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Whistler's corrosive water means residents and tourists face a higher risk of ingesting lead. The town has know for five years, but hasn't acted

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Whistler, the famed ski town north of Vancouver, has known for at least five years that its tap water is corrosive, increasing the risk for lead and copper leaching into drinking water in homes and hotels, but says it needs more time to study how to fix the problem.

The resort municipality, which prides itself on having “safe, affordable, and environmentally friendly” drinking water, urges its residents and almost three million yearly visitors to drink from the tap and help cut down on plastic waste. There’s just one caveat: Officials say they should run the water until it’s cold before drinking.

Whistler’s water flows from the snow on Rainbow Mountain to the 21 Mile Creek Watershed, but during periods of heavy rainfall, the utility pulls groundwater from 15 wells instead.

The water tends to be acidic increasing the risk that lead, a neurotoxin, will leach from residential or commercial plumbing.

Reporters from the University of British Columbia, as a part of a collaboration among Canadian universities and media partners, including Concordia University’s Institute for Investigative Journalism, Global News and Star Vancouver, collected water samples from 10 homes, two hotels and one Airbnb property in Whistler and had them tested for lead at an accredited lab.

The resort municipality of Whister urges its residents and almost three million yearly visitors to drink from the tap and help cut down on plastic waste, but recommends flushing the water first.

All of the samples contained traces of lead and seven contained lead levels exceeding Health Canada’s guideline of five parts per billion (ppb). In addition, samples collected from one hotel room and another home rented through Airbnb also exceeded the recommended federal limit.

Whistler is just one of at least 24 communities in B.C. at higher risk of having lead leaching into their water due to a combination of acidic water and old pipes and plumbing fixtures.

These 25 water systems were among more than 30 surveyed by reporters, some of which were highlighted by a

water intelligence company, WatrHub, that designed an algorithm using key search terms such as "lead" and "pH" to identify communities most at risk lead-tainted tap water.

Reporters narrowed down this list by examining key indicators, such as identifying which operators had drinking water that, at times, failed to meet the federal guideline for a pH level ranging between 7 and 10.5. The reporters also sent questions to the water operators about their systems, from Vancouver Island to the Interior, while reviewing annual drinking water reports and testing data. The data available varied considerably. Some small water systems had just one or a few pH readings available for the year, while others had a few dozen samples available.

The results of the survey expose "a complete void in the regulations," said Michèle Prévost, a civil engineering professor from Polytechnique Montreal.

She noted that mandatory testing for lead in drinking water is a first step toward protecting public health: "If you don't know how much, you don't know if you have a problem. If you don't know if you have a problem, then you can't fix it."

After reviewing the results of the survey, B.C.'s Ministry of Health responded that "British Columbians enjoy some of the cleanest and safest drinking water in the world." Nevertheless, "homeowners are responsible for managing their private infrastructure against all risks, including lead in water."

Lead is odorless, colourless and tasteless when dissolved in water.

In Whistler, the team of students tested tap water in buildings constructed between 1968 and 1994. These were selected in order to measure the levels of lead in homes where residents are most likely to be at risk, in line with Health Canada's recommendation that municipal workers focus on older buildings and other areas of concern.

The highest lead concentration, 61 ppb — 12 times the federal guideline — was detected in water from a kitchen tap in a rental home built in 1974 where John Wallace, a 37-year-old welder fabricator, lives with his wife, 2-year-old son, and their dog Bailey.

"There's a concern that it will impact my son, there's a concern that everything will impact my son a little bit," he said.

Wallace said he hadn't been aware previously that he needed to flush the taps before consuming the water.

"It's going to change the way I deal with my water," he said. "When I wake up in the morning I'm going to let that run for a minute or two, I'm going to use better filters, and I'm going to eliminate that problem."

The highest results detected as part of the Tainted Water investigation in Whistler were from "first draw" samples, which were collected when the plumbing had not been used for at least six hours in order to detect the highest concentrations of lead in drinking water.

Lead levels in the Whistler homes did tend to drop dramatically after flushing, but lab tests showed lead was still present in flushed samples. In one home, built in 1976, lead levels were measured at 11.7 ppb after a 45 second flush. After the tap was running for two minutes, lab tests showed results as high as 3.39 ppb, and as low as 0.28 ppb, in two homes that were both built in 1968.

There is no safe level of lead, according to the World Health Organization. Children under six, pregnant women and fetuses are most vulnerable to the effects of the neurotoxin, which can accumulate in the body over time. Health effects can from learning disabilities and an increased risk for behavioural disorders like ADHD in children to high blood pressure and heart disease in adults.

Chronic exposure to even low levels of lead can have significant consequences for health, according to Bruce Lanphear, a health sciences professor at Simon Fraser University and an expert in the metal's health impacts.

"It really is insidious," he said.

A spokesperson for the Resort Municipality of Whistler said they have "extensively shared Vancouver Coastal Health's recommendations to flush taps until the water runs cold for several years now, with information in property tax notices mailed to all homeowners, media coverage, newspaper ads, social media and our weekly newsletter emailed to subscribers."

Like Wallace, David Veale, who is semi-retired, working as a ski instructor in the winter, said he hasn't seen any warnings from officials to flush his taps.

A lead level of 12.8 ppb was detected in a first draw sample of water from his tap in October.

"I always presumed I had lead and copper in the water because of the pipes," he said. "I just had no idea that it was as high as it's indicating in the test."

Veale said he'll flush the water for longer before drinking it. But he wants to see action from the resort municipality as well. In particular, he wants Whistler to figure out what the difference is between the water delivered to the private property line and the water residents are actually consuming from the tap.

"The municipality, I think, should be advising us at least, if they're not going to be testing houses," he said. "I don't know why it's my responsibility to figure out what is going on."

The risks of acidic water in B.C. have been known since at least 1991, when researchers conducting a study in Vancouver found elevated levels of lead in both houses and apartments. With pH ranging from 5.9 to 6.3, 15 per cent of the samples taken from 72 high rise apartments exceeded 50 ppb, Health Canada's guideline at the time; 43 per cent exceeded 10 ppb. None of the 60 single-family homes, where water had a pH range of 5.5 to 6.1, exceeded 50 ppb, but 47 per cent exceeded 10 ppb, twice the current guideline.

Though Metro Vancouver, which treats Vancouver's water, has since brought its pH inline with Health Canada's recommendations, the water in numerous other communities — including Prince Rupert and Kitimat in the northwest — continues to fall outside what the federal government considers an acceptable range for pH.

In Prince Rupert, where lead exceedances were detected in 21 out of 25 homes tested by the "Tainted Water" investigation, the average pH of tap water hovers below Health Canada's recommended range, according to it annual drinking water report. At Northern Health's direction the city undertook testing at the tap and has plans for an upgrade water treatment facility.

Internal emails obtained through freedom of information show a public health engineer with Northern Health also advocated for testing at the tap in Kitimat homes, where the water is also acidic. In a March 2015 email the engineer referenced the need for $5,300 to see if elevated lead levels were a health issue in Kitimat homes or "just a few dozen institutional buildings like schools."

That same engineer noted in emails that solutions to raise the water's pH could be employed for just a few dollars per connection, based on a rough estimate of what it would cost to add lime to the water.

In its 2018 water quality report, Whistler noted the pH of its water ranged between 6.5 and 7.5, which means it "sometimes falls outside" the range of 7 to 10.5 recommended by Health Canada. The report also described the low pH as a "minor water quality concern."

Leading experts, however, disagree with that assessment.

"Acidic water just eats up your pipes," said Prévost. "Anything that's got lead and copper will be attacked by corrosive water, releasing copper and lead into your drinking water."

Whistler has known about issues with corrosion since at least 2014, when a study of water infrastructure noted certain cast-iron water mains were showing signs of corrosion.

The resort municipality began replacing affected water mains with PVC pipes, but hasn't yet moved to raise its water's pH.

The Village of Pemberton, 30 kilometres away, meanwhile took steps to address its corrosive water after municipal testing detected elevated lead levels in drinking water at local homes in 2016. Lead levels as high as 107 ppb were detected, according to documents obtained through freedom of information. The next year, Pemberton completed a soda ash conditioning system that injects sodium carbonate into the water system to both raise the pH and address its corrosivity problem.

Whistler Mayor Jack Crompton explained Whistler is expecting a new report in 2020 and is still trying to understand the implications of such a decision.

"We want to make sure that we're well informed when we make a decision like that," he said, adding that there are jurisdictions that still recommend flushing the taps even after adding chemicals to address corrosion.

Prévost said flushing tap water is a good idea to reduce the risk of a range of problems, including bacteria. She added there is nothing stopping Whistler from moving quickly to address its corrosive water.

"I think there's enough information out there and experience from other utilities to make the decision without further testing," she said. "That can be sorted out quite quickly. You look at your options and you just implement them."

More than 45 per cent of the residential homes in Whistler were built before 1991, according to 2016 census statis-

tics, which puts them at higher risk for having plumbing and fixtures that may contain lead.

B.C. restricted lead content in plumbing in 1989 but faucets and other fixtures could contain up to eight per cent lead until 2014, enough to raise lead concentrations in water under the right conditions, according to B.C. guidelines for mitigating lead in schools and daycares.

Whistler has not tested for lead in drinking water at local homes, and they haven't been required too. The B.C. government does not have provincial rules to require municipalities to test for lead in residential drinking water, unlike Ontario.

"We look to our health authority to give us direction exactly how to deal with providing healthy water and if our health authority gives us the direction to test in homes, we'll do that. At this point we're taking the direction they provide to us," said Crompton.

"If people are concerned about the fixtures in their home potentially having lead, I'd encourage them to swap those out or they can take the direction provided by Vancouver Coastal Health to run the water until it's cold before drinking it and Vancouver Coastal Health says that that direction is effective to ensuring safe drinking water," he said.

Both hotels contacted as part of this investigation have said they will commission their own testing.

A lead level of 9.65 ppb, which exceeds Health Canada's guideline, was detected in one first-draw sample from a bathroom in a Fairmont Chateau Whistler hotel room. The sample was collected at 5 a.m. and the water hadn't been used in the room since just before 11 the night before.

Elevated copper levels reaching 3,120 ppb, above Health Canada's guideline of 2,000 ppb, were detected in another first-draw sample from the powder room in the same hotel suite. Both the lead and copper levels dropped below Health Canada's guidelines after flushing.

In the main bathroom, lead levels dropped to 1.69 ppb after a 30 second flush, and 0.94 ppb after a one minute flush. Copper levels from this sink were below the guideline, even in the first draw sample.

Lead levels in the powder room were 2.44 ppb in a first draw sample and dropped to 0.27 ppb after a one minute flush. The copper levels dropped significantly after a 30 second flush to 126 ppb, and again after a one minute flush to 82.4 ppb.

A spokesperson for Fairmont said, it would contract a "reputable third-party laboratory" to evaluate the water quality at the hotel.

"The well-being of our guests and colleagues is our top priority, and we are committed to providing all of our customers with an exceptional stay experience, including a comfortable environment and safe amenities," said Lynn Henderson, the regional director of public relations for Fairmont Hotels & Resorts Canada western mountain region, in a statement.

"We rely on the Resort Municipality of Whistler (RMOW) and Vancouver Coastal Health (VCH) to test and monitor our water supply, and past results have not indicated any cause for concern." she said.

"We remain confident that our water is safe for our guests."

Water samples were also collected from a suite at the Crystal Lodge. Both lead and copper levels detected were well below Health Canada's guidelines. Lead levels ranged from 0.76 ppb to 1.47 ppb in the bathroom and 0.64 ppb to 0.82 ppb in the kitchen. While copper levels ranged from 47 ppb to 77.4 ppb in the bathroom and from 40.3 ppb to 75 ppb in the kitchen.

In a statement, the hotel's general manager Ian Low, said "The Crystal Lodge relies on the Vancouver Coastal Health and the municipality to test and monitor our water supply. While we understand tap water quality is our responsibility, we have never had any reason to be concerned."

Lowe said the hotel would conduct its own tests as well, noting "the health and safety of our guests and employees is our primary concern."

If the resort municipality moved to raise the water's pH it would bring down the first draw results detected at the hotels, according Prévost, the civil engineering professor from Polytechnique Montreal.

Theresa McClenaghan, executive director and legal counsel of the Canadian Environmental Law Association says B.C. and other provinces should adopt similar rules to Ontario, which makes it mandatory for utilities to control corrosion when they are deemed to be at risk.

"That is what I think B.C. and every other province who hasn't done that yet, needs to do," she said in an interview. "Because of the fact that the water utility is the one in control of the plant, in control of the chemistry, in control

of making decisions about what types of treatment to deploy… residents have zero control over that and zero knowledge unless they are extremely technically savvy."

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