

# Tap Sampling Program

Greater Victoria Water Supply



Capital Regional District | June 2022

## Project Overview

In 2021, the Capital Regional District (CRD) conducted two rounds of tap sampling for lead and copper in Greater Victoria. This was done as part of a multi-year water quality study investigating the corrosivity of the drinking water and potential pipe corrosion issues in the Greater Victoria Drinking Water System. To align with provincial guidance, the CRD worked in conjunction with Island Health on this tap sampling program. The study results (see Table 1 below) indicate that the vast majority of residents can enjoy their tap water knowing that it is virtually free of lead; only a very few individual buildings in Greater Victoria have slightly elevated lead concentrations at the tap. These are likely associated with old service lines or fixtures and pose a minimal risk to human health. The results were uniform across the region and across the different building categories so that no particular area or building type stands out for specific concern.

The study also indicated, that copper concentrations in the tap water were well below the Health Canada aesthetic and health limits indicating that metal pipe corrosion is not a widespread issue in Greater Victoria and there is no risk to human health.

The first round of tap sampling occurred in March of 2021 in 104 residential houses across the West Shore, Saanich, Oak Bay, Victoria, Esquimalt and Sooke. During the second round in October of 2021, the CRD collected and analyzed tap samples from 251 buildings across all Greater Victoria municipalities, which included 10 buildings that were sampled for the second time that year.

The samples were collected following sampling protocols recommended by Health Canada and the BC Ministry of Health from areas of strategic interest due to building age, location within the water system and increased potential for lead. In total, the CRD collected and analyzed samples from 345 residential homes, including 23 multi-family residences, 15 commercial and three daycare facilities.

On top of indicating there are no unacceptable risks to human health from metals of concern, the study concludes that centralized corrosion control treatment for the Greater Victoria Drinking Water System is not needed at this time.

Please refer to the list of frequently asked questions enclosed in this report for additional information.

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**Table 1 — Summary of 2021 Tap Sampling Results in Greater Victoria**

All Areas & Samples (except repeats)	First Draw Total <sup>2</sup> Lead (Pb) ug/L	30MS Total Lead <sup>3</sup> (Pb) ug/L	First Draw Total Copper (Cu) ug/L	30MS Total Copper (Cu) ug/L
Action/Health Limit <sup>1</sup>	15	5	2000	2000
Number of sample locations	345	345	345	344
Samples above limit	2	3	0	0
90 <sup>th</sup> percentile	2.66	1	300	130
Median	0.83	0.32	126	49.6
Mean	1.34	0.53	143	63

<sup>1</sup> Note that all copper concentrations were also below the Health Canada aesthetic limit of 1000 and below the USEPA action limit of 1300 ug/L.

<sup>2</sup> First Draw means the sample was taken at the beginning of the day after min. 6h stagnation without any flushing.

<sup>3</sup> 30MS means the sample was collected after 5 minutes of flushing followed by 30 minutes of stagnation.

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## Frequently Asked Questions

### 1. What is the maximum acceptable concentration of lead in drinking water?

Regulatory efforts over the past several decades have significantly reduced our exposure to lead from various sources. Currently, Health Canada sets the maximum acceptable concentration for lead in drinking water at 0.005 mg/L for a sample taken at the tap following the appropriate sampling protocols. Health Canada further recommends that lead concentrations in drinking water should be as low as reasonably achievable. Recent tap sampling across the regional service indicated that the average concentration in the regional drinking water is 10x less than the maximum acceptable concentration.

### 2. What are the health concerns with lead in drinking water?

Too much exposure to any contaminant can lead to a variety of adverse effects. The main health concerns for long-term exposure to high levels of lead in adult bloodstreams are reduced cognition, increased blood pressure and renal dysfunction. Children, infants and fetuses are most at risk from exposure to lead because of their developing brains, which can lead to neurological development and behaviour issues. Lead compounds have also been classified as probably carcinogenic to humans.

### 3. What are lead sources in our drinking water system?

Lead does not naturally occur in the source water for Greater Victoria, but it can leach out of pipes and fixtures into the water. The extent of leaching depends on the type and age of plumbing material used, the corrosiveness of the water and the length of time that the water is stagnant and therefore in contact with lead containing pipe material.

Recent water chemistry studies by the CRD have shown that Greater Victoria drinking water is only mildly corrosive with a limited capacity to leach lead into the drinking water. Lead containing material is primarily found in private plumbing systems, thus the water on the public side is virtually lead-free and lead is typically only introduced to the drinking water as it enters private property.

### 4. How can I find out if I have lead sources in my house or on my property?

Potential lead sources in private plumbing systems are illustrated in Figure 1 below. Lead service lines are generally uncommon in Greater Victoria. Figure 2 below provides customers with an investigative guide on how to determine the pipe material of a water service line.

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## 5. What are the concerns with copper in drinking water?

Copper is an essential element in humans and only has negative health implications (gastrointestinal, liver, kidney) through chronic exposure to extremely high concentrations. Health Canada has set the maximum acceptable concentration to 2 mg/L. Elevated copper concentrations are more likely to cause aesthetic issues such as fixture or laundry staining when in excess of the Health Canada aesthetic objective of 1 mg/L. Recent tap sampling programs by the CRD yielded an average copper concentration of only 0.064 mg/L across all tap samples collected.

## 6. Where can I have my tap water tested for lead/copper?

If you are concerned and would like to test your tap water for lead and/or copper, Island Health or the CRD can guide you to a laboratory that can test your water at your expense. The CRD cannot conduct metal tests in the CRD lab. Contact the CRD Water Quality Officer at [jdupuis@crd.bc.ca](mailto:jdupuis@crd.bc.ca).

## 7. How can I protect myself from lead in tap water?

If you are concerned about lead in your tap water, there are several things you can do to protect yourself. Best is always to remove known or suspected lead sources from your plumbing system. Figure 3 below lists a number of measures you can take to protect you from lead exposure.

## 8. Will “flushing until cold” waste water?

‘Flushing until cold’ can still be done in a way that will support water conservation efforts. Flushing until cold generally does not take more than a minute for most homes.

“First flush” water can be collected and used for washing or to water plants and gardens. Flushing the toilet first thing in the morning will also help move water through the pipes, therefore reducing the time needed to flush the tap until cold.

## 9. Where can the public get more information about this issue?

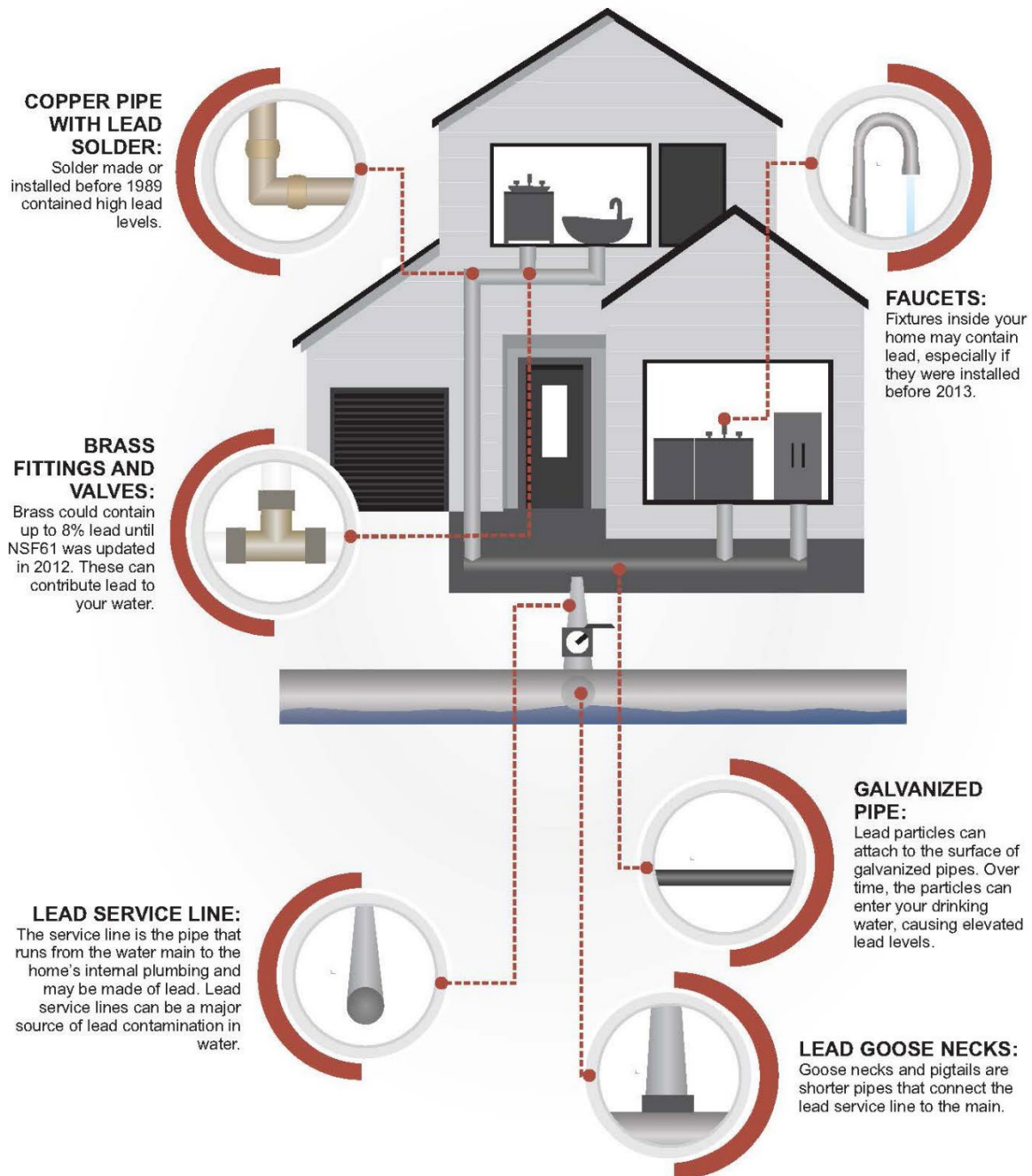
Please refer to Health Canada public education information such as the document [Drinking Water: What about lead?](#) The CRD water quality annual reports are published on the CRD website.

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Figure 1 — Potential Sources of Lead in Drinking Water



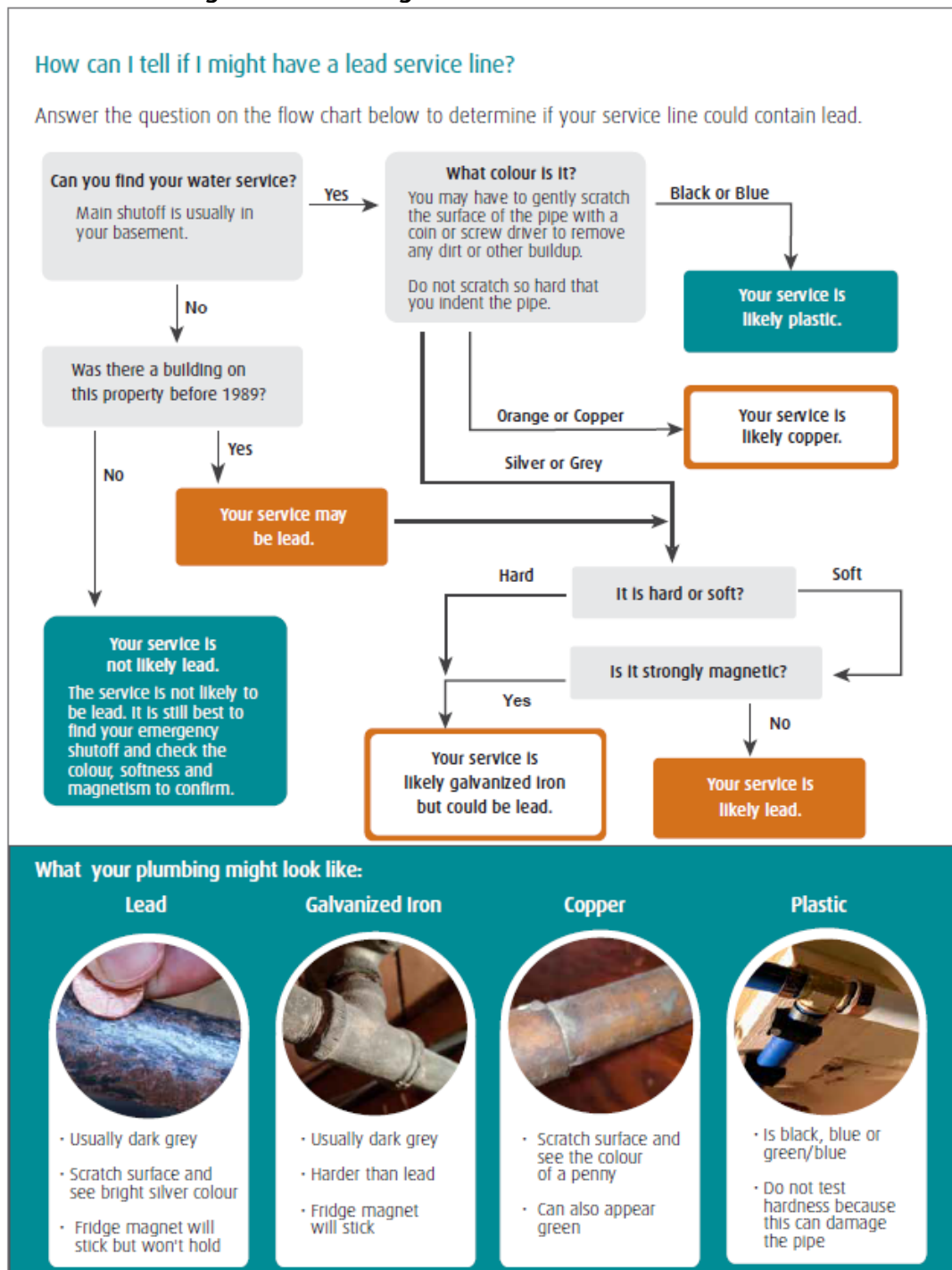
To find out for certain if you have lead in drinking water, **have your water tested.**

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**Figure 2 — Finding Sources of Lead in Your Home**



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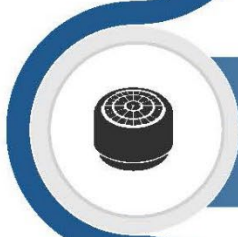
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## Figure 3 — Protecting Yourself from Lead Exposure



Use only cold water for drinking, cooking and making baby formula. *Boiling water does not remove lead from water.*



Regularly clean your faucet's screen (also known as an aerator).



Consider using an NSF-61 certified water filter to remove lead and know when it's time to replace the filter.



Before drinking, flush your pipes by running your tap, taking a shower, doing laundry or a load of dishes. For example, let the tap run for five minutes or until the water runs cold.



Replace brass fittings and fixtures that are older than 2013.

### Identify Other Lead Sources In Your Home

Lead in homes can also come from sources other than water. If you live in a home built before 1978, you may want to have your paint tested for lead. **Consider contacting your doctor to have your children tested if you are concerned about lead exposure.**

