



BOIL WATER NOTICE INFORMATION

FREQUENTLY ASKED QUESTIONS

Why is a Boil Water Notice in effect?

The City is currently working to fully redevelop our water supply infrastructure. Due to construction of the access road, new water supply line, and in 2019, a new dam, the City is not using our primary source of water at Woodworth Lake, and have not since 2016.

During construction, we have relied on our backup/emergency source at Shawatlan Lake. This source supplied 80% of water to the community before a new, higher capacity watermain was installed to Woodworth Lake in 1995. Although the City and Northern Health have no confirmed record of Shawatlan testing confirmed positive for cryptosporidium and giardia historically, this source is more vulnerable to weather related run-off. This run-off can contribute to the source's turbidity and the contamination that has occurred in this particular instance. This year, a particularly dry summer followed by an intense rainfall event resulted in runoff debris in the water supply, which is believed to have contributed to the current issue.

When were the City and Northern Health aware of the issue?

Tests are completed for cryptosporidium and giardia seasonally. Current Provincial Drinking Water testing regimes and standards do not require testing for cryptosporidium and giardia, due to the assumed low risk of contamination in most water supplies. Testing is above and beyond mandated requirements, with results assessed for health risks by Northern Health.

This year's fall testing revealed the slight presence of cryptosporidium and giardia in the raw (untreated) water supply. At this time, the levels at the raw source were determined by the regulator to be too low to warrant health concern, but prompted additional monitoring. Following this, tests were conducted of treated water to determine if the contaminants had entered the treated supply. In the interim between the first and second tests, it is believed that the major storm event occurred exacerbating levels due to storm run-off. The City was notified by Northern Health on December 14th that test results from the treated water supply indicated levels of cryptosporidium and giardia that warranted a Boil Water Notice to be issued as a precautionary measure, to protect the elderly, children, and immuno-compromised individuals. The Notice was then issued within forty minutes of directive from Northern Health.

What is the City doing to address the problem?

There are both short and long term solutions. In the short term, Operations Department Staff have completed the following to appropriately monitor and assess the situation:

- Boat patrol of 8 km Shawatlan Lake perimeter to look for potential sources of contaminants;
- Creek walks and sampling to look for potential contaminants;
- Increased testing;
- Accuracy testing with a second lab;
- Regular contact with Northern Health regarding test outcomes; and,
- Tributary analysis for animal activity, due to reliance on secondary source at Shawatlan lake (there are no tributaries that feed into the primary source at Woodworth).



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To address water quality in the long term, the City had already applied in August of 2018 for funding to support the implementation of multiple barrier water treatment, which will be more effective than our current system in removing cryptosporidium and giardia, will also remove colour, and will continue to disinfect for bacteriological contamination. The ICIP Green Infrastructure grant stream became available which would support this particular project, and given Council's strategic priority of security of the City's water infrastructure, staff brought this application forward.

Have there been any confirmed illnesses directly tied to water-borne cryptosporidium and giardia?

No – Northern Health has conducted tests at the local hospital to determine any public health impacts from the Notice. As of the date of this FAQ, there have not been any recorded any instances of giardia or cryptosporidium related illnesses directly tied to the water Notice. Unfortunately, this Notice also corresponds with flu season, as well as a gastrointestinal virus that is currently impacting many other Northern communities, and it is possible that many people are self-diagnosing incorrectly.

Why can't the City use the local lab to test water for cryptosporidium and giardia? And how often have you been testing since the Notice was put into place?

Prince Rupert is actually fairly lucky in that we are the regional hub for water testing. Most other communities in this region send their water to our local lab. Unfortunately, this particular test is very specialized and must be sent away. The City is sending multiple water samples twice a week to Vancouver and now Red Deer, Alberta to conduct these tests. The turnaround time for testing is a *minimum* of 3 days, based on travel time as well as the time it takes for the lab to culture results. Notably, the Christmas holiday did negatively impact testing schedules, as the lab must be open in order to receive a sample, and they were closed for multiple days. As such, there have been some delays in obtaining results.

There is also a significant amount of water that must pass through the system to obtain a valid result, and levels will reduce gradually, so it should be noted that more frequent testing will not lead to the Notice being lifted any sooner.

How does the City currently treat its water?

Currently the City performs chlorine gas injection for disinfection. This treatment is effective in removing bacteria and other potential contaminants from the water supply, but is not completely effective in removing cryptosporidium and giardia, which are the subject of the Notice.

How will the City try to mitigate these potential issues moving ahead while the dam is constructed?

Recognizing that plans are to continue to pull from the secondary source at Shawatlan, the City is exploring the cost of tying in the new water line layed down in Phase 1 of the 3 phase water infrastructure project to return to our primary water source at Woodworth Lake during construction.



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Once the Operations Department has a clearer picture of costs and feasibility, additional information will be provided to Council for review and consideration.

In response to this event, Northern Health will also determine an appropriate testing frequency to monitor future risk.

How will the City ensure that Woodworth water is safe to drink when we switch back to our primary source?

Prior to bringing that source back online once the dam is completed, regular testing will resume to ensure water quality standards are met. In addition, the City is seeking grant funds to support the implementation of multiple treatment barriers to improve overall water quality, and as a more effective barrier against cryptosporidium and giardia. As of the writing of this FAQ, the City is still awaiting a decision on this grant application which was sent in August, 2018.

Woodworth is also at a higher elevation than our secondary source at Shawatlan Lake, and does not have any tributaries running into it. It is thus less susceptible to run off. In addition, the surrounding grade is steep, and relatively inhabitable to large wildlife. Testing at Woodworth was conducted regularly according to Northern Health permitting guidelines for many years until we began pulling from our secondary source at Shawatlan Lake, and no recorded test has revealed the presence of cryptosporidium or giardia in that time until now.

Why weren't more updates provided on the status of the water during the Notice?

Multiple clear test results must be obtained prior to Northern Health removing the Notice, and there are various factors impacting how individual results are assessed (temperature and turbidity of the water are factors, for instance). It would be misleading to provide individual results, as one good result may be an outlier and will not necessarily indicate the removal of the Notice.

We have done our best to keep the community and the media informed, and are happy to confidently say now that although the notice remains in effect, tests are improving. We will continue to closely monitor the situation in conjunction with Northern Health and will remove the Notice as soon as we are able. Of note, following the 'okay' from Northern Health, the City will need to flush our water system to remove older water from the system, which will take up to 3 additional days.

As soon as the notice is lifted, the community will be notified. If you haven't already, please sign up for the City's emergency alert system to have a notification sent directly to your landline, cell phone and/or email address at: <https://princerupert.connectrocket.com/>

What is the City doing to address past-noted issues related to turbidity?

Use of our secondary source at Shawatlan has had notable impact on colour and turbidity, and increases in associated chlorine residuals as a result of the need to increase chlorination since 2016. These issues have been closely monitored and would not necessitate a Boil Water Advisory or Notice.

Our primary focus now is on completing replacement of our dam to secure our primary water supply, and on obtaining funding to implement water treatment that will eliminate above noted quality and colour concerns. The feasibility study developed for water treatment specifically addresses these issues through a proposed design that includes multiple treatment barriers.



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Why were additional treatment barriers not implemented sooner?

The 1999 Auditor General's Report noted that Prince Rupert has one of the most desirable and safest watersheds in a review of several communities across British Columbia. City and Provincial staff both agree, and it is noted in the 1999 Report, that cryptosporidium and giardia are less of a risk in the City's primary water source due to the extremely steep slopes of the Woodworth watershed and lack of habitability for larger wildlife in the very remote area. In addition, it was noted that the lower pH of our water supply was an asset in making chlorination more effective.

Drinking water standards evolve over time, alongside scientific understanding of the impacts of the character of water. Water quality has only more recently come to the attention of the City and local health authorities, and since then, we have been working together on monitoring and, as funding has become available, an application for a grant to implement multiple barriers of treatment.

If our primary water source is known to be better, why was the decision made to switch to our secondary source?

Shawatlan Lake has been the City's emergency water supply for many years, and previously was used to provide up to 80% of the City's water. The use of our secondary source, was not considered a significant risk given our regions' relatively consistent climate. The precipitation levels and consistent flushing of our watershed meant that history informed our decision to switch to our secondary water source while we proceed with the phases of our water infrastructure replacement. The uncharacteristic low precipitation experienced in Summer and Fall of 2018 followed by a significant and prolonged weather event is believed to have contributed to the Boil Water Notice coming into effect.

What kind of improvements is the City pursuing for water treatment? And how will it be funded?

As noted previously, in August of 2018, the City applied for funding to implement a multiple-phased water treatment system and to replace the submarine line that carries our potable water beneath the harbour from Woodworth and Shawatlan lakes. The City intends to construct a new water treatment plant at its Montreal Circle reservoir that would first remove sediment, dissolved organic material, and suspended solids from the water through a dissolved-air flocculation and filtration stage. This will remove the significant amount of colour present in the City's water supply from dissolved organic material, and will reduce the concentration of disinfection by-products in the treated water. Following clarification of the water, a two-barrier system of UV light exposure and chlorine salt addition will ensure that all biological contaminants in the water are inactivated.

The implementation of multiple phased treatment is an approximately \$30 million project (which also includes replacing an existing submarine water line), so unfortunately that is a significant expense for a community our size to carry alone. These major infrastructure projects are usually only undertaken

with the aid of grant funds. As new sources of funding, like that announced in spring of 2018, become available, municipalities are more able to address these major infrastructure projects. Our understanding is a decision with respect to this funding should be issued within the first 6 months of 2019, and staff have been in contact with the associated Ministry to advance our application.



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We have been successful in achieving grants to complete the first two phases of our water replacement project, and are hoping to continue to build on that momentum and progress. If unsuccessful, we will immediately look to the next batch of available funding. To cover our \$7 million portion of the grant, the City has also been working hard to obtain new revenue streams and has put into place asset management funds to support future renewal.

Why are there rumours that the City knew sooner?

Issues completely unrelated to the appearance of cryptosporidium and giardia were noted locally in the spring and summer, which are the subject of continued joint-monitoring by Northern Health and the City. This is a fully separate issue, and not one that would trigger a Boil Water Notice.

In collaboration with Northern Health, in April of 2018, the City sent out postcards to local residences to notify them of the risk of home-sourced lead from older in-house plumbing fixtures, including the recommendation to run your water until it is cold every morning, implement filtration, and/or replace old plumbing fixtures.

The original notice can be found, here:

http://www.princerupert.ca/services/infrastructure/drinking_water/home_source_lead

Around the same time, testing was completed at the local hospital that noted the requirement to flush and monitor water quality, due to the age of their interior pipes, and this was reported on in the local newspaper. Although these issues are separate, they both relate to water quality, and seem to have been confused by some members of the public.

There has been discolouration, due to additional tannins as a result of pumping from a secondary source at Shawatlan lake. This, again, is not related to the Boil Water Notice, it's an aesthetic quality related to our secondary water source while we construct new water infrastructure. Our water is tested regularly, and if/when issues arise, a notice will be put into effect. The Boil Water Notice was issued as soon as possible following knowledge of elevated levels, as a precautionary measure to protect public health. City workers, and Northern Health staff are public servants who live with their friends and family in the community, and act in the public interest.

Why doesn't the City just truck in water from Port Edward?

The City of Prince Rupert would like to thank the community of Port Edward for their generous offer of a water truck for the remainder of the current Prince Rupert Boil Water Notice. Although trucking of water into our community from Port Edward's reservoir to set up a distribution centre was considered, it was determined by the City that this option presents additional health concerns with respect to the use of unsterilized containers. Northern Health notes that individuals retrieve water using personal containers from home at increased risk of bacteriological contamination, as there is no way to determine the sterility of containers provided. We are aware that some residents have elected to go to Port Edward to collect water, however those that do so are recommended by the Health Authority to ensure containers are sterilized.

In the instance of a water shortage, alternative water supplies would need to be considered. Rather, in this instance, the current Notice is with respect to compromization of the source, which can be rectified through boiling. As per Northern Health guidelines for the use of water during a Notice, the best advice remains to boil continuously for 1 minute to eliminate cryptosporidium and giardia.



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(Health-related Questions below provisioned directly by Northern Health)

How do I use water when a Boil Water Notice has been issued?

The water should NOT be used for drinking, making infant formula and juices, cooking, making ice, washing fruits, vegetables or brushing teeth. For these purposes, boiled or bottled water should be used. The water should be brought to a rapid rolling boil for one minute. If there are children in the home, place the pot on the back burner to avoid scalds. Boil only as much water in the pot as you can comfortably lift without spilling. Discard all ice made previously. Make ice using cooled water that was previously boiled.

What is the purpose of boiling or treating the water?

Boiling the water destroys all the disease-causing microorganisms (pathogens) and is considered potable after cooling.

Can I take a bath or shower?

Adults and teens may take baths or showers with untreated water. Older children could also be given a shower with a hand-held showerhead, avoiding the face. Due to the likelihood that young children will drink bath water, they should be given a sponge bath instead of bathing them in a tub.

Can I use the water for handwashing?

The water may be used for handwashing as long as proper handwashing technique is being applied. Use a hand sanitizer (60% ethyl alcohol) after washing hands.

During an outbreak: After handwashing, apply hand sanitizer. You can use alcohol-based hand disinfectants, containing more than 60% alcohol. There are other kinds of gels or solutions also available on the market that can effectively disinfect the hands. These products are widely used in health care settings after washing hands or in situations when water is not available. The wet wipes used for cleaning babies at diaper changes are not effective for disinfecting hands and should not be used for this purpose.

Can the dishwasher be used to clean and disinfect utensils?

The water may be used for regular dishwashing at home, unless otherwise directed. During an outbreak: Sanitize your dishware after washing. Set your dish machine to the "Sanitize" cycle, if applicable, to adequately sanitize your dishware. Alternatively, after dishwashing, soak your dishware for 2 minutes in a 100-200ppm chlorine solution. Make this solution by adding 1 tsp (5mL) of regular unscented household bleach to every 1 litre of water.

Should I change the way I'm doing laundry?

No. Continue doing laundry the way you usually do.



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Is the water safe to fill wading pools for children?

No. The water is not safe for use in wading pools. Water usually gets into the mouths of small children, providing a possibility of infection.

I have a water filtration device installed. Does this make the water safe for drinking or cooking?

No. Filtered water should also be brought to a rolling boil for one minute before drinking or using it for cooking. The units should be back-washed, disinfected, or replaced after the Boil Water Advisory has been rescinded. Contact your manufacturer or local Health Agency for more information.

How do I disinfect counter tops, chopping boards or utensils?

Counter tops, chopping boards or utensils should be washed with soap and sanitized with disinfected water. Mix 1 tsp (5mL) of bleach into 1 litre of water for this purpose. Do not reuse or store this solution. It must be made daily as the sanitizing solution loses its strength with time.

Can I brush my teeth with untreated water?

No. Untreated water may contain harmful microorganisms. Infection can occur even by swallowing only a small amount of water. Use cooled water that was previously boiled for brushing teeth. Approved bottled water is also acceptable.

Can I use bottled water or buy water from vending machines?

It would depend on when the water is bottled and how it is bottled. Local plants or vending machines that use the local water are acceptable only if the water undergoes acceptable further treatment to remove the contamination. Check with an Environmental Health Officer to determine if a certain brands of bottled water or vending machines are acceptable. Bottled water packaged or manufactured from out-of-town is acceptable.

Can I drink coffee from a coffee maker?

If tap water is heated in a machine to a temperature above 74°C for at least 15 seconds and the temperature is verified using a thermometer.



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QUICK REFERENCE GUIDE

Use tap water for:

- Laundry
- Showering
- Shaving
- Flushing toilets

Use boiled water for:

- Drinking
- Brushing Teeth
- Sponge bathing babies
- Making ice
- Washing fruits and vegetables
- Preparing food and baby formula
- Coffee making
- Pet water bowl

DO NOT USE:

- Any kind of household filter
- Ice makers, soda dispensers or any appliance with a line to the water supply