

Water System Startup Procedure for Registered Drinking Water Supplies

Ensure this procedure is done in consultation with the property owner.

1. Inspect and start power to the water system

- Inspect all parts of your water system including the well, intake, treatment, storage and plumbing system to ensure the system is in good repair and free from potential sources of contamination.
- Any repairs made to your well must be completed by a person certified under the Well Construction Regulations, such as a well driller or digger.
- If your water system has treatment, ensure it is functioning and treatment chemicals have been replenished. Some treatment methods, such as water softeners and filters with resin beds may require regeneration. Refer to your manufacturer's operation and maintenance manual for specific requirements. If you have a UV system, ensure the bulb is clean and does not need to be replaced.

2. Ensure the temperature of your building's water heating system is properly set

- Make sure the water temperature in the heater and storage tanks is maintained above 60°C and water in any recirculation/return lines is maintained above 55°C for at least 24 hours prior to flushing the system.
- To prevent scalding, a mixing valve can be installed at or near the faucet.

3. Flush the water system

This will remove stagnant water from the cold and hot water systems, replenishing it with fresh treated water from the well or surface water source. Flushing times will depend on the length and diameter of piping, flushing rates and system storage capacity.

a) Before flushing

- Before flushing the water system, familiarize yourself with the building's plumbing system
- For facilities with complex heating and cooling systems including cooling towers, evaporative condensers, etc. consult with your facility engineer or certified plumber before flushing.
- If your building has an on-site septic system, be careful when draining water systems. Overloading a septic system with water can cause a failure and result in expensive repairs. If it can be done safely, consider directing potable water system drainage away from the on-site septic system. If the water is chlorinated, do not discharge to a natural water body (such as streams or lakes, etc.) or to areas where it can harm vegetation. Large buildings may choose to flush one floor or pressure zone per day.
- If you are draining water tanks to an on-site septic system, do it gradually, over multiple days. Other heavy water use, such as flushing washing machines and dishwashers should occur on a separate day. Ensure appliances are flushed according to manufacturer's instructions.
- Flushing can generate aerosols that may contain *Legionella* bacteria. Limit exposure to aerosols as much as possible by opening a window, flushing toilets with the lid down and wearing appropriate personal protective equipment (such as N95 mask or equivalent).

b) During flushing

- Hot water tanks can be drained directly. Refer to your manufacturer's manual regarding recommendations for draining following extended periods of no use.
- If possible, remove all aerators, shower heads, etc. and deactivate electronic faucets.

- Open a cold-water faucet located nearest to where water enters the building and allow water to flow until water maintains a constant cold temperature or you can detect a chlorine residual (if applicable).
- From the same faucet, flush the hot water line until it runs hot.
- Move from the closest zone to where water enters the building, to the furthest zone. Flush each fixture until the water maintains a constant cold temperature. Repeat by flushing the hot water lines in each fixture until the water maintains a constant hot temperature. Continue this process until all potable water lines and any equipment tied directly into the potable water system such as taps, showers, coffee machines, water coolers, refrigerators, ice machines, emergency eyewash stations, or showers etc., have been flushed. Flush all toilets and urinals at least once, placing lid down where possible.
- Drain cisterns of stagnant water. Once drained, the cistern should be cleaned and disinfected prior to refilling with potable water. Rainwater cisterns require filtration and disinfection. Additional information on cisterns is available at https://www.novascotia.ca/nse/Water/docs/Drop_on_Water_English.pdf
- For systems that chlorinate, flushing must continue until a minimum free chlorine residual of 0.2mg/L is achieved at the faucet furthest from where water enters the building.

c) After flushing

- If filters are present, consider replacing them after flushing following manufacturer's recommendations.
- Faucet aerators can trap debris that may contain lead and other metals harmful to your health. Clean and disinfect faucet aerators, shower heads and reactivate electronic faucets.

4. Floor drains

- Floor drains contain a trap that use water to prevent sewer gases from entering your building through the drain. With infrequent use, this water can evaporate, and the trap needs to be filled. One gallon of water is enough to reset a trap.
- Some larger facilities may have a trap primer, which automatically discharges a small squirt of water into the trap to maintain the trap. If the trap was turned off or deenergized during building shutdown, ensure the trap primer is turned on and functional.

5. Precautions for appliances connected to water systems, water features and complex water heating/cooling systems

- All appliances connected to the water system such as ice machines, soft drink and slushie machines, refrigerators with water dispensers or ice makers and produce misters must be cleaned and disinfected following the manufacturer's recommendations. Before you clean, all product in the machine must be thrown out.
- Clean and disinfect decorative fountains following manufacturer's recommendations. Ensure fountains are free of visible biofilm and the disinfectant residual is restored prior to returning fountains to service.
- For aquatic facilities, ensure pools, hot tubs, spas, shower heads and other water features are free of visible biofilm before refilling with water. Disinfect the unit following guidance from the Model Aquatic Health Code at <https://cmahc.org/COVID-19-resources.php>. Testing for *Legionella* is not required.
- For facilities with cooling towers, ensure the unit is maintained according to the manufacturer guidance and industry best practice. Ensure the unit is free of visible biofilm. Disinfect the unit following manufacturer's recommendations. Guidance on disinfection is available from the Cooling Tower Institute at <http://www.cti.org/downloads/WTP-148.pdf>.

6. Sample collection and returning to normal operation

Once flushing is complete, test the water supply to ensure it's safe to drink.

Do not drink the water until testing confirms the water meets the Guidelines for Canadian Drinking Water Quality.

- Collect a bacteria sample for total coliform and *E. coli* from your routine sample location using the cold-water faucet.
- Registered supplies are required to collect samples for chemical parameters outlined in the Guidelines for Monitoring Public Drinking Water Supplies every year if they rely on surface water, and every two years if they rely on groundwater. If your routine chemistry sample is due, you must collect it before re-opening.
- Samples must be analyzed at an accredited lab. A list of labs is available at www.novascotia.ca/nse/water/waterlabs.asp. Bacteria samples must be delivered to the lab within 24 hours of collection.
- If the sample shows the presence of total coliform bacteria, **immediately** notify your local Nova Scotia Environment office at 1-877-936-8476 and issue a boil water advisory. If there are no obvious signs of well construction issues, disinfect your well. For instructions on how to do that, visit <https://novascotia.ca/nse/water/docs/DisinfectWaterWell.pdf>
- If you collected a chemistry sample and it shows the exceedance of a health-related chemical parameter known as a maximum acceptable concentration (MAC) **immediately contact** your local Nova Scotia Environment office at 1-877-936-8476. They will advise you whether it's necessary to issue a water advisory.
- Once testing confirms your water quality meets the Guidelines for Canadian Drinking Water Quality, and any advisories issued have been removed by the department, you can return to normal operation. You will still have to continue follow the Water and Wastewater Facilities and Public Drinking Water Supplies Regulations and the Guidelines for Monitoring Public Drinking Water Supplies.