

## Power Outages

### Private Wells and Natural Disasters

## *Prepare, Respond, And Recover*

### Safety Reminders

During a power outage it is important to stay informed and take necessary precautions to ensure safe water usage during power disruptions. 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 (LWC). 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 power outage.
- 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.



### Power Outage-prone Areas

Always keep your well maintained; a maintained private well is better able to withstand the stresses of a power outage. If you live in an area that experiences these conditions, take these steps to protect your private well:

- Know and document all components of your private 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 (including 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).
- 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.
- Consider connecting your well pump to a generator if you experience frequent power outages.

## Before a Power Outage

### 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 LWC, your local health department, university extension service, and water testing laboratory.
- 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.
- Unplug any filtration systems and note the time.
- Turn off power to your electric hot water heater if possible.

## During a Power Outage

- Follow emergency and evacuation advice for your area.
- Use a safe source of water such as bottled water for drinking, cooking, and bathing.

## After a Power Outage

### Step 1: Inspect and Repair

A power outage will leave warning signs that your private well may be unsafe. Inspect your well and contact a LWC 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 circumstances. 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 LWC 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 and nitrate to make sure it is safe before use. Contact your local health department to ask about other contaminants of concern. Testing your water will also tell you 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 \(MCLs\)](#).

## Acknowledgements

The Private Water Network is supported through the OT18-1802 Cooperative Agreement between the National Environmental Health Association (NEHA) and the Centers for Disease Control and Prevention (CDC), United States (US) Department of Health and Human Services (DHHS).

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

For additional tools and resources please visit: [neha.org/water-quality](https://neha.org/water-quality).



## References

<https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/Windstorms>

<https://www.grecoandhaines.com/helpful-tips-for-you-and-your-water-system-during-a-power-outage/>

<http://www.odh.ohio.gov/-/media/ODH/ASSETS/Files/eh/water/factsheet/poweroutages.pdf?la=en>

<https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/Windstorms>

<http://www.etr labs.com/n7/Power-Outages-May-Affect-your-Well-Water>

<http://www.odh.ohio.gov/-/media/ODH/ASSETS/Files/eh/water/factsheet/poweroutages.pdf?la=en>

