as long as this is considered their permanent home.

Q3: Can developments built before 1990 be omitted from selection for sampling purposes?

A3: Although the age of the development does not automatically determine whether or not it can or should be part of the selection, it is likely to be an indicator of whether or not the buildings in the development fit the selection criteria.

The regulation states that samples must be taken from plumbing in the following order of priority:

- plumbing connected or suspected to be connected to lead service pipes or plumbing that is or is suspected to be lead plumbing; or, if not possible, then
- plumbing connected to non-lead service pipes by solder that is known or suspected to be lead solder, or plumbing with solder that is known or suspected to be lead solder.

Only if not enough locations in the plumbing connected to the system meet the first of the above criteria, may samples be taken from plumbing that only meets the second of the two criteria. Only if not enough locations meet either of the two criteria, may samples be taken from any other plumbing connected to the system”.

Lead service pipes were frequently used in small diameter water service connections prior to mid-1950s. In early 1900s, lead pipes were also used in internal installations. Until 1990, new plumbing installations continued to use lead solder and high lead content brass and bronze fittings and fixtures. In December 1989 the Ontario Building Code was amended to ban the installation of water plumbing piping, fittings and fixtures made of materials containing more than 8 per cent of lead. The same amendment also banned the use of solder or flux containing more than 0.2 per cent of lead.

For the above reasons, developments built before 1990 would have plumbing that meets at least one of the above criteria for selecting sampling locations, unless it is known that 100 per cent of the lead service pipes, lead plumbing and lead solder has been removed from every single one of the buildings in that development.

Therefore, a development built before 1990 that meets only the second of the two selection criteria (likely built after mid-1950s) would be omitted from the selection if enough sampling locations that meet the first of the two criteria were found in another development (likely built before mid-1950s).

Q4: How often can we sample the same site?

A4: Once in each round of semi-annual sampling (not including any re-sampling that may be directed by the local medical officer of health).

Q5: Are we required to take the samples at the same locations in subsequent sampling rounds, or are different locations acceptable?

A5: The regulation does not specify that samples need to be taken at the same location in subsequent sampling rounds. However, you may choose to use the same sampling location in order to correlate the results from one testing round to another.

Also, when and wherever it is possible, it would be beneficial to have the test results for each or some of the locations for at least two consecutive sampling rounds to determine the influence of summer and winter water temperatures on the lead concentrations at the same locations. However, in order to make sure that you are taking samples from different geographical areas served by the system, you may need to sample other sites that also meet the priority criteria of the regulation once you have one or two years worth of results from sites that have already been sampled.

Q6: Are we permitted to go back to the same place to sample if the result was zero concentration of lead? Will the MOE recognize the samples from these one-timers if we include them in our sampling program?

A6: One-time samples are acceptable as part of the sampling program, as long as they meet the selection criteria set out in Schedule 15.1. You can also use the same sampling sites as long as these criteria are met. Note that plumbing samples that show results of zero concentration of lead may indicate that the site does not have lead service lines, and therefore if other sites are known or suspected to have lead service lines, those other sites must be given priority in order to meet the criteria of Schedule 15.1.

Q7: Are we required to re-sample at a location that has a lead exceedance?

A7: It is not a mandatory requirement under the regulation. In the event of an exceedance, owners/operating authorities must contact their local public health unit and follow their directions, which may include re-sampling.

Lead re-sampling test results are not subject to the mandatory reporting requirements under the regulation. If the local medical officer of health directs a drinking water system owner to re-sample, he/she may also provide direction on how the resample test results are to be reported.

Q8: Is a motel/hotel considered a residential sampling point?

A8: No, motel/hotel guests would not be considered residents and hotel/motel rooms are not private residences. However, you could use the motel/hotel as a non-residential sampling location.

Q9: If this regulation was designed to protect children and pregnant women from the effects of lead consumption, why should a drinking water system that serves a retirement community have to do this testing?

A9: Although the primary concern is for children under six and pregnant women, there can be health impacts from lead consumption for the remaining population groups as well. There is no provision in the regulation for reduced sampling due to the age of the serviced population.

Q10: Are the people taking the samples required to have certain qualifications?

A10: Lead sample collection and pH testing for the purposes of the community lead testing program under Schedule 15.1 of O. Reg. 170/03 must be done by a person with any one of the following qualifications (see Q/A 46 for qualifications required for alkalinity testing):

- certified operator or water quality analyst or
- trained person (has completed the “Operation of Small Drinking Water Systems” course offered by the Walkerton Clean Water Centre, www.wcwc.ca or 1-866-515-0550) in the preceding 36 months; or other course approved by the ministry or
- person who has been trained by a certified operator to take samples and conduct pH tests in accordance with this section, works under the supervision of a certified operator, and advises a certified operator of all pH test results within a reasonable period of time or
- medical officer of health or a public health inspector (as defined in the Health Protection and Promotion Act).

These qualifications do not apply to a system that serves a non-municipal year-round residential system not serving a designated facility that has received a treatment exemption from the ministry.

Q11: Must the occupant of the premises consent to sampling?

A11: You must have the consent of the occupant for residential sampling of lead. If an occupant of a residence previously sampled is not interested in continued participation in the sampling program, system owners must look for new volunteer occupants.

Q12: If occupants have concerns about lead in drinking water, who should they contact?

A12: Occupants seeking information about health effects of lead should contact their local health unit. They can also view **Lead Questions and Answers** on the main lead page at www.ontario.ca/drinkingwater.

Q13: What do we do if we can't find enough sampling locations in private residences because our system only serves a small number of buildings?

A13: If the system serves fewer than 100 people, and the number of buildings served by the system is less than five, take one sample per building, even if this number is lower than the number of locations on the sampling table. For example, if the system serves only three buildings with private residences, take one sample per building for a total of three samples.

If the system serves 100 or more people and the number of buildings served by the system is less than the number of samples required under the standard sampling table in the regulation, more than one sample can be taken per building in order to meet the requirement. For example, if the system serves 200 people, the table requires sampling from 10 locations. If the system only serves three buildings with private residences, samples can be taken from more than one location per building in order to meet the requirement of 10 samples.

Q14: We are having difficulty finding volunteers who are willing to allow us to conduct sampling within their private residence. What do we do? What constitutes due diligence to obtain a sufficient number of volunteers?

A14: Owners of drinking water operating systems must demonstrate that they have done whatever is reasonably possible to achieve compliance with the requirement to secure sufficient sampling points. You must be able to demonstrate that you have been actively trying to recruit volunteers through a variety of approaches. Direct contact with potential volunteers has been the most successful approach, e.g. direct mailing with personalized letters to customers and door to door canvassing. For municipalities, solicitation of municipal staff has also been a successful strategy. Other possible strategies include telephone recruitment, mass mailing of flyers, radio announcements, newspaper advertisements and articles, notices in water bills and billboards.

You may want to stress to potential volunteers that their participation in the sampling program is of great value to the community. It will assist the municipality in establishing a baseline understanding of the drinking water quality and enable the municipality to make informed decisions about potential water quality adjustments that will benefit the entire community. In addition, it can provide homeowners with important information about potential lead-containing materials in their own plumbing that could be putting themselves and their family members at risk.

We suggest trying a number of different approaches rather than just one method. If you would like to share your success stories, send a description to drinking.water@ontario.ca and we will explore ways to share this information with owners and operating authorities.

In cases where you are unable to secure the minimum number of sample locations, you may want to submit an application requesting partial relief. If so, contact Aziz Ahmed, Supervisor, Approvals and Licensing, for pre-application consultation. He can be contacted at, Safe Drinking Water Branch, Ministry of the Environment, 2 St. Clair Ave. W., 19th floor, Toronto, ON M4V 1L5. email Aziz.Ahmed@ontario.ca phone **416-314-4625**. See Q/A 50 for more details.

For more information about this and other situations where you may encounter difficulty in securing the required number of sampling points, go to the web page on Drinking Water Ontario entitled [Information for Municipal and Non-Municipal Owners and Operating Authorities of Drinking Water Systems \(www.ontario.ca/drinkingwater\)](http://www.ontario.ca/drinkingwater).

Q15: What do we do if the occupant gives consent but the landlord refuses entry?

A15: The landlord's permission is not required for the occupant to agree to have drinking water samples taken from the plumbing in their home/unit. A landlord cannot determine who the tenant can or cannot invite into their residence.

Q16: We have concerns about our staff entering private homes to take samples. Can you provide any suggestions on how to alleviate those concerns?

A16: It is recommended that you inform potential volunteer occupants of the various activities the samplers will be involved in within the premises. You should also be open to answering any questions the potential volunteer may have. This should give both the occupant and the operator/sampler a greater level of comfort and understanding of the process.

Q17: Our operators feel uncomfortable 'lingering' in someone's house for 30 minutes between flushing and sampling.

A17: With the consent of the occupant, the sampler could remain in the home. Where this creates discomfort on the part of the occupant or the sampler, the sampler may choose to ask the occupant not to use any tap or other water fixture within the home for 30 minutes and offer to wait outside until it is time to take the samples.

Q18: We are required to send two, one-litre samples to our licensed laboratories. Is there any flexibility regarding the size of each sample?

A18: Each of the required two samples to be tested for lead must be one litre in volume. This is intended to represent the estimated volumes of water contained within the pipes between the sampling tap and the point where plumbing enters the building/unit (the first 1 L sample) and between that point and the water service line connection to the water main (the second 1L sample), for most common situations.

All laboratories licensed to test for lead have been instructed by the ministry to reject plumbing samples submitted if the total volume of the sample is less than 90 percent of the required volume, because that sample cannot be used to meet your regulatory requirement.

Each of the 1L samples may be collected in smaller sized bottles (e.g. four samples in 250 millilitre bottles or two samples in 500 millilitre bottles) if that is what your licensed laboratory has provided to you. The laboratory will then combine the samples to form one 1L sample.

Q19: Before sampling, can we remove aerators to clean them in case there is particulate matter caught in the aerator? If not, why should they not be removed when taking samples?

A19: Although, many home owners routinely remove and clean aerators from taps, this should not be done just before the required pre-sampling flushing of the tap, the 30 to 35 minute waiting period and taking the sample for lead testing. When an aerator is being removed (or replaced after cleaning), particulate matter may break off from the thread of the aerator. This particulate matter (that may contain lead) may not happen to be immediately washed away during the pre-sampling flushing and end up in the sample bottle.

Q20: What is the accepted method of preserving a water sample taken for lead?

A20: Water samples taken for lead testing need to be preserved with nitric acid. This can be done either through the addition of nitric acid to the container immediately or shortly after the water sample has been collected or the sampler can use specific acid-resistant sampling containers that are pre-charged by the laboratory with the preservative. The owner/operating authority should consult with their licensed laboratory to confirm the method they are to use.

A water sample submitted unpreserved (without the addition of nitric acid) to the laboratory for lead testing may still be reliably tested for lead if the laboratory uses a special procedure. The laboratory will add the necessary amount of nitric acid to the submitted sample at the laboratory and let the acidified sample stand in the bottle in which it was submitted for at least 24 hours prior to testing. This special procedure ensures that any lead that has precipitated and/or adhered to the walls of the container becomes re-dissolved in the sample before the test.

Q21: Is there a time limit for a sample to be analyzed from the time it is taken?

A21: Drinking water samples for lead testing may be stored from 30-60 days if they have been preserved with nitric acid to maintain the sample pH at less than 2.0 and refrigerated to maintain the sample temperature below 10°C.

The [*Practices for the Collection and Handling of Drinking Water Samples*](#) guide available on the ministry's Drinking Water Ontario website at under Guidance www.ontario.ca/drinkingwater has a table at the end of the guide that sets out the holding times and preservation requirements.

Q22: In homes that are equipped with centralized filters serving the entire plumbing of the home (point-of-entry treatment systems), does the filter need to be bypassed? What if we can't bypass it?

A22: The regulation only requires by-passing/removal of treatment devices installed at the tap from which samples are collected (point-of-use or POU treatment devices). There is no requirement to by-pass or remove any point-of-entry (POE) treatment devices.

POU devices may (and often are designed to) remove lead from the water. As such, the test results on samples from a tap equipped with such a device would not represent the concentration of lead in water from the other taps in the plumbing. That is why the regulation requires the by-pass or removal of such a device, if that tap is to be used for the collection of a sample. If the device cannot be bypassed, then another tap where water is used for human consumption can be selected.

Q23: Is the Chain of Custody form for community lead testing specified in the Regulation?

A23: The Chain of Custody form is not specified in the regulation. It is a form created by laboratories and it must contain information as required by the Ministry Director. The Ministry of the Environment has sent a directive to licensed laboratories instructing them to add additional fields to the Chain of Custody form to cover the requirements of Schedule 15.1. You must complete all sections of the Chain of Custody form as requested by the laboratory.

Q24: In the Orders to Municipalities in May 2006, there was a requirement to record water temperature. Are we still to record this temperature?

A24: The measurement of the water temperature at the time of sampling is not mandatory. When storing and transporting the collected samples, the sampler must follow the instructions received from its licensed laboratory. These instructions normally require that the sample temperature be maintained below 10°C until the sample is received by the laboratory.

Q25: If we sample one unit in a multi-residential building, does it matter if other units use their water?

A25: There is no requirement to ensure that water is not being used in other units of the building during the 30 to 35-minute waiting period at the unit where sampling is to be done.

Q26: The regulation requires that pH testing be done for each sample taken, in a third sample bottle designated for pH sampling. Once we have recorded the pH, can we re-use the bottle, or should we discard it?

A26: It is important that you ensure there is no risk for cross contamination of samples. To accomplish this, you may choose to use fresh bottles for each pH sample taken. If you prefer to re-use a sample bottle, you should rinse the bottle thoroughly with distilled water prior to every re-use.

Q27: Is there a list of approved pH sampling instruments that meet the ministry's requirement for two significant digits?

A27: The ministry does not provide a list of acceptable instruments. When selecting your pH instrument, you will need to ensure it is capable of measuring pH to the required accuracy of two significant digits. If you are unsure of whether your instrument meets this requirement, refer to the instrument owner's manual.

Section B: Distribution Sampling Protocol

Q28: Does a distribution sample have to be taken at the same time as a plumbing sample and vice versa?

A28: A distribution sample must be taken on the same day and from a location as close as reasonably possible to the locations where plumbing samples are being taken. There is no requirement to take a distribution sample every time plumbing samples are taken since the regulation requires more plumbing samples than distribution samples.

Q29: Can a hydrant be used as a distribution sampling point?

A29: In most distribution systems, hydrants may be the only locations where samples for lead can be taken directly from the distribution system. If a system has hydrants but no taps connected directly to the distribution system, distribution samples are expected to be taken from hydrants.

However, distribution samples must represent the water quality in the distribution system in the area. Therefore, these samples cannot be taken from points in the distribution system where lead levels are likely to be elevated due to materials used in fixtures, e.g., hydrants located at or near the sampling point. If hydrants are known to have lead-based materials, other locations must be selected, or additional efforts (i.e. flushing) must be made in order to ensure that lead levels in the sample water are not elevated due to the lead-based materials at that location.

If acceptable distribution sampling locations are difficult to find, these samples can be taken from plumbing -- see details in Q30.

Q30: If we have a small system with no hydrants or all our hydrants have lead-based materials, how can we take a distribution sample? What do we do if we don't have a distribution system?

A30: If there is a distribution system, but there are no hydrants or acceptable hydrants or other distribution sampling taps, distribution samples can be taken from plumbing where necessary to do so.

When using a building's plumbing as a *distribution sample site*, the owner/operating authority should try to find a site that best represents the water quality in the *distribution system*. In order to represent this water quality, it is preferable to choose a building that is unlikely to have lead service connection/plumbing/solder so that the water quality is most representative of the quality in the distribution system. The sample should be taken from the tap that is as close as possible to the distribution system, and can include a tap that is

on the exterior of the building. The sample should be taken immediately after flushing the tap for as long as it is necessary to ensure that the quality of water sampled at the tap is representative of the water in the distribution system. There is no standing time requirement prior to sampling.

Please note that the selection of the distribution sample site is the opposite of the criteria for the selection of a plumbing sampling location.

If there is no distribution system, you are not legally required to collect a distribution sample. However, it is strongly recommended that you take a sample from the plumbing in place of the distribution system sample, in order to ensure that there are no high concentrations of lead in the drinking water.

Q31: Distribution samples need to be taken reasonably close to the plumbing sample points. What is meant by "reasonably close?"

A31: While there is no specific definition for 'reasonably close,' you are required to use sound judgement in selecting your distribution sampling locations in relation to your plumbing sampling locations. Keep in mind the purpose of the distribution sampling in relation to the plumbing sampling is to correlate the quality of distribution water and plumbing water, thus helping in the determination of the source of lead (if present) in plumbing samples.

Q32: How will distribution sample results be linked to corresponding plumbing samples?

A32: The system owner is required to keep a record of which plumbing samples are linked to individual distribution samples. Every distribution system sample for lead under Schedule 15.1 must be linked to plumbing samples taken on the same day from at least one plumbing location. However, there is no requirement to have a corresponding distribution sample for each plumbing sampling location.

Q33: We are concerned about hydrant flushing for sampling in the winter months when water flushed may freeze and cause a public hazard. What should we do?

A33: Distribution samples that are required to be taken as part of the community lead testing requirements are not the only distribution samples that the system owner/operating authority is required to take during winter months. A variety of other samples must be taken throughout the year to test parameters such as E. coli, total coliforms, chlorine residuals and others.

You should exercise the same precautions when taking samples for lead testing as you would when taking these other samples. If freezing is still a concern, other locations may be used for distribution sampling such as the taps on plumbing of nearby buildings, provided that these locations represent as closely as reasonably possible, the water quality in the water main from which water comes to the sampling point. (See Q/A #31).

Q34: Most municipalities are aware of the water quality in their own distribution systems. If water is purchased from another municipality, how can the chemistry be controlled?

A34: The purpose of community lead testing is to determine if there are lead standard exceedances at the consumers' taps within a particular system and, if detected, how prevalent the problem is.

If a corrosion control plan is required for a municipality that is receiving water from another municipality, the regulation stipulates that a joint corrosion control plan must be prepared by the participating municipalities. This must be done regardless of the results of the community lead testing program within the water provider's system.

Q35: How are PVC pipes a source of lead contamination?

A35: Some PVC pipes may be a source of lead found in drinking water because lead-containing compounds may be used as additives in the production of PVC pipes. These additives may include stabilizers that are required to make the material resistant to degradation due to the exposure to heat and light, and plasticizers that are required to make the pipes flexible.

No lead-based stabilizers are used in PVC pipes currently manufactured throughout the United States and Canada for drinking water applications. However, older previously installed PVC pipes may contain lead-based stabilizers

While lead-based PVC plasticizers are much more common, lead contamination from PVC pipes plasticizers is not usually an issue with drinking water installations because flexible PVC pipes are not acceptable for potable water plumbing installations under the Ontario Building Code.

Q36: Would on-line pH monitoring at the pump house be adequate for pH sampling?

A36: No, this would not be acceptable for the purposes of pH testing under the regulation. Tests for pH must be performed on separate samples that are taken at the same time and location as samples taken for lead testing. Also, a pump house would be considered the treated water point of entry to the distribution system and not a location within the distribution system. For this reason, a pump house is not an acceptable location even for one of the required distribution system sampling (and pH testing) locations.

Q37: If a system qualifies for exemption from plumbing sampling, do they still sample from the distribution system?

A37: Once exempt from plumbing sampling, systems must take distribution samples as follows:

- *pH and alkalinity*
 - o Conducted EACH sampling period (i.e. December -April AND June-October)
 - o Taken at the number of distribution locations required under the “reduced” sampling table, based on the population served by the system
- *Lead*
 - o Conducted every three years in both “winter” and “summer” sampling periods. For example, if you qualify for the exemption based on results from the sampling period ending October 2011, sampling for lead is conducted:
 - December 2013 – April 2014 and
 - June 2014 – October 2014.
 - o Taken at the number of distribution locations required under the “reduced” sampling table, based on the population served by the system.

Section C: Sample Results

Q38: Laboratory test result reports usually have more than one sample result per page, meaning more than one address will be listed on the report. We are required to share these results with the occupants of the premises. How are we to share these results without violating privacy laws?

A38: You can ask your laboratory to include only one set of results (results from one sampling location) per page of the lab test result report or you can black out the other addresses before giving a copy of the laboratory report to a particular occupant. You should seek legal advice if you have questions about compliance with privacy laws.

Q39: If it turns out that a reported exceedance of the lead standard was a laboratory error, can this be rectified so we can move to reduced sampling?

A39: Any such errors would need to be addressed on a case- by- case basis. In the event that you encounter what is proven to be a laboratory error, please contact your local ministry drinking water office, and they will assist you with next steps.

Q40: Can you clarify an adverse test result vs. a standard exceedance? What is the difference?

A40: An adverse test result differs from a standard exceedance as follows:

Adverse test result

The community lead testing program established by Schedule 15.1 requires the owner/operating authority to take samples from plumbing from the distribution system.

For samples taken from the **distribution system** under the community lead testing program, section 18 of the SDWA and Schedules 16, 17 and 18 of O.Reg.170/03 apply to any test results. If a test result exceeds a drinking water quality standard, it is called and treated as an adverse test result. That is, if a licensed laboratory reports any adverse test results, 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 ministry's Spills Action Centre and the medical officer of health and take the appropriate corrective action specified by Schedules 17 and 18.

Standard exceedance

For samples being taken from **plumbing** under Schedule 15.1 of O.Reg. 170/03, section 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 adverse test results.

Rather, Schedule 15.1 sets out the obligations for the owner/operator when a laboratory reports that a test result from a **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 the ministry's Spills Action Centre 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.
- Within seven days of receiving the report, give a copy of the report to owners of multi-residential buildings, where a sample was taken from a unit in the building.

Q41: Are lead test results with exceedances from samples taken outside the prescribed sampling periods reportable?

A41: Lead test reporting requirements also apply to samples taken outside the prescribed "summer" and "winter" sampling periods, as long as they are part of your community sampling and were taken in accordance with the regulation.

Q42: How do I calculate the percentage of exceedances in a drinking water system?

A42, Evaluation must be completed for each "winter" and "summer" sampling period. Systems cannot use sample results for the entire year (i.e. both sample periods combined) for the purpose of determining if they are eligible for reduced sampling, corrosion control, or exemption.

- For each sampling point (i.e. location), only the highest concentration should be used.
- Determine the number of plumbing sampling points (i.e. location) that exceed the standard. For example, sampling conducted at 13 John St.:
Results: Sample A: 19.4 µg/L
 Sample B: 14.2 µg/L
In this scenario, you discard Sample B, and only use Sample A results. This counts as "one" sampling point exceedance.
- Determine the number of residential & non-residential plumbing points (locations) sampled.
- Do not count resamples, even if taken on different days. These samples should be included in any summary reports of exceedances & number of samples taken, however, they should be disregarded in any calculation

for determining eligibility for reduced sampling, exemptions or corrosion control purposes. This is to prevent “double counting” of locations e.g. in cases where poor plumbing is the issue.

- For example:
Municipality X sampled 40 residential and 4 non-residential sampling points (locations), for a total of 88 samples (2 samples x 44 locations).
 - o 14 samples exceeded the standard, at 10 residential locations (i.e. 6 homes reported 1 of 2 samples exceeded the standard; in 4 homes, both samples exceeded)
 - o Therefore:
$$\frac{10 \text{ sampling point exceedances}}{44 \text{ sampling points}} \times 100\% = 22.7\% \text{ exceed}$$

Section D: Reduced Sampling and Exemption from Sampling

Q43: Systems serving populations of less than 50,000 can move to reduced sampling if in two consecutive rounds of semi-annual testing not more than 10 per cent of plumbing sample results exceeded 5 µg/L and no plumbing sample results exceeded 10 µg/L. Why were these specific concentrations chosen?

A43: The emphasis on results below ½ the maximum acceptable concentration for lead (5 µg/L) was used in order to allow a quicker route for reduction of sampling for systems serving less than 50,000 people. Note: reduced sampling can also occur for these systems if in four consecutive rounds of semi-annual testing not more than 10 per cent of plumbing sample results exceeded 10 µg/L.

Q44: If we go through successive rounds of sampling with no lead exceedances identified, does the legislation allow us to discontinue sampling?

A44: To qualify for this exemption a system must:

- Serve a population of less than 50,000
- Be qualified for reduced sampling or has been sampling plumbing according to a condition providing relief in an approval granted by the ministry and
- In each of two consecutive periods (“winter” and “summer”), not more than 10% of plumbing sample locations exceeded the lead standard.

Distribution sampling is still required (alkalinity and pH testing) in “winter” and “summer” periods and lead sampling every third 12-month period. Once exempt, if future changes affect water chemistry, lead testing in plumbing could be reinstated via a ministry Director’s decision.

See the Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption fact sheet on **Drinking Water Ontario** www.ontario.ca/drinkingwater under Guidance for more information.

Q45: Prior to December 14, 2009, a system owner who had difficulty finding volunteers to do plumbing samples (per the standard table) was granted relief to take fewer plumbing samples for two or more consecutive sampling periods. What are their requirements as of December 15, 2009, the in-effect date of the amendments?

A45: As their initial sampling was not “standard sampling” as defined in the regulation, these systems do not qualify for the “reduced frequency” from every 12 months to every 36 months, even if the system met the “not more than 10 per cent” exceedance limit in subsection 15.1-5(1) clauses (a) or (b).

However, systems granted relief may meet the new exemption in 15.1-5(9).
For a system serving a population less than 50,000, 15.1-5(9) states,

- (9) *The requirements for taking samples set out in clauses (3) (a) and (b) and subsection (8) cease to apply to a drinking water system if, in each of two consecutive periods described in subsection (5) not more than 10 per cent of all the samples from plumbing taken under clause (3) (a) or (b) or subsection (8), or taken in accordance with a condition imposed under subsection 38 (2), 46 (2) or 60 (2) of the Act with respect to a system that serves a population*

of less than 50,000, that were tested for lead exceed the standard prescribed for lead, according to the results of the tests conducted under clause 15.1-7 (3) (a) or under a condition imposed under subsection 38 (2), 46 (2) or 60 (2) of the Act.

Note: the portion of the section applicable to a relief system is underlined.

Therefore, if in each of **two consecutive periods** described in subsection (5):

- the period from December 15 to April 15 (“winter” period)
- the period from June 15 to October 15 (“summer” period)

not more than 10 per cent of all the samples from plumbing exceed the standard for lead in each of two consecutive periods, the system is eligible for exemption from plumbing, provided they met their requirements under the conditions of their relief approval (see example on following page).

Example: Systems Under 50,000

A system serving a population of 30,000 has been granted relief to reduce the number of standard plumbing samples from 66 (60 residential + 6 non-residential) to 44 (40 residential + 4 non-residential) for the first four sampling periods (December 2007 to October 2009). The plumbing results are as follows:

- Round 1: 8% of plumbing samples (locations) exceed (“winter” period)
- Round 2: 7% (“summer” period)
- Round 3: 7.5% (“winter” period)
- Round 4: 9.3% (“summer” period).

Sampling Requirements as of December 15, 2009:

- System is no longer required to conduct **plumbing** sampling under community lead testing.
- However, if after the system qualifies for the exemption, the Director has knowledge of water chemistry changes in the water of the drinking water system and in the Director’s opinion the changes may increase levels of lead in the drinking water supplied by plumbing that is connected to the drinking water system, the Director may direct the drinking water system owner to go back to the standard sampling protocol.
- The system must take **distribution** samples and test for the following:
 - o pH and alkalinity for the number of distribution samples required under the “reduced sampling table” during each of the periods described in subsection (5) in every 12- month period. In this example, the system will sample at four distribution sampling points in both the “winter” and “summer” period, (8 pH and alkalinity results per year) every year and
 - o Lead in the distribution system for the number of samples required under the “reduced sampling table” during the “winter” and “summer” periods described in subsection (5) in every third 12-month period.

In this example, the system qualifies for the exemption as of the testing round ending October 15, 2009. Therefore the system must take four distribution samples and test for lead in both the December 2011 to April 2012, and June 2012 to October 2012 sampling periods.

Section E: Reporting Test Results

Q46: Is there be a separate reporting form designed for lead exceedances?

A46: A **Notice of Lead Exceedance** form for test results in plumbing samples taken under O. Reg. 170/03 is available on the ministry’s Drinking Water Ontario website on the Lead and Drinking Water page under Information for Laboratories www.ontario.ca/drinkingwater.

In addition, owners must record and submit to the ministry the O. Reg. 170/03 Community Lead Testing – End of Period Report within 30 days at the end of each sampling period the number of points sampled and the number of points where samples exceeded the standard within that period. The Report form is posted on **Drinking Water Ontario** www.ontario.ca/drinkingwater under Forms.

Q47: What is meant by “two significant digits” when reporting pH sample results?

A47: For a result less than 10 for a pH result, two significant digits is a result given with one digit before and one digit after the decimal point.

An example of proper pH reporting would be 7.4.

Q48: Can we assure prospective participants who volunteer their homes for the lead sampling program that their personal information will be protected? Does the address of a location where an exceedance of lead in a plumbing was found, need to be included in Annual Reports?

A48: The release of personal information is covered under freedom of information and privacy protection legislation that applies to municipalities. Municipalities should consult with their legal counsel regarding any release of information that may be subject to this legislation. The ministry does not consider the release of home address information attached to results from the community lead sampling program carried out under Schedule 15.1 to be necessary for the purpose of compliance with section 11 (annual reports) or section 12 (information to be available) of the regulation. Under section 12, a description of test results would meet the intent. For the community lead testing program, such a description may include the names of streets and a description of the block related to the test result(s).

An annual report only needs to include a summary of the results of all tests required under the regulation, an approval or order, including those required under Schedule 15.1. Therefore, it is not required or necessary to include a complete list of individual plumbing sample results including home addresses in the annual report.

Q49: When samples for lead are submitted for testing is lead the only parameter tested for?

A49: The methods that some laboratories use when they are testing for lead in drinking water will show the concentration of other chemicals in addition to lead.

If any of the concentrations of these other chemicals are above the relevant Ontario Drinking Water Quality Standard, the laboratory will be required to report the result as per either Schedule 15.1 (plumbing samples) or 16 (distribution samples) of the regulation.

Q50: If the operating authority fails to provide a copy of a laboratory exceedance report regarding a lead plumbing sample to the system owner within specified period (24 hours) is this non-compliance?

A50: Yes, it is a non-compliance with the regulatory requirements of O. Reg. 170/03.

Q51: Who is responsible for notifying Interested Authorities for designated facilities if there is an exceedance? Are the Interested Authorities aware of these new requirements?

A51: It is the responsibility of the operator of the designated facility to give a copy of every laboratory test report for plumbing samples taken under Schedule 15.1 (not only the reports indicating exceedance of a standard) to their Interested Authority. All Interested Authorities have been informed about the new requirements.

Q52: If an exceedance is detected in a rental property, does the owner of the drinking water system notify the renter or the owner of the rental property? Do they have to notify all tenants in a multi-residential building?

A52: The owner of the drinking water system is required to provide a copy of each test result, regardless of the result (if there is an exceedance or not), to the occupant of the premises where the sample was taken. Where samples are taken at a residence within a multi-residence building, it is the occupant of the residential unit. Owners or operating authorities must also report exceedances to owners of multi-residential buildings where a sample was taken from a unit in the building.

Q53: What are the acceptable methods of notifying the occupant of the premises about test results? What documentation will inspectors be looking for?

A53: The regulation does not stipulate a specific delivery method for providing information to the occupants of the premises where samples have been taken.

For each plumbing sampling location, the municipality must clearly document the delivery date and method of delivery, and have any such records available for inspection by ministry staff upon request.

Ministry staff will be looking to confirm that the drinking water system owner or operating authority provided the occupants of the premises with a copy of the laboratory report, a statement identifying any exceedances of standards, the telephone number of a person who is available to answer questions about the report and, in case of an exceedance, any required additional information (i.e., advice from the local medical officer of health regarding what steps the occupant should take to address the exceedance).

Section F: Corrective Action Including Corrosion Control

Q54: What do we do if there is a lead exceedance but the occupant of the premises does not want to replace/is not willing to pay for changes required?

A54: The drinking water system owner is not responsible for corrective or preventive actions that may need to be taken within a premise where the plumbing sample results indicate a lead exceedance.

Replacement of private plumbing or plumbing fixtures within a residence, even if recommended by the local medical officer of health, is at the discretion of the owner of the residence, who would be financially responsible for the upgrades. If there is a municipally owned water meter installed on the plumbing, replacement with a newer meter made from “no-lead” materials could be considered by the drinking water system owner.

Q55: What is expected of a drinking water system owner in determining the source of any lead found to be present in drinking water samples? Are we expected to check plumbing and fixtures inside homes? If we are not getting elevated levels of lead within the distribution system, but are getting elevated levels of lead from within plumbing in homes and businesses, doesn't the responsibility for determining the source rest with the premises occupant?

A55: The drinking water system owner is not expected to assume responsibility for private plumbing or fixtures. If there is a lead exceedance indicated in the plumbing sample of the premises, the drinking water system owner is required to pass on to the occupant a copy of the test results and any advice from the local medical officer of health regarding measures the occupant may want to consider.

If samples taken in the distribution system do not show any exceedances, drinking water system owners may still have some responsibilities for corrective action. This is because the corrosivity of the water supplied to the residential and non-residential premises by the system may be contributing to the leaching of lead from the plumbing, and the drinking water system owner is responsible for the quality of the water that is delivered to the users. As well, municipally-owned portions of service pipes or municipal water meters may be a potential source of the elevated levels of lead in plumbing samples.

For this reason, and regardless of any lead standard exceedances within the distribution system, large municipal systems are required to prepare a Corrosion Control Plan if in two of three most recent rounds of testing, more than 10 per cent of plumbing sample results in each round exceeded the drinking water quality standard for lead and in each of the two rounds, at least two samples exceeded the standard.

If systems are carrying out sentinel monitoring (i.e. targeted monitoring) as part of their Corrosion Control Plan, they are exempt from routine community lead sampling in plumbing.

If the ministry or the local medical officer of health determines it to be necessary, an owner of a non-municipal year-round residential or a small municipal residential drinking water system may also be ordered to implement corrosion control measures, even though these owners are not required to submit Corrosion Control Plans under the regulation.

In addition, if municipally owned portions of lead service pipes or municipally owned water meters are suspected to be the source, replacement programs can prioritize locations where sample results exceeded the lead standards.

Q56: If I put in a Corrosion Control Plan, do I need to replace lead services?

A56: O.Reg.170/03 does not require the replacement of lead service pipes. However, O. Reg. 453/07 (Financial Plans), also made under the SDWA, does require financial details about a municipality's lead service pipe replacement program to be included in their overall financial plans. The community lead sampling information gathered under O. Reg. 170/03 may assist the municipality in prioritizing their program.

Q57: Is the submission of a Corrosion Control Plan only associated with lead, and not pH?

A57: The requirement for the submission of a Corrosion Control Plan is only triggered by lead exceedances. Although pH testing is required when lead samples are taken, the results of the pH tests have no impact on the trigger for the preparation of the plan.

Q58: When will guidance for Corrosion Control Plans be available?

A58: The guidance document is provided to all system owners required to prepare a Corrosion Control Plan. It will be posted on [Drinking Water Ontario](#) shortly.

Section G: Alkalinity Testing

Q59: What is the ministry's recognized method for alkalinity testing? Can this be done on site?

A59: The ministry has several recognized laboratory methods for testing alkalinity. More information on the recognized methods can be found in the ministry's [Protocol of Accepted Drinking Water Testing Methods](#) which is available on the ministry's [Drinking Water Ontario](#) website under Guidance in the Drinking Water Publications section of this website.

The test for alkalinity is a laboratory test, not an on-site test. It can be done by any laboratory, including a laboratory at a drinking water system, as long as the person doing the test has the qualifications defined by the regulation – see Q/A #50.

Q60: Can “Trained Persons” under the Safe Drinking Water Act, 2002 perform the alkalinity testing required by the regulation?

A60: No. For the purposes of the community lead testing program a “Trained Person” (as defined in O. Reg. 170/03) may take samples and conduct the required pH tests, but may not perform alkalinity testing.

Alkalinity testing may only be conducted by a person with the following qualifications:

- a certified operator or
- a water quality analyst or
- a person who, in the preceding 36 months has successfully completed a course approved by the Director that relates to the operation and routine maintenance of drinking water systems, including the conducting of tests for alkalinity (Currently no courses have been approved by the Director for this purpose).

These qualifications do not apply to a system that serves a non-municipal year-round residential system not serving a designated facility that has received a treatment exemption from the ministry.

Section H: Applying for a Partial Relief from Regulatory Requirements

Q61: We have been doing corrosion control since 1994. Can we request exemption from schedule 15.1?

A61: if an existing corrosion control program was designed with the goal to reduce the concentrations of lead at the consumers' taps and there is a sampling program in place to monitor the effectiveness of that program, the system owner may be successful in obtaining partial relief from some of the lead testing requirements stipulated in schedule 15.1. For pre-application consultation contact Aziz Ahmed, Supervisor, Approvals and Licensing, Safe Drinking Water Branch, Ministry of the Environment, 2 St. Clair Ave. W., 19th floor, Toronto, ON M4V 1L5. email Aziz.Ahmed@ontario.ca phone 416-314-4625.

Please note: many existing corrosion control programs were put in place for reasons other than reducing the lead levels in drinking water at consumers' taps. Many of these existing programs were designed to slow the deterioration of infrastructure. These programs may need to be modified to achieve the necessary reduction of lead levels if results of the lead testing program trigger the regulated requirements for the preparation of a new corrosion control program.

Q62: We do not have a sufficient number of non-residential locations for sampling. What do we do?

A62: If you do not have a sufficient number of non-residential locations on your system, then you are only required to sample at as many locations as you do have available. If no locations are available, you are not required to collect the non-residential sample(s) nor do you need to apply for relief. For more information go to the web page on **Drinking Water Ontario** entitled Information for **Municipal and Non-Municipal Owners and Operating Authorities of Drinking Water Systems** (www.ontario.ca/drinkingwater).

Q63: We are unable to find a sufficient number of residential or non-residential volunteers for sampling. What do we do?

A63: If you are unable to find enough volunteers willing to let you take samples at their residences or non-residential buildings, you must be able to demonstrate that you have done everything reasonably possible to achieve compliance with the regulation.

See Q14 for suggestions for recruiting volunteers for sampling.

Q64: Where do I find a form for relief application?

A64: Before submitting the form, contact Aziz Ahmed Supervisor, Approvals and Licensing, for pre-application consultation. He can be contacted at, Safe Drinking Water Branch, Ministry of the Environment, 2 St. Clair Ave. W., 19th floor, Toronto, ON M4V 1L5, email Aziz.Ahmed@ontario.ca phone **416-314-4625**.

If you are a non-municipal year-round residential drinking water or a municipal system not yet licensed, see the **Request for Regulatory Relief From Lead Sampling Requirements in Schedule 15.1 of Regulation 170/03, Safe Drinking Water Act** and **Guide to filling out a Request for Regulatory Relief From Lead Sampling Requirements in Schedule 15.1 of Regulation 170/03, Safe Drinking Water Act**.

If you are a licensed municipal drinking water system, see the **Application Respecting: Drinking Water Permits and Municipal Drinking Water Licenses** and its corresponding **Guide**.

I: Interconnected Systems

Q65: Under O. Reg. 170/03, subsection 5(4), a drinking water system (“receiver system”) that receives all of its water from another drinking water system (“donor system”) is exempt from most of the requirements of the regulation if the donor system meets certain qualifying criteria and agrees in writing to do certain things for or on behalf of the receiver system. Does such an existing agreement automatically compel the donor system to conduct lead sampling under Schedule 15.1 on behalf of the receiver system or is the default position that the owner of the receiver system is responsible to do so?

A65: For the subsection 5(4) exemption to apply to a receiver, the donor system would have to agree in writing to do all of the things listed in clause (b) of the subsection, including the Schedule 15.1 lead sampling in the receiver system. When O. Reg. 170/03 was amended in July 2007, the Schedule 15.1 lead testing in the receiver system was added to the list of things the donor system would have to agree to do in order for the subsection 5(4) exemption to apply to the receiver system.

If there is in place an existing clause 5(4)(b) written agreement between a donor system and a receiver system from before the July 2007 regulatory amendment, and the donor system is willing to add the Schedule 15.1 lead testing in the receiver system to the previous commitments, the written agreement between the donor system and receiver system would have to be appropriately amended for the subsection 5(4) exemption to continue to apply to the receiver system.

If the donor system is not interested in adding the Schedule 15.1 lead testing in the receiver system to the previous commitments, the receiver system has three options:

- cancel the agreement with the donor system and start doing all of the applicable Reg. 170 testing independently or
- apply for a partial relief from s. 5(4) requirements to be able to maintain the existing agreement with the donor system and do only the community lead testing independently or
- have the written agreement with the donor system amended in such a way that the donor system would agree to comply with the relevant lead schedules on behalf of the receiver system but the owner of the receiver system would do the community lead testing in its system as an agent of the donor system.