NOVA SCOTIA

Using Well Water after a Wildfire

YOUR SAFETY COMES FIRST

Do not enter areas that were heavily damaged or destroyed until local authorities say it is safe.

For information on safe re-entry, visit https://emergencyinfo.novascotia.ca/wildfire

You will find resources such as:

- *Returning Home After Wildfire Evacuation – No Evidence of Impacts*
- *Returning Home After Wildfire Evacuation – Impacted Properties*

After a wildfire, it is normal to have concerns about the safety of your home, property, and drinking water. Fire can affect drinking water because of smoke, soot, ash, heat, firefighting activity, and possible damage to buildings and pipes.

This guide will help you:

- Understand how a wildfire may affect your drinking water well
- Know what steps to take before using your well water
- Learn when water testing is recommended and what tests to ask for
- Find help and other resources

Every property and water supply is different and may not be affected by wildfire, but it is important to take simple safety steps before using your water again.

Understanding Your Water Source and Possible Impacts

Wildfires can affect the quality and safety of your well water, even if your water looks, smells, and tastes normal. Heat, smoke, ash, and any damage to your water system, including treatment equipment, can let harmful substances such as bacteria, metals, fuels, and other chemicals get into the water.

After a wildfire, your water quality may be impacted by:

- **Loss of water pressure or damage to any part of your water supply system**. Damage to the well cap, casing, pump, storage tanks, pipes, electrical parts, or treatment systems can let bacteria or chemicals enter the water. This can include volatile organic compounds (VOCs), which are chemicals released when plastics or building materials burn or when fuel storage tanks leak.
- **Ash from the fire**. Ash can carry heavy metals, organic compounds such as polycyclic aromatic hydrocarbons (PAHs), and sediment into the water. PAHs are chemicals formed when wood, plants and other materials burn.
- **Burned buildings, materials, or fuel oil tanks**. When structures, materials or fuel tanks burn, they can release petroleum hydrocarbons, VOCs, and PAHs, and other harmful chemicals.
- **Firefighting chemicals**. Foams and other products used to fight the fire can add chemicals and nutrients like nitrogen, phosphorus, and ammonia.

Water treatment systems may not work properly if they have been exposed to heat, ash, sediment, or contaminated water. For this reason, it is important to inspect your system, make any needed repairs, and test your water before using it again to protect your health.

Before You Use Your Well Water

Follow the steps in this guide before you use your water. Until these steps are completed, use **bottled water** or **water from another safe source** for:

- Drinking
- Preparing food and baby formula
- Washing fruits and vegetables
- Making juice and ice cubes
- Brushing teeth
- Giving water to pets
- Bathing

Step 1- Inspect Your Property and Water Supply System

Use the Checklist in Figure 1 to look for visible signs of damage to your property and water system. This will help you understand your level of risk and what steps you may need to take to restore your water system and safely use it again.

If your power went out, check whether your water system lost pressure. Turn on a faucet – if the water spurts out or you hear air coming out, your system likely lost pressure. This can allow contaminants to enter your water system, even if your well itself looks undamaged.

Figure 1: Property and Well Water System Inspection Checklist

Description	Check box if present	Risk Level
Observed fire damage to site buildings or property		
No visible signs of fire damage or impacts	☐	Low
Ash, soot or burned areas within 30 metres of the well (including nearby properties)	☐	Medium
Major fire damage to any building or structure (burned, charred, melted, or not working due to heat, including fuel oil tanks, the well, or the septic system)	☐	High
Observed fire damage to well water equipment		
Damage to structures that cover or protect the well	☐	High
Damage to water storage tanks (cisterns)	☐	High
Damage to exterior well casing, well cap, inner well liners or plastic water pipes	☐	High
Missing or damaged well cap	☐	High
Cracks, melted parts, or openings that could let in surface water, ash, or other contaminants into the water system	☐	High
Damage to electrical wires, connectors, or conduits that supply power to the well	☐	High
Damage to seals or gaskets inside the well	☐	High
Damage to plumbing between the well and the building	☐	High
Water System Pressure Loss		
Signs the water system lost pressure (such as sputtering faucets or air escaping from fixtures)	☐	Low

Step 2 -Determine Your Risk Category

After you finish inspecting your property and water system, use the checklist results to find your risk level. Your risk level is the highest level of risk you checked on the list. For example, if you check any box marked High, your overall risk level is High, even if other items were Low or Medium.

Step 3 – Take Action to Restore Your Water System and Collect Samples

Once you know your risk category, follow the steps in Table 1 to restore your water system and collect water samples.

If you have insurance: Before starting any repairs or sampling, contact your insurance provider to see if these costs are covered.

If you are not insured: Check with local officials or community organizations to find out what support may be available.

Table 1: Recommended Actions Based on Your Risk Level

Risk Level	What You Should Do
HIGH	1. **Clean up any fire-related damage on your property that could affect your water system.** You may choose to hire a qualified professional. This includes damage to your septic system and any chemical or fuel storage tanks. Any chemical spills (such as hydrocarbons) must be cleaned up following the Nova Scotia Contaminated Sites Regulations: https://novascotia.ca/nse/contaminatedsites/. 2. **If you see visible damage to your well water system**, repairs are required. Hire a certified well contractor to check your well. You can find a list of well drillers, diggers and pump installers at: https://novascotia.ca/nse/water/wellcontractors.asp. **If there is no visible damage to your well water system**, go to step 4. 3. **If you had repairs made to your well**, you should disinfect it. Bypass any water treatment devices first. Then: a) Let a cold-water faucet run for at least 5 minutes or until the water runs noticeably colder. b) Disinfect your well following these instructions: https://novascotia.ca/nse/water/docs/DisinfectWaterWell.pdf. c) After disinfection and flushing to remove the disinfectant from your well, go to step 5. 4. **If no repairs to your well were needed**, bypass any water treatment devices. Let a cold-water faucet run for at least 5 minutes or until the water runs noticeably colder. 5. **Service any water treatment devices before using them**, following the manufacturer's instructions. 6. **Find a water testing lab in your area**: https://novascotia.ca/nse/water/waterlabs.asp or www.nshealth.ca/laboratory-services/water-testing 7. **Test your water for bacteria** (presence/absence of total coliform and *E.coli*) using the instructions provided by the lab or on our website at https://novascotia.ca/nse/water/sample_micro.asp. 8. **Test your water for the following chemicals using the instructions provided by the lab.** • General chemistry • Metals • Volatile organic compounds (VOC) • Polycyclic aromatic hydrocarbons (PAHs) • Petroleum hydrocarbons

Risk Level	What To Do
MEDIUM	1. **Clean up any fire-related damage on your property that could affect your water system.** You may choose to hire a qualified professional. 2. **Let a cold-water faucet run for at least 5 minutes** or until the water runs noticeably colder. 3. **Find a water testing lab in your area:** https://novascotia.ca/nse/water/waterlabs.asp or www.nshealth.ca/laboratory-services/water-testing 4. **Test your water for bacteria** (presence/absence of total coliform and *E. coli*) using the instructions provided by the lab or on our website at https://novascotia.ca/nse/water/sample_micro.asp. 5. **Test your water for the following chemicals using the instructions provided by the lab**: • General chemistry • Metals • Polycyclic aromatic hydrocarbons (PAHs)
LOW	**If there is evidence that your water system lost pressure (such as sputtering faucets or air escaping from fixtures):** 1. **Once pressure is restored**, let a cold-water faucet run for at least 5 minutes or until the water runs noticeably colder. 2. **Find a water testing lab in your area**: https://novascotia.ca/nse/water/waterlabs.asp or https://www.nshealth.ca/laboratory-services/water-testing 3. **Test your water for bacteria** (presence/absence of total coliform and *E.coli*) using the instructions provided by the lab or on our website at https://novascotia.ca/nse/water/sample_micro.asp. *While you wait for your bacteria test results, your water is safe to use for bathing and cleaning. For drinking, preparing infant formula, juices, and ice cubes, washing fruits and vegetables, cooking, and brushing your teeth, bring your water to a rolling boil for at least one 1 minute to make it safe. A rolling boil means the water continues to bubble actively, even when stirred.* **If there is no evidence that your well water system lost pressure:** 1. You can use your water as you normally would. Continue to follow routine testing recommendations for private well owners. **Routine Well Water Testing:** a) Testing your water for bacteria (presence/absence of total coliform and *E.coli*) if you have not tested within the last year. b) Test your water for general chemistry and metals if you have not tested within the last five years, if the water looks, smells, or tastes different, or if you want to confirm that any water treatment system is working. c) See ECC's routine private well sampling recommendations for more information: https://novascotia.ca/well-water-testing/. *You can use your water as you normally would. However, if it has been a year or longer since your last bacteria test, or more than five years since your last chemistry test, it is recommended that you test your water to make sure it is still safe.*

When to Sample

The timing of sampling is important. After a wildfire, changes in water quality can happen at different times depending on factors such as:

- The type of well (dug or drilled)
- Soil conditions and how deep the water table is
- How deep the well is
- The type of rock and soil around the well (surface and bedrock geology)
- How much rain falls after the fire
- The condition and length of the well casing and grout seals around it

For bacteria

- Once repairs to your water system and cleanup on your property are complete, collect bacteria samples following lab instructions or: https://novascotia.ca/nse/water/sample_micro.asp.
- If you disinfected your well, wait about five days after the disinfection before collecting bacteria samples.

For chemical parameters (general chemistry, metals, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and petroleum hydrocarbons)

- Once repairs to your water system and cleanup on your property are complete, collect chemical sample following lab instructions.
- Because chemical levels can change over time, you are encouraged to take another chemical sample 1 to 12 months after the first one.
- You should also sample your water if you notice any changes in how it looks, smells, or tastes.

Understanding Your Test Results

When you receive your test results from the lab, use our Drinking Water Interpretation Tool to help understand them: https://novascotia.ca/nse/dwit/.

Note: Health Canada does not have drinking water guidelines for many PAHs, VOCs, and petroleum hydrocarbons because these contaminants are not usually found in drinking water.

Your water is considered safe if the test results are **below the maximum acceptable concentrations (MAC)** in Health Canada's *Guidelines for Canadian Drinking Water Quality*: Health Canada's health-related guidelines. After wildfire-related testing is done, ECC recommends:

- Testing for bacteria (presence/absence for total coliforms and *E. coli*) every year
- Testing for general chemistry and metals every five years

If your test results are above guidelines for bacteria, general chemistry, or metals, you can find more information in our Drop on Water factsheets: https://novascotia.ca/nse/water/docs/Drop_on_Water_English.pdf.

If your sample results show PAHs, VOCs, and petroleum hydrocarbons above the lab's detection limits, or if you need help interpreting the results, contact your local Environment office: 1-877-9ENVIRO (1-877-936-8476).