

Welcome Back

Evacuated Residents of the Upper Park Rill Creek Wildfire (K52813)

This re-entry kit contains important and useful information about returning home after the threat of a wildfire. Being well prepared and proceeding cautiously will help you stay healthy and avoid injury when you re-enter your home.

The Regional District of Okanagan-Similkameen (RDOS), appreciates your patience during this stressful time. Thank you for respecting all traffic control measures, including emergency and security personnel.

This re-entry kit includes some basic information on:

- Re-Entry checklist for your home and property
- Fortis Contact Information – Electricity and Gas Service
- Drinking Water Safety and Water Use
- Pets and Animal Assistance
- Food Safety
- Solid Waste Curbside Collection
- Roads and Storm Drainage
- Handouts and links for more information

The RDOS thanks you for following the direction given for the evacuation order and your patience getting back to your homes.

If you have questions regarding the evacuation or re-entry details, please contact the RDOS Emergency Operations Centre at [250-490-4225](tel:250-490-4225).

Mark Pendergraft

Mark Pendergraft
Chair, Regional District of Okanagan-Similkameen

Anticipate what the area will be like

It helps to think ahead about what the environment will look, feel, and smell like when you return. There may be delays in returning home if the area is unsafe. The community may have dramatically changed, including:

- Blackened and burnt trees, shrubs and landscapes
- Smell of smoke
- Areas covered in ash
- Familiar landmarks missing
- Spoiled food in fridges and freezers

When it is safe to re-enter your home and property, check that you have enough fuel, food and water in case of unforeseen damage or issues. Be prepared with a radio, flashlight and emergency supplies.

Re-Entry Checklist for your Home and Property:

- ✓ Walk carefully around the outside of the house. Carefully check for signs of damage or danger. Charred trees are unstable and may be a hazard.
- ✓ Look for loose power lines. Stay away from fallen or damaged electrical wires. If you have questions, no service or are experiencing fluctuations in electrical service quality, contact Fortis BC Electricity at [1-866-436-7847](tel:1-866-436-7847) (24 hours).
- ✓ If you smell natural gas as you enter your home, leave immediately and contact Fortis BC Gas Emergency line at [1-800-663-9911](tel:1-800-663-9911) (24 hours).
- ✓ Clean any ash off your belongings and furniture. Your regular cleaning regime should be adequate to bring your home back to normal.
- ✓ All perishables and spoiled food in your home should be disposed of. Thoroughly clean your refrigerator and freezer.
- ✓ Remember to bring food and supplies for your pets and animals.
- ✓ Take pictures of any damage for insurance claims. Contact your insurance provider as soon as possible to discuss claim options if you have any damage.
- ✓ Wash your hands if they come into contact with ash.
- ✓ Check fences for damage prior to allowing pets or livestock into secured areas.
- ✓ Do not access any burnt areas on Crown Lands for your safety.



Drinking Water Safety and Water Use



Water supply for the properties involved in the wildfire event have private groundwater wells, surface water intakes or are connected into a community water system. Water quality may be impacted from the activities of the firefighting efforts. *Information sheet included in this package.*

The Community water and sewer systems have been maintained through the wildfire event.

If you do not have community water and sewer services, check your water and septic system prior to use for any signs of damage.

If you are on a well or cistern, and it has been flooded from firefighting sprinklers or damaged by fire, assume that the water in your home is not safe to drink. You will probably need to disinfect the well or cistern, or have it repaired. Contact Interior Health Authority to receive information on how to test and clean your well or cistern.



Before using your water for consumption, flush the system to remove all stagnant water from your household water lines by running all cold and hot water taps for several minutes before using them.

Water restrictions for community water systems will be in place.

Check your hoses and irrigation system for signs of damage from fire or extreme heat prior to use.

Pools & Hot tubs

Home owners will be requested to not drain any pools into the sanitary sewer system or overload any area storm drainage. Note that water containing any type of disinfection – salt water or chlorine – cannot be drained into a creek.

Homeowners need to contact their water system prior to refilling pools as it may require scheduling to ensure the water system is able to handle the increased use.

Specific Information for:

Willowbrook Water System Residents:

The Willowbrook water system has been operating normally to assist with firefighting efforts in the area.

Watch for important information and/or updates on the water system from the RDOS after re-entry occurs.

For more information regarding the Willowbrook Water System please contact the RDOS Water Utility Administration at [250-490-4135](tel:250-490-4135).



STAGE 3 Water Restrictions are in effect.

A Stage 4 water restriction was initiated as residents were being evacuated from Willowbrook. Upon returning home, the Stage 4 restrictions are being reduced to a Stage 3 providing residents follow the Stage 3 restrictions.

The RDOS has observed significant impact on the infrastructure when residents are restricted to 1 or 2 days only for watering. In efforts to balance out this demand on the water infrastructure, residents may water outdoors as follows:

RESIDENTIAL OUTDOOR WATER USE
<ul style="list-style-type: none">• Manual Sprinklers are not permitted
<ul style="list-style-type: none">• Automatic Sprinklers are not permitted – please turn these off
<ul style="list-style-type: none">• Drip irrigation – permitted 2-3 days per week but reduced time by 50%
<ul style="list-style-type: none">• Hand held watering – permitted 2-3 days per week but reduced time by 50%
<ul style="list-style-type: none">• Lawn watering is not permitted
<ul style="list-style-type: none">• Outdoor cleaning with a hose can be performed for health and safety reasons only
AGRICULTURAL WATER USE – Reduce use by 50%
<ul style="list-style-type: none">• Manual sprinklers 2 days per week between either 6-10am or 6-10pm only
<ul style="list-style-type: none">• Automatic sprinklers on any day during hours of midnight to 6am only
<ul style="list-style-type: none">• Micro or drip irrigation on any day at any time

Be aware of and refer to water restriction information posted on signboards in your area. **Restrictions may change.**

Please Follow All Water Usage Restrictions

Pet and Animals

The Animal Lifeline Emergency Response Team (ALERT) is dedicated to animal welfare through the preparation for and the actual rescue and shelter of domestic animals and livestock in a disaster.

If you had pets or animals evacuated, contact ALERT to arrange for pick up: [250-809-7152](tel:250-809-7152)

For ranchers and farmers who had assistance from the Ministry of Agriculture on moving livestock, please contact the RDOS EOC at [250-490-4225](tel:250-490-4225) with any questions and to arrange details for re-entry.

Checklist for Damage Assessment for Agricultural Operations

Once the evacuation order has been lifted and if damage is observed on the agriculture operation, consider these steps to limit further damage.

- Check livestock that sheltered-in-place at the earliest possible opportunity, and provide for their needs with water, feed, and safety.
- Inspect the agriculture operation for hazards and damage. Take care to avoid hazards, such as smoldering tree roots underground.
- Ensure to inspect fences for damage to prevent wandering of livestock into other areas.
- Contact insurance agent or broker.
- Document any loss of livestock, buildings, fences, or equipment in writing, using the inventory to verify losses. Document salvaged items.
- Take samples as required for laboratory assessment of damage (e.g., smoke taint of grapes).
- Secure the site.

For more detailed information and for planning for any future events:

<https://bcclimatechangeadaptation.ca/wp-content/uploads/2022/Resources/BC-Farm-Ranch-Wildfire-Plan-2019-workbook.pdf>

Food Safety

All perishable foods should be disposed of immediately upon your return. Take photos of all food to be thrown out for a possible insurance claim.



Dispose of:

- **Refrigerated food**
 - If the temperature inside the fridge has increased above the normal temperatures.
 - Any food that shows signs of spoilage or odours.
 - If your refrigerator has foul odours after cleaning, it may need to be replaced.
- **Frozen food:**
 - Frozen food is probably safe, unless the freezer was exposed to heat from a fire, to floodwaters or has been without power for an extended period.
 - If the electricity is off, keep the freezer closed. It has enough insulation to keep food frozen for up to three days without power.
 - Discard anything that has completely thawed or has questionable colour or odour.
- **Canned food:**
 - Tinned goods should be good for consumption unless the can has bulged, is badly dented or has rusted – throw these ones out.
 - All undamaged canned goods should be washed and disinfected if they have been exposed to flood waters or smoke.
 - Food stored in glass jars that have been exposed to heat should be thrown out as seals may have been broken.
- **Open food:**
 - Food left unrefrigerated and in bowls or on counters as they may have ash or smoke exposure.



When in doubt, throw it out!

Solid Waste Collection

- Curbside Collection: The RDOS waste collection curbside service will remove garbage bag limits for your first normal pickup day after re-entry and for the following-week. Please remember, garbage bags need to weigh less than 25kg (50 pounds) to be lifted.
- Food affected by Fire Retardant: Interior Health highly discourages consuming home-grown fruits and vegetables that have been affected by fire retardants. They should be composted or placed in the yard and garden waste for pickup.
- Fridge or Freezer Disposal: If you have refrigerator or freezer units that require disposal due to a prolonged power outage, please contact the RDOS Solid Waste Management Coordinator for further instructions – they cannot go directly into the landfill.
- Burnt Material Disposal: Any “burnt materials” need to be placed aside for 2 weeks prior to being placed in any collection. Please follow the procedure for disposal and complete the required forms– please contact the RDOS Solid Waste Management Coordinator for additional support.



Questions regarding curbside pickup or other waste disposal can be directed to the RDOS Solid Waste Management Coordinator at [250-490-4203](tel:250-490-4203).

Roads and Storm Drainage

- The Ministry of Transportation and Infrastructure (MoTI) and the roads contractor Acciona Infrastructure Maintenance (AIM) has been active throughout wildfire event.
- Both agencies will be coordinating any cleanup and maintenance of the roads, ditches and culverts.

AIM contact: [1-866-222-4204](tel:1-866-222-4204)

Please refer to the included handouts and websites for more information:

- **Coping through a natural disaster.** Canadian Mental Health Association.
www.sos.cmha.bc.ca
- **Water and Food Quality: Information for Evacuees Returning after a Fire. and Recommended Precautions for Water and Food Affected by Fire Retardants.** Interior Health Authority. <https://www.interiorhealth.ca/health-and-wellness/natural-disasters-and-emergencies/wildfires>
- **Wildfire Smoke and Air Quality and Health Effects of Wildfire Smoke.** BC Centre for Disease Control.
<http://www.bccdc.ca/health-info/prevention-public-health/wildfire-smoke>
- **Questions and assistance for pets and animals evacuated.** Animal Lifeline Emergency Response Team (ALERT) **250-809-7152**, <http://alertcanada.org/>
- **Farm / Ranch Wildfire Plan Workbook Preparing for and Responding to Wildfire.** BC Ministry of Agriculture <https://bcclimatechangeadaptation.ca/wp-content/uploads/2022/Resources/BC-Farm-Ranch-Wildfire-Plan-2019-workbook.pdf>
- **Last–Minute Checklist for Protecting Your Home and Property from Wildfire.** FireSmart. www.firesmart.rdos.bc.ca
- **Landslide and Flooding Risks Due to Wildfires.** Ministry of Forests, Lands, Natural Resource Operations and Rural Development
- **Do you have a 72- Hour Emergency Kit?.** RDOS Emergency Operations Centre <https://emergency.rdos.bc.ca/>
- **Province of BC’s Disaster Financial Assistance Program – Key Information.** Emergency Management BC. <http://www.gov.bc.ca/disasterfinancialassistance>
- **Fire Recovery Guide.** Canadian Red Cross
https://www.redcross.ca/crc/documents/Fire-Recovery-Guide_2017_v3_1.pdf

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 trees, soil and vegetation surrounding these areas, it can be difficult for that water ecosystem to maintain good water quality.

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 from build-up of ash, soil erosion, and fire debris
- 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: phosphate, nitrate, and nitrite

These changes can make it harder for the local water treatment system to work in making your drinking water safe. The level of impact depends on the power and size of the fire, the weather, type of landscape/geography, and the ecosystem where the water comes from.

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 communicate with you.

If your drinking water comes from your own private well or surface water source (e.g. lake), 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.)

These may interrupt normal treatment practices, or cause loss in water pressure. This could allow pollution to enter the system, or lead to stagnant water lines that may need to be flushed.

Can fire retardant affect my drinking water?

The use of fire retardants to fight wildfires is common in B.C. When good practices are followed, there is little risk to human health and the environment. The most commonly used fire retardant in B.C. is made of nearly 90 percent water. A nitrogen-based product, similar to fertilizer, is added along with small amounts of additives to make it fight fires better. This adds a red color, so the fire fighters can see where it is dropped.

If fire retardant gets into surface water that is used for drinking water, it may cause temporary increases in nitrate/nitrite levels and/or water cloudiness. For more information, see [HealthLinkBC File #05a Nitrate in Well Water](#).

Where fire retardant has entered into drinking water sources, it is likely the amounts will be so small that it is not a human health concern. The levels will drop quickly over time. 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. Water should meet the following guideline levels:

- Nitrate - 45 mg/L as nitrate or 10 mg/L as nitrate-nitrogen
- Nitrite - 3 mg/L nitrite or 1 mg/L as nitrite-nitrogen
- (Cloudy or unclear) Turbidity <1.0 NTU after treatment

People and pets should avoid direct contact with fire retardants. If inhaled or ingested, immediate first aid

is not likely required. However, you should contact a physician or B.C. Drug and Poison Control Center for advice at www.dpic.org/ or call 1-800-567-8911.

If there is skin contact with fire retardants, wash the area with soap and water, and launder any clothing prior to wearing.

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, such as increased dissolved organic carbon concentrations, or increased iron and manganese concentrations. These may form unwanted disinfection by-products (e.g. colour, cloudiness, trihalomethanes) and/or lead to the need for further treatment

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

- Do your best to conserve water as the water supply may be very 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.). Do not drink tap water unless local officials have assured that it's safe for drinking
- If there is an interruption on the water disinfection process, 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
- 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%2020220301.pdf> (PDF 119 KB) or check your telephone directory's yellow pages under Laboratories- Analytical. For more information, see [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 Status at www2.gov.bc.ca/gov/content/safety/wildfire-status.

For information about protecting your community from wildfire, see FireSmart's manual at <https://firesmartcanada.ca/wp-content/uploads/2018/10/FireSmart-Protecting-Your-Community.pdf> (PDF 17 MB).

For information about how to prepare in advance for a potential evacuation alert or order, see PreparedBC - Wildfires www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/preparedbc/your-hazards/wildfires.

For water and food safety information when you return home after a wildfire, see www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/preparedbc/your-hazards/wildfires/after-wildfire.

Coping through a natural disaster emergency

mental health tips for you and your family

Having to flee your home, leave animals or possessions behind and relocating can cause distress, fear and anxiety for you and your loved ones. Remember that these are some of the most stressful events one can experience. Whether you are coping with fire, flood, earthquake or an other emergency dealing with your physical safety, here are some proven tips to help you cope with the mental stress of a natural disaster.

Take care of the basics

Try to eat well and get enough sleep. Sleep and nutrition are more important than ever.

Be kind to yourself

Set realistic expectations and be patient with yourself and others.

Give and accept support

Expect to feel angry, sad, confused or just numb—and talk to others about it.



Get back to your daily routine

Doing things as simple as brushing your teeth can help restore a sense of safety and control.



Take a break

Take breaks from disaster news coverage and from thinking and talking about the events.

Check in on older people around you. Coping may be more difficult for older adults living alone, those with mental health problems or with few social supports. Reaching out to connect with them can be a big help.

[more tips >](#)

When to seek more help

Most people, if given support, will recover almost completely from the fear and anxiety caused by a traumatic experience within a few weeks. However, some will need more help to heal. It's important to watch for the following signs and contact a medical professional if they last more than 2 to 4 weeks:

- Trouble with sleeping and eating
- Feeling depressed or hopeless, showing low energy or crying often
- Being anxious and fearful
- Trouble focusing on daily activities
- Recurring thoughts or nightmares about the event
- Avoiding activities or places that are reminders of the event

If you are struggling right now

BC's Mental Health Support Line is open to talk you through the problem, 24 hours a day at 310-6789 (no area code). This service is provided by the Distress Line Network of BC.

About the Canadian Mental Health Association

Founded in 1918, the Canadian Mental Health Association (CMHA) is the most established, most extensive community mental health organization in Canada. Through a presence in hundreds of neighbourhoods across every province, CMHA provides advocacy and resources that help to prevent mental health problems and illnesses, support recovery and resilience, and enable all Canadians to flourish and thrive.



Canadian Mental
Health Association
British Columbia
Mental health for all

www.cmha.bc.ca

Helping Younger Children *Ages 5 and younger*

Provide concrete explanations

For example: “The wind broke a tree branch, and it fell on an electrical line. That’s why the lights don’t work.”

Let them know there are good people helping

Encourage them to help if they can, or send thank you letters to those who helped.

Expect a return to younger behaviours

Typical responses can include crying, whimpering, trembling and clinging. They may also show younger behaviours such as thumb-sucking, bedwetting and fear of darkness. Let them know this is okay.



Reassure them that you will keep them safe

Find ways to protect them from further harm and exposure to upsetting images. Avoid too much disaster news.

Helping Older Children *Ages 6 to 11*

Ask them what they understand and how they feel about it

Fears are often based on misinformation.

Allow them to ask questions

But try not to focus on it too long—focus on the present instead. It’s okay to say if you don’t know.

Try to keep a regular routine with activities, meals and bedtime

Allow kids to play with friends. Routine can be very reassuring.

Allow them to make decisions and feel in control

It’s even more important to give them choices on what to wear, eat, etc.

Allow them to cry or be angry

You may also notice withdrawal, disruptive behaviour, or inability to pay attention. Nightmares, irrational fears or outbursts of anger are also common after trauma. Let them know it’s normal to feel upset.



Be honest with your feelings so they know it’s ok to express theirs

Spend extra time with them. Tell them it can take time to overcome loss or trauma.

Helping Adolescents *Ages 12 to 17*

Acknowledge their feelings

They may experience flashbacks, nightmares, avoidance, depression, substance use and anti-social behaviour. Ask how you can support them.

Ensure that they are patient with themselves and others

Disaster recovery can be a long, slow process.



Encourage them to help in the community

Community spirit and rebuilding can be very uplifting, and can help them feel useful rather than helpless.

Some may be more vulnerable

The impact of a traumatic event is likely to be greatest if they previously have been the victim of abuse or trauma, or have had a mental health problem. Be prepared to offer extra support.

Wildfire Smoke and Air Quality

There are many different sources of information on air quality, including local radio and television broadcasts, community centres and band offices, smartphone apps, and websites. Knowing where to find reliable information about the air quality is a first step to understanding wildfire smoke and protecting your health.



Different agencies provide information on current air quality across the province using a range of tools.

- Outside the Lower Mainland, there is a subscription service to get text or email alerts for Smoky Skies Bulletins and Air Quality Advisories. <https://u.nu/e3xtf>
- Within the Lower Mainland, there is an email subscription service to get Air Quality Advisories and Bulletins. <https://u.nu/7gwgj>
- Wildfire smoke is a complex mixture of air pollutants, but **fine particulate matter (PM_{2.5})** poses the greatest risk to human health. Online air quality maps show the current PM_{2.5} levels in many communities. <https://u.nu/lamf>
- In British Columbia, the current PM_{2.5} levels can be used to estimate the current Air Quality Health Index (AQHI), which provides health advice for different risk categories (Table 1).

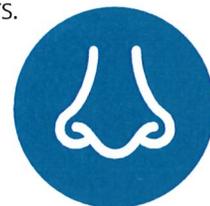
1-HOUR PM _{2.5} (µg/m ³)	PROVINCIAL AQHI	AQHI RISK CATEGORY	HEALTH MESSAGE FOR PEOPLE AT HIGHER RISK	HEALTH MESSAGE FOR GENERAL POPULATION	ACTIONS TO REDUCE WILDFIRE SMOKE EXPOSURE
0 – 10	1	LOW	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.	Normal air quality in British Columbia
11 – 20	2				
21 – 30	3				
31 – 40	4	MODERATE	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms.	No need to modify your usual outdoor activities unless you experience symptoms.	<ul style="list-style-type: none"> • Use a portable air cleaner to reduce smoke in your home • Stay inside with doors and windows closed, but keep cool – being too hot is more risky than breathing smoke for most people
41 – 50	5				
51 – 60	6				
61 – 70	7	HIGH	Reduce or reschedule strenuous activity outdoors.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms.	<ul style="list-style-type: none"> • Visit places with cleaner and cooler air, such as libraries, community centres, and shopping malls
71 – 80	8				
81 – 90	9				
91 – 100	10	VERY HIGH	Avoid strenuous activity outdoors.	Reduce or reschedule strenuous activity outdoors, especially if you experience symptoms.	<ul style="list-style-type: none"> • If you cannot access cleaner air, consider using a well-fitted N95 respirator or relocating to an area with less smoke
101+	10+				

TABLE 1: 1-hour concentrations of fine particulate matter (PM_{2.5}) can be used to estimate the Air Quality Health Index (AQHI) in British Columbia.



If your community does not have a PM_{2.5} monitoring station, there are some other tools that can help you understand the current air quality.

- Get *Smoky Skies Bulletins* for areas outside the Lower Mainland by text or email. <https://u.nu/e3xtf>
- **Trust your senses.** Human eyes and noses are excellent smoke detectors. If you see smoke or smell smoke, the air quality is being affected.
- The PM_{2.5} concentration is usually in the **moderate health risk** category of the provincial AQHI when you can first smell smoke (Table 1).
- **Smoke in the air affects how far you can see** into the distance, and visibility decreases as PM_{2.5} levels increase. Provincial webcams can show when smoke is in the air. <https://u.nu/khab>
- The **WeatherCAN smartphone app** may provide information about local visibility, air quality, and smoke in your area. <https://u.nu/an9l>
- Satellite images taken every 15 minutes show wildfire smoke plumes from high in the atmosphere. These images cannot show what is happening on the ground, but they are useful for assessing smoke movement. <https://u.nu/3v7r>



Many inexpensive PM_{2.5} sensors are now available for personal use, but they should be used with caution.

- The estimates are **not always reliable** when compared with the instruments used by government agencies.
- The estimates are more reliable when they are averaged over an appropriate period, such as one hour.
- In general, these sensors tend to overestimate the exact PM_{2.5} concentrations but can be helpful for assessing whether PM_{2.5} concentrations are in the low, moderate, high, or very high ranges (Table 1).
- The most complete guidance on using inexpensive sensors is available from the United States Environmental Protection Agency. <https://u.nu/vjzr>

Smoke forecasts show the predicted movement of wildfire smoke through the entire province and its potential air quality impacts over the next few days.

- The most reliable smoke forecasts for British Columbia are provided by FireWork which is run by Environment and Climate Change Canada. <https://u.nu/qdlv>
- FireWork does a good job of predicting where smoke will travel but tends to overestimate the PM_{2.5} levels near to large fires.
- The BlueSky system also provides smoke forecasts for British Columbia. <https://u.nu/p25x>



BC Centre for Disease Control
Provincial Health Services Authority

LAST UPDATED: MAY 2021

FOR MORE INFORMATION bccdc.ca/wildfiresmoke



Health Effects of Wildfire Smoke

Wildfire smoke is a complex mixture of fine particulate matter (PM2.5) and gases, such as carbon monoxide, nitrogen oxides, and volatile organic compounds. The mixture can change depending on the fuels, the weather, and distance from the fire. Wildfire smoke causes episodes of the worst air quality that most people will ever experience in British Columbia.



Although wildfire smoke is different from air pollution caused by traffic or industry, it is also harmful to human health.

- Smoky air makes it harder for your lungs to get oxygen into your blood.
- Wildfire smoke can irritate your respiratory system and cause an immune response, which may lead to inflammation that affects other parts of your body.
- Common symptoms include eye irritation, runny nose, sore throat, mild cough, phlegm production, wheezy breathing, or headaches. Such symptoms can usually be managed without medical attention.
- Some people may have more severe symptoms, such as shortness of breath, severe cough, dizziness, chest pain, or heart palpitations. You should seek prompt medical attention if you experience any of these symptoms.
- Smoky air may increase risk of some infections, such as pneumonia COVID-19, and ear infections in children.

Reducing exposure to wildfire smoke is the best way to protect your health.

- Portable air cleaners that use HEPA filtration can effectively remove smoke particles from the indoor air. Do your research to find something suitable for your needs.
- If you have forced air heating, you can use different filters and settings to minimize the amount of wildfire smoke that comes into your home. Talk to your service provider about what will work best for your system.
- Libraries, community centres, and shopping malls often have cooler, filtered air that can provide a break from outdoor smoke.
- When driving, keep the windows up, the air conditioner on, and use the recirculate setting to limit intake of the outdoor air.
- The harder you breathe, the more smoke you inhale. Take it easy during smoky periods, consider exercising indoors, and drink lots of water to help your body cope with the smoke.
- If you have an outdoor occupation, refer to resources from WorkSafe BC <https://u.nu/4vl8>



BC Centre for Disease Control
Provincial Health Services Authority

FOR MORE INFORMATION bccdc.ca/wildfiresmoke

Different people respond differently to wildfire smoke, and some people are at higher risk of experiencing health effects.

THOSE MOST AFFECTED



It is especially important for the following groups to reduce their exposure.

- People whose health is compromised by an illness or chronic condition. Smoky air makes daily activities harder, both physically and mentally.
- **People with respiratory conditions** such as asthma or chronic obstructive pulmonary disease (COPD) are at highest risk of experiencing health effects caused by wildfire smoke. People with conditions such as heart disease, diabetes, cancer, or mental illness are also at increased risk.
- Unborn children and infants may be vulnerable. **Pregnant women and people caring for infants should consider using portable air cleaners.**
- Young children have sensitive lungs and may need to decrease their activities during smoky periods, especially when outdoors.
- Not everybody will experience noticeable effects from wildfire smoke. Even if you are not affected, remember to look out for others around you.

Most health effects of wildfire smoke are transient, meaning that they will disappear as the air quality improves.

There is very little research on whether there are longer-lasting health effects from seasonal wildfire smoke, and caution is recommended in the absence of scientific evidence.

- Remember that reducing exposure is the best way to protect against any health effects from wildfire smoke.
- Infants, unborn children, and those with obstructive lung conditions such as asthma and COPD are most likely to experience longer-term health effects.
- Wildfires are becoming more extreme and intense in British Columbia and elsewhere. Local and international scientists are working hard to understand how these changes affect health in populations exposed to wildfire smoke.



BC Centre for Disease Control
Provincial Health Services Authority

LAST UPDATED: MAY 2021

FOR MORE INFORMATION bccdc.ca/wildfiresmoke

4 WHAT should you do during a storm or heavy runoff event?

- ▶ Pay attention to weather forecasts that include thunderstorm or heavy rainfall warnings.
- ▶ Check the current Environment Canada weather forecast at http://weather.gc.ca/canada_e.html
- ▶ Avoid driving in an area where a wildfire has recently occurred. Potential dangers include washed-out bridges and culverts. Roads running below steep banks are susceptible to landslides. If it's absolutely necessary to travel in the area, stay alert and watch the road ahead of you for collapsed pavement, mud, fallen rocks or other indications of debris flows.
- ▶ Never drive across a flooded road.
- ▶ If your home is in an at-risk area and severe weather is occurring or in the forecast, stay alert. Listen for any unusual sounds (e.g. tree trunks cracking or boulders knocking together) and watch for changes to water flows in local stream channels. Consider sleeping on an upper floor of your home and don't sleep in the basement.
- ▶ Do not enter water channels or hike upstream to inspect water lines or buildings. Consider leaving the area temporarily if you are concerned (and if it is safe to do so).
- ▶ On forested land where a wildfire has recently occurred, avoid camping on floodplains, beside small streams, on alluvial fans or at the base of burned slopes. Be aware that forest service roads or resource roads may wash out if a flood occurs and could cut off access to the area.

How long do post-wildfire risks last?

In areas that have been severely burned, post-wildfire risks may last for two years or more. However, the increased risk of floods or debris flows in severely burned areas may persist much longer.

After two or three years, the regrowth of vegetation and reduced water repellency of the soil should lower the risk considerably.

How can you get more information about potential risks to your property?

Consulting geotechnical specialists can provide specific information about your property and post-wildfire hazards, including potential risk-mitigation techniques.

This bulletin provides general information only and does not cover all potential hazards. Additional information resources are available online:

- ▶ Current wildfires: www.bcwildfire.ca
- ▶ Engineers and Geoscientists British Columbia <https://www.egbc.ca/>
- ▶ Environment Canada weather: http://weather.gc.ca/canada_e.html
- ▶ Emergency Management BC <https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery>
- ▶ Ministry of Forests, Lands, Natural Resource Operations and Rural Development district offices and contacts: www.gov.bc.ca/for

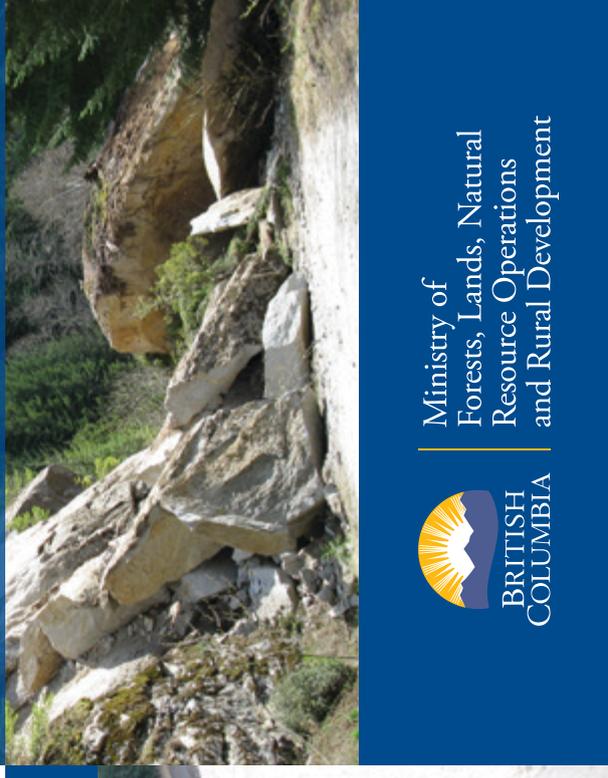


Landslide and Flooding Risks DUE TO WILDFIRES

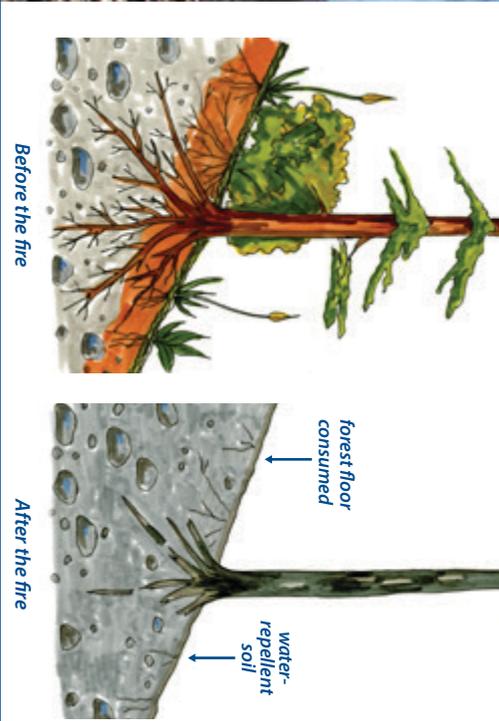
*What you can do to recognize
and deal with the hazards*

The large Terminal Creek mudslide near Squamish occurred during a localized rainstorm in September 2015, stranding recreationalists.

There was widespread flooding on the Squamish River after a severe rainstorm in September 2015.



Ministry of
Forests, Lands, Natural
Resource Operations
and Rural Development



Part of the Elaho River drainage area was burned by wildfire in 2015.

This is the Elaho drainage area in June 2015, showing evidence of how severe the wildfire was in that area.

Wildfires remove the protective ability of vegetation, increasing runoff, erosion, debris flow and the potential for landslides.

INTRODUCTION

This pamphlet describes how wildfire activity may increase the risk of natural landslides and flooding, the warning signs you should watch for, and what you should do in an emergency.

This information can help you and your family avoid a potentially dangerous situation.

1 HOW does wildfire activity increase the risk of landslides and flooding?

Periodically, British Columbia experiences severe wildfires near populated areas, such as those that occurred in 2003, 2009, 2010, 2015 and 2017.

A severe wildfire damages the forest canopy, as well as the smaller plants and soil below the trees. This can result in increased runoff after intense rainfall or a rapid snowmelt, putting homes or other structures below the burned area at risk of localized floods and landslides.

2 WHAT specific hazards should you watch for after a wildfire?

- ▶ **flooding**, especially after an intense rainfall
- ▶ **landslides**, which could include a:
 - » debris flow (a specific type of fast-moving and powerful landslide, resulting from heavy water runoff and carrying large amounts of soil, rocks, wood debris and trees)

- » rockfall (resulting from the fire-induced cracking of rocks and the loss of stumps, logs and roots that would normally hold loose rocks in place)

What values could be put at risk?

- ▶ **Residential**, farm and industrial buildings that are downslope or downstream of the site of a severe wildfire could be affected by post-wildfire hazards, even if the fire was only one or two hectares in size.
- ▶ **Structures** that are located below a recent wildfire and are near a creek, gully or alluvial fan are most at risk.
- ▶ In an area that has experienced flooding or landslides in the past, there is an increased likelihood that a flood or landslide could happen there again.
- ▶ **Roadways**, railway lines, pipelines and other types of infrastructure (including bridges that are downslope or downstream of a wildfire) may be obstructed, inundated or washed out.
- ▶ **Domestic water lines**, irrigation water lines and water intakes (and other structures in gullies, streams or creeks) could be damaged or destroyed by a post-wildfire flood or landslide. These areas may be at risk during these events but also after them, due to water channel blockages.

What weather conditions trigger post-wildfire floods and debris flows?

The most common trigger is intense rainfall (e.g. 10mm of rain falling in under 30 minutes). The risk increases if the rainfall follows a prolonged dry period, because water can't soak into

dry, fire-altered soils quickly. The water is repelled and flows over the land, instead of soaking into it.

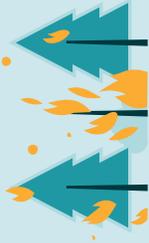
In coastal areas, fall rainstorms are the most likely causes of post-wildfire floods or debris flows. A rapid spring snowmelt can also be a trigger in drainage areas that have experienced severe wildfires.

3 HOW can you deal with post-wildfire hazards?

- ▶ **Be informed. Be ready.**
- ▶ **Familiarize** yourself with the landscape and its normal drainage channels. Know where your home or property is situated with respect to natural drainage channels. Find out if any floods or landslides have occurred in the area in recent years.
- ▶ **Contact** local authorities to learn about any emergency response and evacuation plans for your area. Attend any meetings that are held to inform the public of local risks.
- ▶ **Develop** your own emergency plans for your family, property and/or business. Post-wildfire hazard events can occur with little advance warning, so it's important to be prepared.
- ▶ If a wildfire occurs on Crown (provincially owned) land, a post-wildfire risk analysis may be conducted to determine if the safety of nearby residential areas may be affected. **Contact your local government** office or Emergency Management BC (EMBC) to see if a risk analysis has been done in your area.



Last-Minute Checklist for Protecting Your Home and Property from Wildfire



Evacuation Tips

Monitor conditions and follow the advice of local authorities.

If ordered to **evacuate, do so immediately.**

	<p>Review your evacuation plan for your family and pets.</p> <ul style="list-style-type: none"> Visit www.getprepared.gc.ca for helpful tips and evacuation plan templates.
	<p>Have your “ready to go kit” (emergency kit) ready and stocked with cash, portable radio, prescription medications, eye glasses, change of clothes, pet food, flashlights and batteries, etc. Make sure your phone numbers, insurance information and other important documents for your go bag are current.</p> <ul style="list-style-type: none"> Visit www.getprepared.gc.ca for a more complete list of emergency supplies.
	<p>Before evacuating:</p> <ul style="list-style-type: none"> Turn off air conditioning. Turn off your home water and electricity Close all doors, garage doors and windows. If weather seal or doors have gaps, seal with duct tape.



Quickly address outside surroundings

Complete a scan around your home and property and take steps to remove combustibles.

	Remove leaves, pine needles and other debris from your roof and gutters.
	Mow grass and weeds within 10 metres of the house to 10 centimetres in length, or less.
	Clear all dead plants, leaves, and weeds within 10 metres of your home. Maintain a 1.5 metre non-combustible zone around your home and deck by sweeping or raking down to mineral soil, rock or concrete.
	Move combustible items such as toys, patio furniture, cushions, decorative items, firewood, and potted plants, that are on and under your deck and within 10 metres of your home. Move all combustible items into your home or garage.
	<p>If you have a propane tank located on your property:</p> <ul style="list-style-type: none"> Propane tanks should be moved to 10 metres away from structures. Remove weeds and other debris from area around large stationary propane tanks so there is no combustible material near tank.
	<p>If you have a combustible fence that attaches to your home:</p> <ul style="list-style-type: none"> Secure gate in an open position. Clear vegetation and debris along both sides of combustible fence lines.



Check around the house

Check vents on roof, foundation and exterior walls to prevent embers from entering your home.

	Check your attic and foundation (crawl space) vents to see if they are screened and in good repair. Use duct or metal tape to temporarily cover damaged vents and those with 3 millimetres mesh screening.
	<p>If you store cardboard boxes and other easily ignited materials near a vent in your attic or crawl space, move them as far away as possible from vent(s).</p> <ul style="list-style-type: none"> Another option is to place tape over vent(s) at these locations. Be sure to remove tape when you return home.
	Cover dryer vents and wall-mounted make-up air openings for furnaces with a plywood cover, metal tape or duct tape.



Visit www.firemartcanada.ca for additional resources and information.

EMERGENCY OPERATIONS CENTRE (EOC)

DO YOU HAVE A 72-HOUR EMERGENCY KIT?



Use this checklist to stock a basic 72-hour kit and add items depending on your family's needs. Ideally, your kit should be stored in a waterproof and wheeled container. You may have to stay in your home without electricity or water, or you may have to evacuate your home for a period of time.

Food and Water

- Four litres of water per person per day (for drinking).
- Food that does not require cooking and will not spoil, such as granola and protein bars, trail mix, dried fruit and canned tuna (remember to replace food and water once a year).

Equipment

- Manual can opener.
- Flashlight (wind-up or battery-operated) and batteries (replace batteries every year).
- Wind-up or battery-powered radio (replace batteries every year).
- Candles, lighter, waterproof/strike-anywhere matches.
- Pens and paper.
- Duct tape.
- Pocket knife.
- Cooking and eating utensils.
- Warm clothes and blankets or sleeping bags.
- Garbage bags.
- Whistle and flares (to attract attention).

Toiletries

- Cleaning supplies (hand sanitizer, dry shampoo, etc.)
- First aid kit.
- Toilet paper.
- Dish Soap
- Feminine supplies.

Special Needs Items

- Infant needs (diapers, formula, bottles, etc.).
- Prescription medicines.
- Extra pair of prescription glasses or contact lenses.
- Pet items (food, leash, muzzle, medication, etc.).

Personal Documents and Items

- A list of your emergency contacts (names and contact numbers).
- An extra set of house and car keys.
- Some cash in smaller bills.
- Copies of important documents like passports, birth certificates, and insurance policies.

For more information, please visit <http://emergency.rdos.bc.ca> or call 250-490-4225