

## Wildfire: Its effects on drinking water quality

Wildfires can impact water sources used for our drinking water. For example: nearby streams, rivers and lakes. When wildfire affects the surrounding trees, soil and vegetation, water quality may decline.

During a wildfire, it's important that you have access to enough reliable and safe drinking water. Wildfire smoke can have a harmful effect on your body. Drinking lots of water helps reduce inflammation and protects you from the effects of wildfire smoke. For more information on wildfire and your health, read [HealthLinkBC: Wildfires and your health](#).

### How can wildfires affect drinking water quality?

Possible effects of wildfires on drinking water include:

- Changes in the amount and timing of snowmelt and runoff from storms
- Changes in water quality (e.g. nitrate, ammonia, phosphate, total suspended solids, turbidity, temperature) from build-up of ash, soil erosion and fire debris
- Algal blooms in water sources. For more information on cyanobacteria blooms (blue-green algae), read [HealthLinkBC File #47 Cyanobacteria blooms \(blue-green algae\)](#)
- Changes in taste, colour and smell of drinking water
- If fire retardant is present, there may be a possible rise in soil and water chemical levels, such as: ammonium, phosphate, nitrate, and nitrite. Read [HealthLinkBC File #05a Nitrate in well water](#) and [Ministry of Environment and Climate Change Strategy: Water quality: Fire retardants used to fight wildfires](#).
- Chemical contamination of drinking water if pipes, meters, and wellheads are burned or exposed to heat. If pipes are damaged and leak,

there is also potential for bacterial contamination.

These impacts can make it harder for the local water treatment system to work. They can also cause contamination of water after it's treated.

### How do I know if my water quality has been affected?

If you are on a community water system, your water supplier should check your water system and the quality of your drinking water. If there are concerns, they should speak to you.

If your drinking water comes from your own private well or surface water source (e.g. lake), you should check to make sure your system still works properly. A wildfire could cause it to lose power, pressure or integrity. Any of these issues could contaminate the system or lead to stagnant water.

Some signs your water supply may have been impacted by wildfires include:

- Fires at, or upstream, of your water intake
- Changes in water appearance, clarity, colour, smell and/or taste
- Electricity/power outages or fire damage to structures (e.g. building, water intake valve, water well head, treatment system, piping, etc.)
- Burning at or close to your well or piping

Water lines may need to be flushed and water supplies may need to be tested for bacteria and chemicals before being used. In some cases, repairs or replacement of damaged pieces may be required.

### Can fire retardant or foams affect my drinking water?

The use of fire retardants and foams to fight wildfires is common in B.C. When good practices

are followed, there is little risk to human health and the environment.

Most fire retardants and foams used in B.C. are made of at least 90 percent water and do not contain any PFAS chemicals. Foams are golden-brown and have an orange blossom scent. They may appear liquid. Fire retardants are nitrogen-based and contain small amounts of additives that help suppress fires. If you see a plane dropping fire retardant on a fire, you may notice it is red coloured. This is because dyes are added to the retardant, which helps firefighters see where it lands.

The amount of fire retardant or foams that get into drinking water sources is very small, and levels drop quickly over time. Foams typically get burned-off when used on open flames, making it unlikely that they will enter a drinking water source. Neither of these are human health concerns.

To make sure water is safe, drinking water from sources where fire retardant chemicals were used should be checked to ensure that it meets the Guidelines for Canadian Drinking Water Quality.

People and pets should avoid direct contact with fire retardants and foams. If inhaled or ingested, immediate first aid is likely not required. But, you should contact a physician or B.C. Drug and Poison Control Center for advice at [www.dpic.org/](http://www.dpic.org/) or call 1-800-567-8911.

If you get fire retardants or foams on your skin or clothing, wash the area with soap and water, and launder any clothing before wearing it. For more information about health and safety around fire retardants, see [BC Centre for Disease Control Wildfires notes: Fire retardants/suppressants](#).

### **What are the long-term impacts to my water quality?**

It is hard to predict the long-term impacts of wildfires on drinking water quality. For some communities, problems may appear long after the wildfire is over (i.e. during intense rainfall events in the fall/winter months). Burned land and

forests near water can cause large amounts of hanging or dissolved material (e.g. ash) to wash into downstream drinking water supplies. The following problems may impact a drinking water system long after the wildfire is over:

- More debris in water reservoirs, causing damage and higher maintenance costs
- More algal blooms in reservoirs, causing health effects, taste and odor
- Increased turbidity (water cloudiness). This may lead to larger amounts of sludge stuck in water filters or more chemicals needed for water treatment, all of which would raise operating costs
- Changes in water chemistry, or increased amounts of iron and manganese. These may lead to the need for further treatment
- Damage to water infrastructure like pipes, meters, or wellheads, which need to be repaired or replaced

### **What can I do if my drinking water has been affected by a wildfire?**

- Do not drink, prepare food, or wash with tap water until officials say the water source is safe
- If you are on a well or cistern that has been damaged, assume the water is not safe to drink
- Do your best to conserve water as the water supply may be limited due to power outages or other impacts for an unknown amount of time
- If you have questions about the quality of your drinking water, ask your local water supplier (e.g. municipality, utility provider, well owner, etc.).
- If your water is not safe to drink, you may need to use a different source of drinking water or disinfect tap water. Boil or use disinfection tablets until the water source can be assessed and health officials have assured you that it's safe for drinking. For more information, see [HealthLinkBC File #49b Disinfecting drinking water](#)

- Water lines may need repairing and flushing to remove contaminated water
- Test affected wells or surface water (e.g. lakes, rivers, streams, etc.) to ensure it meets the water quality standards in Guidelines for Canadian Drinking Water Quality. For more information, see [www.canada.ca/en/health-canada/services/environmental-workplace-health/water-quality/drinking-water/canadian-drinking-water-guidelines.html](http://www.canada.ca/en/health-canada/services/environmental-workplace-health/water-quality/drinking-water/canadian-drinking-water-guidelines.html)
- For information on testing your private water source, refer to the list of Provincial Health Officer Approved Drinking Water Testing Laboratories at <http://lmlabs.phsa.ca/Documents/8%203%201%20PHO%20Approved%20Laboratory%20List%2020231231.pdf>. For more information, read [HealthLinkBC File #05b Well water testing](#).

### For more information

To report a wildfire or for the latest information on the current wildfire situation in B.C., see Public Safety & Emergency Services – Wildfire service at [www2.gov.bc.ca/gov/content/safety/wildfire-status](http://www2.gov.bc.ca/gov/content/safety/wildfire-status).

For information about protecting your community from wildfire, read FireSmart's manual at <https://firesmartbc.ca/resource-types/guides-manuals/>.

For information about how to prepare in advance for a potential evacuation alert or order, read PreparedBC - Get prepared for a wildfire [www2.gov.bc.ca/gov/content/safety/emergency-management/preparedbc/know-your-hazards/wildfires](http://www2.gov.bc.ca/gov/content/safety/emergency-management/preparedbc/know-your-hazards/wildfires).

For water and food safety information when you return home after a wildfire, read Recover after a wildfire [www2.gov.bc.ca/gov/content/safety/emergency-management/preparedbc/know-your-hazards/wildfires/after-wildfire](http://www2.gov.bc.ca/gov/content/safety/emergency-management/preparedbc/know-your-hazards/wildfires/after-wildfire).