

Public Notice

DRINKING WATER QUALITY

Questions?
We're
Listening.



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The Village recently undertook a water conditioning assessment, sampling drinking water from 20 Pemberton homes, as a first step in determining how to improve the aesthetic quality of our water.

The results of this initial sampling, which occurred without the benefit of tap flushing, were unanticipated. Results revealed that the low pH of Pemberton's water is interacting with the plumbing fittings and fixtures of some houses to produce elevated levels of lead in drinking water. For some in the sample, lead concentrations were as high as 6 times the Maximum Acceptable Concentration (MAC) prescribed in the *Guidelines for Canadian Drinking Water Quality*. Lead in drinking water can cause a number of adverse health effects, particularly for children, infants and unborn children.

The Village takes this matter very seriously and, in consultation with Vancouver Coastal Health and the Ministry of Health, is advising residents to flush their tap water until it turns cold prior to drinking or using it for cooking, and NOT to boil water, which may increase the concentration of lead. Water that has become stagnant from sitting in pipes for prolonged periods of time, such as overnight or during vacations, is most at risk of being contaminated. Once the lines have been flushed, water collected for drinking water, cooking, preparing baby formula and teeth brushing can be stored in a suitable container and kept refrigerated to assist with water conservation.

Once the Village's water reaches a property line, plumbing becomes the responsibility of the individual homeowner. The Village is, however, working to find a universal solution and will be installing a water conditioning system that will raise the pH of the water. This will eliminate the corrosivity of the water and potential for lead contamination.

Pemberton's water supply is tested regularly and meets all provincial and federal health objectives. The Village will be conducting further tests, including taking pre and post tap flushing samples, to verify the results of this assessment, and will continue to update the public as more information becomes available.



FACT SHEET

About Lead

Lead (Pb) is a naturally occurring element. Its presence in water is usually through contact with any lead components in plumbing materials.

Lead in Drinking Water

Drinking water in many water systems in the South coast of BC are soft (low in hardness), and slightly acidic (low pH and alkalinity). When soft water stagnates in building piping, such as over a weekend or longer, lead can leach out from the plumbing into the water. This is particularly true in older facilities and homes that may have lead plumbing, fixtures or fittings, or used solder containing lead.

Low-level, but long-term lead exposure in childhood is a risk factor for lower intelligence in children as well as for the development of behavioural disorders (Bellenger, 2008). Water, however, is generally not a significant source of lead in the diets of children and adults. Food is actually the largest source of daily lead intake, accounting for 50% and 82% in children and adults, respectively. Another important contributor for children is lead in dust and dirt. Nevertheless, given the developmental risks to children from lead, it is good practice to minimize lead intake from drinking water by keeping the lead level at or below the recommended maximum in the Canadian drinking water guidelines.

Regulations

Guidelines for Drinking Water Quality fall into 2 categories:

- 1) Maximum Acceptable Concentrations (MAC) are based on adverse health effects (see below under Health Risks), but tests that exceed these levels do not necessarily indicate an immediate health problem since they are intentionally set low. MAC's are developed to be low enough that years of exposure at this level would only increase the health risk slightly.
- 2) Aesthetic Objectives (AO) are not based on health impacts, but relate to qualities like taste, odour, appearance and pH.

The Canadian Drinking Water Quality Guideline for lead is 0.01 milligrams per litre (mg/L).

Health Risks

Lead in drinking water can cause a variety of adverse health effects. These include:

- Increased blood pressure
- Anemia
- Nerve disorders
- Muscle and joint pain
- Irritability
- Kidney damage

Children, infants and unborn children more readily absorb lead and are more sensitive to its effects. Children exposed to lead levels above 0.01 mg/L can suffer from:

- Damage to brain and nervous system
- Delays in physical and mental development
- Behaviour and learning disabilities
- Hearing disorders

Recommended Actions

- Flush tap water (let the water run until it turns cold) prior to consumption (drinking, using for cooking, preparing baby formula and brushing teeth)
- Once the lines have been flushed at the faucet, water collected for drinking water, cooking, preparing baby formula and teeth brushing can be stored in a suitable container and kept refrigerated to assist with water conservation
- DO NOT boil water- this may increase the concentration of lead
- Consider in home treatment options to reduce lead levels. These include: Cation (Ion) exchange, distillation, reverse osmosis, water filters with certification NSF Standard No. 53 for reduction of lead (Brita Faucet filters)

*Please note that the Village will be installing a pH conditioning system in the near future that will reduce the corrosivity of the water.

Resources for Further Reading

- Guidelines for Canadian Drinking Water Quality – Supporting documentation for lead <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/lead-plomb/index-eng.php>
- Guidance on Controlling Corrosion in Drinking Water Distribution Systems – Health Canada, June 2009 <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/corrosion/index-eng.php>
- Lead Information Package - Some Commonly Asked Questions About Lead and Human Health http://www.hc-sc.gc.ca/ewh-semt/contaminants/lead-plomb/sources_exposure-sources_exposition-eng.php#a10

REFERENCES:

Bellinger DC. Very low lead exposures and children's neurodevelopment. Curr Opin Pediatr. 2008 Apr;20(2):172.