FACT SHEET

OFFICE OF DRINKING WATER & MUNICIPAL ASSISTANCE – ENVIRONMENTAL ASSISTANCE CENTER 800-662-9278

PROTECTING YOUR PRIVATE WATER SUPPLY IN AN EMERGENCY

Emergencies, such as power outages and flooding, can threaten the quality of drinking water from your water well system. This fact sheet reviews the potential hazards arising from emergency situations and gives advice on how to protect you and your family against illness.

Electrical power outage

Under normal operation an electric water pump draws groundwater from the well and maintains the water pressure within the storage tank and piping. Pressurization forms a physical barrier that protects the drinking water against the entrance of contaminants. During a power outage a water well system will lose pressure if faucets are opened. As a result, bacteria, viruses, and other disease-causing organisms can find their way into the water system. The water can become contaminated without any noticeable change in taste, odor, or clarity.

During extended power outages it is important to refrain from opening faucets, taking showers, or flushing toilets. While your water system may have several gallons of water in storage, withdrawing water while the power is out depressurizes the system and increases the risk of contamination.

If your water system loses all of its pressure (no water comes out of the faucet), it is a good idea to have the water checked for coliform bacteria.

Flooding

If flooding occurs around your water well, your drinking water may become contaminated. When flood waters rise over the top of the well, contaminants can enter through the well cap or vent and increase the risk of illness. The well can act as a drain as flood water cascades down the casing into the aquifer. Flood water contains bacteria and viruses from soil, organic debris, and sewage systems along with fertilizers, pesticides, and other chemical contaminants. Shallow wells and old, poorly-constructed wells (e.g. dug wells) are vulnerable to water quality changes when turbid flood waters deposit contaminants close to the well. Older wells located in below grade pits are vulnerable to contamination from flooding, even if flooding at the ground surface did not occur. Well pits are unsanitary and are prone to flooding after heavy spring rains or rapid snowmelt occur and surface water or the water level within the surrounding soil gathers within the pit.

If you use “city water”, the risk of contamination is very low. Community wells are generally well protected from flood water. All community water systems are also carefully monitored by the water supply operator and the state. If you water supply does become contaminated, you will be notified promptly.

There have even been documented cases of a homeowner’s well water becoming cloudy after a heavy rain. If you suspect your drinking water is contaminated, you should obtain water from a known safe source for drinking, cooking, and food preparation. Drinking or washing with water from a private well that has been flooded can make you sick. Use bottled water for drinking and cooking until your well is safe to use again. If you must use the well water for drinking or food preparation before the well has been disinfected and tested, the water must be boiled at a rolling boil for at least 5 minutes before use.

If your well has been flooded, you should immediately refrain from drinking the water and take the following steps:

1. After flushing the chlorine from the system, collect a water sample and submit it to a certified laboratory for coliform bacteria analysis.
2. Contact your local health department for further assistance if needed.

Inspect the well and pump

Conditions at the Well- Sediment and floodwater may enter the well through the well cap and contaminate it. Older or shallow wells are likely to be contaminated, even if there is no apparent damage. Well pits can be very hazardous- people have died from asphyxiation or electrocution in well pits. Before entering any well pit, please obtain professional help or guidance on proper safety precautions.

Electrical System- After floodwaters have receded and the pump and electrical system have dried, make certain a qualified electrician, well contractor or pump contractor checks the equipment's wiring before you turn it on. You can be shocked or damage your well or pump if they have been flooded.

Pump Operation- Sediment and floodwater can damage pumps and their electrical components. Get assistance from a well or pump contractor who will know how to clean, repair, or maintain different types of pumps.

Clean and flush the well

Once the flooding recedes, remove mud, silt, and other debris from around the top of the well. The pump may need to be removed so that mud and silt can be removed from the bottom of the well. Begin flushing the water system. Hook a hose up to an outside faucet or a faucet near the water storage tank and flush the water for at least 2 hours after the water clears up. If a large volume of flood water entered the well, several hours of pumping may be needed. Once the water is clear at the storage tank, flush the home distribution piping.

Disinfect the well

Drilled, driven, or bored wells- It is best to have a well contractor disinfect these wells because it is difficult for the private owner to thoroughly disinfect them.

Dug wells- Do not attempt to disinfect or use a dug well that has been flooded.

CAUTION: Wells can become contaminated in a number of different ways, including bacteria, wastewater from malfunctioning septic systems, or chemicals seeping into the ground. So taking long-range precautions is necessary, including repeated testing, to protect the safety of drinking water.

Water testing

After flushing the chlorine from the system, collect a water sample and submit it to a certified laboratory for coliform bacteria analysis. Homeowners should periodically test their drinking water for coliform bacteria. An annual test is recommended (or more frequently if the taste, odor, or water clarity changes). Coliform bacteria (common in the intestines of warm-blooded animals) are indicators of the potential for disease-causing organisms to be present in the water supply. Tests for metals, petroleum products, pesticides, and other chemicals are also available from state or privately operated laboratories. Water sample bottles, information about which test may be most appropriate for your situation, and interpretation of water test results are available from your local health department.

If your water system was completely depressurized during a power outage or if your well was flooded, it is especially important to check the water quality before continuing to consume the water. The water is considered safe for drinking after two consecutive samples, collected 8 hours apart, show that coliform bacteria are not present.

Temporary water supply

If your water system was depressurized during interruption of electrical power or if flooding of the well has occurred, the water should not be consumed until testing has verified that it is potable (fit to drink). Here are some alternatives to ensure that you and your family have a safe temporary drinking water supply until your water system is restored:

- Keep a supply of bottled water on hand as emergency drinking water. A few 5-gallon pails filled with water and stored in your basement are helpful for toilet flushes and other nonpotable uses during power outages.
- Water can be boiled to kill any harmful microorganisms. Bring the water to a rolling boil for at least 2 minutes; then let it cool. Pouring the water back and forth between two clean containers will reaerate the water and freshen the taste.
- Water can be disinfected with household chlorine bleach (unscented) by applying 10 drops of bleach per gallon of water. Allow at least 4 hours of contact time before drinking. Avoid attempting to disinfect turbid or cloudy water.
- A portable water filtration/purification unit (available at camping or backpacking stores) can be used to prepare small amounts of drinking water. These rely on a hand-operated pump to force the water through a filter (typically less than one quart per minute). Be sure that the unit will remove microorganisms down to 0.3 microns in size. Carefully follow the filter manufacturer's instructions.

For information or assistance on this publication, please contact the Office of Drinking Water and Municipal Assistance, through the DEQ's Environmental Assistance Center at 800-662-9278. This publication is available in alternative formats upon request.