

Guidelines for Monitoring Public Drinking Water Supplies

Part II Registered Public Drinking Water Supplies

Proposed Amendments
for Sections 6, 7 and 8

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Department of Environment and Climate Change

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6.0 Monitoring for Chemical and Physical Quality

The owner shall monitor for chemical and physical quality as outlined in Table 1. The numbers in the table represent monitoring requirement sections of this document that the owner shall comply with. The parameters to be monitored depend on the source of the water supply (i.e. groundwater or surface water) and whether the facility is transient¹ or non-transient².

Table 1. Monitoring Requirements

	Groundwater	Surface Water
Transient	Section 6.1* Section 6.3**	Section 6.1* Section 6.2.2 Section 6.3**
Non-transient	Section 6.1 Section 6.3** Section 7.0	Section 6.1 Section 6.2 Section 6.3** Section 7.0
<p>Notes: *Where routine monitoring sample results exceed the lead or copper maximum acceptable concentration (MAC), the owner of a transient registered public drinking water supply shall carryout additional monitoring for lead and copper in accordance with section 7.0 based on the type of facility. **Transient and non-transient registered supplies that disinfect their water through the use of chlorination shall monitor the free chlorine residual at a minimum frequency of daily in accordance with section 6.3.</p>		

6.1 Routine Monitoring – General Chemical and Physical Parameters

The owner shall monitor for general chemical and physical quality. The parameters to be monitored are shown in Table 2 and include inorganic and physical parameters. Not all parameters have health-based objectives outlined in the *Guidelines for Canadian Drinking Water Quality*; some parameters have aesthetic objectives and some parameters have no guideline values but provide important water quality characterization information. The following parameters are considered to be minimum requirements.

¹ A transient public drinking water supply means a public drinking water supply that regularly provides water in a place where persons do not remain for long periods of time.

² A non-transient public drinking water supply means a public drinking water supply that provides water to at least 25 of the same persons at least 6 months of the year.

Table 2. General Chemical and Physical Parameters

Alkalinity	Colour	pH
Aluminum	Conductivity	Potassium
Ammonia	Copper	Selenium
Antimony	Fluoride	Sodium
Arsenic	Hardness	Strontium
Barium	Iron	Sulphate
Boron	Lead	Total Dissolved Solids
Cadmium	Magnesium	Total Organic Carbon
Calcium	Manganese	Turbidity
Chloride	Nitrate	Uranium
Chromium	Nitrite	Zinc

If there is reason to suspect the presence of other substances not listed in Table 2, the Nova Scotia Department of Environment and Climate Change (ECC) may direct an owner to monitor for these substances to ensure that their concentrations are below the acceptable limits defined in the *Guidelines for Canadian Drinking Water Quality*, latest edition.

6.1.1 Sample Frequency, Number and Location

Surface water supplies shall be monitored at least annually and groundwater supplies shall be monitored at least once every two years. If a treatment device is in place to remove any chemical or physical substances, two samples shall be collected; one sample from the raw water source and one sample from a point after treatment. Sampling locations shall be chosen to be representative of the system and the same sample points shall be used during each sampling event.

The requirement to test the raw and treated water does not apply to groundwater supplies that only disinfect to meet bacteriological guidelines for total coliform and *E. coli*.

Where treatment is installed to lower the concentration of a chemical parameter below the maximum acceptable concentration (MAC), the owner shall sample the treated water at least annually for the parameter of concern as outlined in section 6.6. The raw water shall be sampled at least annually for surface water supplies and at least once every two years for groundwater supplies.

In many cases, it may be necessary to sample more frequently to obtain an accurate representation of the water quality.

NSE may alter the frequencies, locations, numbers and parameters to be monitored depending on local conditions, analytical results or changes to the *Guidelines for Canadian Drinking Water Quality*.

6.1.2 Sample Collection and Preservation

An owner shall collect routine samples for the chemical and physical parameters outlined in Table 2 in accordance with the instructions provided in Appendix A.

The owner shall record the water supply registration number on the lab form when submitting all samples for chemical and physical quality analyses.

6.1.3 Reporting of Sample Results

An owner shall ensure that the results of samples for chemical and physical quality are sent from the lab to the owner. Results should be recorded with the sample date, parameter and concentration in a chronological and organized manner. Results shall be maintained on-site at the registered public drinking water supply for review by inspection staff during an audit.

- 1) The owner shall maintain records of sample results, including the original lab records, for a minimum of ten years from the date of collection.
- 2) Whenever a sample exceeds a maximum acceptable concentration (MAC), the lab shall immediately notify ECC and forward the results to ECC. Upon receipt of sample results exceeding a MAC, the owner shall immediately notify the local ECC office by telephone and forward a copy of the results to ECC. All results sent electronically from the owner must be confirmed with ECC by telephone. If the owner is not able to speak with a person from the ECC office directly, the owner shall call the after-hours number at 1-902-893-6347. The after-hours number shall be contacted outside of normal business hours: weekdays – 4:30pm to 8:30am, weekends and holidays
- 3) Upon receipt of sample results indicating a MAC is exceeded, the owner shall comply with section 6.5. ECC may require the owner to take special precautions to ensure the protection of public health while awaiting the confirmation sample results from the lab.
- 4) If the confirmation sample result confirms the exceedance of the MAC, the owner, in consultation with ECC, shall take corrective action as outlined in section 6.5.3.
- 5) If a “do not use” or “do not consume” advisory is required as determined by ECC and the Medical Officer of Health (MOH) (refer to section 8.0), the owner shall comply with section 8.1.

6.2 Surface Water Supplies – Additional Monitoring Requirements

An owner of a surface water (e.g. lake, river, stream etc.) supplied system is required to undertake additional monitoring due to the presence of contaminants unique to these types of sources. Prior to collecting the samples, contact the authorized laboratory to obtain the proper sample container(s) and instructions to collect the sample(s).

6.2.1 Non-Transient Supplies - Disinfection By-Products (Trihalomethanes and Halo-acetic Acids)

The *Guidelines for Canadian Drinking Water Quality* have established a MAC for two of the most common disinfection by-products (DBPs): trihalomethanes (THMs) and haloacetic acids (HAAs). These compounds form when naturally occurring organic matter found in surface water sources (e.g. river, lake, spring, stream etc.) reacts with chlorine. Chronic (long-term) exposure to elevated concentrations of THMs and HAAs can pose a health risk.

As such, non-transient registered drinking water systems relying on the use of surface water and using chlorine as a disinfectant, are required to sample for THMs and HAAs quarterly (i.e. three months between samples) from the furthest point in their system. The four quarterly samples shall be averaged and then compared to the MAC. If the averaged result exceeds the MAC, the owner shall notify ECC immediately and take corrective action as outlined in section 6.5. Each time you collect a quarterly sample, you must recalculate the running annual average using the last four quarterly sample results. An example of how to calculate the locational running annual average is provided in Appendix B.

6.2.2 Transient and Non-Transient Supplies - Cyanobacterial Toxins

Cyanobacteria, commonly referred to as blue-green algae, are capable of producing toxins that can cause negative health effects in humans. To be protective of public health, owners of surface water supplies shall visually monitor the source water at the intake weekly between May and October. Additional locations for visual inspection can include banks and shorelines.

Early visual signs of a bloom may include water that appears unusually cloudy or the presence of what appears to be fine grass clippings. Colours can range from grey, tan to olive, blue-green to bright blue and red. As the bloom develops, the water may take on a “pea soup” or “spilled paint” appearance. A fresh bloom can smell like newly mown grass; older decaying blooms may smell like rotting garbage.

If an algal bloom is suspected or confirmed visually, the owner shall notify ECC immediately. If a water advisory is issued, the owner shall collect one raw water sample for total microcystins once there are no longer visual signs of a bloom present in the source water and submit the results to ECC. The sample shall be collected from a location inside the building/intake prior to treatment and not directly from the lake if possible.

6.3 Daily Operational Monitoring

An owner using a chemical disinfection system shall monitor daily for the disinfectant residual. Where a chlorine disinfection system is being used, the goal for free chlorine residual shall be a minimum of 0.2 mg/L at the furthest tap in the system. Higher chlorine residuals may be required by ECC depending on other characteristics of the system but should not exceed 4 mg/L at any time.

Daily disinfection residuals shall be recorded with the sample date and concentration in a chronological and organized manner. Results shall be maintained on-site at the registered public drinking water supply for review by inspection staff during an audit.

6.4 Compliance – Chemical and Physical Parameters

Any public drinking water supply in which the level of a substance is confirmed to exceed a MAC, upon sampling, is out of compliance with the health-related criteria specified in the most recent version of Health Canada's *Guidelines for Canadian Drinking Water Quality*. The water supply owner, in consultation with ECC, shall take corrective action as outlined in section 6.5.

The owner is required to comply with the water advisory notification and removal process, if an advisory is required by ECC, and any directives issued by ECC pursuant to section 122(A) of the Environment Act. Failure to do so may result in enforcement actions.

6.5 Corrective Actions to be Taken when a Sample Exceeds a Health-Related Chemical Parameter (MAC)

6.5.1 Notification

The owner shall contact ECC immediately, by telephone, upon receipt of any sample result indicating the exceedance of a health-related chemical parameter (MAC). Results sent electronically from the owner to ECC, must be confirmed with ECC, by telephone. If the owner is not able to speak with a person from the ECC office directly, the owner shall call the after-hours number at 1-902-893-6347. The after-hours number shall be contacted outside of normal business hours: weekdays – 4:30pm to 8:30am, weekends and holidays.

A flowchart to assist owners respond to an exceedance of a health-related chemical parameter is found in Appendix C.

6.5.2 Collect Confirmation Sample

The owner shall collect a confirmation sample for the parameter that exceeded the MAC immediately upon receiving notification of the sample results from the lab. If a confirmation sample cannot be collected within 24 hours (e.g. weekend, holiday, etc.), the owner shall immediately notify ECC with a proposed sample date. ECC, in consultation with the MOH, may require the owner to take special precautions such as issue a do not consume advisory to ensure the protection of public health while awaiting the sample results from the lab. If an advisory is deemed necessary, the owner shall adhere to section 8.

a) Confirmation sample is below the MAC

If the confirmation sample indicates the MAC is not exceeded for the parameter of concern, the owner may return to routine sampling unless indicated otherwise by ECC who may require additional samples be taken to further evaluate the need for corrective action.

b) Confirmation sample exceeds the MAC

If the confirmation sample indicates that the MAC is exceeded for the parameter of concern, the owner shall notify ECC by telephone immediately after receiving the results from the lab.

If the owner is not able to speak with a person from the NSE office directly, the owner shall call the after-hours number at 1-902-893-6347. The after-hours number shall be contacted outside of normal business hours: weekdays – 4:30pm to 8:30am, weekends and holidays. ECC in consultation with the MOH will determine the need to issue a do not consume/do not use advisory. If an advisory is deemed necessary, ECC shall inform the owner and the owner shall issue the advisory in accordance with section 8.

Additionally, the owner shall seek the expertise of a water quality specialist, engineer or hydrogeologist and shall submit a corrective action plan acceptable to NSE as outlined in section 6.5.3.

6.5.3 Developing a Corrective Action Plan

If the confirmation sample exceeds the MAC, the owner shall seek expertise from a water quality specialist, an engineer or a licensed hydrogeologist and submit a corrective action plan to ECC outlining the measures that will be taken to restore water quality.

A form to assist with the preparation of the action plan is found in Appendix H. The action plan shall be prepared and signed by a qualified professional (i.e. water quality specialist, engineer, licensed hydrogeologist, etc.); however, it is ultimately the responsibility of the owner to ensure that it is complete and received by ECC within 30 calendar days from when the water supply owner was notified by the lab that the confirmation sample confirmed the MAC exceedance.

The plan shall include, at a minimum, the following information:

- a) Why the water quality parameter(s) exceeds the MAC;
- b) Corrective action(s) to
 - remove the source of contamination;
 - provide treatment; or

- switch to an acceptable alternate potable water supply³.
- c) Where treatment is proposed provide the following, as applicable:
- manufacturer specifications;
 - dosage;
 - required maintenance tasks;
 - frequency of maintenance; and
 - standard operating procedure(s)
- d) Provide a schedule for implementation; and
- e) Provide any water quality data received from an authorized laboratory and/or other information as requested by ECC.

6.5.4 Confirmation Sampling After Corrective Action(s) are Implemented

After implementing the corrective action(s), the owner shall collect a water sample as outlined in Appendix A to demonstrate that the corrective action(s) has successfully reduced the concentration(s) to below the MAC(s) given in the most recent version of the *Guidelines for Canadian Drinking Water Quality*.

If the water sample indicates that the corrective action(s) was not effective to reduce the concentration(s) to below the MAC(s), the owner shall submit a new corrective action plan acceptable to ECC.

6.6 Annual Sampling After Corrective Action

Where a treatment device(s) is installed as part of corrective action to reduce the concentration of a parameter(s) below the MAC(s), the owner shall collect a sample of the treated water at least annually for the parameter(s) as outlined in Appendix A from the same sample location(s) that initially exceeded the MAC(s).

7.0 Additional Monitoring for Lead and Copper

Lead and copper can occur naturally in the environment; however, the most common source in drinking water is through leaching of plumbing materials such as pipes, solder, faucets, and fittings. While copper is an acceptable material for use in plumbing, lead is not. The National Plumbing Code (NPC) allowed lead material in pipes until 1975, lead in solder until 1986 and lead in fittings/faucets until 2013.

The lead and copper sampling conducted as part of routine monitoring in section 6.1 can provide information on whether the source of supply (e.g. well) contains elevated concentrations of lead and/or copper; however, it is not suitable for assessing public exposure. Tap water is typically not flushed for long periods before consuming and concentrations of lead and copper can vary by fixture.

³ When an alternate water supply is recommended, it is important to ensure the microbiological safety of the water before use.

The objectives of this monitoring are to:

- Provide a consistent approach to assess regulatory compliance with the maximum acceptable concentrations (MAC) for lead and copper in drinking water.
- Assess public exposure.
- Identify interim measures to reduce exposure in response to an exceedance.
- Identify measures to reduce exposure such as the installation of treatment devices or removal of the source of lead.

7.1 Lead and Copper Sampling Protocol

The owner of a non-transient registered supply shall collect samples for lead and copper as outlined in section 7.1.1 or 7.1.2 depending on the type of facility where the sample is being collected. If a registered supply provides water to both types of facilities discussed in sections 7.1.1 and 7.1.2, samples shall be collected from both types of facilities following the sampling protocol applicable to that facility.

If a routine sample collected in accordance with section 6.1 exceeds the lead or copper MAC, the owner of a transient registered supply shall collect samples for lead and copper as outlined in section 7.1.1 or 7.1.2 depending on the type of facility where the sample is being collected.

Where point of use treatment is installed as part of corrective action to meet the lead or copper MAC, the owner shall sample the treated water annually for the parameter of concern as outlined in section 7.5.

Flowcharts providing an overview of the process are included in Appendix D.

7.1.1 Registered public drinking water supplies excluding those providing water to single and multi-unit detached residences (less than 6 units)

The owner of a registered public drinking water supply that provides water to all types of facilities except single unit detached residences shall conduct sampling for lead and copper as outlined below. If it is not possible to collect a stagnant sample as the facility is in operation 24 hours per day seven days per week from May 1st to September 30th (e.g. hospital, nursing home), refer to section 7.1.3

1. Develop a table or spreadsheet to record the results of your lead and copper sampling. In the table, the owner shall include a list of all fixtures (taps, fountains, etc.) provided water by the registered supply. For each fixture identify if it is used to obtain water for drinking or cooking purposes. If so, designate the fixture as potable. If not, designate the fixture as non-potable. The table shall include the following:
 - Sample location (a unique identifier for the sample and common name)
 - Fixture designation (potable or non-potable)
 - Sample date/time

- Does the facility have central treatment and/or a point of entry (POE) treatment device?
- If yes, specify the type(s) of central and/or POE treatment
- Does the fixture have a point of use (POU) treatment device (yes or no)?
- If yes, specify the type of POU treatment (e.g. reverse osmosis)
- Lead result including units (i.e. mg/L or µg/L)
- Lead result meets guideline (yes or no)?
- If no, lead investigation sample results, if applicable and action taken
- Copper result including units (i.e. mg/L or ug/L)
- Copper result meets guideline (yes or no)?
- If no, action taken. There is no requirement to investigate the source of copper as it is an acceptable plumbing material.
- For multi-unit buildings, date occupants were notified of their sample results

Refer to Appendix E for an example table that may be used to record the results.

2. Lead and copper sampling are required at all potable water fixtures. Non-potable locations such as bathroom faucets, janitor sinks, etc. shall be posted with a sign that the water is not intended for consumption unless a sample is collected to confirm the lead and copper concentrations are below their respective MACs.
3. Contact the laboratory, prior to collecting samples, to ensure they have an adequate supply of sample bottles and are prepared to receive your samples.
4. Collect samples for lead and copper between May 1st and September 30th following the 8-hr stagnation protocol outlined in Table 2 from all potable water locations. To facilitate sample collection, the occupant(s) may collect the sample with instructions provided by the registered supply owner.
5. Start collecting samples at potable water fixtures where water flows to first then continue to move to downstream locations following the flow of water. Both lead and copper may be analyzed from the same sample.
6. Collect samples at a minimum of 20% or 5 (whichever is greater) potable water fixtures identified in step 2 each year between May 1st and September 30th starting in the year 2022 so that all fixtures will be sampled by September 30th, 2027. To facilitate sample collection the building occupant may collect the sample using instructions provided by the registered supply owner. **For example, if there are 100 potable water locations, the registered supply owner shall collect a minimum of 20 samples from different sample locations each year.**
7. Record the registration number and method used to collect the sample (i.e. 8-hr stagnation) in the sample location information section of the laboratory requisition form.
8. Comply with section 7.2 upon receipt of sample results indicating the lead or copper MAC was exceeded.

9. Upon receipt of sample results from the lab, update the table or spreadsheet created in step 1.
10. Maintain records of sample results, including the original lab records and the table or spreadsheet created in step 1 for a minimum of ten years from the date of collection. The results shall be maintained at the registered facility and be available for review by ECC immediately upon request.
11. Each year on or before November 30th the owner shall submit the table or spreadsheet created in step 1 to the local ECC office. The submission must include your registration number clearly and legibly marked. ECC will review the submission and indicate whether the requirements to sample for lead and copper at individual fixtures may be removed or reduced. You will still be required to conduct routine monitoring for lead and copper as outlined in section 6.1.
12. If ECC reduces the sampling requirements for lead and/or copper, you will be required to conduct annual sampling between May 1st and September 30th for lead and/or copper from all potable water fixtures identified by ECC. This is in addition to the routine monitoring required in section 6.1.

Table 3. 8-hr Stagnation Protocol

Sampling Type	Location	Protocol
8-hr Stagnation	cold water faucet or fountain	<ul style="list-style-type: none"> Allow water to stagnate in pipes for a minimum of 8 hrs. If present, do not remove the faucet aerator or screen. Collect first draw one 250mL sample (do not let the water run before collecting the sample).
<p>Notes:</p> <ol style="list-style-type: none"> 1. During the minimum 8-hr stagnation period, no water can be used. This includes water for flushing toilets, showering, cooking, dishwashing, drinking, laundering clothes, etc. It is best to collect the samples first thing in the morning. 2. Samples shall be collected from each potable cold-water faucet or fountain. 3. To facilitate sample collection the building unit occupant may collect the sample. 4. Samples shall be collected in wide mouth bottles without removing the faucet aerator or screen at an uninterrupted flowrate representative of typical use. 		

7.1.2 Registered public drinking water supplies providing water to single and multi-unit detached residences (less than 6 units)

The owner of a registered public drinking water supply that provides water to single and multi-unit detached residences (less than 6 units) such as mobile home parks, condo corporations, home-owner and waterline associations, etc. shall conduct sampling for lead and copper as outlined below.

1. Develop a table or spreadsheet to record the results of your lead and copper sampling. The table columns shall include the following:

- Sample location (e.g. civic address)
- Sample date/time
- Does the facility have central treatment and/or a point of entry (POE) treatment device?
- If yes, specify the type(s) of central and/or POE treatment
- Does the residence have a point of use (POU) treatment device (yes or no)?
- If yes, specify the type of POU treatment (e.g. reverse osmosis)
- Lead result including units (i.e. mg/L or µg/L)
- Copper result including units (i.e. mg/L or ug/L)
- Date letter provided to residence owner and/or occupant to notify of results
- Lead result meets guideline (yes or no)
- If no, method used to investigate source of lead to determine if a lead service line is present (i.e. investigation samples, service line exposed, building records)
- Investigation sample results including units (i.e. mg/L or µg/L), if applicable
- Copper result meets guideline (yes or no)
- If no, action taken. There is no requirement to identify the source of copper as it is an acceptable plumbing material.

Refer to Appendix E for an example table that may be used to record the results.

2. Request the residence owner and/or occupant to participate in your lead and copper sampling program. Refer to Appendix F for an example letter that may be used to obtain participants.
3. Collect samples for lead and copper between May 1st and September 30th following the 6-hour protocol outlined in Table 3 from the minimum number of residences outlined in Table 4 “Number of Sites -Annual”. Both lead and copper may be analyzed from the same sample. To facilitate sample collection, the resident may collect the sample with instructions provided by the registered supply owner.
4. Do not collect multiple samples from the same residence to meet the minimum number of samples in any given sampling period.
5. Contact the laboratory, prior to collecting samples, to ensure they have an adequate supply of sample bottles and are prepared to receive your samples.
6. Record the registration number and method used to collect the sample (i.e. 6-hr stagnation) in the sample location information section of the laboratory sample submission form.
7. Comply with section 7.2 upon receipt of sample results indicating the lead or copper MAC was exceeded.

8. Notify the residence owner and/or occupant of their laboratory results within 7 days using the appropriate template letter in Appendix G.
9. Upon receipt of sample results from the lab, update the table or spreadsheet created in step 1.
10. Maintain records of sample results, including the original lab records and the table or spreadsheet created in step 1 for a minimum of ten years from the date of collection. The records shall be maintained at the registered facility and be available for review by ECC immediately upon request.
11. Target different residences each year from May 1st to September 30th until all residences are sampled.
12. Each year on or before November 30th provide a copy of the table or spreadsheet created in step 1 to the local ECC office. The submission must include your registration number clearly and legibly marked. ECC will review the submission and indicate whether the requirements to sample for lead and copper at individual residences may be removed or reduced. You will still be required to conduct routine monitoring as outlined in section 6.1.

Table 4. 6-hour Stagnation Protocol

Sampling Type	Location	Protocol
6-Hr Stagnation	Kitchen cold water faucet	<ul style="list-style-type: none"> • Allow water to stagnate in pipes for a minimum of 6 hrs. • If present, do not remove the faucet aerator or screen. • Collect first draw sample in 1L bottle (do not let the water run prior to collecting the sample).
<p>Notes:</p> <ol style="list-style-type: none"> 1. During the minimum 6-hr stagnation period, no water can be used in the residence. This includes water for flushing toilets, showering, laundering clothes, etc. It is best to collect the samples first thing in the morning or after work, if water is not used during the day. 2. To facilitate sample collection, the resident may collect the samples utilizing instructions provided by the registered supply owner. 3. Samples shall be collected from the kitchen cold water faucet as this is the location most often used to obtain water for cooking and drinking purposes. If there is a point-of-use treatment device on the kitchen faucet, an alternate location such as the bathroom cold water faucet shall be used. 4. Samples shall be collected in wide mouth bottles without removing the faucet aerator or screen at an uninterrupted flowrate representative of typical household use. 5. Do not collect samples from residences that have a point-of-entry treatment device such as reverse osmosis or water softener unless it can be bypassed. 		

Table 5. Minimum Number of Sample Sites – Single Unit Detached Residences

Number of People Served	Number of Sample Locations (Annual)
≤100	5
101-500	10
501-3300	20
3301-10 000	40
10 001-100 000	60
>100 000	100

7.1.3 Registered public drinking water supplies in operation 24 hours per day 7 days per week between May 1st and September 30th

The owner of a registered public drinking water supply that is in operation 24 hours per day 7 days per week from May 1st to September 30th (e.g. hospital, nursing home) shall conduct sampling for lead and copper as outlined below:

1. Develop a table or spreadsheet to record the results of your lead and copper sampling. Include in the table a list of all fixtures (taps, fountains, etc.) provided water by the registered supply. For each fixture identify if it is used to obtain water for drinking or cooking purposes. If so, designate the fixture as potable. If not, designate the fixture as non-potable. The table shall include the following:
 - Sample location (a unique identifier for the sample and common name)
 - Fixture designation (potable or non-potable)
 - Sample date/time
 - Does the facility have central and/or point of entry (POE) treatment?
 - If yes, specify the type(s) of central and/or POE treatment
 - Does the fixture have a point of use (POU) treatment device? (yes or no)
 - If yes, specify the type of POU treatment (e.g. reverse osmosis)
 - Lead result including units (i.e. mg/L or µg/L)
 - Lead result meets guideline (yes or no)
 - If no, lead investigation sample results and action taken, if applicable
 - Copper result including units (i.e. mg/L or ug/L)
 - Copper result meets guideline (yes or no)
 - If no, action taken. There is no requirement to investigate the source of copper as it is an acceptable plumbing material.

Refer to Appendix E for an example template that may be used to record to record the results.

2. Lead and copper sampling are required at all potable fixtures. Non-potable locations such as bathroom faucets, janitor sinks, etc. shall be posted with a sign that the water is not intended for consumption unless a sample is collected to confirm the lead and copper concentrations are below their respective MAC.
3. Contact the laboratory, prior to collecting samples, to ensure they have an adequate supply of sample bottles and are prepared to receive your samples.
4. Collect samples for lead and copper between May 1st and September 30th following the random daytime testing (RDT) protocol outlined in Table 5 from all potable water locations.
5. Start collecting samples at potable water fixtures where water flows to first then continue to move to downstream locations following the flow of water. Both lead and copper may be analyzed from the same sample.
6. Collect samples from a minimum of 20% or 5 (whichever is greater) of the potable water fixtures identified in step 2 each year between May 1st and September 30th starting in the year 2022 so that all fixtures are sampled by September 30th, 2027. **For example, if there are 100 potable water locations, the registered supply owner will be required to collect 20 samples from unique locations each year.**
7. Record the registration number and method used to collect the sample (i.e. RDT) in the sample location information section of the laboratory sample submission form.
8. Comply with section 7.2 upon receipt of sample results indicating the lead or copper MAC was exceeded.
9. Upon receipt of sample results from the lab, update the table or spreadsheet created in step 1.
10. Maintain records of sample results, including the original lab records and the table or spreadsheet created in step 1 for a minimum of ten years from the date of collection. The reports shall be maintained at the registered facility and be available for review by ECC immediately upon request.
11. Each year on or before November 30th submit a copy of the table or spreadsheet created in step 1 to the local ECC office. The submission must include your registration number clearly and legibly marked. ECC will review the submission and indicate whether the requirements to sample for lead and copper at individual fixtures may be removed or reduced. Due to the random nature of the sampling and the variability of lead concentrations between fixtures, requirements will only be removed if sample results are less than 0.002 mg/L for lead. If requirements are removed, the registered supply owner will be required to conduct routine monitoring for lead and copper as outlined in section 6.1.
12. If ECC reduces the sampling requirements for lead and/or copper, you will be required to conduct annual sampling between May 1st and September 30th for lead and/or copper from all potable water fixtures identified by ECC. This is in addition to the routine sampling required in section 6.1.

Table 6. Random Daytime Testing

Sampling Type	Location	Protocol
RDT	cold water faucet or fountain	<ul style="list-style-type: none"> • If present, do not remove the faucet aerator or screen • Collect first draw one 250mL sample (do not let the water run before collecting the sample)
<p>Notes:</p> <ol style="list-style-type: none"> 1. Samples shall be collected from a cold-water faucet or fountain with the aerator or screen in place with no prior flushing. 2. Samples shall be collected in wide mouth bottles where possible at an uninterrupted flowrate representative of typical use. 		

7.2 Corrective Actions to be Taken when a Lead or Copper Sample Exceeds their MAC

7.2.1 Notification

The owner shall contact ECC immediately, by telephone, upon receipt of any sample result indicating the exceedance of the lead or copper MAC. Results sent electronically from the owner to ECC, must be confirmed with ECC, by telephone. If the owner is not able to speak with a person from the ECC office directly, the owner shall call the after-hours number at 1-902-893-6347. The after-hours number shall be contacted outside of normal business hours: weekdays – 4:30pm to 8:30am, weekends and holidays.

ECC, in consultation with the MOH, may require the owner to take special precautions such as issue a do not consume advisory to ensure the protection of public health. If a do not consume advisory is deemed necessary, the owner shall adhere to section 8.0.

7.2.2 Follow-up Investigation Sampling

If the lead and/or copper sample results exceed the MAC, the owner shall verify the concentrations in the source water by collecting a sample following the procedure outlined in Appendix A from a location closest to the source of supply (e.g. at the pressure tank) prior to any treatment device. If this is not possible, bypass the treatment device while you collect the sample. Once the sample is collected return the treatment device to normal operation.

Once the copper concentration in the source water is determined, retain the services of a qualified professional to prepare a corrective action plan as outlined in section 7.3. The qualified professional will use the information to determine the most appropriate corrective action based on the copper concentrations in the source and tap water samples as well as routine water chemistry analysis for parameters such as pH and alkalinity, etc.

Once the lead concentration in the source water is determined, the owner shall collect investigation samples to determine if the plumbing or distribution system components contain lead and retain the services of a qualified professional to prepare a corrective action plan as outlined in section 7.3. The owner shall follow the investigation sample procedure appropriate for the type of facility as outlined below. Investigation samples shall be collected before October 31st of the year the initial sample exceeded the MAC. The qualified professional will use the information to determine the most appropriate corrective action based on the lead concentrations in the source water and investigation samples as well as routine water chemistry analysis for parameters such as pH and alkalinity, etc.

In lieu of collecting investigative samples for lead, the owner may choose to proceed directly to retaining the services of a qualified professional to recommend appropriate corrective action as outlined in section 7.3.

a) Registered public drinking water supplies excluding those providing water to single detached residences

At each fixture where the lead concentration exceeded the MAC, collect investigation samples for lead following the procedure outlined in Table 7. To ensure accurate results, start collecting samples at potable water fixtures where water flows to first then continue to move to downstream locations following the flow of water. Alternatively, the owner may collect samples from different fixtures on different days. This is important as flushing one fixture may skew lead results at other fixtures.

In lieu of collecting investigation samples to determine the source of lead, the owner may proceed directly to retain the services of a qualified professional to recommend appropriate point of use treatment as outlined in section 7.3.

Table 7. Lead Investigation Samples – 8 Hour Stagnation Protocol

Sampling Type	Location	Protocol
8-hr Stagnation	cold water faucet or fountain	<ul style="list-style-type: none"> • Allow water to stagnate in pipes for a minimum of 8 hrs. • If present, do not remove the faucet aerator or screen • Label 2-250mL bottles (sample #1 and #2) in the order in which they will be filled. • Collect first draw one 250mL sample (do not let water run before collecting the sample). • Allow water to run for 30 seconds and collect 2nd 250mL sample.
<p>Notes:</p> <ol style="list-style-type: none"> 1. During the minimum 8-hr stagnation period, no water can be used. This includes water for flushing toilets, showering, cooking, dishwashing, drinking, laundering clothes, etc. It is best to collect the samples first thing in the morning. 2. The samples may be collected by the occupant to facilitate sample collection with instructions provided by the registered supply owner. 3. Samples shall be collected from each potable cold-water faucet or fountain that exceeded the lead MAC. 4. Samples shall be collected in wide mouth bottles without removing the faucet aerator or screen at an uninterrupted flowrate representative of typical use. 		

The purpose of collecting two samples is to determine the source of lead to inform appropriate corrective action. If the first sample exceeds and the second sample is below the MAC, the source of lead is likely the fixture. If both the first and second sample exceed the MAC this may indicate a larger issue with the building’s plumbing components. Once the samples results are received from the laboratory:

- Immediately notify ECC as outlined in section 7.2.1;
- Submit a copy of the sample results to the local ECC office;
- Update the summary table developed in accordance with section 7.1.1; and
- Retain the services of a qualified professional to develop a corrective action plan as outlined in section 7.3.

b) Registered public drinking water supplies providing water to single unit detached residences

At each single unit detached residence where the lead concentration exceeded the MAC, request the homeowner’s permission to collect investigation samples for lead following the procedure outlined in Table 8.

In lieu of collecting investigation samples, the owner of the registered supply may use an alternate method to determine the presence of a lead service line such as hydrovac to expose the service line or provide ECC with building records for the lot indicating an alternate plumbing material was used to connect the home to the water main.

Table 8. Lead Investigation Samples – 6 Hour Stagnation Protocol

Sampling Type	Location	Protocol
6-hr Stagnation	Kitchen cold water faucet	<ul style="list-style-type: none"> • Allow water to stagnate in pipes for a minimum of 6 hrs. • Label five 1-L bottles (sample #1, #2, #3, #4, #5) in the order they will be filled. • If present, do not remove the faucet aerator or screen. • Without flushing and ensuring minimal wastage between bottles, turn on the cold-water faucet and fill each of the five 1-L bottles, consecutively.
<p>Notes:</p> <ol style="list-style-type: none"> 1. During the minimum 6-hr stagnation period, no water can be used in the residence. This includes water for flushing toilets, showering, laundering clothes, etc. It is best to collect the samples first thing in the morning or after work, if water is not used during the day. 2. To facilitate sample collection, the owner may collect the samples utilizing instructions provided by the registered supply owner. 3. Samples shall be collected from the kitchen cold water faucet as this is the location most often used to obtain water for cooking and drinking purposes. If there is a point-of-use treatment device on the kitchen faucet, an alternate location such as the bathroom cold water faucet shall be used. 4. Samples shall be collected in wide mouth bottles without removing the faucet aerator or screen at an uninterrupted flowrate representative of typical household use. 5. Do not collect samples from residences that have a point-of-entry treatment device such as reverse osmosis or water softener unless it can be bypassed. 		

The purpose of the multiple samples is to assist the owner determine whether the source of lead is the household plumbing and/or service line. Typically, the sample(s) representing the highest lead concentration(s) is the source of lead. If the source of lead is the service line, the registered supply owner shall work with the homeowner to replace the line. If the source of lead is the household plumbing, no further action is required by the registered supply owner.

Once the sample results are received from the laboratory:

- Notify ECC as outlined in section 7.2.1;
- Submit a copy of the sample results to the local ECC office;
- Update the summary table developed in accordance with section 7.1.2; and

- If the source of lead is the service line, retain the services of a qualified professional and develop a corrective action plan in accordance with section 7.3.

c) Registered public drinking water supplies in operation 24 hours per day 7 days per week between May 1st and September 30th

At each fixture where the lead concentration exceeded the MAC, collect investigation samples for lead following the procedure outlined in Table 9. Start collecting samples at potable water fixtures where water flows to first then continue to move to downstream locations following the flow of water. Alternatively, the owner may collect samples from different fixtures on different days. This is important as flushing one fixture may skew lead results at other fixtures.

In lieu of collecting investigation samples to determine the source of lead, the owner may proceed directly to retain the services of a qualified professional to recommend appropriate point of use treatment in accordance with section 7.3.

Table 9. Lead Investigation Samples – Random Daytime Testing

Sampling Type	Location	Protocol
RDT	cold water faucet or fountain	<ul style="list-style-type: none"> • If present, do not remove the faucet aerator or screen • Label 2-250mL bottles (sample #1 and #2) in the order in which they will be filled. • Collect first draw one 250mL sample (do not let the water run before collecting the sample). • Allow water to run for 30 seconds and collect 2nd 250mL sample.
<p>Notes:</p> <ol style="list-style-type: none"> 1. Samples shall be collected from a cold-water faucet or fountain with the aerator or screen in place with no prior flushing. 2. Samples shall be collected in wide mouth bottles where possible at an uninterrupted flowrate representative of typical use. 		

The purpose of collecting two samples is to determine the source of lead to inform appropriate corrective action. If the first sample exceeds and the second sample is below the MAC, the source of lead is likely the fixture. If both the first and second sample exceed the MAC this may indicate a larger issue with the building’s plumbing components. Once the samples results are received from the laboratory:

- Immediately notify ECC as outlined in section 7.2.1;
- Submit a copy of the sample results to the local ECC office;
- Update the summary table developed in accordance with section 7.1.3; and
- Retain the services of a qualified professional to develop a corrective action plan as outlined in section 7.3.

7.3 Developing a Corrective Action Plan

If the lead and/or copper sample results exceed the MAC, the owner shall seek expertise from a water quality specialist, an engineer or a licensed hydrogeologist and submit a corrective action plan to ECC outlining the measures that will be taken to restore water quality.

If sampling identifies plumbing components as the source of lead and corrective action is to replace fixtures or plumbing components, a licensed plumber may submit the corrective action plan outlining the measures that will be taken to restore water quality.

A form to assist with the preparation of the corrective action plan is found in Appendix H. The action plan shall be prepared and signed by a qualified professional (e.g. water quality specialist, engineer, licensed hydrogeologist.); however, It is ultimately the responsibility of the owner to ensure that it the corrective action plan is complete and received by ECC on or before November 30th of the same year the initial sample was shown to exceed the MAC.

The plan shall include, at a minimum, the following information:

- a) Why the water quality parameter(s) exceeds the MAC;
- b) Corrective action(s) to:
 - remove the source of contamination;
 - provide treatment; or
 - switch to an acceptable alternate potable water supply⁴.
- c) Where treatment is proposed provide the following, as applicable:
 - manufacturer specifications;
 - dosage rates;
 - required maintenance tasks;
 - frequency of maintenance; and
 - standard operating procedure(s)
- d) Provide a schedule for implementation;
- e) Provide any water quality data received from an authorized laboratory and/or other information as requested by ECC;
- f) Summary table prepared in accordance with section 7.1 (based on the type of facility); and

⁴ When an alternate water supply is recommended, it is important to ensure the microbiological safety of the water before use.

- g) A plan for maintaining signage at non-potable fixtures

7.4 Confirmation Sampling After Corrective Action(s) are Implemented

For lead and copper, confirmation samples shall be collected after corrective actions are implemented in accordance with section 7.1 based on the type of facility. The summary table shall be updated to include the sample results. If the water sample result(s) indicates that corrective action(s) was not effective to reduce the concentration(s) below the MAC, alternate corrective action shall be proposed by the qualified professional and a revised corrective action plan acceptable to ECC shall be provided as outlined in section 7.3.

7.5 Annual Sampling After Corrective Action

Where a point of use treatment device(s) is installed as part of corrective action to reduce the concentration of lead and/or copper below the MAC, the owner shall sample for lead and/or copper at least annually from all locations that initially exceeded the lead and/or copper MAC in accordance with section 7.1 based on the type of facility.

For example, a registered supply has 100 potable water fixtures. In the first year of lead and copper sampling 2 out of the 20 required samples exceeded the lead MAC. A point of use treatment device was installed at the two fixtures to lower the lead concentration below the MAC. In the second year, the owner is required to collect the minimum 20 required samples from different fixtures than those sampled in the first year plus an additional 2 samples from the fixtures where point of use treatment devices were installed.

8.0 Do Not Consume and Do Not Use Advisories

A “do not consume” or “do not- use” advisory is issued in situations where there is a potential or confirmed incident of contamination (natural or man-made) and the contaminant of concern may not be removed or inactivated by boiling; when there is a significant risk from ingestion, dermal contact, or inhalation of the contaminant; or when an unknown or unexpected chemical contaminant is detected in the drinking water system.

A “do not consume” or “do not use” advisory is issued in the following circumstances:

- a) The occurrence of an event that may have or has caused massive contamination to the drinking water supply (e.g. oil spill in source water);
- b) Exceedance of the maximum acceptable concentration for a chemical contaminant with an acute health effect from short-term exposure;
- c) The presence of a chemical contaminant with no established guideline but which may pose a health risk from short-term exposure;
- d) Circumstances which in the opinion of ECC, in consultation with the MOH, constitute a risk to public health.

A “do not consume” advisory is issued where exposure to the contaminant is only a concern through ingestion. This advisory is issued to advise the public to avoid using the water for

drinking; preparing food, beverages, or ice cubes; washing fruits and vegetables; dishwashing; oral hygiene and/or any other use that may result in human consumption. Boiling the water will not remove the contaminant.

A “do not use” advisory is issued where dermal or inhalation exposure to the contaminant could affect the skin, eyes, and/or nose. This advisory is issued to advise the public to avoid the water for all domestic purposes including all uses identified for a “do not consume” advisory as well as activities such as showering and bathing. Boiling the water will not remove the contaminant.

8.1 Do Not Consume or Do Not Use Advisory Protocol and Signage

8.1.1 Initiating the Advisory

Where one or more of the conditions described in section 8.0 exist, the owner shall contact ECC immediately to determine the need for the issuance of an advisory. ECC will advise the owner if an advisory is required and the type.

Alternatively, if ECC is aware of a potential serious health risk, ECC will advise the water supply owner to initiate the advisory.

During the advisory, there should be frequent communication between ECC and the system owner.

8.1.2 Procedure for Notification of the Do Not Consume or Do Not Use Advisory

- 1) The owner shall ensure that appropriate signage is posted to inform consumers of the “do not consume” or “do not use advisory”. For registered public drinking water supplies that are comprised of a single building, signage shall be posted at each faucet, at a minimum. For registered public drinking water supplies that are comprised of multiple buildings, residences, units or structures notices shall be delivered to each and signage shall be posted in conspicuous locations to ensure visibility by all consumers. Signage for do not consume and do not use advisories is provided in Appendices I and J, respectively.

For registered supplies providing water to single and multi-unit detached residences (less than 6 units), the registered supply owner shall use the appropriate template letter provided in Appendix G to inform the owner of their lead and copper sample results and measures they can take to reduce their exposure.

- 2) If the owner fails to notify the consumers, ECC will take appropriate steps to notify the consumers.
- 3) Signage is to be posted for the duration of the advisory.

8.2 Removing the Do Not Consume or Do Not Use Advisory

NSE will remove the “do not consume” or “do not use” advisory in consultation with the MOH when a risk to public health no longer exists. Under normal circumstances, the advisory will be removed when the event that prompted the issuance of the advisory is resolved and this is confirmed through sampling, where appropriate.

The advisory will be removed when one or more of the following is confirmed, as appropriate for the situation:

- a) Where there is evidence that the quality of the source water shows no contamination and the tap water is safe for consumption and other uses;
- b) Where there is evidence that the source of the hazardous contaminant has been removed and the distribution system has been thoroughly flushed. Plumbing systems internal to buildings should also be flushed;
- c) If the advisory was due to a chemical spill impacting the source of the drinking water supply, when the spill has been cleaned up and sampling confirms this;
- d) When failures with the treatment process/distribution system have been addressed and operational parameters/samples can confirm this;
- e) Once appropriate treatment has been installed to remove or reduce the level of the contaminant and a sample has been collected to confirm this.

After a water advisory is removed, an inspector from ECC will conduct a 30-day follow-up sample.

Appendix A

Sample Collection - Chemical and Physical Quality

Container

- Obtain your sample bottles and laboratory requisition form from an accredited laboratory. Follow any instructions provided by the laboratory.
- For additional or specialized parameters discuss the requirements with the laboratory or a trained professional before sampling.
- Label the bottle with the water supply owner's name, sample location of the water source, date, time and sampler's initials.

Collect the Sample

- Take the water sample from a cold water tap that is regularly used for drinking water, such as the kitchen tap. If you have a treatment system, taking a sample at the tap will tell you if the treatment system is working.
- Where a treatment system is installed, you are also required to collect a sample of the raw water prior to treatment. Take this sample from a cold water tap as near the pressure tank as possible, prior to any treatment device. If this is not possible, set your treatment system to bypass mode while you take the sample.
- Flush your water system by allowing the water to run for 10 minutes prior to collecting the sample(s). This helps remove stagnant water that may have artificially high metal concentrations from the system.
- Fill the sample bottle(s) to the fill line or as directed by the accredited laboratory and place the cap tightly on the bottle.
- If you bypassed a treatment device, return the device to normal operation once the sample is collected.

Complete the Laboratory Requisition Form

- **Registered water supply owners shall include their registration number on the laboratory requisition form.**
- Complete the laboratory requisition form. Include all required information: registration number, sampling location, date, time, etc. and who took the sample.

Storage and Transport

- Samples shall be kept in a refrigerator or cooler with ice packs to maintain a temperature below 10°C until delivered to the lab. Samples must not be frozen.
- Transport the sample to the laboratory as soon as possible preferably within 24 hours of collection.

Appendix B

Calculating the Locational Running Annual Average for Disinfection By-Products (THMs and HAAs)

In order to determine compliance with the Guidelines for Canadian Water Quality for THMs and HAAs, the locational running annual average (Lraa) is compared against the maximum acceptable concentration (MAC).

The LRAA is calculated by adding the values of the previous 4 quarterly samples collected from the same location and dividing the total value by 4 (i.e. the number of sample results). The example calculations below were performed for THMs, but the same process applies to HAAs. The owner shall calculate the Lraa for THMs and HAAs separately.

Example #1 – THM Concentrations (µg/L)

	Jan 2018	Apr 2018	Jul 2018	Oct 2018	LRAA Oct 2018
Sample Location A	79	81	132	98	97.5

Sample A: $(79+81+132+98)/4= 97.5$

Each time you conduct sampling for THMs and HAAs, you must recalculate the LRAA using the last 4 sample results as shown in Example #2 below.

Example #2 – THM Concentrations (µg/L)

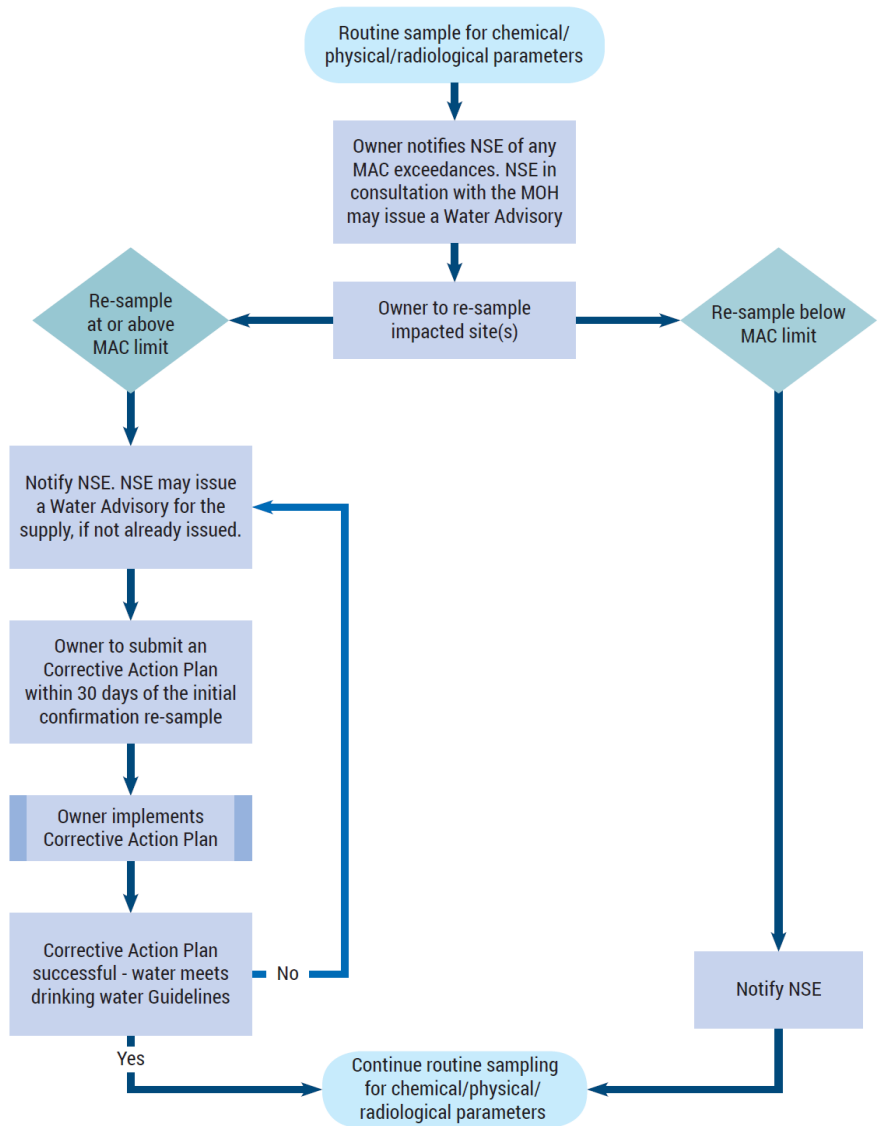
	Jan 2018	Apr 2018	Jul 2018	Oct 2018	Jan 2019	LRAA Jan 2019
Sample Location A	79	81	132	98	97	102

Sample A: $(81+132+98+97)/4= 104$

In this example, the LRAA for sample location A, as of Jan 2019, exceeds the MAC of 100 µg/L for THMs. This exceedance requires immediate notification by the registered supply owner to the Department.

Appendix C

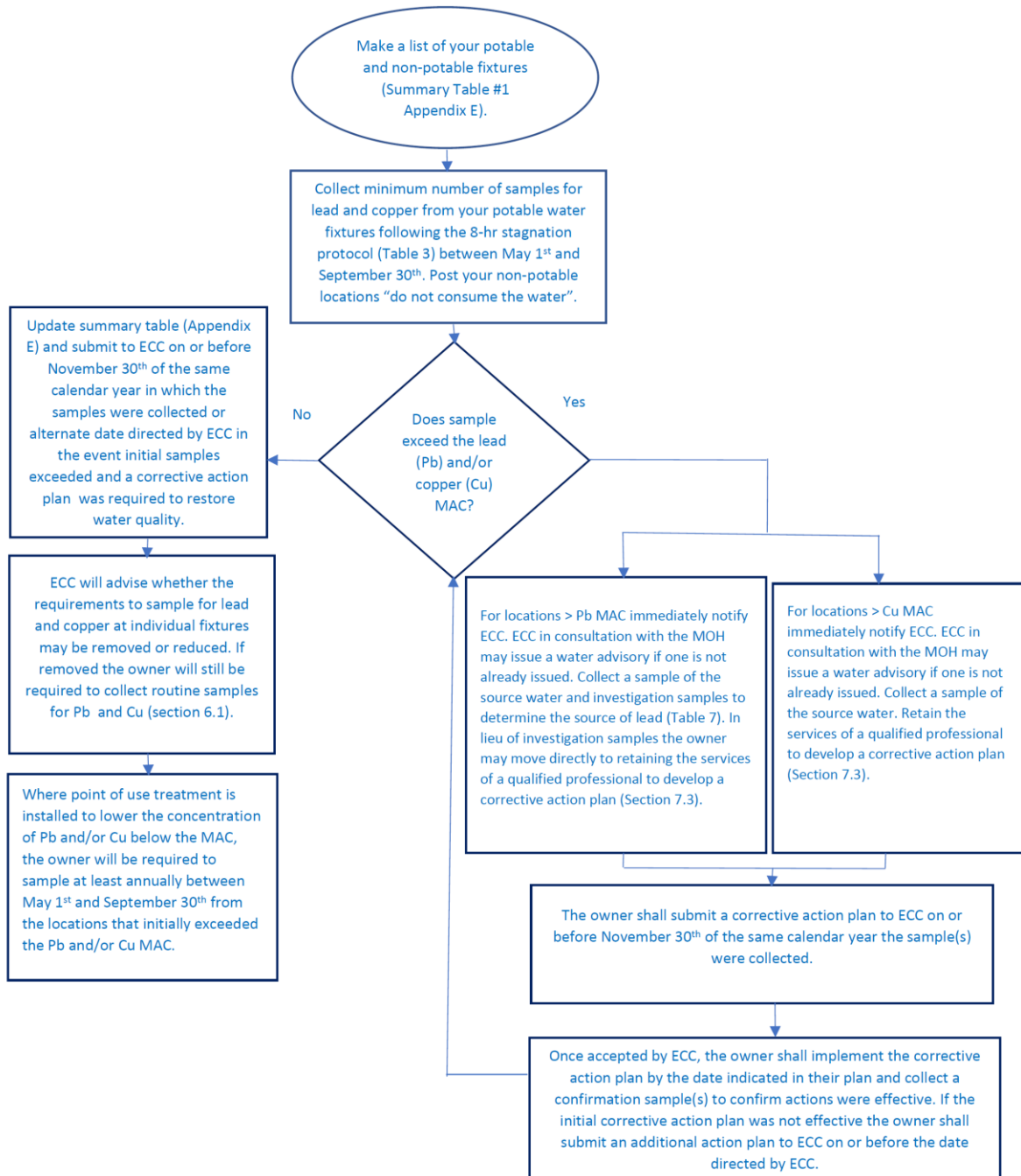
Summary operational procedures for responding to a chemical or physical exceedance



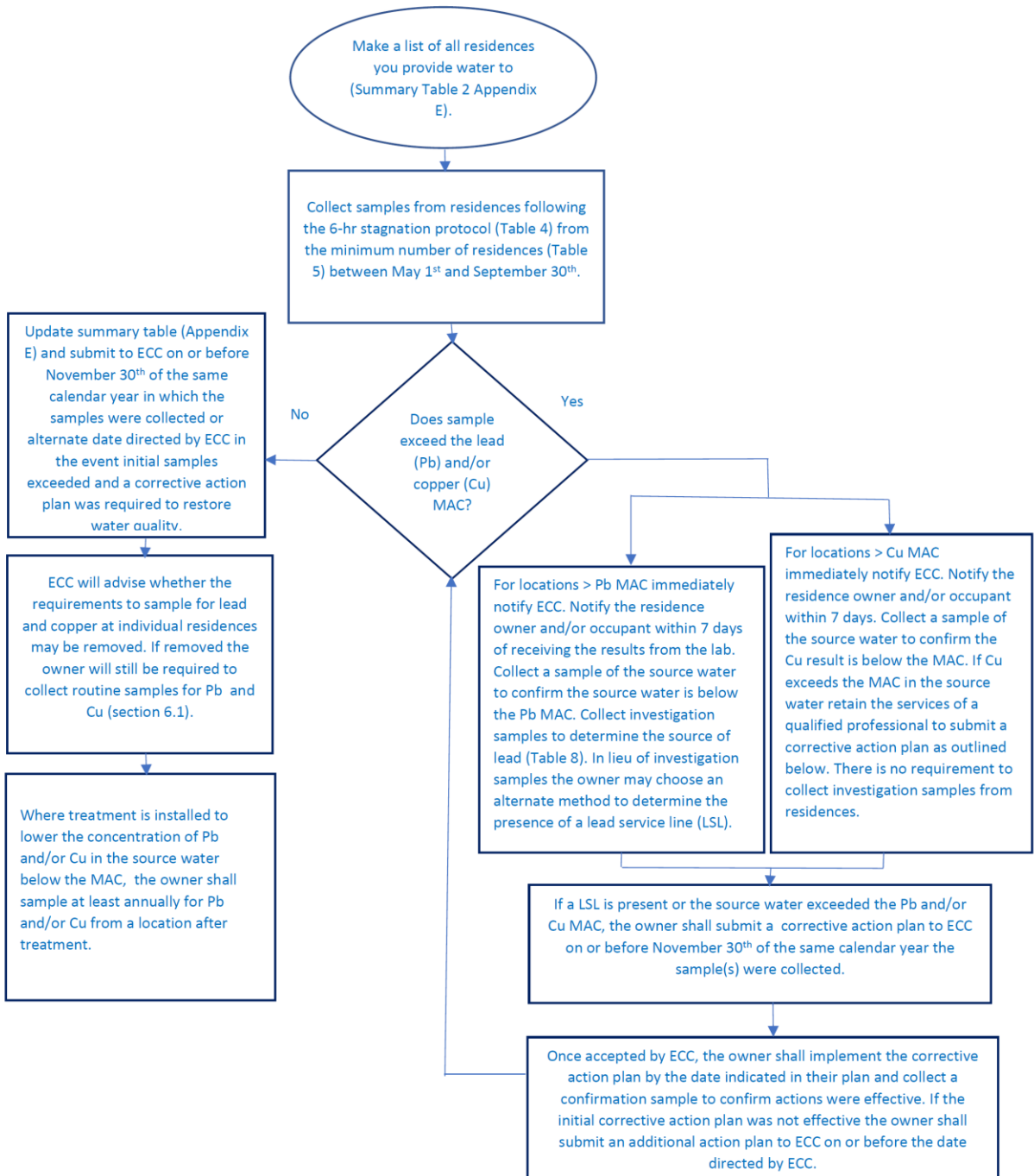
Note: Where a treatment device is installed to lower the concentration of a health-related parameter below its maximum acceptable concentration, the owner shall sample the treated water at least annually.

Appendix D Lead and Copper Process Overview Flowcharts

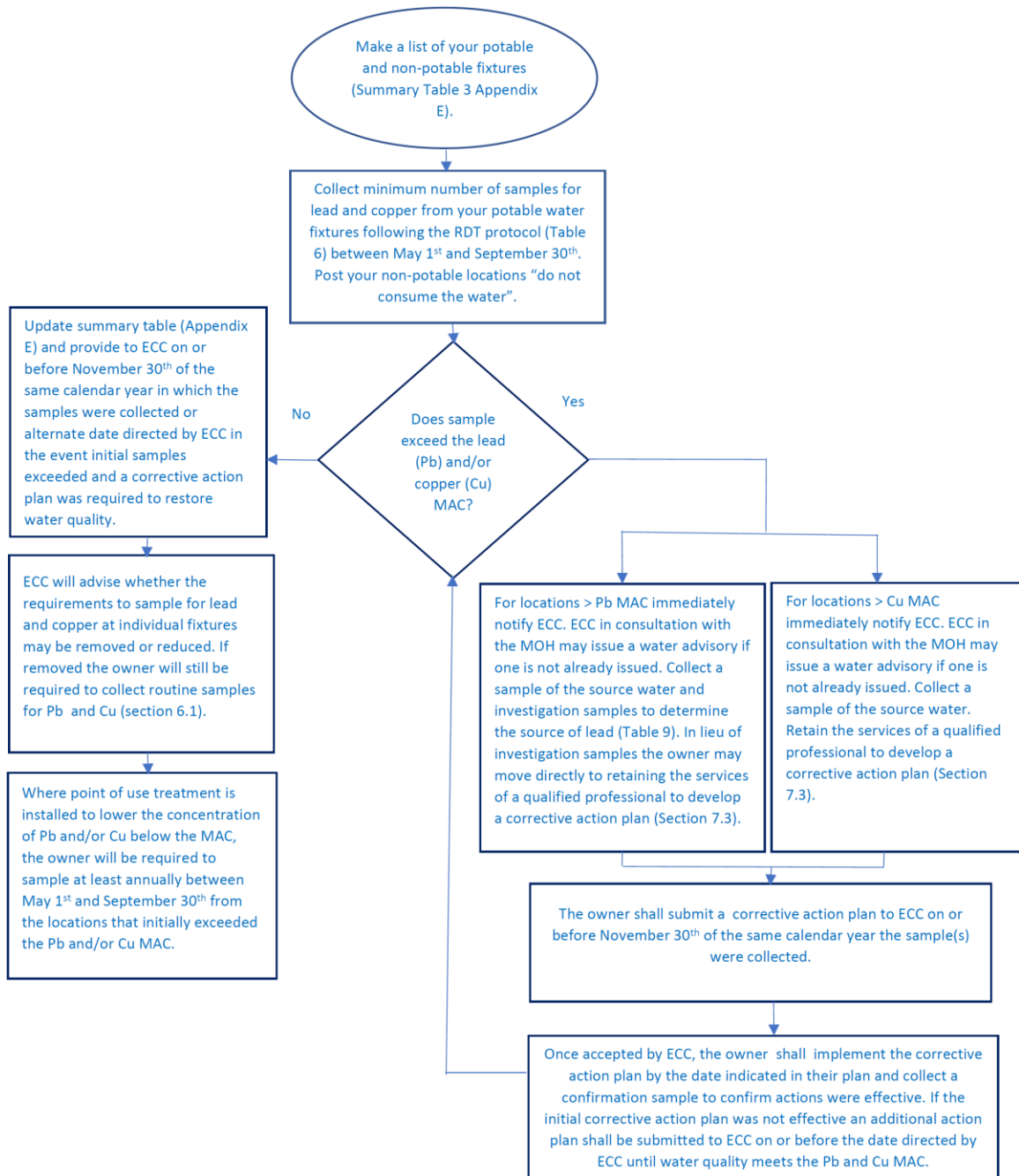
Flowchart 1: Registered supplies excluding those providing water to single and multi-unit detached residences (less than 6 units)



Flowchart 2: Registered supplies providing water to single and multi-unit residences (less than 6 units)



Flowchart 3: Registered supplies in operation 24 hours per day 7 days per week between May 1st and September 30th



Lead and Copper Summary Table 1

Registered supplies excluding those providing water to single and multi-unit detached residences (less than 6 units)

Facility Name: _____ Registration #: _____
 Civic Address: _____ Contact Name: _____
 Central Treatment(s) (Y/N): _____ If yes, specify type(s): _____
 Point of Entry Treatment(s) (Y/N): _____ If yes, specify type(s): _____
 Source Water (include units): Lead Concentration _____ Copper Concentration _____

Sample Location (Common Name & ID)	Potable/ Non Potable	Point of Use Treatment (Y/N) and Type	Date/ Time of Sample Collection	Lead Result (include units)*	Lead Result exceeds MAC Y/N?	Lead Investigation Samples Collected Y/N?*	Copper Result (include units)*	Copper Result exceeds MAC Y/N?	If result exceeds MAC, specify corrective action taken	Confirmation Sample Results (include units)*

* Attach a copy of all lead and copper laboratory results. If more space is required, attach additional tables,

Appendix F

Example letter to obtain participants for registered facilities providing water to single and multi-unit detached residences (less than 6 units)

Dear *(Insert Customer's name)*,

(Insert Registered Facility Name) is seeking your participation in our drinking water sampling program for lead and copper.

Participation is free and will provide you with information on lead and copper levels in your tap water. In addition, it will allow us to assess our facility's compliance with Health Canada's new drinking water guidelines for lead and copper.

In 2019, Health Canada lowered their maximum acceptable concentration (MAC) for lead in drinking water from 0.010mg/L to 0.005mg/L and introduced a new MAC for copper of 2 mg/L. They also changed the sample location for compliance. Samples for lead and copper must now be collected within homes and buildings where customers obtain water for drinking and cooking.

Although lead and copper can occur naturally in the environment, their main source in drinking water is through leaching of plumbing materials such as pipes, solder, faucets, and fittings. While copper is an acceptable material for use in plumbing, lead is not. The National Plumbing Code (NPC) allowed lead material in pipes until 1975, lead in solder until 1986 and lead in fittings/faucets until 2013.

Once testing is complete, you will receive a letter with your test results and an explanation of what they mean. In addition, if your lead or copper levels exceed Health Canada's guidelines, we will provide information on how to reduce your exposure.

If you would like to participate, please contact us at *(insert registered facility telephone number or email)* before *(insert date)*.

Sincerely,

(Insert registered facility signature block)

Appendix G Example Letters to Inform Consumer's of Results

Letter #1: Lead and Copper Concentrations Meet the Guidelines for Canadian Drinking Water Quality

Dear *(Insert customer's name)*:

(Insert Registered Facility Name) would like to thank-you for participating in our lead and copper sampling program. The test results for the sample collected on *(insert date)* are as follows:

Parameter	Your Results	Health Canada Guideline
Lead	<i>(insert test result)</i>	0.005 mg/L
Copper	<i>(insert test result)</i>	2 mg/L

The test results indicate your drinking water meets Health Canada's Guidelines for Canadian Drinking Water Quality for lead and copper. No further action is required on your part.

If you would like more information on lead and copper, please refer to the following factsheets:

Health Canada: Drinking Water – What About Lead?

https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/what-about-lead/drinking-water-lead-eng.pdf

Health Canada: Water Talk – Copper in Drinking Water

<https://www.canada.ca/en/health-canada/services/publications/healthy-living/water-talk-copper.html#a5>

If you have any questions, please contact us at *(insert registered facility telephone number or email address)*

Sincerely,

(Insert registered facility signature block)

Letter #2: Lead Concentration Exceeds and Copper Concentration Meets the Guidelines for Canadian Drinking Water Quality

Dear *(Insert customer's name)*:

(Insert registered facility name) would like to thank-you for participating in our lead and copper sampling program. Your test results for the sample collected on *(insert date)* are as follows:

Parameter	Your Results	Health Canada Guideline
Lead	<i>(insert test result)</i>	0.005 mg/L
Copper	<i>(insert test result)</i>	2 mg/L

The test results indicate your tap water meets Health Canada's guideline for copper; however, the lead level exceeds the guideline.

Exposure to lead can affect brain development and behaviour in children and has been linked to high blood pressure and kidney problems in adults. Every effort should be made to minimize lead exposure throughout a person's life.

Lead is only a concern if ingested. There is no concern with direct contact through bathing and showering. Boiling the water will not remove lead.

Although lead can occur naturally in the environment, the main source in drinking water is through leaching of plumbing materials such as pipes, solder, faucets, and fittings. The National Plumbing Code (NPC) allowed lead material in pipes until 1975, lead in solder until 1986 and lead in fittings/faucets until 2013.

There are steps you can take to reduce your exposure to lead:

- Consider using a drinking water treatment device such as a faucet mounted, or pitcher style unit certified to NSF standard 53 or 58 for the removal of lead.
- Whenever water has been left sitting in pipes for several hours (e.g. overnight, during work), run the tap for about a minute before drinking or cooking.
- Only use the cold-water tap for drinking or cooking.
- Clean your faucet screen or aerator monthly or more regularly if you see debris.
- Replace brass faucets and valves that can contain lead with fittings certified to have low lead content.
- If you have a lead service line, replace it

As your test results indicate a source of lead, please contact us at *(insert registered facility telephone number or email)* before *(insert date)*. We would like to conduct further investigation to determine the presence of a lead service line.

For more information on lead and copper, please refer to the following factsheets:

Health Canada: Drinking Water – What About Lead?

[https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-
semt/alt_formats/pdf/pubs/what-about-lead/drinking-water-lead-eng.pdf](https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-
semt/alt_formats/pdf/pubs/what-about-lead/drinking-water-lead-eng.pdf)

Health Canada: Water Talk – Copper in Drinking Water

[https://www.canada.ca/en/health-canada/services/publications/healthy-living/water-talk-
copper.html#a5](https://www.canada.ca/en/health-canada/services/publications/healthy-living/water-talk-
copper.html#a5)

If you have any questions, please contact us at *(insert registered facility telephone number or email address)*

Sincerely,

(Insert registered facility signature block)

Letter #3: Copper Concentration Exceeds and Lead Concentration Meets the Guidelines for Canadian Drinking Water Quality- Lead Concentration is Less than Detection Limit

Dear (*Insert customer's name*):

(*Insert facility name*) would like to thank-you for participating in our lead and copper sampling program. Your test results for the sample collected on (*insert date*) are as follows:

Parameter	Your Results	Health Canada Guideline
Lead	(<i>insert test result</i>)	0.005 mg/L
Copper	(<i>insert test result</i>)	2 mg/L

The test results indicate your tap water meets Health Canada's guideline for lead; however, the copper level exceeds the guideline.

Current evidence indicates that short-term exposure to levels of copper in drinking water above the maximum acceptable concentration (MAC) may cause nausea, stomach pain, vomiting and diarrhea. Long-term exposure to levels above the MAC may cause effects on the liver and kidney.

Copper is only a concern if ingested. There is no concern with direct contact through bathing and showering. Boiling the water will not remove copper.

Although copper can occur naturally in the environment, the main source in drinking water is through leaching of plumbing materials such as pipes, faucets, and fittings.

There are steps you can take to reduce your exposure to copper:

- Consider using a drinking water treatment device such as a faucet mounted, or pitcher style unit certified to NSF standard 53 or 58 for the removal of lead and copper.
- Whenever water has been left sitting in pipes for several hours (e.g. overnight, during work), run the tap for about a minute before drinking or cooking.
- Only use the cold-water tap for drinking or cooking.
- Clean your faucet screen or aerator monthly or more regularly if you see debris.

If you would like more information on lead and copper, please refer to the following factsheets:

Health Canada: Drinking Water – What About Lead?

https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/what-about-lead/drinking-water-lead-eng.pdf

Health Canada: Water Talk – Copper in Drinking Water

<https://www.canada.ca/en/health-canada/services/publications/healthy-living/water-talk-copper.html#a5>

If you have any questions, please contact us at *(insert facility telephone number or email address)*

Sincerely,

(Insert facility signature block)

Letter #4: Lead and Copper Concentrations Exceed the Guidelines for Canadian Drinking Water Quality

Dear (*Insert customer's name*):

(*Insert facility name*) would like to thank-you for participating in our lead and copper sampling program. Your test results for the sample collected on (*insert date*) are as follows:

Parameter	Your Results	Health Canada Guideline
Lead	(<i>insert test result</i>)	0.005 mg/L
Copper	(<i>insert test result</i>)	2 mg/L

The test results indicate your tap water exceeds Health Canada's drinking water guidelines for lead and copper.

Exposure to lead can affect brain development and behaviour in children and has been linked to high blood pressure and kidney problems in adults. Every effort should be made to minimize lead exposure throughout a person's life.

Current evidence indicates that short-term exposure to levels of copper in drinking water above the maximum acceptable concentration (MAC) may cause nausea, stomach pain, vomiting and diarrhea. Long-term exposure to levels above the MAC may cause effects on the liver and kidney.

Lead and copper are only a concern if ingested. There is no concern with direct contact through bathing and showering. Boiling the water will not remove lead or copper.

Although lead and copper can occur naturally in the environment, their main source in drinking water is through leaching of plumbing materials such as pipes, solder, faucets, and fittings. While copper is an acceptable material for use in plumbing, lead is not. The National Plumbing Code (NPC) allowed lead material in pipes until 1975, lead in solder until 1986 and lead in fittings/faucets until 2013.

There are steps you can take to reduce your exposure to lead and copper:

- Consider using a drinking water treatment device such as a faucet mounted, or pitcher style unit certified to NSF standard 53 or 58 for the removal of lead and copper.
- Whenever water has been left sitting in pipes for several hours (e.g. overnight, during work), run the tap for about a minute before drinking or cooking.
- Only use the cold-water tap for drinking or cooking.
- Clean your faucet screen or aerator monthly or more regularly if you see debris.
- Replace brass faucets and valves that can contain lead with fittings certified to have low lead content.
- If you have a lead service line, replace it

As your test results indicate a source of lead, please contact us at *(insert telephone number or email) before (insert date)*. We would like to conduct further investigation to determine the presence of a lead service line.

For more information on lead and copper, please refer to the following factsheets:

Health Canada: Drinking Water – What About Lead?

https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/what-about-lead/drinking-water-lead-eng.pdf

Health Canada: Water Talk – Copper in Drinking Water

<https://www.canada.ca/en/health-canada/services/publications/healthy-living/water-talk-copper.html#a5>

If you have any questions, please contact us at *(insert facility telephone number or email address)*

Sincerely,

(Insert facility signature block)

Action Plan Checklist

for Registered Public Drinking Water Supplies – Chemical/Physical/Radiological Exceedance



Supply information

Supply Name: _____ Registration #: _____

Location: _____ Contact Person: _____

Contaminant Information (Attach lab results)

Parameter (list)	1)	2)	3)
Guideline - MAC (mg/L)			
Sample 1 - Initial Result (mg/L)			
Sample 2 - Confirmation Sample Result (mg/L)			

Identify Cause (Check)

- Contaminant source near the water supply (e.g. oil spill septic, etc.) Describe _____
- Naturally occurring contaminant
- Well construction problem Describe _____
- Other Describe _____

Corrective Action (Check)

- Remediate contaminant source Describe _____
- Well construction modifications Describe _____
- Water treatment Describe _____
- Switch to another source Describe _____
- Other Describe _____

Schedule

Date the action plan will be completed by: _____

Post - Corrective Action Sample (attach lab results)

Post corrective action sample to be collected for. (List parameters) _____ Date sample will be collected: _____

Signature of Water Quality Professional: _____ Date: _____

Note: Attach all water quality reports. Where treatment is proposed, attach manufacturer specifications, dosage calculations, and required operation and maintenance standard operating procedures (an O&M manual is acceptable) as applicable.

CHEMICAL CONTAMINATION

NOTICE / AVIS

DO NOT CONSUME

Due to water quality problems and the possibility of unsafe water, consumers are advised not to use their water for any purpose that may result in consumption such as drinking, preparing infant formulas, preparing juices and ice cubes, washing fruits and vegetables, cooking, dental hygiene or any other activity that may result in human consumption. This is to be done until further notice. Boiling the water will not remove the contaminant.



NE PAS CONSOMMER L'EAU

En raison de problèmes de contamination, la consommation d'eau est présentement interdite. Ceci inclut l'utilisation d'eau pour la nourriture, les préparations pour nourrissons, le jus ou les glaçons, le nettoyage et la cuisson des fruits et légumes, l'hygiène dentaire ou toute autre activité pouvant entraîner la consommation. L'ébullition ne peut pas éliminer le contaminant.

CONTAMINATION CHIMIQUE

CHEMICAL CONTAMINATION

NOTICE / AVIS

DO NOT USE

Due to water quality problems and the possibility of unsafe water, consumers are advised not to use their water for any purpose that may result in consumption such as drinking, preparing infant formulas, preparing juices and ice cubes, washing fruits and vegetables, cooking and dental hygiene, etc. Residents are also advised not to use the water for showering or bathing. This is to be done until further notice. Boiling the water will not remove the contaminant.



NE PAS UTILISER L'EAU

En raison de problèmes de contamination, la consommation d'eau est présentement interdite. Ceci inclut l'utilisation d'eau pour la nourriture, les préparations pour nourrissons, le jus ou les glaçons, le nettoyage et la cuisson des fruits et légumes, l'hygiène dentaire ou toute autre activité pouvant entraîner la consommation. L'ébullition ne peut pas éliminer le contaminant.

CONTAMINATION CHIMIQUE