ACTION PLAN

To detect and reduce lead in drinking water

Municipality of Campbell's Bay

SETTING THE SCENE[1]

Quebec's Regulation respecting the quality of drinking water (RQEP) requires the testing of lead and copper in water supplied by distribution systems to assess whether there is a corrosion problem. In March 2021, the lead standard was lowered to further reduce exposure to lead in drinking water and to reflect Health Canada's lead guideline of 5µg/L. The Municipality of Campbell's Bay is proactive and concerned about the health of its citizens, helping the public to detect the presence of lead in the drinking water of their homes or establishments. Lead is generally not present in drinking water distribution systems. Plumbing materials are the main source of lead. The dissolution of lead in pipes, especially the connecting pipes (service entrances) between certain homes and the municipal distribution network, means that a small amount of lead can be found in the water flowing from the tap. Lead service pipes were installed in single-family homes and apartment buildings, particularly between 1940 and 1955, and even into the 1970s. Solder in the internal plumbing of buildings can also be a source of lead in water; the National Plumbing Code banned the use of solder containing more than 0.2% lead in 1989. The provincial government has also asked Quebec municipalities to draw up a municipal plan to reduce lead in drinking water, following Health Canada's recommendations. The Municipality of Campbell's Bay's plan is detailed in this document.

MUNICIPAL ACTION PLAN

To ensure a supply of drinking water of a quality that complies with regulatory standards, the municipality has adopted a seven-point plan;

1. **Identify priority addresses**
2. **Detect lead and identify its source**
3. **Proceed with the work**
4. **Corrective action**
5. **Communication**
6. **Action schedule**
7. **Financial and regulatory framework**

[1] **This action plan was produced using the "Guide d'évaluation et d'intervention relatif au suivi du plomb et du cuivre dans l'eau potable en un coup d'oeil" Part 4: Preparing an action plan in response to the presence of lead in drinking water, from the Government of Quebec.**

1. Identify priority addresses

Addresses are prioritized according to the building's date of construction. The program began several years ago, and nearly 30 homes have already been visited by municipal staff. However, at the government's request, residences that have had a visit in 2019 and in previous years will again receive a visit to test for lead at the tap. Due to the change in standards, the procedure for sampling water has also been modified. Priorities will also be as follows:

1. Water for homes built or connected before 1955;
2. Water for homes built or connected before 1975;
3. Water for homes built or connected before 1990.

Also, since pregnant women and children are the target clientele affected by the presence of lead, the government requires samples from health establishments and day-care centers. The government also stipulates that samples must not be taken from such establishments if their number exceeds 10% of the planned samples. In addition, each facility must not be sampled more than once every five years.

2. Detect lead and identify its source

According to the requirements defined by the Ministry, there are 50 sampling sites for the municipality of Campbell's Bay's water system, including establishments serving children aged six and under, every year. As mentioned in the background, sampling must take place between July 1 and September 30, as this is when the water is warmest and lead dissolves most.

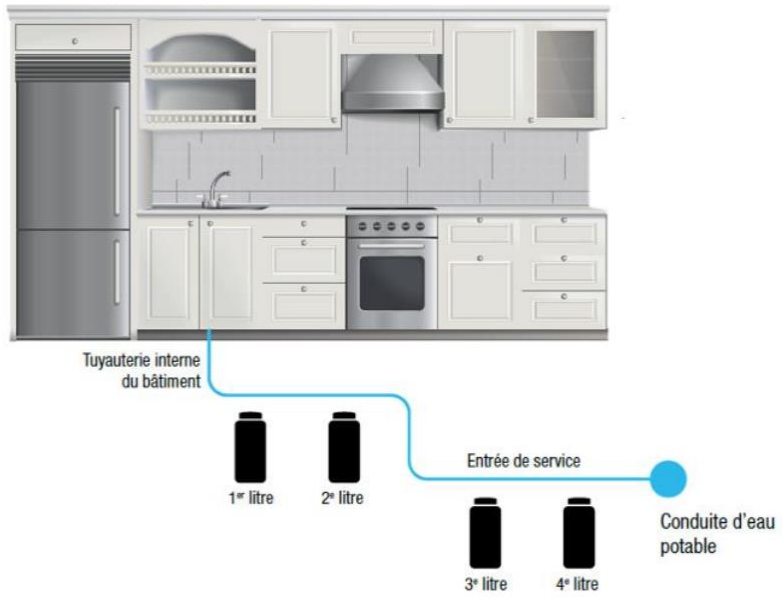
The sampling procedure is :

✓ Take the cold water tap most used in the residence (usually the kitchen);
✓ The faucet aerator must remain in place;
✓ Run cold water at a constant medium flow for five minutes;
✓ At the last minute of flow, take the water temperature;
✓ Turn off the tap and wait thirty minutes without running water elsewhere in the building;
✓ During stagnation, take the following information: year of construction, service entrance material (lead, copper, galvanized steel, etc.), approximate diameter and length of service entrance;
✓ Take a 1-liter sample at a moderate flow rate without overflowing the bottle, leaving an air space under the cork;

✓ Take a sample for on-site pH measurement;

✓ Store samples appropriately in the refrigerator and forward them promptly to the laboratory approved for this type of analysis.

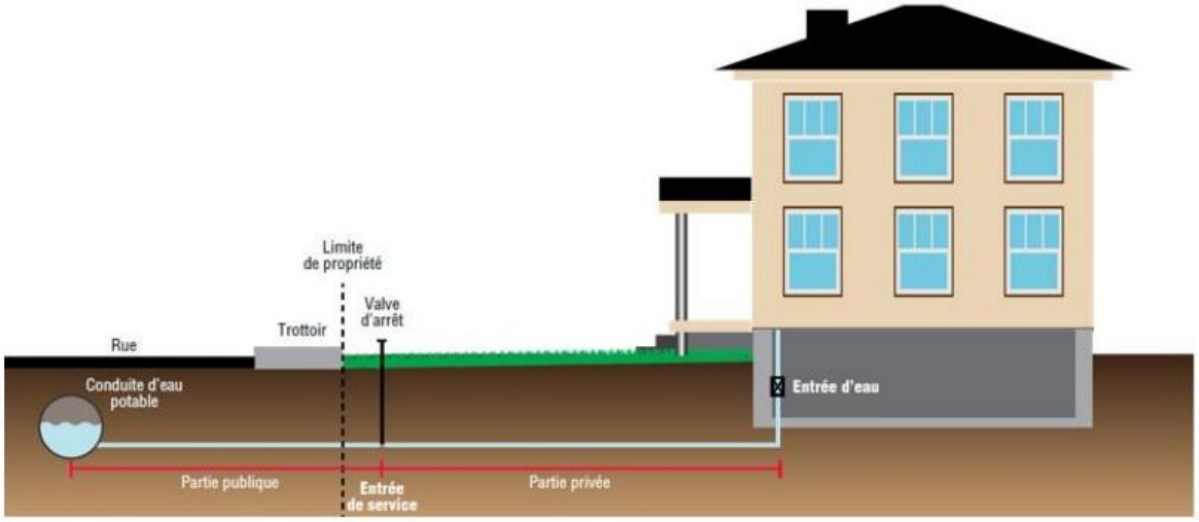
In the event of a non-compliant result, i.e. a concentration greater than 0.005 mg/l, a second sample will be required to confirm the result and identify the source of contamination (sequential sampling).



Source : Ministère de l'Environnement et de la Lutte contre les changements climatiques

3. ***Proceed with the work***

The sequential sampling carried out at point 2 will enable us to target the source of the lead and plan the work needed to correct the situation. A municipal employee will be on hand to visually inspect the pipes at the residence where the overflow has occurred, and if necessary, hydro-excavate the pipes to get a better view.
If the lead contamination comes from the service entrance, replacing it will eliminate the problem at source. According to the Ministry, we strongly recommend COMPLETE replacement of the service entrance, both private and public.



Source : Ministère de l'Environnement et de la Lutte contre les changements climatiques

Given the danger of lead exposure, the municipality will replace its portion of the pipe (on the public side) at its own expense. Replacement of the pipe on the private side is at the expense of the citizen owner. The Ministry requires a pH of at least 7.00 (the minimum pH recommended by Health Canada) to minimize lead exposure. The average pH for the network is 7.5. We are therefore above the minimum pH required by Health Canada to minimize exposure to lead and other metals present in pipe materials. Should lead affect several residences in the same area, adjustment of the chemical balance of the distributed water will be considered in order to limit exposure to lead.

4. Corrective measures

Once corrective measures have been implemented, monitoring should be carried out at various points along the distribution system. This approach should be adapted to the municipality's preferred interventions:

- ✓ Monitoring of pH and concentrations of corrosion inhibitor or any other product added for corrosion control: To estimate the effectiveness of the adjustment of the water's chemical balance.
- ✓ Monitoring lead concentrations in buildings with lead service entrances: To verify the effectiveness of corrosion treatment, as well as user exposure risks. If you are in the process of partially replacing certain service entrances, we strongly recommend that you set up a monitoring program for each building where a partial replacement has been carried out. This program will make it possible to verify whether lead concentrations will increase over time, and to determine the extent of this increase. The content of the program will have to be adapted according to the situation, but it should specify at least :
- ✓ The number of buildings to be monitored;
- ✓ The frequency and duration of monitoring (e.g.: immediately after replacement, every week for a few months, adjusting afterwards until the lead concentration is below the 0.005 mg/L standard);
- ✓ Parameters monitored (lead as a minimum, but other parameters as needed, depending on adjustments made to the water's chemical balance).

Following the partial replacement of a lead service entrance, it is important to communicate to the people concerned the recommendations for reducing their exposure to lead in this particular situation.

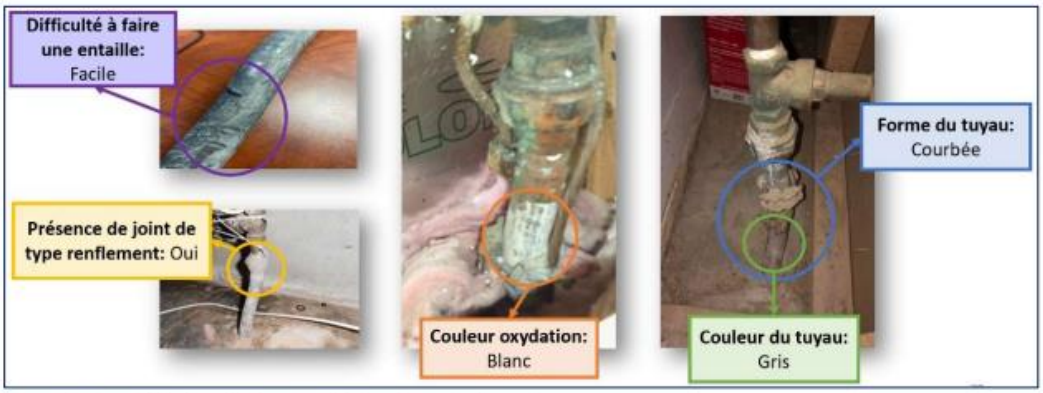


Figure 4 - Caractérisation de la nature du branchement de service

5. Communication

Following the Quebec government's desire to reduce the concentration of lead in drinking water, the Municipality will implement an action plan for the reduction of lead in water in 2023. In 2019, the Quebec government announced its intention to amend regulations to set the concentration of lead not to be exceeded in drinking water at 5 µg/L, and to reduce lead exposure generally. Water system operators, including municipalities, are responsible for ensuring compliance with this standard.

In addition, the Municipality's drinking water distribution system is sampled for lead and copper in accordance with the Drinking Water Quality By-law.

Informing owners and occupants:

- ✓ The current state of affairs;
- ✓ Actions taken to correct the problem;
- ✓ Measures to be taken to reduce their exposure to lead or that of their users while the work is being carried out.

6. Action schedule

Timeline for action plan to detect and reduce lead in drinking water :

Phase 1 and 2 OBJECTIVES:

Target service entrances where lead connection pipes have been installed.

SHARE	SCHEDULE
Raising public awareness of lead in drinking water and the quality of distributed water.	**Summer 2022**
Creation of a WEB page dedicated to lead in drinking water, centralizing all technical information. https://campbellsbay.ca/fr/qualite-de-leau-potable/	**Summer 2023**
Information for citizens in targeted areas.	**Before July 15 of each year**
Sampling	**From July 1st to October 1st of each year**
Communication of results to owners	**Within 30 days of receiving the results by letter**

Phase 3 and 4 OBJECTIVES :

- Determine whether corrective actions will affect the whole network or just the sites where the limits have been exceeded;

- Establish a strategy to identify buildings in targeted areas with lead service entrances;
- Implement inventory strategy;
- Prepare and apply the necessary corrective measures to the network.

SHARE	SCHEDULE
Increase in the number of sampling sites	**Year following sampling campaign**
Revision of subsequent sampling locations based on areas where lead service entrances have been sampled.	**Year following sampling campaign.**
Communication to owners.	**Year following sampling campaign.**
Progress report posted on the municipal website	**By July 15, 2023 at the latest.**
Annual presentation to City Council.	**By October 15, 2023 at the latest.**

7. Financial and regulatory framework

This involves budgetary monitoring of the action plan to detect and reduce lead in drinking water, and financial assistance for citizens who need to replace the private portion.

Objectives:

- Provide financial support for private replacements through a subsidy program;
- Pay expenses for professional fees and the purchase of goods and services.

To this end, the Municipality of Campbell's Bay :

- Estimate the total costs of the action plan to detect and reduce lead in drinking water, and present the associated budget requests to the General Management and then to elected officials;
- Refines, throughout the progress of the action plan to detect and reduce lead in drinking water, the financial package required;
- Ensures availability of grant program funds;
- Monitors the application of the municipal by-law.

RECOMMENDATIONS IF LEAD IS PRESENT FOLLOWING SAMPLING

If the presence of lead is confirmed to be outside the norm, here are the recommendations for reducing the impact of lead while the work is being done to correct the situation:

- ✓ Let the water run until it gets cold. Then run the tap for one or two minutes to eliminate any water that has stagnated in the service entrance (e.g. in the morning when you wake up, or when you come back in the evening). There are other ways of flushing the pipes, such as flushing the toilet, taking a shower or using the dishwasher.
- ✓ Use cold water for drinking, cooking or preparing breast-milk substitutes;
- ✓ Regularly clean the aerator (the small filter at the end of the faucet) to dislodge any particles that may have accumulated;
- ✓ If necessary, install a treatment device certified to reduce lead in water (in accordance with NSF/ANSI Standard 53).

There's no need to boil the water, as the lead doesn't evaporate. For further information, click here:

www.environnement.gouv.qc.ca/eau/potable/plomb/Plomb-eau-potable-Quoi-Faire.pdf

Message to occupants of buildings where the standard is exceeded:

Campbell's Bay

RESIDENCE / BUSINESS :

Hello,

You will find below the results of the samples taken on August 18 and August 30, 2022 as part of the sampling campaign for lead and copper in drinking water, as well as their significance.

The copper result complies with the 1.0 mg/L standard prescribed by the Regulation respecting the quality of drinking water.

Parameter	Your result	Standard
Copper		1.0 mg/L

These samples were taken to better assess the source of the lead in your drinking water during the first analysis. The average amount of lead in the first four liters is also more representative of the water that can be consumed.

The results obtained from your tap water, after 30 minutes of stagnation, are as follows:

Parameter	**Your result for August 18, 2022**	**Recommended concentration**
Lead		
	Your result for August 30, 2022	
Lead (1er Litre)		
Lead (2ième Litre)		
Lead (3ième Litre)		
Lead (4ième Litre)		
Lead (average of 5 samples)		**0.005 mg/L**

The average of the five analyses does not meet the recommended concentration of 0.005 mg/L.Your results indicate the presence of a lead source (e.g. plumbing material, service entrance). After a long period of water stagnation in the plumbing system (e.g. in the morning), the concentration of lead in the first few liters of water consumed may be high.

If you'd like advice on how to minimize your exposure to lead in water, you can consult the PLAN D'ACTION leaflet on detecting and reducing lead in municipally-supplied drinking water.

You can also visit the MELCC page to find out more about lead in drinking water:
http://www.environnement.gouv.qc.ca/eau/potable/plomb/

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Sarah Bertrand
General Manager