

BC Guidance for Owners of Property Impacted by Wildfire Contaminants



Ministry of
Environment and
Climate Change Strategy



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BC Guidance for Owners of Property Impacted by Wildfire Contaminants

This document provides guidance on potential risks to human health and management of contamination issues at a property impacted by wildfire. It is important to know the hazards that may be present to ensure you remain safe and your health is protected while on the impacted property.

It is the responsibility of the property owner or operator to ensure that contaminated material is properly characterized and remediated. When dealing with contamination at a property impacted by wildfire, it is recommended that you hire and/or seek professional advice from a [Qualified Professional \(QP\)](#) or [Approved Professional \(AP\)](#) who has experience with contaminated sites in British Columbia (BC).

Safety First

- Follow local authority instructions on when it is safe to return to your property.
- Your personal safety is important, prevent or limit exposure while investigating your property by using personal protective equipment (e.g., gloves, safety glasses, respiratory protection, protective outer clothing, steel-toed boots, hard hat) and have a first aid kit available.
- Keep children and pets away from potential contaminants and ensure play areas are hazard free.
- If a smoke or air quality advisory is not in place for your area, open windows and turn on fans, as there may be toxic air contaminants present. If you notice suspicious odours, leave the area and contact your [regional health authority](#) as odours may indicate the presence of toxic substances.
- Be aware of:
 - o physical hazards, such as sharp edges and unstable materials;
 - o electrical hazards, such as compromised electrical distribution systems, which may release toxic substances;
 - o combustible hazards, such as damaged gas lines or fuel storage tanks (above and below ground);
 - o chemical hazards, such as toxic substances released from burning materials or from compromised containment (e.g., battery acid, cleaning products);
 - o carbon monoxide poisoning if gas/diesel powered equipment is used (e.g., generator, power washer), ensure there is enough air flow; and
 - o contaminated food and drinking water, use bottled water until it is confirmed the water supply is safe.
- Check oil, heating oil or gasoline, tanks, etc. for damage and spills. Report any spills that may have occurred on the property: [Report a spill - Province of British Columbia \(gov.bc.ca\)](#)
- Do not use bleach in areas affected by fire retardants as it can produce harmful and explosive gasses. Clean with soap and water.
- Assess the property for water damage from firefighting, which can result in mould growth that can be harmful to human health:
 - o [Indoor Air Quality: Mould and Other Biological Contaminants | HealthLink BC](#)
 - o [Controlling Indoor Mould | HealthLink BC](#)
 - o [Environmental Illness | HealthLink BC](#)
- Pay attention to your health and seek medical attention if you experience any symptoms related to exposure to contaminants, such as dizziness, headaches, respiratory issues, or skin or eye irritation.





Wildfire Contaminants

After a wildfire on or near your property, there are some important things to consider once it is deemed safe to return; use caution and be aware that potential hazards may still exist. Harmful contaminants may be present on your property from burned forest materials, household items, building materials, infrastructure such as PVC pipes, vehicles and equipment, and fire retardant and suppressant chemicals.

The resulting smoke, soot, char, and ash may contain a variety of contaminants: volatile organic compounds (VOCs), polycyclic aromatic compounds (PAHs), metals, firefighting substances, asbestos, and polychlorinated biphenyls (PCBs). These contaminants may be formed when specific materials are burned (e.g., formation of VOCs from burned vinyl siding), or produced during incomplete burning of organic material such as wood patios (e.g., PAHs), or released from soil due to the high temperatures from the fire (e.g., metals such as mercury). During and after a wildfire, contaminants can be emitted into the atmosphere where they may form small particles, and later deposit on land and water.

How to Protect Yourself from Possible Exposure to Contaminants?

Exposure to contaminants after a wildfire on your property can occur via:

- breathing in particulates, gases, and vapours;
- eating or drinking contaminated water, food, and soil; and
- skin contact with contaminated materials like ash, soot, water, and soil.

Breathing in contaminants like particulate matter, PAHs, and VOCs can be more toxic for children, pregnant women, and people with underlying respiratory or cardiovascular health conditions, so extra caution should be taken (refer to the Safety First section above and [Wildfires and Your Health | HealthLink BC](#)). Vulnerability to contaminant exposure is due to a person's biological factors (e.g., age, sex, gender, overall health), behavioural factors (e.g., higher rates of eating or drinking contaminated food or water), lifestyle (e.g., smoking), or other factors (e.g., socio-economic). Be aware of your vulnerabilities (e.g., asthma) and of others when at your wildfire impacted property. Limit the time spent on site and use personal protective equipment.

Eating or drinking contaminated water, food, and soil can produce a variety of health effects depending on the specific contaminants present, the concentration(s), and frequency and duration of exposure. To avoid potential health effects, it is important to limit exposure by not eating or drinking food or water from the impacted property until it is determined that it is safe to do so.

Direct skin contact with particulate matter, ash, soot, and fire retardants/suppressants can irritate your eyes, nose, and skin, and should be washed off as soon as possible. Additionally, any clothing soiled with these materials should be laundered prior to wearing.

Considerations around where contamination may be present on your property and links to available resources are outlined below.

Potable Water

Potable water quality and quantity can be affected by wildfire, and water treatment can be impaired by increased turbidity (excess sediment, debris, water cloudiness) and contaminant loading. Wildfires may cause interruptions in water treatment due to power loss, damage to infrastructure, or the evacuation of workers operating the system. Look for changes in colour and odour to assist with determining if water is safe to use for drinking, cooking, or bathing. Boiling water may not remove all contaminants and an alternate supply may be needed until water is proven safe – seek advice from your health authority or water supplier, or test your water if you own a well. Information on wildfire effects on drinking water quality are available here:

- [Wildfire: Its Effects on Drinking Water Quality | HealthLink BC](#)
- [Fire retardants and water quality brochure.pdf \(gov.bc.ca\)](#)
- [Drinking Water Quality - Province of British Columbia \(gov.bc.ca\)](#)

Municipal Water Systems

While the risk is low, municipal drinking water treatment systems and sources (e.g., reservoirs) can become contaminated from wildfires. If you are on a municipal water system, check for drinking water advisories with your water supplier or [regional health authority](#):

- [Drinking water - Fraser Health Authority](#)
- [Drinking Water | Environmental & Seasonal Health | IH \(interiorhealth.ca\)](#)
- [Drinking water | Vancouver Coastal Health \(vch.ca\)](#)
- [Drinking Water | Island Health](#)
- [Drinking water | Northern Health](#)
- [Drinking Water Safety Program \(fnha.ca\)](#)

Private Wells and Small Surface Water Systems

Groundwater wells and small surface water systems, those that supply up to 500 people in a 24-hour period, can be impacted by contaminants from wildfires. Private surface and ground water sources can be tested to ensure the water is safe to drink according to the [Guidelines for Canadian Drinking Water Quality](#) and the [BC Source Drinking Water Quality Guidelines](#). Consult with your regional health authority, QP, or AP for further advice, if needed. Additional resources may be found at:

- [Community Watersheds - Province of British Columbia \(gov.bc.ca\)](#)
- [Minimum Treatment Requirements | BC Small Water Systems Online Help Center \(smallwatersystemsbc.ca\)](#)

Wells should be flushed, disinfected, and inspected before testing the water quality. Information on this is available at the following links:

- [BC gov 5402 water well disinfection webbrochure.pdf](#)
- [Care for and Maintain Your Water Supply Well - Province of British Columbia \(gov.bc.ca\)](#)
- [Well Water Testing | HealthLink BC](#)

On-Site Sewage Systems

During a wildfire, on-site sewage system pipes and pumps can be destroyed, and water can be contaminated. Failed systems may cause backup of sewage in homes or sewage leaking at the ground surface. Check your system for damage and contact a sewage system professional if issues are found: [Authorized Persons under the Sewerage System Regulation \(gov.bc.ca\)](http://gov.bc.ca).

Regional health authorities are responsible for investigating sewage system failures and health hazards. More information is available here: [Onsite Sewage System Management - Province of British Columbia \(gov.bc.ca\)](http://gov.bc.ca).



Food

Food in the home as well as gardens, crops, and harvested foods (e.g., berries and fish) may be spoiled or contaminated with fire retardants and other contaminants – consider the following:

- Throw out food in fridges and freezers that have been without power and the temperature has been above 4°C for longer than 4 hours or have been exposed to heat and smoke. Waste food can be placed into compost piles or green waste collection bins, if available.
- Visually inspect crops and garden produce and discard any that have deteriorated or smell of smoke or have fire retardant/suppressant residues.
- Clean and rinse harvested plants, fruits, and vegetables with drinking water.
- Consider adding clean soil to gardens and crops. In the long-term fire retardants/suppressants degrade and are considered safe, see: [Fact sheet BCCDC](#).
- Contact the Ministry of Agriculture and Food to obtain information and recommendations if fire retardant has been applied to animal fodder (e.g., hay, alfalfa, corn).



Soil

Contaminants can be present in soil after a fire, even after large debris has been removed. Ensure children and pets avoid playing in affected areas until cleanup and testing has taken place, to prevent exposure to potential contamination. Soil remediation removes contaminants from the ground and restores the landscape into a safe site for rebuilding. For information on soil testing and site remediation, see the Site Remediation section below.



Indoor Air

Heating, ventilation, and air conditioning systems in homes and buildings may be damaged from wildfire and may require professional cleaning and restoration. VOCs can contaminate the air and adsorb onto materials, leaving a smoke odour. It is recommended that air filters are changed, and portable particulate air cleaners are used after wildfire to remove particulates and odours. Atmospheric testing is recommended for all buildings affected by fire where hazardous gas vapours and particulates may be present.



What Should you do About Contamination?

The information and resources provided in this guidance document¹ are not an exhaustive list of the legal requirements and responsibilities for a property owner impacted by a wildfire.

Rather, this information is to assist you when considering the health and environmental risks associated with potential contamination on your property after a wildfire, and the actions to take.

Site Remediation

Remediation is the removal or reduction of contamination at an impacted property and should be done in compliance with applicable laws and regulations.

For information on managing waste and potentially hazardous waste on your property after a wildfire, refer to the document [Post-Wildfire Hazardous Materials Guidance for Local Authorities and First Nations](#) and factsheet [Dealing with Hazardous Waste After a Wildfire](#), as the Hazardous Waste Regulation may apply.

To assist your clean up and remediation efforts, it is recommended that you seek professional advice from a QP or AP with contaminated site experience. It is crucial to ensure proper handling of contaminated materials and hazardous waste. QPs have knowledge and expertise in applicable legislation and can help you navigate legal requirements and provide specific guidance on the unique circumstances of your property and the remediation process, if needed.

A QP is required to complete investigative work, such as soil sampling/testing, before a remediation plan can be created, implemented, and completed. If your QP investigation finds contamination on your property, independent remediation should be completed. Independent remediation is often undertaken by a property owner as part of due diligence to improve the health and safety of people and the environmental conditions on the property.

You can familiarize yourself with waste management standards and regulations governing renovations and remediation to ensure waste and contaminated materials are handled responsibly.

Applicable legislation includes:

- [Contaminated Sites Regulation \(CSR\)](#)
- [Emergency management legislation - Province of British Columbia](#) (gov.bc.ca)
- [Hazardous Waste Regulation](#)
- [Spill management regulations - Province of British Columbia](#) (gov.bc.ca)

Information for landowners and residents of specific property types is provided in the following sections.

¹ This Guidance is provided as a starting point, and does not limit, and should not be construed as limiting, a director's exercise of discretion under the Environmental Management Act (EMA) and Contaminated Sites Regulation (CSR).

Residential Properties

If you have a home with heating oil tank(s), propane, or natural gas, have a [licensed technician](#) check your tank, lines, and appliances for damage. If there is fuel on the ground, you may require the services of a QP for remediation and you may need to report a spill. If the tank was full before the fire and afterwards is empty, report the spill at [Report a spill - Province of British Columbia \(gov.bc.ca\)](#).

BC Hydro power pole-top step-down transformer and pad-mounted step-down transformers also pose a contamination risk as some are filled with liquid dielectrics which can be harmful to people and the environment. If you have one of these transformer types impacted by a wildfire on your property, contact [BC Hydro](#) for guidance.

Properties with CSR Schedule 2 Uses

If your property or site has had a [CSR Schedule 2 land use](#) (i.e., commercial and industrial land uses that may contaminate the soil, soil vapour, and/or groundwater), you will require the services of a QP or AP to help guide you through the contaminated sites process regarding notification, assessment, and remediation following a wildfire.

You may need to consider site-specific risks, such as:

- Is there potential for contamination to become airborne and be transported?
- Is storage of chemicals or other potential contaminants secure and away from vegetation, water bodies, or drainage systems?
- Are caps and liners intact?
- What types of materials burned on the site or on properties nearby?
- Potential impacts to site risk controls, such as water or soil vapour treatment, and what to do if risk controls are no longer operable or if electricity is interrupted.

If remediation following a wildfire is required at your property that has had CSR [Schedule 2 uses](#), a QP will need to submit:

1. [Notification of Independent Remediation](#) initiation within 3 days of the commencement of remediation activities;
2. Site Risk Classification Report; and
3. Notification of Independent Remediation Completion within 90 days after remediation completion.

A QP will navigate this process and prepare your applications and submissions. If contaminated soil is removed from a property with a CSR Schedule 2 use, it will either require an authorization to move the soil or will need to be disposed at a facility authorized under the *Environmental Management Act* (EMA).

Uncontaminated soil at the property (with concentrations below the soil standards set in the CSR) may need to be relocated with a notification. Find information on non-waste soil relocation from Schedule 2 Sites at: [Soil relocation - Province of British Columbia \(gov.bc.ca\)](#).

Additional approvals or permits, such as building or development permits to disturb soil and rebuild on your property may be required. Refer to your local municipality to determine what is needed; your municipal application will likely need to include a [site disclosure statement](#) listing all Schedule 2 activities that have occurred at your property. Contaminated sites identification process can be found here: [Identifying sites that may be contaminated - Province of British Columbia \(gov.bc.ca\)](#).

Agricultural Lands

If pesticide and herbicide storage areas on your property have burned in a wildfire, harmful contaminants could still be present. Consider testing standing water accessible to livestock, feed storage, and other animal consumables like hay or silage that may have been impacted by contaminants.

Additional information on emergency management for agricultural properties is available here:

- [Emergency management for agriculture - Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/land/land-use-planning/industry/agriculture/emergency-management)
- [Prepare agriculture operations for wildfire - Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/land/land-use-planning/industry/agriculture/prepare-agriculture-operations-wildfire)
- [Emergency Planning for Wildfires | AgSafe \(agsafebc.ca\)](https://www2.gov.bc.ca/gov/content/land/land-use-planning/industry/agriculture/emergency-planning-wildfires)
- [Pesticide fires - prevention, control, and cleanup - Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/land/land-use-planning/industry/agriculture/pesticide-fires)

First Nations Lands and Archaeological Sites

The information presented in the sections above will apply to residential and Schedule 2 properties on First Nations lands. There are additional considerations for these sites, and some resources are presented below.

The First Nations Health Authority (FNHA) provides resources for First Nations peoples when returning to their properties after a wildfire: <https://www.fnha.ca/Documents/FNHA-Returning-to-Your-Home-After-Wildfires.pdf>.

Indigenous Services Canada provides funding for preparedness, mitigation, response, and recovery through the Emergency Management Assistance Program. Indigenous Services Canada is working closely with the Province of BC, First Nations' Emergency Services Society of BC and the FNHA to ensure First Nations are fully supported to respond to emergency events and evacuations.

Wildfires can expose archaeological artifacts, as can subsequent erosion. It is important to follow proper procedures if artifacts are found, please see: [Archaeology in B.C. - Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/land/land-use-planning/industry/archaeology).

Contact:

Land Remediation

Email:
siteremediation@gov.bc.ca

Environmental Emergency Program

Report a Spill:
1-800-663-3456
Email:
SpillReports@gov.bc.ca