

Wildfires

Private Wells and Natural Disasters

Prepare, Respond, And Recover

Safety Reminders

After a wildfire, private wells can be contaminated and unsafe to use for drinking water and other purposes. Well components and pipelines may be damaged due to excessive heat. These components can melt or become damaged, affecting water delivery and potentially impacting water quality. To be prepared, understand your well type, know its location, and familiarize yourself with critical well components.



These tips can help you respond effectively and facilitate a smoother recovery.

- Get help from a licensed well contractor. Contact your local health department, department of environmental quality or natural resources, or a university extension service to obtain a list of contractors in your area.
- Use bottled water or a stored water source to brush your teeth, drink, cook, and bathe until you know your water is safe to use.
- Have your well water tested at a certified water testing laboratory after a wildfire.
- Make sure you turn off power to the well pump before inspecting the area around your well due to the danger of electrical shock and damage to your drinking water system.
- Be careful walking in an area affected by wildfire. There may be exposed wires, metal edges, nails or screws, and damaged hazardous material containers.

Fire-prone Areas

Always keep your well maintained; a maintained private well is better able to withstand the stresses of a wildfire. Take these steps to protect your private well:



- Know and document all components of your well. Take photos of the connections and system components. These photos will be helpful if components need to be replaced or to file insurance claims. Make sure to include:
 - Storage or pressure tanks
 - Pump
 - Treatment system (include any filters)
 - Electrical components
- Store all well documents in an easily accessible location.
- Store possible contaminant sources away from your well. This may include chemicals, fertilizer, and flammable materials such as paint, gasoline, solvents, or paper (often used as insulation).
- Use a well house made of fire-resistant materials, such as a concrete. A fire may destroy or damage a wood, plastic, or metal well house, increasing the risk of contamination.
- Use fire-resistant electrical coverings. A wildfire will melt or burn standard electrical wire coverings, leaving bare or melted wires.
- Keep the sanitary seal and well cap in good condition. A metal sanitary seal may offer some heat resistance. A fire will likely destroy the well cap or damage the seals.
- Keep extra sanitary seals and well caps in case they become damaged.
- Install shut-off valves right before and after the pressure tank to prevent contaminated water from entering the tank. This also creates a spot to shut off the water line before any water storage or treatment devices.
- Install backflow prevention valves on all hydrants and outside taps.
- Use a non-PVC well casing if constructing a new well. PVC casings may melt during a fire, which can lead to expensive repairs or drilling a new well. Contact your local health department, university extension, or a licensed well contractor for casing recommendations.

Before a Wildfire

Essential Steps to Take

- Buy or store safe water, such as bottled water, to use for drinking, cooking, bathing, and flushing toilets for three days.
- Have contact information for a licensed well contractor, your local health department, university extension service, and water testing laboratory.
- Clear debris near the wellhead.
- Remove the well house (if possible) if it is made of an easily burned material, such as wood, vinyl, or plastic.
- Turn off power to your well pump and unplug all equipment (if possible) to reduce the risk of electrical shock or electrical overloading. The power switch may be by the water pump or tank or at the main electrical panel.
- Shut off the water using shut-off valves.



Steps to Take if Time Allows

- Wrap the well cap and well casing with durable flame-retardant sheet plastic and duct tape to form as tight a seal as possible.
- Place fire-resistant sandbags around the well to protect the well from fire, heat, and flame retardants used to control the wildfire. If possible, cover the wellhead with a sealed stand pipe and bury it with fire-resistant sand bags.
- Cover the well pit (if applicable) with flame-resistant sheeting and sandbags.
- Remove any aboveground well pumps or piping and store them in a fire-resistant area.

During a Wildfire

- Follow emergency and evacuation advice for your area.
- Use a safe source of water, such as bottled water, for drinking, cooking, and bathing.
- Be careful if using your well water for fire suppression. Turn off the water if air or debris is coming through the hose. The groundwater may need time to recharge. Pulling mud through the system may damage the pressure tank or other water treatment devices.

After a Wildfire

Step 1: Inspect and Repair

A wildfire will leave warning signs that your private well may be unsafe. Inspect your well and contact a licensed well contractor if you see the following signs of damage. Make sure the power to the well is off before your inspection. Check the following for damage:

- Electrical wires and connectors that supply power to your private well. Damaged electrical wires are dangerous; never touch damaged electrical wires under any circumstance. Contact a qualified electrician to repair any damaged components.
- Well cap, seals, and vents (vents should be unplugged).
- Plastic PVC casing, liner, and any aboveground piping used to bring water to your home.
- Well houses and equipment (such as chlorinators, water treatment equipment, and electronic controls).
- Indoor piping, storage and pressure tanks, and overflow pipes.
- Gaps around the outside of the well casing. The grout may have been damaged or the casing may have large cracks.
- Debris entering uncovered wells or storage tanks.
- Evidence of spilled chemicals or gasoline, such as from displaced containers.

Step 2: Clean and Flush Well

Use the following checklist to clean and flush your well before testing your water to determine if disinfection is needed.

- Check that power to the well pump is off at the breaker box.



- Temporarily cap the well if the well cap or casing are damaged. Use a sanitary seal or wrap a sheet of 6-millimeter plastic tightly around the wellhead and secure tightly with two zip ties. Contact a LWC for permanent repairs.
- Remove debris around the outside of the wellhead.
- Turn off the water going to the rest of the system if there is a shut-off valve and faucet before or after the pressure tank.
- Turn the pump on if there are no issues.
- If the pump will not start, turn off the electricity and contact a licensed well contractor.
- Flush the well by running the pump until the water runs clear. Use an outside faucet and a hose to direct the water away from the septic system, public sewer, nearby surface water, or animal habitats. Pumping times vary, depending on the groundwater recharge to the well, several flushes may be necessary.
- If the water does not run clear after several hours, contact a licensed well contractor and continue using bottled or stored water. Do not pump water from another source into your well: doing so may damage your pump and contaminate the aquifer.
- Disconnect or bypass household water filters or softeners if there is not a shut-off valve before or after the pressure tank. This will prevent those treatment systems from contamination.
- Check the water pressure using an outside faucet with one of the methods listed below. If the pressure is low, it may be recovered when the pump is turned on or there may be a pipe that burst. Contact a licensed well contractor if either issue occurs.
 - Turn on a faucet. If you hear air escaping from the faucet with water intermittently spurting out, you may have lost pressure.
 - Check your pressure gauge to see if your system is holding pressure. If you are losing pressure, your pump may come on when you are not using water.

Step 3: Test Well Water

You should test your well water for coliform bacteria, nitrate, and volatile organic compounds (VOCs) before use to make sure it is safe. Contact your local health department to ask about other contaminants of concern in your area. Testing your water will also reveal if you need to disinfect your water system.

- Get a water sample kit. Recovery teams may be distributing water-sampling kits. If not, call your local health department, a certified water testing laboratory, or university extension service.
- Follow the instructions on the sampling kit to avoid accidental cross-contamination and inaccurate results. Return the sample to the lab as soon as possible.
- Drink, cook, and bathe with bottled water or a stored water source until the results from the lab confirm that water is safe to use and all necessary repairs are completed.
- Retest the water to confirm the results are below [EPA's maximum contaminant levels \(MCLs\)](#). Contact your local health department for the best timeframe to retest.
- Consult with the manufacturer or a licensed water treatment installer if the filter or softener has been exposed to contaminated water.



Step 4: Disinfect Well

If your water is contaminated or repairs were performed, you may need to have the well professionally disinfected, especially if ammonia is present. Retest the water before use and be sure parameters are below [EPA's maximum contaminant levels \(MCLs\)](#).

Prepare for Flooding

Areas burned by wildfire have little to no vegetation; this increases the chances of flooding and mudslides, especially if the area undergoes a heavy rain event. This also increases the chance of infiltration by contaminants.

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Private Wells and Natural Disasters: Prepare, Respond, and Recover is a series of factsheets intended to be a tool for environmental public health professionals who specialize in private wells, and as a resource for private well owners, developed in collaboration with members from NEHA's Private Water and Decentralized Wastewater Program Committee and the Private Water Network.

For additional tools and resources please visit: neha.org/water-quality.

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